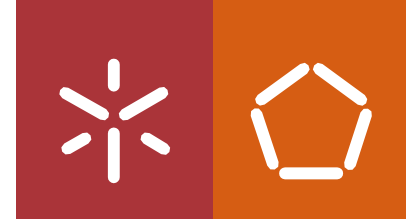




Mecanismos de Coordenação em Governação Colaborativa: revisão de literatura e exploração de ferramentas de análise automática de conteúdo

Ricardo Filipe da Silva Ribeiro

UMinho | 2024



Universidade do Minho
Escola de Engenharia

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Dissertação de Mestrado

Mestrado em Engenharia e Gestão de Sistemas de Informação
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Trabalho efetuado sob a orientação de

Professor Doutor João Álvaro Carvalho
Doutor Erico Przybilovicz

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A todos,
O meu enorme obrigado.

DECLARAÇÃO DE INTEGRIDADE

Declaro ter atuado com integridade na elaboração do presente trabalho académico e confirmo que não recorri à prática de plágio, nem a qualquer forma de utilização indevida ou falsificação de informações ou resultados em nenhuma das etapas conducente à sua elaboração.

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RESUMO

Mecanismos de Coordenação em Governança Colaborativa: revisão de literatura e exploração de ferramentas de análise automática de conteúdo

O presente trabalho tem como objetivo realizar uma análise de conteúdo de um conjunto de artigos considerados relevantes para um projeto em desenvolvimento na UNU-EGOV, o projeto GovMo, que visa estudar a colaboração e coordenação no contexto do governo eletrônico (e-Gov). Este estudo concentra-se exclusivamente na coordenação. Por outro lado, este documento também tem como intuito avaliar a exequibilidade do uso de ferramentas de análise automática de conteúdo para efeitos de análise de conteúdo de artigos.

Foi realizada uma revisão de literatura sobre conceitos ligados à coordenação, aos mecanismos de coordenação, ao e-Gov e aos mecanismos de coordenação nesse contexto, de forma a contextualizar o tema abordado neste estudo. Também foram diferenciados os conceitos de análise de conteúdo e análise automática de conteúdo, apresentando exemplos de ferramentas que podem ser usadas para cada tipo de análise e destacando as suas diferenças.

Posteriormente, foi feita a análise de conteúdo dos artigos pertinentes para o projeto, seguindo um protocolo previamente definido. Foram analisados 11 artigos, a maioria dos quais consiste em revisões de literatura e estudos de caso, publicados entre 2002 e 2022. Estes artigos concentram-se principalmente em países ou regiões da Europa e Ásia, abordando temas relacionados com a implementação de práticas de coordenação no e-Gov ou à implementação do próprio governo eletrônico. Com base no protocolo definido, foram criados e ajustados prompts para serem aplicados nas ferramentas de análise automática de conteúdo selecionadas para o estudo, o ChatGPT-4o e o ChatPDF. Após submeter os prompts às ferramentas de análise de conteúdo automatizada, os resultados de ambas as ferramentas foram comparados. Essa comparação revelou um elevado grau de similaridade entre as respostas, dado que ambas utilizam um modelo GPT desenvolvido pela OpenAI. De seguida, foram comparados os resultados das análises de conteúdo feitas de maneira tradicional e automática. A comparação revelou um baixo grau de similaridade entre os dois tipos de análise. Perante isso, concluiu-se que as ferramentas de análise automática de conteúdo não são adequadas para uma análise completa dos artigos sem a supervisão do investigador, devendo ser consideradas apenas como suporte para a análise detalhada, e não como substitutas de uma leitura integral.

Palavras-chave: Análise de conteúdo; Coordenação; e-Gov; Ferramentas de análise automática de conteúdo.

ABSTRACT

Coordination Mechanisms in Collaborative Governance: literature review and exploration of automatic content analysis tools

The present work aims to perform a content analysis of a set of articles considered relevant to a project under development at UNU-EGOV, the GovMo project, which aims to study collaboration and coordination in the context of electronic government (e-Gov). This study focuses exclusively on coordination. On the other hand, this document also aims to evaluate the feasibility of using automatic content analysis tools for the purpose of analyzing the content of articles.

A literature review was carried out on concepts related to coordination, coordination mechanisms, e-Gov and coordination mechanisms in this context, to contextualize the topic addressed in this study. The concepts of content analysis and automatic content analysis were also differentiated, presenting examples of tools that can be used for each type of analysis and highlighting their differences.

Subsequently, the content analysis of the articles relevant to the project was performed, following a previously defined protocol. Eleven articles were analyzed, most of which consist of literature reviews and case studies, published between 2002 and 2022. These articles focus mainly on countries or regions in Europe and Asia, addressing topics related to the implementation of coordination practices in e-Gov or the implementation of e-Government itself.

Based on the defined protocol, prompts were created and adjusted to be applied in the automatic content analysis tools selected for the study, ChatGPT-4o and ChatPDF. After submitting the prompts to the automated content analysis tools, the results of both tools were compared. This comparison revealed a high degree of similarity between the responses, since both use a GPT model developed by OpenAI. Next, the results of the traditional and automatic content analyses were compared. The comparison revealed a low degree of similarity between the two types of analysis. In view of this, it was concluded that automatic content analysis tools are not suitable for a complete analysis of articles without the supervision of the researcher and should be considered only as support for detailed analysis, and not as a substitute for a full reading.

Keywords: Automatic content analysis tools; Content analysis; Coordination; e-Gov.

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LISTA DE ABREVIATURAS E SIGLAS

API	Application Programming Interface
e-Gov	Electronic Government
GovMo	Governance Models for Collaboration and Coordination in Public Sector Digital Transformation
GPT	Generative Pre-trained Transformer
G2G	Government-to-Government
HTM	Hierarchy-type Mechanisms
ICT	Information and Communications Technology
IT	Information Technologies
KPIs	Key Performance Indicator
LDA	Latent Dirichlet Allocation
LSI	Latent Semantic Indexing
MTM	Market-type Mechanisms
NGOs	Non-Governmental Organizations
NPG	New Public Governance
NPM	New Public Management
NTM	Network-type Mechanisms
SDGs	Sustainable Development Goals
TI	Tecnologias de Informação
UN-DESA	United Nations Department of Economic and Social Affairs
UNU-EGOV	United Nations University Operating Unit on Policy-Driven Electronic Governance

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1. INTRODUÇÃO

Esta dissertação foca nos mecanismos de coordenação suscetíveis de utilização em e-Gov ou em iniciativas de e-Gov.

De referir que, neste trabalho, o acrónimo e-Gov é utilizado para se referir a e-Government e a e-Governance.

1.1 Enquadramento

O trabalho realizado enquadra-se num projeto em curso na UNU-EGOV - (United Nations University Operating Unit on Policy-Driven Electronic Governance), que visa estudar a coordenação e a colaboração no contexto da governação eletrónica (e-Gov) - o projeto GovMo: Governance Models for Collaboration and Coordination in Public Sector Digital Transformation.

Este trabalho, foca na coordenação e nos seus mecanismos no contexto do e-Gov.

O projeto teve início em abril de 2023, estudo ainda numa fase inicial, que contemplou a realização de uma pesquisa bibliográfica permitindo identificar os artigos considerados relevantes para o projeto. Além disso, o projeto também contempla um protocolo de análise previamente estabelecido e que deve ser seguido para a análise de todos os artigos.

O trabalho a realizar envolve uma análise de conteúdo de um subconjunto desses artigos e uma avaliação da viabilidade do uso de ferramentas de análise automática de conteúdo para este fim.

1.2 Objetivos e descrição do trabalho realizado

Os objetivos do trabalho envolvem:

1. Realizar a análise de conteúdo dos artigos selecionados utilizando um protocolo de análise definido no âmbito do projeto GovMo.
2. Avaliar a exequibilidade do uso de ferramentas de análise automática de conteúdo, baseadas em Inteligência Artificial generativa, para efeito da análise de conteúdo.

O trabalho resultou na elaboração de dois relatórios, com resultados “independentes” que apresentarão os resultados obtidos, alinhados com os objetivos estabelecidos. O primeiro relatório contribuirá

diretamente para os resultados do projeto GovMo, enquanto o segundo avaliará a exequibilidade da utilização de ferramentas automáticas de análise de conteúdo em outros artigos relevantes para o projeto. Assim, o primeiro relatório irá apresentar principais os resultados das análises de conteúdo de um subconjunto dos artigos que foram considerados relevantes para o projeto, seguindo o protocolo previamente definido. Já no segundo relatório, o protocolo será convertido em prompts que serão submetidos a ferramentas de análise automática de conteúdo e são comparados os resultados da análise de conteúdo com os resultados obtidos através das ferramentas de análise automatizadas, com o objetivo de avaliar a viabilidade da utilização dessas ferramentas na análise de conteúdo.

1.3 Estrutura da dissertação

Este documento encontra-se dividido em nove capítulos. Após esta introdução, o restante documento está estruturado da seguinte forma:

O Capítulo 2 descreve o projeto associado a esta dissertação, destacando os objetivos e os pacotes de trabalho (*work packages*) correspondentes. Além disso, é discutido o âmbito desta dissertação, especificando o *work package* no qual o trabalho se enquadra e é detalhado o trabalho que foi elaborado. São também apresentados os artigos considerados relevantes para o projeto, assim como os objetivos da dissertação e as atividades realizadas ao longo processo.

No terceiro capítulo, são abordados os conceitos de coordenação e os diferentes mecanismos associados, introduzindo ainda alguns mecanismos identificados durante a investigação. A par disso, são discutidos os conceitos de e-Gov e mecanismos de coordenação no contexto do governo eletrónico.

No quarto capítulo são explorados os conceitos de análise de conteúdo e análise automática de conteúdo, caracterizando algumas ferramentas que podem ser utilizadas para cada tipo de análise. São também mencionadas as ferramentas de análise automática de conteúdo selecionadas para avaliar a sua viabilidade na análise de conteúdo, acompanhadas das razões que justificam essas escolhas.

O Capítulo 5 apresenta e detalha as diversas variáveis que compõem o protocolo de análise dos artigos, desenvolvido previamente para o projeto. Além disso, descreve o processo utilizado para obter os resultados de análise automatizada dos artigos e apresenta comentários dos resultados obtidos das análises de conteúdo realizadas.

No sexto capítulo, são apresentados os prompts que serão utilizados nas ferramentas de análise automática de conteúdo. Também é descrito o processo de refinamento ou aperfeiçoamento dos prompts

até estarem prontos para serem submetidos às ferramentas de análise automática de conteúdo, bem como o processo seguido para a obtenção dos resultados da análise automatizada.

O Capítulo 7 apresenta uma comparação entre os resultados obtidos das duas ferramentas de análise automática de conteúdo. Além disso, compara os resultados das análises de conteúdo realizadas de forma tradicional com aqueles obtidos pelas ferramentas automáticas.

Por fim, o último capítulo apresenta as considerações finais do trabalho e oferece sugestões para trabalhos futuros.

2. ÂMBITO DA DISSERTAÇÃO

Neste capítulo, é apresentado o projeto em que esta dissertação se enquadra, abordando os seus objetivos e os pacotes de trabalho (*work packages*). Em seguida, é feito o enquadramento desta dissertação e são mencionados os artigos considerados relevantes para o desenvolvimento deste trabalho. Além disso, são expostos os objetivos traçados para a dissertação e as atividades a serem realizadas para alcançar esses objetivos.

2.1 O Projeto GovMo

O projeto GovMo: Governance Models for Collaboration and Coordination in Public Sector Digital Transformation¹ é uma iniciativa da UNU-EGOV² que visa estudar a coordenação e colaboração na governação eletrónica (e-Gov).

A motivação deste projeto vem de estudos anteriores revelarem que a coordenação e colaboração são essenciais para o sucesso da transformação digital (de Vries et al., 2016; Eynon & Margetts, 2007; Meijer, 2015). Desde o final da década de 1990, a coordenação e a colaboração têm sido áreas de objeto de investigação, muitas vezes associadas à fase do governo eletrónico e aos seus modelos de maturidade. No entanto, os estudos existentes têm sido alvo de debate por serem excessivamente sequenciais e desconectados na prática governamental real (Nielsen, 2020). As estruturas de coordenação e de colaboração inter e intragovernamentais são fundamentadas num conjunto de elementos essenciais, como mecanismos de decisão governamental, mudanças legislativas, definição de prioridades, procedimentos de coordenação, monitorização, avaliação, financiamento e análise de benefícios. Esses resultados podem ser influenciados por fatores contextuais e dependem do desenvolvimento de métodos eficazes para promover a colaboração e realizar atividades com o objetivo de atingir metas comuns (Torfing & Triantafillou, 2013).

A seleção de um modelo de governação adequado para facilitar a colaboração e a coordenação entre governos varia de acordo com o contexto específico, tornando-se, portanto, uma tarefa complexa. Independentemente da escolha do modelo de governação, é importante fundamentar essa decisão tendo

¹ <https://unu.edu/egov/project/governance-models-collaboration-and-coordination-public-sector-digital-transformation>, disponível em junho de 2024.

² <https://unu.edu/egov>.

em conta conhecimentos teóricos e práticos. Embora vários estudos de caso sejam uma fonte de percepções (*insights*) valiosas e fundamentais para conectar a teoria com a prática, é importante realçar que estes são baseados em situações específicas ou exemplos isolados e variam conforme os contextos. Dado o interesse crescente pelo e-Gov e a sua importância na promoção de um setor público inclusivo, sustentável e transparente, a necessidade de uma investigação centrada nos modelos de colaboração e coordenação é muito importante³.

A Figura 1 apresenta uma descrição do projeto GovMo contemplando os seguintes elementos: objetivos, pacotes de trabalho (*work packages*) e resultados (*outcomes*). Destacam-se os objetivos e os *work packages* do projeto (optou-se por manter o texto original em inglês para uma maior fidelidade ao original):

Objetivos⁴

- “Establish a contingency theory that expounds the situations and the conditions that favour the suitability of different governance models in public sector digital transformation at the national level that involve pursuing higher levels of digitalisation”.
- “Contributes to the UNU-EGOV Core Research Programme 2020-2024 by deepening na understanding of digital transformation and innovation processes for socio-economic development and digital inclusion and contributing to the 2030 Sustainable Development Goals”.
- “Develop insights pivotal to UNU-EGOV activities as a service-providing entity in the e-Governance domain, namely, to ground the production of recommendations regarding the design of eGovernance at the national level. In particular, the implications and impacts of established and emerging digital technologies on governance and regulations and policies as the primary governance instruments”.

Work Packages

A figura seguinte, resume a estrutura do projeto, dividida por quatro Work Packages (pacotes de trabalho)⁵.

³ GovMo Project Proposal, 2023 (Internal Document UNU-EGOV).

⁴ Idem.

⁵ Idem.

RESULT	Establish a contingency theory that expounds the situations and the conditions that favour the suitability of different collaboration/coordination models in public sector digital transformation at the national level that involve pursuing higher levels of digitalisation.								
WORK PACKAGES	WP1: Establishing background knowledge – a literature review. 1.1 Exploratory literature search and review. 1.2 Define the literature review protocol. 1.3 Conduct a literature review on government coordination and collaboration and indicators of the success of e-Governance outcomes. 1.4 Develop the initial contingency theories based on the literature.								
	WP2: Case studies. 2.1 Define the criteria for the case study selection. 2.2 Develop an operational protocol for the case studies. 2.3 Conduct the case studies (data collection) and start the analysis. 2.4 Launch an external call for case studies (carried out according to the protocol) to be published as an edited book.								
	WP3: Theory and policy building and evaluation 3.1 Cross-case comparison. 3.2 Evaluate, adjust, and refine the theory through its confrontation with cases and produce policy recommendations.								
	WP4: Communication and dissemination. 4.1 Elaborate a set of policy recommendations, best practices and a synthesised model of coordination/collaboration models that facilitate the design and implementation of e-governance in countries. 4.2 Organise external workshops. 4.3 Develop an open knowledge repository								
<table><tr><th>OUTPUTS/DELIVERABLES</th><th>OUTCOMES</th><th>INDICATORS</th></tr><tr><td>WP1: 1 literature review protocol (internal) 1 report containing the result of the literature review. 1 journal article about the initial contingency theory based on the literature review. 1 policy brief or op-ed. WP2: 1 case study protocol (internal). 15 case studies and respective report(s). 15 digital transformation cases factsheets. 1 internal workshop to discuss the preliminary results. 1 edited book on case studies WP3: 1 external workshop to discuss the preliminary results. min. 5 academic articles in conferences, books, or journals. min. 3 cross-case comparative and meta-synthesis articles. min. 1 article on the final theoretical framework. 1 policy brief or op-ed. WP4: 1 policy recommendation report for practitioners. 5 external workshops on coordination and collaboration models for e-Governance</td><td>O1. Improvement of external project deliverables across the research lines. O2. Consolidation of UNU-EGOV's research track record and its position as a global think tank in e-governance.</td><td>I1. A contingency theory on government coordination and collaboration developed. I2. At least 15 case studies were conducted. I3. 15 digital transformation cases factsheets. I4. At least 5 academic articles published (conference/ chapter/journal). I5. A journal article on the final theoretical framework. I6. A policy recommendation published. I7. 6 external workshops organised.</td></tr></table>				OUTPUTS/DELIVERABLES	OUTCOMES	INDICATORS	WP1: 1 literature review protocol (internal) 1 report containing the result of the literature review. 1 journal article about the initial contingency theory based on the literature review. 1 policy brief or op-ed. WP2: 1 case study protocol (internal). 15 case studies and respective report(s). 15 digital transformation cases factsheets. 1 internal workshop to discuss the preliminary results. 1 edited book on case studies WP3: 1 external workshop to discuss the preliminary results. min. 5 academic articles in conferences, books, or journals. min. 3 cross-case comparative and meta-synthesis articles. min. 1 article on the final theoretical framework. 1 policy brief or op-ed. WP4: 1 policy recommendation report for practitioners. 5 external workshops on coordination and collaboration models for e-Governance	O1. Improvement of external project deliverables across the research lines. O2. Consolidation of UNU-EGOV's research track record and its position as a global think tank in e-governance.	I1. A contingency theory on government coordination and collaboration developed. I2. At least 15 case studies were conducted. I3. 15 digital transformation cases factsheets. I4. At least 5 academic articles published (conference/ chapter/journal). I5. A journal article on the final theoretical framework. I6. A policy recommendation published. I7. 6 external workshops organised.
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Figura 1: Estrutura do Projeto GovMo
Fonte: (GovMo Project Proposal, 2023)

2.2 Enquadramento da dissertação

O trabalho desta dissertação enquadra-se no projeto GovMo, mais concretamente numa atividade do Work Package 1 (*Establishing background knowledge - a literature review*), nomeadamente a atividade 1.3 *Conduct a literature review on government coordination and collaboration and indicators of the success of eGovernance outcomes*. No entanto, a realização do trabalho obrigou a rever a atividade 1.2 *Define the literature review protocol*, no sentido de clarificar o protocolo da revisão de literatura e da correspondente análise de conteúdo.

É importante referir que este trabalho foca apenas na coordenação, não abordando, portanto, a colaboração.

2.3 Artigos considerados relevantes para o projeto

Previamente ao início do trabalho reportado nesta dissertação, foi realizada uma pesquisa bibliográfica (Atividade 1.1, do Work Package 1 - ver figura 1), permitindo identificar artigos considerados relevantes para o projeto, que serão apresentados de seguida:

- Bonduki, M., & Cunha, M. A. (2022). Coordination of the Digital Transformation of Governments in Federalist Context: Hierarchy, Markets and Network-Based Instruments' Effects on Subnational Governments' digital service delivery. In Proceedings of the 15th International Conference on Theory and Practice of Electronic Governance (pp. 528-533).
- Nikraftar, T., & Shokri, R. (2014). Dominant discourse about important barriers to promoting coordination in Iranian government machinery. *Transforming Government: People, Process and Policy*, 8(3), 357-373.
- Sta, H. B. (2018). Organisational structure for the e-government coordination and interoperability framework: a case study of Tunisia. *Electronic Government, an International Journal*, 14(1), 51-77.
- Nurdin, N., Stockdale, R., & Scheepers, H. (2014). Coordination and cooperation in e-government: An Indonesian local e-government case. *The Electronic Journal of Information Systems in Developing Countries*, 61(1), 1-21.
- Špaček, D. (2014). Coordination of and through E-Government: The Case of the Czech Republic. *NISPAcee Journal of Public Administration and Policy*, 7(1), 83-106.
- Meng, Q. (2011, August). An immune-neuroendocrine-inspired artificial homeostatic security-coordination model for E-Government system. In 2011 2nd International Conference on

Artificial Intelligence, Management Science and Electronic Commerce (AIMSEC) (pp. 6960-6963). IEEE.

- Ma, H., Li, J. (2005, October). E-Government coordination system base on service-oriented workflow technology. International Symposium on Computer Science and Technology, ISCST 2005 (pp. 514-521).
- Iyer, L. S., Singh, R., Salam, A. F., & D'Aubeterre, F. (2006). Knowledge management for Government-to-Government (G2G) process coordination. *Electronic Government, an International Journal*, 3(1), 18-35.
- Gao, X., Song, Y., & Zhu, X. (2013). Integration and coordination: Advancing China's fragmented e-government to holistic governance. *Government Information Quarterly*, 30(2), 173-181.
- Qunli, W., Hong, Z., & Xue, T. (2009, May). The Problems of Unification and Coordination in the Development of E-Government in China. In 2009 International Forum on Information Technology and Applications (Vol. 3, pp. 538-540). IEEE.
- Berce, J., Bianchi, A., Centeno, C., Osimo, D., Millard, J., & Shahin, J. (2006). The Organisation and Coordination of European e-Government Research for the EU in 2010. In *Electronic Government: 5th International Conference, EGOV 2006, Kraków, Poland, September 4-8, 2006. Proceedings 5* (pp. 37-46). Springer Berlin Heidelberg.
- Reggi, L., & Ricci, C. A. (2014). The role of public companies in the coordination of e-government regional policies. *Economia e Politica Industriale* 41(3), 159-177.
- Wang, J., Gan, R., Ju, Y. (2009). Norm-based negotiation and coordination in E-government systems. 11th International Conference on Informatics and Semiotics in Organisations - Information Systems in the Changing Era: Theory and Practice, ICISO 2009 (pp. 521-528).
- Mercier, D. (2007). Impact of ubiquitous e-Government in the coordination of municipal activities. 3rd International Conference on e-Government, ICEG 2007 (pp. 151-160).
- Organ, J. (2003). The coordination of e-government in historical context. *Public policy and administration*, 18(2), 21-36.
- Imai, H., Nakagawa, K. (2004). Coordination problems in e-government. International Conference on Politics and Information Systems: Technologies and Applications (Vol. 2, pp. 60-65).

2.4 Objetivos da dissertação

Em conformidade com o projeto Gov-Mo, foram definidos os seguintes objetivos:

1. Realizar a análise de conteúdo (Atividade 1.3, do Work Package 1 - ver figura 1) dos artigos selecionados (Atividade 1.1, do Work Package 1 - ver figura 1) utilizando o protocolo de análise previamente criado (Atividade 1.2, do Work Package 1 - ver figura 1).
2. Avaliar a exequibilidade do uso de ferramentas de análise automática de conteúdo, baseadas em Inteligência Artificial generativa, para efeito da análise de conteúdo referida no ponto anterior.

2.5 Atividades

As atividades realizadas ao longo desta dissertação apresentam-se abaixo organizadas de acordo com os objetivos, que serão descritos a seguir:

1. Análise de conteúdo dos artigos selecionados
 - 1.1 Obter os artigos selecionados.
 - 1.2 Fazer a análise de conteúdo, aplicando o protocolo já definido.
2. Avaliar a exequibilidade do uso de ferramentas de análise automática de conteúdo
 - 2.1 Identificar, caracterizar e comparar ferramentas de análise automática de conteúdo.
 - 2.2 Selecionar ferramentas a utilizar.
 - 2.3 Definir os prompts com base no protocolo.
 - 2.4 Aplicar os prompts às ferramentas selecionadas.
 - 2.5 Comparar os resultados obtidos com as ferramentas de análise automática com os resultados obtidos anteriormente (Atividade 1.2).

3. COORDENAÇÃO EM E-GOV

Este capítulo tem como objetivo explicar o conceito de coordenação, os mecanismos envolvidos nesse processo e destacar diferentes métodos de coordenação. Além disso, é definido o conceito de e-Gov e é abordada a coordenação dentro desse contexto.

3.1 Coordenação

De acordo com Malone e Crowston (1994), coordenação é definida como a “gestão de dependências entre atividades”. Esta definição está de acordo com a ideia de que, na ausência de interdependências, não há necessidade de coordenação. Para além disso, está de acordo com uma longa tradição na teoria organizacional que destaca a importância da interdependência. É importante realçar que a coordenação, conforme definida, pode ocorrer em vários tipos de entidades, tais como, seres vivos, incluindo humanos, empresas e outras organizações e também em artefactos computacionais. Ela torna-se essencial quando a ação de duas ou mais entidades se tornam interdependentes e precisam de interagir para atingir metas, sendo fundamental a integração de esforços independentes para alcançar objetivos comuns. Por isso, as pessoas ou as equipas de trabalho devem partilhar recursos, skills e conhecimentos para executar tarefas complexas e alcançar objetivos coletivos.

Por outro lado, a coordenação segundo Balta e Krcmar (2018) é vista como um conceito fundamental no design organizacional e na estruturação do trabalho, sendo estudada em diferentes níveis, como o individual, comunitário e em várias disciplinas, incluindo sistemas de informação, gestão e governação eletrónica.

A coordenação, seja através de estruturas hierárquicas formais ou relações informais, desempenha um papel essencial ao unir pessoas de diferentes níveis e partes de uma organização para a realização de tarefas coletivas. Este processo permite a harmonia no trabalho, uma vez que, as pessoas colaboram de acordo com seus papéis e posições na organização, enfrentando tarefas que envolvem a definição de metas, a transferência dessas metas para atividades, a designação de tarefas e a gestão das relações entre elas. Por isso, o papel da coordenação passa por garantir que as várias equipas de trabalho atuem de maneira intencional, consistente e sincronizada para alcançar os objetivos com eficiência, evitando redundâncias na resolução de problemas (Nurdin et al., 2014).

Uma das possibilidades mais interessantes do estudo da coordenação é a capacidade de identificar e analisar sistematicamente uma vasta gama de dependências e os processos de coordenação associados (Morales-Arroyo et al., 2012).

Segundo Christensen e Lægreid (2008), a coordenação pode assumir várias formas, incluindo coordenação horizontal interna, coordenação horizontal externa, coordenação vertical interna e coordenação vertical externa.

A coordenação vertical e horizontal, tanto interna como externa, são conceitos frequentemente utilizados em contextos organizacionais e empresariais para descrever diferentes formas de alinhamento e interação entre diferentes unidades ou entidades (Nurdin et al., 2014). A dimensão vertical da coordenação é mais hierárquica, enquanto a coordenação horizontal é mais baseada em rede (Verhoest & Bouckaert, 2005).

A coordenação vertical interna refere-se à coordenação entre diferentes níveis hierárquicos dentro de uma organização. Por exemplo, a coordenação entre os líderes políticos e administrativos para fortalecer a coordenação e o controlo dos níveis ou unidades subordinadas no próprio setor ou área política. Em contrapartida, a coordenação vertical externa trata-se da coordenação entre diferentes organizações ou entidades em diferentes níveis hierárquicos, podendo referir-se principalmente à coordenação com organizações supranacionais e multinacionais, como a União Europeia, onde a Noruega e o seu serviço civil central estão numa posição subordinada. Quanto à coordenação horizontal interna, esta refere-se à coordenação entre unidades ou departamentos do mesmo nível hierárquico, ou seja, é a coordenação dentro do governo central entre ministérios e agências, por exemplo. Por outro lado, a coordenação horizontal externa é a coordenação entre organizações ou entidades externas que estão no mesmo nível hierárquico. Por exemplo, a colaboração entre duas empresas concorrentes numa parceria estratégica (Christensen & Lægreid, 2008). Na figura 2, são sintetizadas as várias formas que a coordenação pode assumir.

Essas diferentes formas de coordenação são essenciais para compreender os desafios de coordenação num sistema multinível (Nurdin et al., 2014).

	Coordenação Horizontal	Coordenação Vertical
Coordenação Interna	Coordenação entre diferentes ministérios, agências ou setores políticos.	Coordenação entre um ministério e as agências e órgãos subordinados do mesmo setor.
Coordenação Externa	Coordenação com organizações da sociedade civil/organizações de interesse do setor privado.	Coordenação ascendente para organizações internacionais ou, descendentemente para o governo local.

Figura 2: Formas de coordenação
Fonte: Adaptado de Christensen e Lægreid (2008)

Metcalfe (1994) propõe uma escala de coordenação (ver figura 3) que é descrita como um método de comparação das capacidades de coordenação, tendo esta como principal foco as capacidades de gestão necessárias para a coordenação. Esta escala classifica os diferentes níveis de complexidade e interação entre entidades governamentais, servindo como um modelo para estudar como os governos e as organizações coordenam as suas políticas e ações em contextos com várias partes envolvidas. Por isso, a escala vai desde uma autonomia máxima, com pouca ou nenhuma coordenação, até a um nível de coordenação total.

Posto isto, as etapas que constituem esta escala, vai desde uma comunicação mínima entre entidades governamentais, passando por um aumento de troca de informações, consultas recíprocas, até à harmonização e total integração de políticas, com o desenvolvimento de soluções conjuntas. Por outro lado, Metcalfe sugere que cada nível da escala proposta representa um maior grau de coordenação e cooperação, fundamental para enfrentar questões que transcendem os limites das jurisdições e requerem abordagens colaborativas.

Estas abordagens são, por isso, particularmente relevantes em contextos de políticas públicas internacionais e reformas de gestão pública, onde a necessidade de uma coordenação eficaz é essencial para enfrentar desafios ou problemas globais complexos.



Figura 3: Escala de coordenação
Fonte: Adaptado de Metcalfe (1994)

3.2 Mecanismos de coordenação

O propósito deste capítulo de dissertação não é realizar uma síntese dos mecanismos de coordenação, mas apenas identificar conceitos essenciais relacionados com a coordenação.

De acordo com Morales-Arroyo e colegas (2012), em situações de interdependência, existem quatro mecanismos de coordenação, sendo eles: a padronização, o planeamento, os ajustes mútuos e as convenções sociais.

A padronização (*“standardization”*) é utilizada em situações de interdependência conjunta (*“pooled interdependence”*), envolvendo a criação de procedimentos e regulamentos que alinhem os atos de cada parte em caminhos incontestáveis com os utilizados por cada membro. As normas e rotinas estabelecidas devem ser estáveis e aplicáveis em situações que sejam razoavelmente regulares e persistentes. A quantidade de normas e rotinas deve ser pequena para que possam ser ajustadas adequadamente às circunstâncias em que são aplicadas. A padronização é frequentemente utilizada na gestão de projetos.

Nos casos de interdependência sequencial (*“sequential interdependence”*), a coordenação é alcançada através do planeamento (*“planning”*), envolvendo a criação de cronogramas e o uso de técnicas de controlo para gerir as ações das partes interdependentes. Esta forma de coordenação é mais adequada para situações dinâmicas, como a organização de atividades num projeto.

A coordenação por ajustes mútuos⁶ ocorre em situações de interdependência recíproca (*“reciprocal interdependence”*). Este tipo de coordenação envolve a criação de novas informações ao longo do processo de interação. Quanto mais imprevisíveis e variáveis forem as condições, maior será a dependência desse tipo de coordenação. Por isso, à medida que a coordenação se torna mais complexa, o processo de tomada de decisão, os custos e a necessidade de comunicação também aumentam em complexidade. Na gestão de projetos, a coordenação por ajustes mútuos pode levar a atrasos, uma vez que, as atividades não podem ser realizadas até que um consenso seja alcançado.

No que toca à interdependência social (*“social interdependence”*), esta é coordenada através de convenções sociais (*“social conventions”*). Uma convenção social é um comportamento confiável que a maioria dos membros de uma comunidade adota para resolver um problema específico, sendo frequentemente invisíveis, baseadas na confiança e difíceis de alterar.

De maneira a clarificar os mecanismos de coordenação identificados por Morales-Arroyo e colegas (2012), é apresentada a figura seguinte:

Mecanismos de coordenação	Designação	Interdependência subjacente
Padronização	Criação de procedimentos e regulamentos que alinhem os atos de cada parte em caminhos incontestáveis com os utilizados por cada membro.	Interdependência conjunta
Planeamento	Criação de cronogramas e o uso de técnicas de controlo para gerir as ações das partes interdependentes.	Interdependência sequencial
Ajustes mútuos	Criação de novas informações ao longo do processo de interação.	Interdependência recíproca
Convenções sociais	Comportamento confiável que a maioria dos membros de uma comunidade adota para resolver um problema específico.	Interdependência social

Figura 4: Mecanismos de coordenação (Morales-Arroyo et al., 2012)

Por outro lado, Malone e Crowston (1994) identificam quatro mecanismos de coordenação sendo eles: a gestão de recursos partilhados (*“Managing Shared Resources”*), a gestão de relações ente produtor e consumidor (*“Managing Producer/Consumer Relationships”*), a gestão de restrições de simultaneidade (*“Managing Simultaneity Constraints”*) e a gestão de dependências de tarefas/subtarefas (*“Managing Task/Subtask Dependencies”*).

⁶ Os autores Morales-Arroyo e colegas (2012) usam indistintamente os conceitos de coordenação por ajustes recíprocos (*“reciprocated adjustments”*) e coordenação por ajustes mútuos (*“mutual adjustment”*).

A gestão de recursos partilhados ajuda a alocar recursos limitados, como por exemplo, dinheiro ou espaço de armazenamento, que são utilizados por várias atividades. A gestão de recursos partilhados é possivelmente o mecanismo mais amplamente estudado, tendo recebido uma atenção considerável em campos como a economia, a teoria organizacional e as ciências da computação. Este tipo de mecanismo pode ser gerido através de diversos processos de coordenação, tais como *“first come/first serve”*, ordem de prioridade, orçamentos, decisões de gestão e concursos semelhantes aos do mercado. Por exemplo, se três trabalhadores de uma oficina precisarem de utilizar a mesma máquina, podem adotar um processo simples de *“first come/first serve”*. Alternativamente, poderiam utilizar um sistema de orçamento, com horários predefinidos para cada trabalhador, ou um gestor poderia decidir explicitamente o que fazer quando dois trabalhadores quisessem usar a máquina simultaneamente. Em alguns casos, eles poderiam até licitar (*“bid”*) pelo uso da máquina, e a pessoa disposta a pagar mais teria prioridade.

A gestão de relações entre o produtor e o consumidor é um mecanismo de coordenação empregue quando uma atividade gera um resultado essencial para a outra, estabelecendo uma relação de produtor e consumidor, sendo esta dinâmica comum em processos de fabricação, onde a produção de uma etapa na linha de montagem é necessária como entrada para a etapa seguinte.

Por outro lado, a gestão de restrições de simultaneidade é aplicada quando várias atividades devem ser realizadas ao mesmo tempo, mas algumas não podem ocorrer simultaneamente, por exemplo, num sistema de processamento paralelo, várias tarefas podem ser executadas ao mesmo tempo, mas algumas precisam de aguardar pela conclusão de outras antes de serem iniciadas.

No que diz respeito ao mecanismo de coordenação da gestão de dependências de tarefas/subtarefas, este ajuda a organizar e coordenar a execução de tarefas que dependem umas das outras.

A figura 5, sintetiza os mecanismos de coordenação apresentados por Malone e Crowston (1994).

Mecanismos de coordenação	Designação
Gestão de recursos partilhados	Ajuda a alocar recursos limitados que são utilizados por várias atividades.
Gestão de relações entre produtor e consumidor	Empregue quando uma atividade gera um resultado essencial para a outra.
Gestão de restrições de simultaneidade	Aplicado quando várias atividades devem ser realizadas ao mesmo tempo, mas algumas não podem ocorrer simultaneamente.
Gestão de dependências de tarefas/subtarefas	Ajuda a organizar e coordenar tarefas que dependem umas das outras.

Figura 5: Mecanismos de coordenação (Malone & Crowston, 1994)

Os mecanismos de coordenação podem abranger métodos de administração estratégica, administração financeira, gestão cultural, assim como o estabelecimento de novas estruturas e formatos institucionais no governo para sincronizar as ações de entidades distintas, podendo esses mecanismos ser classificados em diferentes categorias, como mecanismos de tipo hierárquico (HTM), mecanismos de tipo mercado (MTM) e mecanismos de tipo rede (NTM), cada um apresentando características de coordenação diferentes, como autoridade, influência, negociação, informação e padrões (Peters, 1998; Verhoest et al., 2007; Verhoest & Bouckaert, 2005).

A coordenação através do mecanismo *Hierarchy-type Mechanisms (HTM)* refere-se a um conjunto de mecanismos de coordenação baseados em autoridade e poder como recursos da capacidade de coordenação, implicando a definição de objetivos, a elaboração de regras, a atribuição de tarefas e responsabilidades e o estabelecimento de linhas de controlo direto e responsabilização.

O mecanismo de coordenação *Network-type Mechanisms (NTM)* baseia-se na interdependência e na confiança mútua, procurando estabelecer conhecimentos, valores e estratégias comuns entre parceiros. Apesar de a maioria das redes cooperativas surgirem de forma espontânea entre organizações, os governos podem criar, assumir e sustentar estruturas semelhantes a redes entre organizações, como por exemplo, a criação de sistemas de informação comuns, estruturas coletivas de tomada de decisão ou organizações com parcerias comuns. Em suma, este mecanismo de coordenação envolve a colaboração e cooperação entre diferentes organizações e partes interessadas, estabelecendo redes de comunicação e interação para atingir metas comuns.

Em relação ao mecanismo de coordenação *Market-type Mechanisms (MTM)*, este opera com base na competição e na interação entre intervenientes, com o propósito de fomentar estímulos ao desempenho. Embora os mercados promovam uma coordenação espontânea entre os seus participantes, os governos

têm a capacidade de criar e salvaguardar deliberadamente mercados, com o intuito de impulsionar a coordenação através da concorrência entre organizações. Assim sendo, nesta situação, a coordenação é conseguida através de mecanismos de mercado, como a rivalidade ou competição entre diversas entidades públicas na prestação de serviços de maneira mais eficaz e eficiente.

Na figura 6 resumem-se os mecanismos de coordenação descritos por Verhoest e colegas (2007).

Instrumentos de gestão	Mecanismo subjacente
1. Gestão estratégica (planeamento e avaliação)	NTM
Dependente do objetivo principal e do processo:	HTM
• 1.1 Gestão estratégica ascendente e interativa	NTM
• 1.2 Gestão estratégica descendente e unilateral	HTM
2. Gestão financeira (orçamento, contabilidade e auditoria)	HTM, MTM
Dependente do objetivo e foco:	NTM
• 2.1 Sistemas tradicionais de gestão financeira orientados para inputs	HTM
• 2.2 Sistemas de gestão financeira orientados para resultados com foco em incentivos para unidades	MTM
• 2.3 Sistemas de gestão financeira orientados para resultados focados na troca e consolidação de informações de acordo com carteiras de políticas	NTM
3. Cultura interorganizacional e gestão do conhecimento	Predominantemente NTM
4. Sistemas oficiais de consulta ou revisão	

Instrumentos estruturais	Mecanismo subjacente
1. Reorganização de competências: Fusões ou separações organizacionais; centralização (descentralização)	Predominantemente HTM
2. Reorganização de linhas de controlo: Estabelecimento de uma função ou entidade específica de coordenação; linhas de controlo e funções de coordenação	Predominantemente HTM
5. Mercados regulados: mercados internos, quase-mercados, mercados de vouchers e mercado externo, concursos públicos competitivos	Predominantemente MTM
6. Sistemas para troca de informação	Predominantemente NTM
7. Órgãos de negociação e órgãos consultivos	Predominantemente NTM
8. Entidades para decisão coletiva	Predominantemente NTM
9. Organizações comuns (organização por parceria)	Predominantemente NTM (HTM)
10. Estruturas de gestão de cadeia	Predominantemente NTM

Figura 6: Mecanismos de coordenação (Verhoest et al., 2007)

Fonte: Adaptado de Verhoest e colegas (2007)

Por fim, Balta e Krcmar (2018) identificam três formas de implementação da coordenação: duas formas de coordenação explícita, denominadas de planeamento e feedback, e uma terceira forma, considerada complementar às primeiras, conhecida como coordenação tácita.

A coordenação por planeamento consiste em dividir as tarefas em módulos encapsulados e estabelecer interfaces entre eles. Este tipo de coordenação é utilizado em planos predefinidos, cronogramas, previsões, regras formalizadas e políticas, sendo adequado para ambientes estáveis com tarefas predefinidas.

Em relação à coordenação por feedback, esta refere-se a ajustes mútuos entre pessoas que acontecem à medida que novas informações surgem e é mais adequado a ambientes dinâmicos e inovadores.

A coordenação tácita envolve a ideia de que a coordenação acontece de forma implícita. Os mecanismos desta forma de implementação de coordenação criam ou aproveitam ações partilhadas (tácitas ou explícitas) de conhecimento. A troca de conhecimento é realizada através de vínculos e pode abranger toda a organização.

Diante disso, a figura 7 apresenta uma síntese dos mecanismos de coordenação discutidos pelos autores mencionados anteriormente.

Mecanismos de coordenação	Designação	Formas de implementação de coordenação
Planeamento	Criação de procedimentos e regulamentos que alinhem os atos de cada parte em caminhos incontestáveis com os utilizados por cada membro.	Coordenação explícita
Feedback	Criação de cronogramas e o uso de técnicas de controlo para gerir as ações das partes interdependentes.	Coordenação explícita
Coordenação tácita	Criação ou aproveitamento de ações partilhadas (tácitas ou explícitas) de conhecimento.	Coordenação considerada complementar

Figura 7: Mecanismos de coordenação (Balta & Krcmar, 2018)

Constata-se que diferentes autores usam perspectivas diferentes para estruturar ou classificar mecanismos de coordenação. De qualquer modo, todos se referem a formas de concretizar coordenação, ou seja, de lidar com as interdependências existentes em atividades ou em organizações.

3.3 E-Gov

Segundo Araujo (2022), atualmente, várias instituições e autores académicos sugerem diferentes definições para o conceito de e-Gov.

A Organização para a Cooperação e Desenvolvimento Económico (OCDE) define o e-Gov como a utilização de tecnologias de informação e comunicação, particularmente a Internet, com o propósito de alcançar uma melhor governação (OECD, 2003).

Já o *World Bank* caracteriza o e-Gov como o uso de tecnologias de informação por órgãos governamentais, como as redes de longa distância, Internet e computação móvel, que podem transformar as relações com os cidadãos, empresas e outras partes do governo (World Bank Group, 2016).

Embora estas duas definições sejam amplas, ambas indicam que e-Gov se refere principalmente à aplicação de tecnologias de informação no contexto governamental. Contudo, a definição de e-Government das Nações Unidas vai além disso.

Conforme o Departamento de Assuntos Económicos e Sociais das Nações Unidas (UN-DESA), o e-Gov é a utilização e aplicação das tecnologias de informação na administração pública para agilizar e integrar fluxos e processos de trabalho, gerir dados e informações de forma eficaz, melhorar a prestação de serviços públicos e ampliar os canais de comunicação para promover o envolvimento dos cidadãos (United Nations, 2014).

O conceito de e-Gov é mais amplo, envolvendo o uso de tecnologias de informação pelo setor público para aprimorar a comunicação e prestação de serviços, promover a participação cidadã no processo decisório e tornar os governos mais responsáveis, transparentes e eficazes⁷. Trata-se de um conceito amplo que não se limita ao que é geralmente conhecido como governo eletrónico (e-Government) (Bannister & Connolly, 2012). É “a utilização das TI para apoiar a execução das múltiplas atividades de governação dos Estados nas suas diferentes vertentes - Política, Administração e Sociedade” (Alarabiat et al., 2018), abrangendo o uso de TI para dar suporte a serviços públicos, administração governamental, processos democráticos e as interações entre cidadãos, sociedade civil, setor privado e o Estado. Trata-se da aplicação da tecnologia pelo governo para se transformar a si próprio e as suas interações com os cidadãos, gerando impacto na sociedade (Estevez & Janowski, 2013).

⁷ <http://vocabularies.unesco.org/thesaurus/concept17004>, disponível em agosto de 2024.

Posto isto, pode-se concluir que o e-Gov é a aplicação de tecnologias de informação para (Alarabiat et al., 2018; Mkude & Wimmer, 2013; Ojo & Janowski, 2011):

- Tornar o governo mais eficiente.
- Melhorar a prestação de serviços públicos.
- Aumentar a responsabilidade governamental.
- Fortalecer a relação entre cidadãos e as entidades do setor público.

3.4 Mecanismos de coordenação em e-Gov

A participação de diversos atores em organizações governamentais exige a capacidade de coordenar todos esses participantes. Essa coordenação entre atores são fundamentais para superar as limitações de recursos no desenvolvimento do governo eletrônico, possibilitando a partilha entre agências e estabelecendo regras para a gestão desses relacionamentos. Em contrapartida, a falta de coordenação pode impactar negativamente o desenvolvimento do governo eletrônico, levando a conflitos de objetivos e estratégias entre os agentes governamentais. Por outro lado, a coordenação inadequada ou a falta de coordenação pode resultar em falta de clareza na distribuição de tarefas e conflitos de interesses, prejudicando o sucesso da implementação. Assim sendo, a coordenação entre os vários agentes governamentais ou não governamentais pode garantir uma atuação coletiva coerente e incentivar a cooperação para assegurar a conclusão de tarefas interdependentes. Alternativamente, pode ser realizada com menos burocracia, onde a organização governamental atua como facilitadora da coordenação (Nurdin et al., 2014).

Segundo Organ, a coordenação no e-Gov é considerada um grande desafio que envolve a integração de sistemas TI e a harmonização de políticas e práticas entre diversos departamentos e agências governamentais. Historicamente, a coordenação de TI nos governos tem sido marcadas por ineficiências e incertezas, com várias tentativas de centralizar e padronizar o uso das tecnologias sem alcançar um sucesso duradouro (Organ, 2003).

Com a expansão dos serviços do governo eletrônico por diversas instituições governamentais heterogêneas, é importante uma gestão eficaz dos recursos de conhecimento e informação presentes nessas agências díspares. A integração do *Government-to-Government (G2G)* pode facilitar o fluxo transparente de informações e conhecimentos, possibilitando processos colaborativos dentro e entre instituições governamentais. Para alcançar uma coordenação dinâmica das atividades, as organizações devem considerar como as tecnologias emergentes podem ser usadas para o desenvolvimento de

sistemas de informação inteligentes e baseados em conhecimento que apoiem os processos empresariais tanto internos quanto interorganizacionais (entre organizações). A integração do G2G resulta em avanços fundamentais em tecnologias da web semântica, como ontologias, representação de conhecimento, sistemas multiagente e serviços web, para suportar o fluxo contínuo de informações e conhecimento, permitindo assim processos colaborativos entre agências governamentais. Assim sendo, estas tecnologias oferecem meios para que as organizações troquem informação de maneira significativa, o que é crucial para a coordenação eficaz dos processos G2G. A troca transparente de informação pode trazer benefícios substanciais, como maior satisfação, aumento da produtividade e resolução em tempo real de problemas e discrepâncias ao longo dos processos G2G (Iyer et al., 2006). Por outro lado, Estevez e colegas (2007) destacam a importância da coordenação centralizada para a implementação eficaz de iniciativas do e-Gov, uma vez que, a coordenação centralizada facilita a entrega de serviços focados no cliente e a reengenharia (reformulação) de processos administrativos, que frequentemente requer mudanças organizacionais significativas. Uma unidade de coordenação centralizada possui a autoridade necessária para promover e controlar essas mudanças, garantindo que os interesses particulares das agências governamentais não comprometam os objetivos gerais do governo. Sendo assim, os benefícios de uma coordenação centralizada para a implementação eficaz de iniciativas do e-Gov são os seguintes:

- Partilha de informações e boas práticas de coordenação.
- Aquisição eficiente de produtos e serviços de TI.
- Promoção da interoperabilidade e eficiência através de padrões e estruturas comuns.
- Redução dos esforços duplicados e a facilitação da colaboração entre agências governamentais.
- Incentivo à inovação e tomada de riscos em projetos de TI.

Em suma, conclui-se que a coordenação no contexto do e-Gov é essencial para garantir que os projetos sejam implementados de forma eficiente, minimizando conflitos e maximizando a utilização dos recursos disponíveis, promovendo a colaboração entre os atores governamentais e não governamentais, a clareza dos objetivos e a realização harmoniosa das tarefas essenciais para o sucesso dos projetos de e-Gov (Nurdin et al., 2014; Organ, 2003).

4. ANÁLISE DE CONTEÚDO

Este capítulo aborda os conceitos de análise de conteúdo e análise automática de conteúdo, sendo posteriormente mencionadas várias ferramentas que podem ser utilizadas para cada tipo de análise. Por último, são apresentadas as ferramentas selecionadas para a análise automática de conteúdo, juntamente com os motivos para as suas escolhas.

4.1 Atividade de análise de conteúdo

Análise de conteúdo é uma atividade de investigação que envolve *“analisar de forma sistemática um corpo de material textual, por forma a desvendar e quantificar a ocorrência de palavras/frases/temas considerados “chave” que possibilitem uma comparação posterior”* (Coutinho, 2014, p. 236).

Por outro lado, Bardin e colegas (2000) descrevem a análise de conteúdo como um “conjunto de técnicas de análise das comunicações visando obter, por procedimentos, sistemáticos e objetivos de descrição do conteúdo das mensagens, indicadores (quantificadores ou não) que permitam a inferência de conhecimentos relativos às condições de produção/receção (variáveis inferidas) destas mensagens”. Portanto, são consideradas análise de conteúdo todas as atividades que, a partir de um conjunto de técnicas parciais, mas complementares, explicam e sistematizam o conteúdo de textos e expressões. O objetivo desta abordagem é realizar inferências lógicas e justificadas, referentes à origem das mensagens tomadas em consideração (o emissor e o seu contexto, ou, eventualmente, os efeitos dessas mensagens).

Seguindo a mesma ideia, Krippendorff (2004) define a análise de conteúdo como uma técnica de pesquisa para fazer inferências replicáveis válidas de textos, dentro dos contextos em que são utilizados, ou seja, os investigadores trabalhando em diferentes momentos e possivelmente sob diferentes condições devem obter os mesmos resultados ao aplicar as mesmas técnicas nos mesmos dados. Trata-se de uma ferramenta de investigação que fornece novas percepções (*insights*), aprimora a compreensão do investigador sobre fenómenos específicos ou orienta ações práticas.

Para Weber (1990), a ideia central da análise de conteúdo é classificar as diversas palavras de um texto em categorias específicas, que podem incluir uma ou várias palavras. Presume-se que essas palavras ou unidades de texto colocadas na mesma categoria têm significados semelhantes, baseando-se no significado exato das palavras em conotações comuns. Para obter inferências válidas a partir do texto, é

importante que o procedimento de classificação seja consistente e que as variáveis criadas sejam válidas, isto é, que realmente representem o que o investigador deseja medir.

Weber apresenta alguns dos objetivos da análise de conteúdo como: identificar diferenças no conteúdo comunicativo; comparar diversos meios ou níveis de comunicação; verificar o conteúdo comunicativo em relação aos objetivos estabelecidos; codificar respostas abertas em pesquisas; discernir as intenções e outras características do comunicador; avaliar o estado psicológico de indivíduos ou grupos; detetar a presença de propaganda; refletir padrões culturais de grupos, instituições ou sociedades; revelar o foco de atenção de indivíduos, grupos, instituições ou da sociedade e, por fim, descrever tendências no conteúdo comunicativo. Adicionalmente, a análise de conteúdo apresenta diversas vantagens, uma vez que atua diretamente sobre textos ou transcrições de comunicações humanas, integrando operações qualitativas e quantitativas, podendo criar indicadores culturais a partir de séries documentais que podem-se estender por séculos. Outra vantagem é que a análise de conteúdo geralmente produz medidas não intrusivas, nas quais nem o emissor nem o recetor da mensagem estão cientes de que estão a ser analisados, minimizando a possibilidade de que o ato de medição altere os dados.

Segundo a ideia de Ole Holsti, a técnica de análise de conteúdo não se restringe ao domínio da análise textual, podendo ser aplicada a outras áreas como a codificação de desenhos feitos por alunos ou de ações observadas em estudos gravados em vídeo. No entanto, para garantir a replicabilidade, essa técnica só pode ser aplicada a dados que são de natureza durável (Stemler, 2001).

Além disso, existe uma vertente da análise de conteúdo que tem uma dimensão objetiva, sistemática e quantitativa para descrever o conteúdo de textos. É vista como uma maneira de quantificar o conteúdo dos textos, categorizando e contando a frequência de ocorrências de cada categoria (Ahuvia, 2001).

É comum considerar dois tipos de análise de conteúdo: um que envolve o uso de categorias predefinidas antes da análise em si, ou seja, existe à partida o que normalmente se chama o *codebook* e outra que não utiliza essas mesmas categorias, tendo por isso um carácter puramente exploratório. No primeiro caso, a análise está associada a uma estrutura teórica que a sustenta e à qual se refere, sendo por vezes designada de dedutiva. Já no segundo caso, “os resultados são devidos unicamente à metodologia de análise, estando isenta de qualquer referência a um quadro teórico preestabelecido” (Coutinho, 2014, p. 237; Fonteyn et al., 2008).

É importante salientar que, para este projeto, foi adotada a primeira abordagem, visto que, para a análise dos artigos foi seguido um protocolo previamente estabelecido, conforme detalhado no capítulo 5.1, o que implicou o uso de “categorias predefinidas” para a análise dos artigos.

4.1.1 Ferramentas de suporte à análise de conteúdo

Tal como qualquer outra atividade de processamento de informação, a análise de conteúdo pode ser suportada por ferramentas informáticas. Estas ferramentas começam por dar suporte ao armazenamento e visualização dos conteúdos, sejam eles texto, imagens, áudio, incluindo vídeos. Por outro lado, facilitam a pesquisa e localização de excertos desses conteúdos. No entanto, o suporte mais interessante está relacionado com o processo de codificação dos conteúdos associado à interpretação que deles é feito.

As ferramentas de suporte à análise de conteúdo permitem manter registo do livro de códigos (*codebook*) e a sua aplicação, associando códigos a excertos dos conteúdos em análise. No caso de codificação aberta, as ferramentas facilitam também a construção do livro de códigos.

Na sua configuração mais convencional são efetivamente ferramentas de suporte à análise de conteúdo na medida em que o responsável pela interpretação dos conteúdos é o analista.

No entanto, as ferramentas de suporte à análise de conteúdo têm vindo a alargar a gama de funcionalidades que disponibilizam, possibilitando que a associação de códigos a excertos dos conteúdos possa ser feita automaticamente, recorrendo a meios técnicos que poderão ser considerados como inteligência artificial.

A tabela 1 apresenta as ferramentas de suporte à análise de conteúdo consideradas neste estudo e que são objeto de comparação, com base nas suas funcionalidades, formatos suportados e tipos de planos de utilização⁸.

No Anexo I, são detalhadas as características de cada ferramenta de suporte à análise de conteúdo de forma mais específica. Essas informações foram obtidas através da utilização das ferramentas ou nas plataformas comerciais das mesmas durante os dias 21 e 30 de setembro de 2024.

⁸ <https://www.predictiveanalyticstoday.com/top-qualitative-data-analysis-software/> e <https://www.hotjar.com/qualitative-data-analysis/tools/>, disponível em agosto de 2024.

Tabela 1: Grelha comparativa das ferramentas de suporte à análise de conteúdo

	ATLAS.ti	Delve	MAXQDA	NVivo	Quirkos	Transana
Realiza análise de conteúdo	✓	✓	✓	✓	✓	✓
Realiza revisão de literatura	✓	✓	✓	✓	✓	✓
Realiza análise de entrevistas	✓	✓	✓	✓	✓	✓
Criação de nuvens de palavras	✓	×	✓	✓	×	✓
Criação de gráficos/redes de frequência de códigos	✓	×	✓	✓	×	✓
Download para Windows	✓	×	✓	✓	✓	✓
Download para macOS	✓	×	✓	✓	✓	✓
Disponibiliza versão Web	✓	✓	×	×	✓	×
Suporte ao formato áudio	✓	×	✓	✓	×	✓
Suporte ao formato imagem/foto	✓	×	✓	✓	×	✓
Suporte a formatos de redes sociais	✓	×	✓	✓	×	×
Suporte ao formato texto	✓	✓	✓	✓	✓	✓
Suporte ao formato vídeo	✓	×	✓	✓	×	✓
Oferta de um Plano Gratuito	✓	✓	✓	✓	✓	×
Oferta de um Plano Premium	✓	✓	✓	✓	✓	✓

Legenda:

✓ Sim.

× Não.

4.2 Análise automática de conteúdo

A história da análise automática de conteúdo remonta ao final da década de 1990, onde um dos primeiros modelos a explorar as propriedades estatísticas dos corpos de texto foi a *Latent Semantic Indexing (LSI)*, que foi proposto como um método de recuperação de informação capaz de captar a semântica subjacente a um corpo de texto usando técnicas de álgebra linear. Este modelo forneceu a base teórica para o campo da recuperação de informação, modelagem de tópicos e mapeamento

conceptual. No entanto, talvez o modelo mais influente e comum de ser utilizado seja a *Latent Dirichlet Allocation (LDA)*, um modelo projetado para inferir iterativamente os conceitos presentes num corpo de texto e a proporção da literatura em que eles ocorrem. Assim, o LDA representou um avanço em relação aos modelos anteriores ao descartar o pressuposto do “*bag-of-words*”, onde a ordem das palavras num documento não é importante e considera a permutabilidade de palavras específicas (Nunez-Mir et al., 2016).

Devido ao aumento da capacidade de processamento, aos avanços da *machine learning* e à disponibilidade de grandes corpos de textos, o uso de métodos computacionais, nomeadamente a análise automática de conteúdo, cresceu rapidamente. Este tipo de análise tem sido aplicada e desenvolvida em áreas como a ciência da computação, a linguística, a ciência política, a economia e, cada vez mais, nas ciências da comunicação (Oehmer-Pedrazzi et al., 2023).

A análise automática de conteúdo ou métodos “*text as data*”, refere-se a uma abordagem em que a análise de texto é, até certo ponto, realizada automaticamente por máquinas. Contrariamente à análise de conteúdo manual, o texto não é lido e entendido como um todo, mas são automaticamente decompostos em categorias. A complexidade dos textos é ainda mais reduzida ao convertê-los em números: os textos são frequentemente analisados com base na frequência de características distintas, como palavras únicas. Essas ferramentas utilizam a ocorrência dessas características como indicadores explícitos para inferir propriedades latentes dos textos, como a negatividade ou as emoções.

Seguindo a mesma ideia, Nunez-Mir e colegas (2016) descrevem a análise de conteúdo como um conjunto de ferramentas de *machine learning* para a síntese qualitativa e quantitativa de grandes quantidades de texto, permitindo o processamento de grandes volumes de dados num tempo significativamente menor em comparação com os métodos de análise manuais. O autor refere-se à análise automática de conteúdo como um conjunto de algoritmos que utilizam modelos probabilísticos, designados de “*topic models*” ou “*concept mapping’ models*”, para descobrir e descrever a composição temática de um grande corpo de texto. O objetivo desses algoritmos passa por identificar e categorizar conceitos que são fortemente correlacionados no texto, representando assim temas ou ideias comuns no texto analisado.

É importante destacar que as técnicas de análise de conteúdo tradicional são, por vezes, integradas nas análises automáticas, uma vez que, os humanos podem criar dicionários para procurar automaticamente recursos que expressam sentimentos, codificar sentimentos em textos como dados de treino para algoritmos, ou criar um padrão de ouro de textos anotados manualmente para comparação com resultados de análises automáticas. Ao utilizar abordagens de texto como dados, os leitores devem ter

em mente importantes advertências e limitações, visto que, as decisões humanas estão no centro das análises automáticas de conteúdo e, portanto, introduzem necessariamente certos graus de liberdade nestas abordagens. Por exemplo, os investigadores têm de decidir como preparar o texto para a análise ou escolher um método para inferir conceitos latentes de interesse, que pode impactar fortemente os resultados (Oehmer-Pedrazzi et al., 2023).

Como as análises automáticas de conteúdo visam inferir conceitos latentes, os investigadores devem notar que o método inclui incerteza e erro, não capturando a total complexidade dos textos. Para esta ideia, a expressão utilizada por Grimmer e Stewart (2013, p. 3) torna-se pertinente: *“All Quantitative Models of Language Are Wrong - But Some Are Useful”*. Relacionado a isto, existe um grande debate em torno de quais aspetos podem ser automaticamente avaliados em vez de dependerem de intervenção humana, sugerindo que quanto mais complexo for o conceito latente a ser inferido, menos apropriadas são as abordagens automatizadas.

Embora a análise automática de conteúdo tenha progredido na deteção de elementos formais como *“hyperlinks”* em textos e datas de publicação de artigos, esta ainda enfrenta desafios em medir variáveis mais complexas, como avaliações, sentimentos e enquadramentos, onde a codificação humana é claramente superior. Portanto, as abordagens automatizadas não substituem as capacidades humanas na interpretação de textos, apenas as complementam.

Em suma, a análise automática de conteúdo é uma ferramenta que permite a síntese qualitativa e quantitativa de literatura, ajudando os investigadores, uma vez que, *“processa de forma confiável grandes volumes de texto em períodos substancialmente mais curtos e com muito menos esforço do que é possível com métodos manuais de revisão de literatura”* (Nunez-Mir et al., 2016, p. 1271).

4.2.1 Ferramentas de análise automática de conteúdo

As ferramentas de análise automática de conteúdo têm o potencial de reduzir substancialmente os custos e o tempo necessários para a realização de análises com grandes quantidades de texto, tornando possível uma análise sistemática de textos em grande escala sem a necessidade de um suporte financeiro massivo. A complexidade da linguagem implica que este tipo de ferramentas nunca serão capazes de substituir a leitura minuciosa e a análise criteriosa dos textos. Por isso, estes métodos são descritos como amplificadores e complementares à leitura cuidadosa e a uma análise ponderada, em vez de substitutos, uma vez que são consideradas modelos imperfeitos da linguagem, o que implica que o seu desempenho em novos conjuntos de dados não seja assegurado, tornando a validação essencial (Grimmer & Stewart, 2013).

A tabela 2, mostra as ferramentas de análise automática de conteúdo consideradas neste trabalho, que são comparadas com base nas suas funcionalidades, formatos suportados e planos de utilização.

No Anexo II, encontram-se descritas as características de cada ferramenta de análise automática de conteúdo numa forma mais detalhada e específica.

As informações e características das ferramentas de análise automática de conteúdo foram recolhidas através da utilização das ferramentas ou nas plataformas comerciais das mesmas durante os dias 18 a 29 de março de 2024.

Tabela 2: Grelha comparativa das ferramentas de análise automática de conteúdo

	AskYourPDF	ChatDOC	ChatGPT-4o	ChatInDoc	ChatPDF	Docalysis	FileChat	FileGPT	PDF.AI	PDFConvo	PDFgear	LightPDF	Sharly
Dá resposta em qualquer idioma	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dá resposta a vários ficheiros ao mesmo tempo	×	✓	✓	×	✓	✓	×	✓	×	×	✓	✓	×
Partilha de ficheiros com outros utilizadores	×	×	×	×	×	✓	×	✓	✓	×	×	×	×
Suporte ao formato CSV	✓	×	×	×	×	✓	✓	×	×	×	×	×	×
Suporte ao formato DOCX	×	€	✓	✓	✓	✓	✓	✓	×	×	×	€	✓
Suporte ao formato EPUB	✓	€	×	×	×	×	×	×	×	×	×	€	×
Suporte ao formato Excel	×	×	✓	✓	×	×	×	×	×	×	×	€	×
Suporte ao formato HTML	×	×	×	×	×	×	×	×	×	×	×	€	✓
Suporte ao formato PDF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Suporte ao formato PPTX	✓	×	✓	✓	×	×	✓	×	×	×	×	€	×
Suporte ao formato RTF	✓	×	×	×	×	×	×	×	×	×	×	×	✓
Suporte ao formato SCAN	×	€	×	×	×	×	×	×	×	×	×	×	×
Suporte ao formato TXT	✓	€	✓	✓	✓	✓	✓	✓	×	×	×	€	✓
Suporte ao formato URL	×	€	×	×	✓	×	×	✓	✓	×	×	€	✓
Oferta de um Plano Gratuito	✓	✓	×	✓	×	✓	✓	✓	⌚	⌚	✓	✓	✓
Oferta de um Plano Premium	✓	✓	✓	✓	×	✓	×	✓	✓	✓	×	✓	✓
Necessidade de registo de utilizador no plano gratuito	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×

Legenda:

- ✓ Sim.
- ✗ Não.
- € Sim, quando é ativado o Plano Premium.
- ⌚ Sim, durante um intervalo de tempo específico ou até atingir um limite de upload de ficheiros.

4.3 Justificação para as ferramentas de análise automática de conteúdo a usar

Numa fase inicial, as ferramentas de análise automática de conteúdo seleccionadas para o estudo sobre a viabilidade do uso de ferramentas automatizadas para efeitos de revisão de literatura (objetivo 2 da dissertação) foram: o AskYourPDF, o ChatGPT-4o e o ChatPDF.

A escolha do ChatPDF foi motivada pela sua ampla utilização no ambiente académico, enquanto a opção pelo ChatGPT-4o baseou-se no facto de ser uma ferramenta com subscrição paga, permitindo avaliar se os resultados se aproximam mais das análises de conteúdo realizadas tradicionalmente, em comparação com outras ferramentas gratuitas.

Por fim, a seleção do AskYourPDF para o estudo em questão, tem como intuito verificar se os seus resultados diferem significativamente daqueles obtidos por outras ferramentas gratuitas e com mais notoriedade.

Contudo, ao analisar os resultados gerados pelo AskYourPDF, percebeu-se que a sua praticidade, clareza e brevidade ficaram aquém do esperado, já que as respostas ultrapassavam o limite de texto estipulado (através do prompt estabelecido) para cada análise (ver figura 8). Por essa razão, esta ferramenta não foi incluída no estudo.

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What is the main focus of the article? What is the central theme, main objective or problem addressed by the article? Answer succinctly no more than 50 words.

Main Focus of the Article

The article primarily examines how coordination instruments and mechanisms utilized by the federal government impact the digital transformation of subnational governments in Brazil. It aims to understand the relationship between these coordination efforts and the effectiveness of digital government initiatives at different government levels.

Central Theme and Objectives

1. **Digital Transformation:** The article explores the challenges and processes involved in implementing digital transformation across various levels of government.

2. **Coordination Mechanisms:** It analyzes how federal coordination affects the capabilities of subnational governments to adopt and implement digital solutions.

3. **Case Studies:** The research involves in-depth comparative case studies of Brazilian states to illustrate different outcomes of coordination.

4. **Institutional Arrangements:** It highlights the importance of institutional frameworks in achieving coherent digital governance within a federalist context.

5. **Empirical Data:** The study utilizes qualitative data from interviews, document analysis, and focus groups to derive insights.

6. **Intergovernmental Relations:** The article discusses the role of intergovernmental relations in managing digital transformation efforts and achieving policy coherence.

7. **Implementation Outcomes:** It evaluates the effectiveness of various digital government initiatives and their impact on public service delivery.

8. **Research Question:** The central research question is how federal coordination instruments affect the digital transformation processes of subnational entities in Brazil.

Coordination of the Digital Transformation of Governments in Federalist Context

Hierarchy, Markets and Network-Based Instruments' Effects on Subnational Governments' digital service delivery

Manuel R. P. C. Bonduki
Fundação Getúlio Vargas – EAESP, INSPER
manuelrpcb@insper.edu.br

Maria Alexandra V. Cunha
Fundação Getúlio Vargas – EAESP
alexandra.cunha@fgv.br

ABSTRACT

Digital transformation in governments is hard to implement. As a cross-cutting change process that affects public management, public policies and services across all government levels, all policy domains and State branches, it changes processes, outcomes, information management, agenda setting, and the speed and effectiveness of access to rights. It may enable social inclusion or perpetuate exclusion. In the context of federalist countries, where the specific autonomy arrangement of subnational entities tends to reflect and even favour heterogeneity, the challenge tends to be more significant. From the perspective of creating a coherent functioning digital government, one of the critical points is the capacity of both national and subnational governments to balance the implementation of digital solutions appropriate to their specific contexts without hindering integration. The issue of governmental coherence within federations is not new. The relevant literature has pointed to the need for coordination and the use of instruments and their underlying mechanisms as fundamental integration drivers. The research builds on the institutional literature that seeks to explain the policy effects of federalism and intergovernmental relations (IGR) to advance the comprehension of how to coordinate the actions of different levels of government when the delivery of effective policy is interdependent. Using the frameworks of intergovernmental relations from Wright [40] and of coordination from Bouckaert et al. [9], we aim to investigate the role of the central government as an orchestrator of state governments' efforts to digitalize. The research question that drives the study is: how do instruments and mechanisms of coordination affect the digital transformation of subnational governments in Brazil? The empirical data will be drawn from in-depth comparative case studies from four Brazilian states and the Brazilian national government. We expect to understand how the design of coordination from the federal level, its mechanisms and instruments, shaped the digital transformation in Brazilian subnational governments.

KEYWORDS

Intergovernmental Relations, Federalism, Local Government, Digital Services, Brazil

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1 INTRODUCTION
The present research aims to investigate how specific institutions shape the implementation of digital transformation of public services in a federative context. Those institutions are the "coordination instruments", a vast array of tools such as law and other regulations, policy design, deliberative forums, etc., that the central government uses in face of state governments to obtain coherence within digital government initiatives. The research, thus, builds on the literature on the policy effects of federalism to investigate the role played by the central government as an orchestrator of local and state governments' efforts to digitalize. Our main focus is then on how institutions mediate the adoption of technological solutions and shape the digital transformation outcomes [12] and not on the availability of technological solutions to enable integration.
The digital transformation of the public sector has been characterized as the process of adaptation by governments to economic, social and political changes arising from the growing integration of information and communication technologies into social life. It is a comprehensive transformation process that involves both management and delivery activities such as public policies and services and their formulation, implementation, monitoring and evaluation cycles [24]. It is also a cross-cutting process that encompasses all policy domains, as well as the various levels of government, from local and states or provinces to the federal government, as well as the executive, legislative and judiciary branches. It changes citizens' expectations in terms of speed, availability, accuracy, security of public services and policy delivery, as well as expectations relative to participation, accountability and transparency. May enable social inclusion or perpetrate greater exclusion of the vulnerable sectors of society [5, 6, 25, 33].

CCS CONCEPTS

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Figura 8: Exemplo de resposta gerada pelo AskYourPDF

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5. ANÁLISE DOS ARTIGOS SELECIONADOS

Este capítulo apresenta e detalha o protocolo previamente desenvolvido para a realização da análise de conteúdo de todos os artigos considerados pertinentes para o projeto, incluindo exemplos de possíveis respostas para cada variável. Também descreve as diferentes etapas ou atividades executadas até se obter os resultados da análise de conteúdo de todos os artigos, além de apresentar comentários aos resultados obtidos com as análises realizadas.

5.1 Protocolo de análise dos artigos

Para a análise dos artigos previamente selecionados, tinha sido estabelecido um protocolo com o intuito de identificar um conjunto de variáveis a serem consideradas, de modo a padronizar a análise de todos os artigos. Este protocolo funciona como um guia estruturado para a avaliação metódica dos artigos.

O protocolo de análise dos artigos é dividido em seis secções: identificação dos artigos, caracterização do estudo apresentado, mecanismos de coordenação, cenário governamental onde a coordenação é aplicada, resultados obtidos relativos à coordenação e indicadores de sucesso.

Conforme mencionado anteriormente, a realização do trabalho obrigou a revisitar a atividade *1.2 Define the literature review protocol* (ver figura 1) para clarificar o protocolo de análise dos artigos. Nesse processo, cada variável pertencente às seis secções foi explicitada em detalhe, com potenciais exemplos de respostas.

Contudo, em algumas variáveis não foi possível fornecer exemplos de possíveis respostas, uma vez que, essas informações não foram encontradas durante o processo de esclarecimento do protocolo.

Posto isto, a seguir será apresentado o protocolo utilizado para a análise de conteúdo de todos os artigos considerados relevantes para o projeto, acompanhado de exemplos de possíveis respostas, que serão apresentados em inglês, uma vez que, estes irão ser apresentados na realização dos prompts.

Importa salientar que, a partir da secção *5.1.2 Caracterização do estudo descrito no artigo*, todas as variáveis do protocolo passarão por um processo de conversão do protocolo em prompts, seguido de um processo de ajuste/refinamento de cada prompt.

5.1.1 Identificação dos artigos

- a) Título do artigo

b) Ano

Ano em que o artigo foi publicado.

c) Journal ou conferência

Nome do journal ou conferência onde o artigo foi publicado.

d) Autores

Autores do artigo.

e) URL

Link para o artigo.

f) Abstract

Resumo do artigo.

g) Keywords

Keywords associadas ao artigo.

h) Decisão final sobre o artigo

Indicação de que o artigo é relevante, ou não, para o projeto (respostas possíveis: sim ou não).

i) Investigador

Nome da pessoa que realizou a análise do artigo.

5.1.2 Caracterização do estudo

a) Foco principal do artigo

Tema central ou objetivo central que o artigo investiga, discute ou apresenta. Por outras palavras, é a ideia ou problema principal abordado pelo artigo.

b) Principais resultados do artigo

Resultados mais importantes relatados no artigo. Este tópico é preponderante para destacar os principais contributos da investigação a par do conhecimento já existente, abrangendo teorias ou práticas específicas da área em questão.

c) Tipo de estudo

Tipo de metodologias ou abordagens utilizadas pelos investigadores para a realização do estudo.

Exemplos de possíveis respostas: case study, research-in-progress, experimental study, observational study, literature review, etc.

d) Domínio de ação política

Domínio de ação política da coordenação mencionado no artigo, ou seja, em que setor ou área específica são implementadas as práticas ou os modelos de coordenação.

Exemplos de possíveis respostas: public security, mobility, health, education, environment, economy, etc.

e) País(es) onde a investigação foi realizada

País(es), região(ões), cidade(s) ou o contexto geográfico em que foi realizado o estudo ou investigação.

5.1.3 Mecanismos de coordenação

a) Definição de coordenação

Conceito de coordenação usado no artigo.

Exemplos de possíveis respostas:

“We conceptualize coordination as the intentional action aimed at structuring the relationships among actors at all levels of the federation, governmental or non-governmental, to make coherent collective action feasible in a context of multiple stakeholders” (Bonduki & Cunha, 2022);

“Peters (1998) emphasized that the coordination concept has two common meanings: (1) The extent to which organizations in their activities should consider other organizations’ activities. This is a good criterion for operation between organizations. (2) Coordination as policy integration means that when selecting the public policies, we should consider a wide range of activities or programs of other organizations” (Nikraftar & Shokri, 2014);

“The Semantic G2G process coordination idea is built upon transparent information and knowledge exchange across seamlessly integrated systems over globally available internet technologies to enable information partnerships between participants (Singh et al., 2005)” (Iyer et al., 2006); etc.

Nota: Além destes exemplos de possíveis respostas, a coordenação está definida e clarificada no capítulo 3.1.

b) Fundamentos ou paradigmas de governação nos modelos de coordenação

Princípios ou modelos adotados para organizar, gerir e dirigir um governo, orientando a forma de como as políticas são estruturadas, implementadas e avaliadas, além de definir a interação entre o governo, os funcionários públicos e os cidadãos. Cada paradigma ou modelo de pensamento representa uma perspetiva sobre o papel do governo e os métodos e práticas de gestão (Letza & Sun, 2002).

Exemplos de possíveis respostas: Classic Public Administration, New Public Management (NPM), New Public Governance (NPG), etc.

Nota: O paradigma *Classic Public Administration* é um modelo onde a administração pública é caracterizada pelo profissionalismo, hierarquia e unidade, onde os cidadãos são vistos como subordinados a uma autoridade dominante e distante. Este paradigma, fundamentado numa abordagem top-down, é marcado por uma relação desigual entre o Estado e os cidadãos, que são obrigados a adotar uma postura passiva e submissa. A administração segue de forma rigorosa regras e regulamentos legais, tratando os cidadãos de forma homogênea, com pouca consideração para suas necessidades individuais, priorizando a igualdade de tratamento (Villeneuve, 2016).

O *New Public Management (NPM)*, surgiu como resposta às perceções de falhas na administração pública tradicional (*Classic Public Administration*), procurando maior eficiência, flexibilidade e orientação para os resultados, através da adoção de práticas do setor privado. Perante isso, as ideias principais que guiam o NPM englobam a promoção de uma gestão mais dinâmica e responsável, a definição clara de objetivos e critérios de avaliação, o foco na eficiência dos resultados, o estímulo à competição dentro do setor público, a integração de práticas de gestão e administração do setor privado e uma forte orientação para a competição, disciplina e rigor no uso dos recursos disponíveis.

Apesar de ser considerado universal e politicamente neutro, o NPM enfrenta críticas por possivelmente comprometer valores como justiça e eficácia na melhoria dos serviços públicos (Hood, 1991).

O *New Public Governance (NPG)* é apresentado como um paradigma que não pretende substituir os paradigmas *Classic Public Administration* ou *New Public Management*, nem é considerado a melhor solução para os desafios atuais na implementação de políticas e prestação de serviços públicos. Em vez

disso, é apresentado como um instrumento conceptual capaz de ajudar na compreensão da complexidade desses desafios, refletindo a realidade da gestão pública moderna. O NPG deve ser visto como um paradigma importante na prestação moderna de serviços públicos, enfatizando abordagens colaborativas e redes interorganizacionais para a criação de políticas e oferta de serviços (Osborne, 2010).

c) Formas de coordenação

Formas que a coordenação pode assumir, ou seja, as diversas abordagens que as organizações utilizam para organizar e gerir todas as suas atividades e relações, sejam elas dentro da própria estrutura ou com entidades externas.

Exemplos de possíveis respostas: internal vertical coordination, external vertical coordination, internal horizontal coordination, external horizontal coordination, etc.

Nota: Estas formas de coordenação estão definidas e explicadas no capítulo 3.1.

d) Mecanismos de coordenação

Mecanismos de coordenação mencionados no artigo.

Exemplos de possíveis respostas: standardization, planning, reciprocated adjustments or mutual adjustment, social conventions, Managing Shared Resources, Managing Producer/Consumer Relationships, Managing Simultaneity Constraints, Managing Task/Subtask Dependencies, Hierarchy-type Mechanisms (HTM), Network-type Mechanisms (NTM), Market-type Mechanisms (MTM).

Nota: Estes mecanismos de coordenação apresentados como exemplos de possíveis respostas são definidos e explicados no capítulo 3.2.

e) Atores governamentais

Atores governamentais considerados participantes no modelo de governação colaborativa, ou seja, entidades ou indivíduos que integram a composição oficial do governo que participam e têm responsabilidades no modelo de governação colaborativa.

Exemplos de possíveis respostas: ministries belonging to a government, agencies that perform specialized functions, departments generally subordinate to a ministry, etc.

f) Atores não governamentais

Atores externos envolvidos no modelo de coordenação, ou seja, entidades ou indivíduos que, apesar de não fazerem parte da composição do governo, desempenham um papel importante nas práticas de coordenação. Esses atores contribuem com pontos de vista, capacidades e recursos adicionais ao processo de coordenação.

Exemplos de possíveis respostas: NGOs, civil society entities, citizens, private sector companies, etc.

g) Nível governamental

Nível de governo que foi objeto de estudo. Por outras palavras, é o nível na hierarquia governamental onde o modelo de coordenação foi posto em prática.

Exemplos de possíveis respostas: national, federal, regional, state, local, etc.

h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos

Mecanismos ou instrumentos de coordenação praticados entre atores governamentais ou atores não governamentais.

Exemplos de possíveis respostas: durante o processo de investigação não foram encontrados exemplos de possíveis respostas das características do domínio político.

i) Características organizacionais do governo

Características organizacionais governamentais que influenciam a coordenação.

Exemplos de possíveis respostas: political system, electoral system (ex: proportional, majoritarian, etc.), tax system (ex: residential taxation based on citizenship, etc.), etc.

j) Condições iniciais

Condições ou motivações iniciais que influenciaram a formação do modelo de coordenação.

Exemplos de possíveis respostas: scarcity of resources, mutual dependence, avoid conflicts of interest, etc.

k) Papel da tecnologia digital

Papel da tecnologia digital no modelo de coordenação e como essa tecnologia impacta o modelo de coordenação. Por outras palavras, é a forma como as ferramentas e plataformas digitais são usadas para a coordenação entre os diferentes atores governamentais e não governamentais.

Exemplos de possíveis respostas: online communication platforms, project management systems, monitoring and control systems, process automation tools, cloud collaboration tools, etc.

l) Tempo

Intervalo de tempo em que o modelo de coordenação permanece ativo.

m) Tensões que desafiam a coordenação

Conflitos, desafios ou dificuldades que surgiram durante o processo de coordenação.

Exemplos de possíveis respostas: conflicts of interest, ineffective communication, resistance to change, leadership failures, cultural misalignment, poor resource management, technological obstacles, etc.

5.1.4 Cenário governamental

a) Forma de governo

Diferentes sistemas ou estruturas sob as quais os países são governados que podem ser vistos como um fator de influência nos mecanismos e resultados dos modelos ou práticas de coordenação e, como os aspetos mencionados influenciam os modelos de coordenação.

Exemplos de possíveis respostas: republic, monarchy, dictatorship, democracy, etc.

b) Tradição democrática

Aspetos de tradição democrática que podem ser considerados fatores de influência nos mecanismos e resultados dos modelos ou práticas de coordenação e, como estes aspetos influenciam os modelos de coordenação. Isto é, práticas, valores ou princípios que caracterizam o funcionamento da democracia e cultura dos sistemas políticos que tenham influência nos mecanismo e resultados das práticas de coordenação.

Exemplos de possíveis respostas: democratic, participatory, authoritarian, etc.

c) Nível de autonomia

Níveis de autonomia governamental que têm um papel de influência nos mecanismos e resultados do modelo ou práticas de coordenação e, como as características de autonomia governamental influenciam o modelo de coordenação.

Exemplos de possíveis respostas: centralized, decentralized, consensual, autonomous, etc.

d) Características do domínio político

Características dos vários domínios políticos que se podem identificar como fatores de influência nos mecanismos e resultados dos modelos ou práticas de coordenação e, como essas mesmas características influenciam os modelos de coordenação.

Exemplos de possíveis respostas: durante o processo de investigação não foram encontrados exemplos de possíveis respostas das características do domínio político.

e) Cultura

Aspectos culturais que podem ser considerados influentes nos mecanismos e resultados do modelo ou práticas da coordenação e, como esses aspectos influenciam os modelos de coordenação.

Exemplos de possíveis respostas: religion, values, beliefs, rules, customs, patterns of behavior common to all citizens (passed down from generation to generation, shaping the way people interact with each other and with the rest of society and shaping the perception of life and the world around them), etc.

f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública

Características ou medidas dos governos que podem ser reconhecidas como fatores de influência nos mecanismos e resultados de coordenação. Isto é, características ou medidas adotadas pelos governos em vigor que influenciam a maneira como as políticas são formuladas e executadas.

Exemplos de possíveis respostas: government planning, government strategies, government vision, political party, political and social context, etc.

g) Condições socioeconómicas do país

Condições socioeconómicas do país que tenham um papel influente nos mecanismos e resultados dos modelos de coordenação e, como essas características influenciam as práticas de coordenação.

Exemplos de possíveis respostas: education level, racial/ethnic disparities, ICT infrastructure, income level (financial resources), etc.

5.1.5 Resultados da coordenação

a) Tipo de output

Resultados que podem ser contados ou descritos numericamente, de acordo com a definição de Boyne's: *"Outputs include the quantity of a service and its quality (as indicated for example by speed of delivery, and accessibility of provision, both in terms of geography and opening hours)."* (Mergel et al., 2019).

Exemplos de possíveis respostas: service provision, product development, research findings, data analysis reports, software deployment, etc.

b) Tipo de outcome

Impacto que surge de uma ação ou da implementação de uma nova medida, refletindo as consequências que essa implementação pode ter nos serviços oferecidos, nas mudanças de processos ou nas relações da organização com outras partes. Inclui melhorias em serviços, processos e relacionamentos (como maior simplicidade, acessibilidade, qualidade, vantagens, eficiência, rapidez, inclusão, capacidade de resposta, competitividade, segurança e transparência), além de contribuir para o desenvolvimento de políticas mais eficazes e para o ambiente digital (como, por exemplo, fortalecendo a infraestrutura digital ou integrando-se ao ambiente digital) (Bretschneider et al., 2004; Mergel et al., 2019).

Exemplos de possíveis respostas: sustainable development, processes improvement, increased efficiency and productivity, enhanced customer satisfaction, cost reduction, etc.

c) Resultados da transformação digital

Resultados ou consequências adicionais da coordenação que são mencionados no contexto do e-Gov.

Exemplos de possíveis respostas: durante o processo de investigação não foram encontrados exemplos de possíveis respostas dos resultados da transformação digital.

d) Elementos de falha

Obstáculos, limitações e problemas identificados ao longo da investigação ou na implementação prática de conceitos, teorias ou procedimentos, comprometendo o êxito do projeto ou da investigação.

Exemplos de possíveis respostas: limited access to data or information sources, methodological limitations, rapid technological evolution, complexity of the problem, lack of resources or inadequate infrastructure, etc.

e) Resultados adversos da coordenação

Consequências negativas ou indesejáveis que surgem através da implementação do modelo ou práticas de coordenação.

Exemplos de possíveis respostas: durante o processo de investigação não foram encontrados exemplos de possíveis respostas dos resultados adversos da coordenação.

5.1.6 Indicadores de sucesso

a) Métodos de avaliação de resultados

Formas como os resultados da coordenação são medidos e avaliados, tendo como foco a eficácia, a eficiência e o impacto das atividades coordenadas.

Exemplos de possíveis respostas: performance indicators (KPIs), productivity analysis, quality assessment, continuous stakeholder feedback and evaluation, etc.

b) Escala de coordenação

Escala utilizada para avaliar o grau de coordenação entre atores governamentais ou não governamentais, podendo ser utilizada para avaliar a eficácia da coordenação governamental em diferentes contextos.

Exemplo de possível resposta: 1) Independent decision-making by ministries; (2) Communication with other ministries (exchange of information); (3) Consultation with other ministries (feedback); (4) Avoidance of divergences between ministries; (5) Search for consensus between ministries; (6) Mediation of political differences; (7) Definition of limits to the action of ministries; (8) Definition of central priorities; (9) Existence of government strategy (Metcalf, 1994). Esta escala de coordenação proposta por Metcalfe está explicitada no Capítulo 3.1 desta dissertação.

c) Observações gerais

As observações gerais englobam a verificação de três aspetos:

- Menção de Objetivos de Desenvolvimento Sustentável (SDGs).
- Número de citações (recolhidas através do Google Scholar).
- Identificação de referências a tecnologias emergentes (como por exemplo, Inteligência Artificial, Blockchain, Realidade Virtual, etc.).

Os SDGs são compostos por um conjunto de 17 objetivos globais estabelecidos pelas Nações Unidas para orientar ações de desenvolvimento sustentável a nível nacional, regional e global até 2030, sendo estes: a erradicação da pobreza; fome zero e agricultura sustentável; saúde e bem-estar; educação de qualidade; igualdade de género; água potável e saneamento; energia limpa e acessível; trabalho decente e crescimento económico; indústria, inovação e infraestrutura; redução das desigualdades; cidades e comunidades sustentáveis; consumo e produção responsáveis; ação contra a mudança global do clima; vida na água; vida terrestre; paz, justiça e instituições eficazes e, por fim, parcerias e meios de implementação (Allen et al., 2018).

5.2 Atividades realizadas para a análise de conteúdo

Para a realização da análise de conteúdo dos artigos considerados relevantes para o projeto, foi necessário executar uma série de tarefas que serão descritas a seguir:

1. Realizou-se uma pesquisa pelos artigos que foram selecionados previamente pertinentes para o projeto. Para tal, utilizou-se o Google Scholar e o Scopus como ferramenta de procura. Nos casos em que os artigos não estavam disponíveis gratuitamente, utilizou-se o Research Gate para solicitar diretamente aos autores o acesso aos artigos.
2. Os artigos cuja linguagem de escrita não foi possível identificar e para os quais não obtivemos resposta dos autores sobre o acesso aos mesmos, foram excluídos e não foram analisados.

Portanto, foram alvo de análise os seguintes 11 artigos:

- Bonduki, M., & Cunha, M. A. (2022). Coordination of the Digital Transformation of Governments in Federalist Context: Hierarchy, Markets and Network-Based Instruments' Effects on Subnational Governments' digital service delivery. In Proceedings of the 15th International Conference on Theory and Practice of Electronic Governance (pp. 528-533).
- Nikraftar, T., & Shokri, R. (2014). Dominant discourse about important barriers to promoting coordination in Iranian government machinery. *Transforming Government: People, Process and Policy*, 8(3), 357-373.
- Sta, H. B. (2018). Organisational structure for the e-government coordination and interoperability framework: a case study of Tunisia. *Electronic Government, an International Journal*, 14(1), 51-77.

- Nurdin, N., Stockdale, R., & Scheepers, H. (2014). Coordination and cooperation in e-government: An Indonesian local e-government case. *The Electronic Journal of Information Systems in Developing Countries*, 61(1), 1-21.
 - Špaček, D. (2014). Coordination of and through E-Government: The Case of the Czech Republic. *NISPAcee Journal of Public Administration and Policy*, 7(1), 83-106.
 - Iyer, L. S., Singh, R., Salam, A. F., & D'Aubeterre, F. (2006). Knowledge management for Government-to-Government (G2G) process coordination. *Electronic Government, an International Journal*, 3(1), 18-35.
 - Gao, X., Song, Y., & Zhu, X. (2013). Integration and coordination: Advancing China's fragmented e-government to holistic governance. *Government Information Quarterly*, 30(2), 173-181.
 - Qunli, W., Hong, Z., & Xue, T. (2009, May). The Problems of Unification and Coordination in the Development of E-Government in China. In *2009 International Forum on Information Technology and Applications* (Vol. 3, pp. 538-540). IEEE.
 - Berce, J., Bianchi, A., Centeno, C., Osimo, D., Millard, J., & Shahin, J. (2006). The Organisation and Coordination of European e-Government Research for the EU in 2010. In *Electronic Government: 5th International Conference, EGOV 2006, Kraków, Poland, September 4-8, 2006. Proceedings 5* (pp. 37-46). Springer Berlin Heidelberg.
 - Reggi, L., & Ricci, C. A. (2014). The role of public companies in the coordination of e-government regional policies. *Economia e Politica Industriale* 41(3), 159-177.
 - Organ, J. (2003). The coordination of e-government in historical context. *Public policy and administration*, 18(2), 21-36.
3. Foi feita uma análise e uma descrição detalhada do protocolo, incluindo exemplos de possíveis respostas, com o objetivo de compreender a finalidade de cada tópico do protocolo de análise dos artigos. A caracterização do protocolo de análise dos artigos pode ser consultada no capítulo 5 deste documento.
 4. Realizou-se a análise de conteúdo dos 11 artigos anteriormente descritos, conforme o protocolo previamente estabelecido.
 5. Discutiram-se as possíveis inclusões de novos conceitos ou variáveis no protocolo, assim como a exclusão de algumas variáveis que não eram mencionadas em nenhum dos artigos, com o objetivo de realizar uma análise mais abrangente dos mesmos.

6. Foi produzido um relatório com a análise de conteúdo dos artigos, sendo posteriormente registado numa folha de cálculo (Excel) para facilitar a partilha entre os colaboradores envolvidos no projeto.
7. Os resultados das análises dos artigos foram igualmente incluídos no Anexo III.

5.3 Comentários aos resultados obtidos da análise de conteúdo dos artigos

A tabela 3 mostra comentários relacionados com os resultados obtidos da análise de conteúdo dos artigos para cada variável do protocolo. No entanto, foram excluídas variáveis do protocolo que envolvem aspetos muito específicos dos artigos em causa, como é o caso das variáveis *5.1.2 a) Foco principal do artigo* e *5.1.2 b) Principais resultados do artigo*.

Tabela 3: Comentários aos resultados obtidos da análise de conteúdo dos artigos

Variáveis do protocolo de análise dos artigos	Resultados
5.1.2 c) Tipo de estudo	Os artigos analisados abrangem diversos tipos de estudo, como revisões de literatura, estudos de caso ou estudos observacionais, pesquisas em andamento e artigos científicos. Contudo, a maioria dos artigos são estudos de caso e revisões de literatura.
5.1.2 d) Domínio de ação política	O setor ou área específica onde as práticas ou modelos de coordenação são predominantemente aplicados é na implementação do governo eletrónico.
5.1.2 e) País(es) onde a investigação foi realizada	Existe uma variedade de países estudados, com os artigos a focarem-se em nações dos continentes europeu, asiático, americano e africano. No entanto, na maioria dos artigos os estudos concentram-se na Europa e na Ásia.
5.1.3 a) Definição de coordenação	Nos artigos que definem a coordenação, todos partilham uma visão homogénea do conceito, que pode ser descrito como um processo intencional destinado a estruturar as relações entre atores em todos os níveis de um governo, sejam eles governamentais ou não governamentais. O objetivo é tornar viável a ação coletiva de maneira intencional, consistente e sincronizada, permitindo que os agentes alcancem metas comuns ao utilizar os recursos disponíveis e

	evitando redundâncias na resolução de problemas. Além disso, um sistema de coordenação eficiente deve assegurar uma clara divisão de trabalho, atribuindo tarefas e responsabilidades específicas a indivíduos com as competências adequadas e possibilitar decisões rápidas, evitando atrasos desnecessários e sobreposições de competências.
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	Alguns artigos reconhecem a governação holística, o governo estadual e o modelo da New Public Management como fundamentos ou paradigmas da governação nos modelos de coordenação, embora a maioria não os mencione.
5.1.3 c) Formas de coordenação	Em grande parte dos artigos, as formas de coordenação não são abordadas. No entanto, alguns artigos identificam algumas formas de coordenação, como a coordenação horizontal ou vertical, coordenação positiva ou negativa e coordenação política e estratégica.
5.1.3 d) Mecanismos de coordenação	Na análise dos artigos, foram mencionados mecanismos de coordenação baseados em hierarquias, mercados, redes, sistemas multiagente e serviços web, ontologias, entre outros.
5.1.3 e) Atores governamentais	Os atores governamentais referidos nos artigos estão predominantemente associados a instituições governamentais nacionais, locais ou regionais, assim como aos próprios governos.
5.1.3 f) Atores externos não governamentais	Os atores não governamentais citados nos artigos são cidadãos, instituições sociais e culturais, prestadores privados de serviços de tecnologias de informação, entidades do setor privado, organizações não governamentais e partidos políticos.
5.1.3 g) Nível governamental	Nos artigos, o modelo de coordenação foi aplicado em diversos níveis de governo, que vão do nível nacional ao regional, local ou federal, sendo o nível nacional o mais frequentemente destacado.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	Na maioria dos artigos, os mecanismos ou instrumentos de coordenação praticados entre atores governamentais e não governamentais são, em grande parte, aqueles que foram identificados na variável 5.1.3 d) Mecanismos de coordenação.
5.1.3 i) Características organizacionais do governo	Na maioria dos artigos que mencionam características organizacionais do governo, estas são principalmente aquelas identificadas na variável do protocolo 5.1.4 f) Governo atual/sistema institucional,

	jurídico e político/estilo de administração pública, como por exemplo, os níveis de autonomia e as formas como os governos são constituídos.
5.1.3 j) Condições iniciais	As condições ou motivações iniciais que impulsionaram a criação de um modelo de coordenação variam desde a necessidade de um processo eficaz para gerir interdependências, passando pela exigência de uma distribuição de recursos limitados, até à falta de um planeamento unificado e de um desenvolvimento coordenado.
5.1.3 k) Papel da tecnologia digital	Os artigos indicam que as tecnologias têm o potencial de melhorar a prestação de serviços governamentais aos cidadãos, promover interações mais eficazes com empresas e indústrias, tornar a gestão governamental mais eficiente, etc.
5.1.3 l) Tempo	Os artigos analisados não indicam um período específico durante o qual o modelo de coordenação permanece ativo.
5.1.3 m) Tensões que desafiam a coordenação	Os artigos analisados identificam vários desafios ou impedimentos que podem ocorrer durante o processo de coordenação, tais como: barreiras administrativas e políticas, excesso de soluções em tecnologias da informação e comunicação (TIC), falhas no planeamento estratégico, custos relacionados à coordenação e a troca de informações, entre outros.
5.1.4 a) Forma de governo	A maioria dos artigos não detalha a estrutura de governo dos países abordados nos estudos. Contudo, nos artigos que a forma de governo é mencionada, destaca-se que o Brasil é regido por um governo federal com 26 estados, que o Irão é uma República Islâmica e que a República Checa é uma democracia.
5.1.4 b) Tradição democrática	Nenhum dos artigos analisados faz referência a aspetos de tradição democrática que possam afetar os mecanismos e resultados dos modelos ou práticas de coordenação.
5.1.4 c) Nível de autonomia	A maioria dos artigos identificou três níveis de autonomia governamental: centralizada, descentralizada e autónoma. Contudo, os níveis descentralizado e autónomo foram os mais frequentemente citados.
5.1.4 d) Características do domínio político	Nos artigos não foram mencionadas características dos vários domínios políticos que influenciam os mecanismos e resultados dos modelos ou práticas de coordenação.

5.1.4 e) Cultura	Os artigos analisados não identificam aspetos culturais que tenham influência nos mecanismos e resultados do modelo ou práticas da coordenação.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	Nos artigos que abordam as características ou medidas dos governos que impactam os mecanismos e resultados de coordenação, são destacados aspetos como o nível de desenvolvimento do país, os tipos de economia, os níveis de poder e autonomia, as formas pelas quais os governos são constituídos, entre outras.
5.1.4 g) Condições socioeconómicas do país	Nos artigos que citam as características socioeconómicas dos países, são discutidos o nível de desenvolvimento de cada nação, as fontes de receita de cada região e o tipo de economia associada.
5.1.5 a) Tipo de output	Os outputs apontados nos artigos analisados referem-se à importância da coordenação e colaboração para a implementação do governo eletrónico, à definição de uma estrutura institucional para o desenvolvimento do governo eletrónico, a vantagens das redes de conhecimento e de outros mecanismos de coordenação para a eficácia operacional e estratégica, entre outros.
5.1.5 b) Tipo de outcome	A maioria dos artigos não faz referência a outcomes.
5.1.5 c) Resultados da transformação digital	A maioria dos artigos não aborda resultados específicos da transformação digital, exceto um, que destaca que as TIC contribuem para aumentar a eficiência, transparência e responsabilidade na gestão organizacional, padronizar e agilizar processos e fluxos de informações, oferecer personalização e melhorar a interação com os utilizadores, além de incentivar a participação dos cidadãos em decisões políticas.
5.1.5 d) Elementos de falha	Não foram encontrados obstáculos, limitações ou problemas durante a investigação ou na aplicação de conceitos, teorias ou procedimentos que comprometessem o sucesso do projeto ou da investigação.
5.1.5 e) Resultados adversos da coordenação	Não foram mencionadas consequências negativas ou indesejáveis decorrentes da implementação de um modelo ou práticas de coordenação.
5.1.6 a) Métodos de avaliação de resultados	Não foram identificados métodos ou formas de medir ou avaliar os resultados da coordenação.

5.1.6 b) Escala de coordenação	A maioria dos artigos não menciona nenhuma escala para medir o grau de coordenação, com a exceção de um, que se refere à escala de Metcalfe.
5.1.6 c) Observações gerais	Nenhum dos artigos analisados faz menção a Sustainable Development Goals, nem houve referências a tecnologias emergentes.

6. REVISÃO DE LITERATURA COM IA GENERATIVA

Este capítulo apresenta os prompts que serão submetidos às ferramentas de análise automática de conteúdo para realizar a análise automatizada dos artigos. Além disso, é explicado o processo de ajuste e refinamento desses prompts. Por fim, são descritas as diversas tarefas executadas no processo de revisão de literatura utilizando uma metodologia automatizada.

6.1 Conversão do protocolo em prompts

Para adaptar o protocolo de análise dos artigos da abordagem tradicional para a abordagem automática, é essencial converter esse protocolo em prompts que possam ser utilizados nas ferramentas de análise automática de conteúdo, tendo como objetivo comparar as semelhanças entre as análises realizadas de forma tradicional e aquelas analisadas automaticamente.

Portanto, de seguida são apresentados os prompts correspondentes às variáveis do protocolo de análise dos artigos e que devem ser submetidos às ferramentas de análise automática de conteúdo.

Tabela 4: Definição dos prompts

Variáveis do protocolo de análise dos artigos	Prompt
5.1.2 a) Foco principal do artigo	What is the main focus of the article? What is the central theme, main objective or problem addressed by the article? Answer succinctly no more than 50 words.
5.1.2 b) Principais resultados do artigo	What were the most important results reported in the article? Answer succinctly no more than 50 words.
5.1.2 c) Tipo de estudo	In the article, what methodology or approach did the researchers use to carry out the study or investigation (e.g. case study, research-in-progress, experimental study, observational study, literature review, etc.)? Answer succinctly no more than 10 words.
5.1.2 d) Domínio de ação política	In the article, in which domain of political action, sector or specific area are the coordination practices or models implemented (e.g. public security, mobility, health, education, environment, economy, etc.)? Answer succinctly no more than 10 words.

5.1.2 e) País(es) onde a investigação foi realizada	In what country(ies), region(s), city(ies) or geographic context was the study or research in the article conducted? Answer succinctly no more than 10 words.
5.1.3 a) Definição de coordenação	In the article, how is coordination defined? Answer succinctly no more than 50 words.
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	In the article, what were the foundations, paradigms, principles or governance models adopted to structure, manage and lead a government in the coordination models? Answer succinctly no more than 50 words.
5.1.3 c) Formas de coordenação	In the article, is there any mention of the forms that coordination can take? Is there any mention of the different approaches that organizations use to organize and manage all of their activities and relationships? Answer succinctly no more than 50 words.
5.1.3 d) Mecanismos de coordenação	What are the coordination mechanisms mentioned in the article? Answer succinctly no more than 50 words.
5.1.3 e) Atores governamentais	In the article, which government actors participate in the collaborative governance model? Answer succinctly no more than 50 words.
5.1.3 f) Atores externos não governamentais	In the article, which non-governmental actors participate in the collaborative governance model? Answer succinctly no more than 50 words.
5.1.3 g) Nível governamental	In the article, at what level of the government hierarchy was the coordination model implemented (e.g. national, federal, regional, state, local, etc.)? Answer succinctly no more than 10 words.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	In the article, what were the coordination mechanisms or instruments used between government actors or non-government actors? Answer succinctly no more than 50 words.
5.1.3 i) Características organizacionais do governo	In the article, what were the organizational characteristics of the government mentioned that influenced coordination (e.g. political system, electoral system, tax system etc.)? Answer succinctly no more than 50 words.
5.1.3 j) Condições iniciais	In the article, what were the initial factors, conditions or motivations that influenced the formation of the coordination model? Answer succinctly no more than 50 words.

5.1.3 k) Papel da tecnologia digital	In the article, what is the role of digital technology or the way digital tools and platforms are used for coordination between different government and non-government actors (e.g. online communication platforms, project management systems, monitoring and control systems, process automation tools, cloud collaboration tools, etc.)? Answer succinctly no more than 50 words.
5.1.3 l) Tempo	In the article, how long did the coordination model remain active? Answer succinctly no more than 10 words.
5.1.3 m) Tensões que desafiam a coordenação	In the article, what were the challenges, conflicts, tensions or difficulties that arose during the coordination process? Answer succinctly no more than 50 words.
5.1.4 a) Forma de governo	Does the article mention the different forms that coordination can take or the different approaches that organizations use to organize and manage all of their activities and relationships (e.g. republic, monarchy, dictatorship, democracy, etc.)? Answer succinctly no more than 50 words.
5.1.4 b) Tradição democrática	In the article, what are the practices, values or principles that characterize the functioning of democracy and the culture of political systems that have influenced the mechanisms and results of coordination models or practices? How do these aspects of the democratic tradition influence coordination models (e.g. democratic, participatory, authoritarian, etc.)? Answer succinctly no more than 50 words.
5.1.4 c) Nível de autonomia	In the article, what level of government autonomy influenced the mechanisms and results of the coordination model or practices (e.g. centralized, decentralized, consensual, autonomous, etc.)? Answer succinctly no more than 10 words.
5.1.4 d) Características do domínio político	In the article, what were the characteristics of the various policy domains that influence the mechanisms and outcomes of coordination models or practices? How do these characteristics influence coordination models? Answer succinctly no more than 50 words.
5.1.4 e) Cultura	In the article, what were the cultural aspects that influenced the mechanisms and results of the coordination model or practices? How did these cultural aspects influence the coordination models? Answer succinctly no more than 50 words.

5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	In the article, what were the characteristics or measures adopted by governments that can influence coordination mechanisms and outcomes (e.g. government planning, government strategies, government vision, political party, political and social context, etc.)? Answer succinctly no more than 50 words.
5.1.4 g) Condições socioeconómicas do país	In the article, what were the socioeconomic conditions that influenced the mechanisms and results of the coordination models? How did these conditions influence coordination practices? Answer succinctly no more than 50 words.
5.1.5 a) Tipo de output	The type of output "include the quantity of a service and its quality". In the article, what is the type of output (e.g. service provision, product development, research findings, data analysis reports, software deployment, etc.)? Answer succinctly no more than 50 words.
5.1.5 b) Tipo de outcome	The type of outcome is the impact, consequence or change that arises from an action or implementation of a new measure. In the article, what is the type of outcome (e.g. sustainable development, process improvement, increased efficiency and productivity, increased customer satisfaction, cost reduction, etc.)? Answer succinctly no more than 50 words.
5.1.5 c) Resultados da transformação digital	In the article, what were the additional outcomes or consequences of coordination mentioned in the context of e-government? Answer succinctly no more than 50 words.
5.1.5 d) Elementos de falha	In the article, what were the obstacles, limitations or problems identified throughout the investigation that compromised or could compromise its success? Answer succinctly no more than 50 words.
5.1.5 e) Resultados adversos da coordenação	Does the article mention negative or undesirable consequences that have arisen through the implementation of the model or coordination practices? Answer succinctly no more than 50 words.
5.1.6 a) Métodos de avaliação de resultados	Does the article mention any method or way in which coordination results are measured and evaluated, focusing on the effectiveness, efficiency or impact of coordinated activities? Answer succinctly no more than 50 words.
5.1.6 b) Escala de coordenação	Does the article mention any scale that assesses the degree of coordination between government actors or non-governmental actors? Answer succinctly no more than 50 words.

5.1.6 c) Observações gerais	Does the article reference Sustainable Development Goals (SDGs)? Does the article reference emerging technologies (e.g. Artificial Intelligence, Blockchain, Virtual Reality, etc.)? Answer succinctly no more than 50 words.
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6.2 Atividades realizadas para a análise automática de conteúdo

O processo de análise automática de conteúdo dos artigos envolveu diversas etapas, culminando nos resultados apresentados no Anexo IV. De seguida, são descritas as diferentes tarefas realizadas durante este processo.

1. Realizou-se uma pesquisa para identificar as melhores práticas e a maneira mais eficiente de criar prompts (Morgan, 2023; Sampaio, 2023; Sampaio et al., 2024; Wachinger et al., 2024).
2. Foram definidos os prompts que serão utilizados nas ferramentas de análise automática de conteúdo, em conformidade com as variáveis estabelecidas pelo protocolo de análise dos artigos.
3. Os prompts estabelecidos foram submetidos às ferramentas de análise automática de conteúdo.
4. Os resultados gerados pelas ferramentas de análise automática de conteúdo foram analisados e concluiu-se que os prompts precisavam de ser ajustados.
5. Foi realizado um processo de ajuste/afinação dos prompts (Capítulo 6.3) através de uma abordagem baseada em tentativa e erro.
6. Depois dos prompts passarem pelo processo de ajuste/afinação, os mesmos foram novamente submetidos às ferramentas de análise automática de conteúdo.
7. Os resultados das análises automatizadas de todos os artigos foram obtidos a partir de cada uma das ferramentas e estão disponíveis no Anexo IV.

6.3 Processo de ajuste/afinação do prompt

Conforme mencionado anteriormente, no ajuste e refinamento dos prompts foi seguida uma abordagem de tentativa e erro que incluiu uma série de etapas descritas de seguida:

1. Inicialmente, surgiu a dúvida sobre em que idioma os prompts deveriam ser escritos. Diante disso, decidiu-se que a maneira mais adequada seria escrevê-los em inglês, já que as ferramentas automatizadas também responderiam nesse idioma (visto que geram respostas

conforme o idioma dos prompts). Além disso, como as análises de conteúdo estavam em inglês, essa escolha tornou mais simples a comparação de resultados de ambas as formas de análise.

2. Posteriormente, foram testados prompts centrados nos temas principais de cada tópico, ou seja, as ferramentas automáticas de conteúdo foram diretamente solicitadas a fornecer informações relacionadas a cada tópico.
3. Apesar das ferramentas automáticas de conteúdo tratarem do tema solicitado, estas frequentemente não extraíam informações diretamente dos artigos. Para contornar essa limitação, foram usados em cada prompt termos como *"In the article, (...)"*, *"Does the article reference (...)"* ou *"Does the article mention (...)"*.
4. Constatou-se que, em alguns casos, as ferramentas não interpretavam corretamente o tema que se queria analisar através do prompt. Para superar essa dificuldade, foram fornecidos exemplos de possíveis respostas em certos casos, ajudando-as a ultrapassar essa limitação.
5. Nas situações em que foi solicitado o tipo de *output* e tipo de *outcome*, as ferramentas não conseguiam distinguir entre os dois conceitos (distinção feita no protocolo de análise segundo práticas de gestão de projetos seguidas na UNU-EGOV), resultando em respostas semelhantes. Para corrigir isso, utilizou-se trechos de textos de um artigo para esclarecer o que era esperado, além de fornecer exemplos de possíveis respostas.
6. Após reunir todas as análises realizadas pelas ferramentas de análise automática de conteúdo, percebeu-se que elas eram excessivamente longas. Para resolver isso, numa fase inicial, limitou-se o número de caracteres por resposta. Após a revisão do formato das respostas, concluiu-se que a melhor forma de obter respostas mais curtas e objetivas era restringir o número de palavras. Assim, para garantir respostas diretas e concisas, limitou-se o número de palavras para 10 em casos onde se esperava uma resposta breve e, quando a expectativa era por uma resposta mais elaborada, o limite foi ajustado para 50 palavras.

7. COMPARAÇÃO DE RESULTADOS

Neste capítulo, é feita a comparação dos resultados obtidos através das análises realizadas pelas ferramentas de análise automática de conteúdo, além de serem comparados os resultados da análise de conteúdo dos artigos com os resultados gerados pelas próprias ferramentas automáticas.

7.1 Comparação de resultados das ferramentas de análise automática de conteúdo

A comparação de resultados das análises de conteúdo dos artigos realizadas pelas ferramentas automáticas, revelou um elevado grau de semelhança entre ambos. No entanto, observou-se que, nos casos em que a similaridade é grande, as respostas do ChatGPT-4o tendem a ser mais específicas, enquanto as do ChatPDF são mais gerais.

Essa similaridade de resultados pode ser explicada pelo fato de o ChatPDF utilizar uma API do ChatGPT, da Open AI, na análise de documentos e elaboração de respostas. No entanto, na plataforma comercial do ChatPDF não é especificado o modelo GPT adotado pela ferramenta.

De seguida, é apresentada a tabela 5, que tem como objetivo ilustrar e reforçar o que foi discutido anteriormente. Nesta comparação, foram utilizadas as respostas geradas pelas ferramentas de análise automática de conteúdo para o artigo de Špaček (2014). A seleção deste artigo utilizado na comparação de resultados foi feita aleatoriamente.

Tabela 5: Comparação de resultados das ferramentas de análise automática de conteúdo

Ferramenta	Prompt e resposta correspondente	Similaridade
5.1.2 a) Foco principal do artigo		
ChatGPT-4o	“The main focus of the article is on the coordination of and through e-government, using the Czech Republic as a case study. It explores emerging practices, challenges, and the influence of accountability issues on effective governance and coordination within the e-government framework, with examples from European countries”.	✓
ChatPDF	“The article focuses on the challenges and practices of e-government coordination in the Czech Republic, highlighting issues such as fragmented	

	organizational structures, strategic planning deficiencies, and the need for effective integration of ICT solutions to enhance public administration and service delivery”.	
5.1.2 b) Principais resultados do artigo		
ChatGPT-4o	“The article highlights that despite strategic planning and institutional mechanisms for e-government coordination in the Czech Republic, weak accountability and administrative fragmentation hinder progress. Some improvements were achieved through central solutions like Czech POINT, but coordination remains inconsistent and evaluation mechanisms are scarce”.	✓
ChatPDF	“The article reports that while some improvements in e-government coordination have been achieved in the Czech Republic, significant challenges remain, including a lack of strategic planning, insufficient national evaluations, and a weak accountability culture, which hinder effective implementation and integration of e-government initiatives”.	
5.1.2 c) Tipo de estudo		
ChatGPT-4o	“The researchers used a literature review and case study approach”.	✓
ChatPDF	“The researchers used a literature review methodology”.	
5.1.2 d) Domínio de ação política		
ChatGPT-4o	“The coordination practices are implemented in public administration and governance”.	✓
ChatPDF	“The coordination practices are implemented in public administration”.	
5.1.2 e) País(es) onde a investigação foi realizada		
ChatGPT-4o	“The study was conducted in the Czech Republic and Europe”.	✓
ChatPDF	“The study was conducted in the Czech Republic”.	
5.1.3 a) Definição de coordenação		
ChatGPT-4o	“Coordination in the article is defined as the process of aligning and integrating public services and government functions through e-government initiatives. It involves improving service delivery, ensuring interoperability, and managing resources effectively across different government agencies to enhance governance and accountability”.	✓
ChatPDF	“Coordination is defined as a key factor for effective governance, involving the joined-up delivery of public services. It encompasses the integration of policies and administration to ensure that various government actions are	

	aligned and work together efficiently, particularly in the context of e-government initiatives”.	
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação		
ChatGPT-4o	“The article adopts governance models focused on centralization, strategic planning, interoperability, and standardization. It emphasizes the use of ICTs to enhance coordination, with principles of integrated service delivery, collaborative frameworks, and hierarchical oversight. These models aim to align public services across agencies, overcoming administrative fragmentation and departmentalism”.	✓
ChatPDF	“The article discusses governance models emphasizing centralization, horizontal coordination, and integration of e-government strategies. It highlights the need for standardized management, clear goals, and stable institutional mechanisms to enhance accountability and effective service delivery across various levels of government, particularly following the fragmentation observed in earlier administrative practices”.	
5.1.3 c) Formas de coordenação		
ChatGPT-4o	“Yes, the article mentions that coordination can take various forms, such as centralization of services, shared infrastructures, and collaborative frameworks. It discusses approaches like the establishment of national portals, e-participation tools, and inter-agency frameworks to manage activities, ensure interoperability, and streamline public service delivery”.	✓
ChatPDF	“Yes, the article mentions forms of coordination such as centralized frameworks, institutional support, and integrated service delivery. It discusses approaches like strategic planning, legislation, and methodological guides to manage activities and relationships within e-government, aiming for improved accountability and efficiency in public service delivery”.	
5.1.3 d) Mecanismos de coordenação		
ChatGPT-4o	“The coordination mechanisms mentioned include national e-government strategies, centralization of services (e.g., Czech POINT), interoperability frameworks, national portals, and institutional bodies like the National Registers Authority. These mechanisms aim to align public services, improve data integration, and enhance inter-agency collaboration across government levels”.	✓

ChatPDF	“The article mentions coordination mechanisms including e-government development frameworks, national institutional and technical support, and central solutions for integrated data sources. It emphasizes the importance of strategic planning, legislation, and methodological guides to facilitate effective coordination and enhance public service delivery across government levels”.	
5.1.3 e) Atores governamentais		
ChatGPT-4o	“The government actors participating in the collaborative governance model include the Ministry of the Interior, National Registers Authority, central government ministries, municipal offices, and agencies responsible for public services. Additionally, bodies like the Government Council for an Information Society and regional eGON centers are involved in coordination efforts”.	
ChatPDF	“The article identifies various government actors in the collaborative governance model, including central government authorities, local self-governments, and representatives from associations of self-governments. These stakeholders engage in coordination efforts to enhance e-government initiatives and improve public service delivery through collaborative approaches”.	✓
5.1.3 f) Atores externos não governamentais		
ChatGPT-4o	“Non-governmental actors mentioned in the article include associations of self-governments, the Economic Chamber, and private sector stakeholders involved in ICT solutions. These actors contribute to policy discussions, implementation of e-government projects, and collaboration on infrastructure and service delivery enhancements within the governance framework”.	✓
ChatPDF	“The article mentions non-governmental actors such as stakeholders from civil society, private sector representatives, and academic institutions. These actors contribute to the collaborative governance model by providing insights, expertise, and feedback, which are essential for the effective design and implementation of e-government strategies”.	
5.1.3 g) Nível governamental		
ChatGPT-4o	“The coordination model was implemented at the national level”.	
ChatPDF	“The coordination model was implemented at the national level”.	✓
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos		

ChatGPT-4o	“The coordination mechanisms used between government and non-government actors include centralized e-government strategies, national portals (e.g., Czech POINT), shared infrastructures, legal frameworks (e.g., e-Government Act), data interoperability standards, and collaborative bodies like the Government Council for an Information Society, fostering inter-agency and public-private cooperation”.	✓
ChatPDF	“The coordination mechanisms included e-government development frameworks, strategic planning, legislation, methodological guides, and central solutions for integrated data sources. These instruments facilitated collaboration among government actors and non-governmental stakeholders to enhance service delivery and improve the overall governance of e-government initiatives”.	
5.1.3 i) Características organizacionais do governo		
ChatGPT-4o	“The organizational characteristics influencing coordination include administrative fragmentation, a decentralized political system with two sub-national levels (regional and municipal governments), and the departmentalism of central authorities. These factors complicated coordination efforts, along with weak accountability structures and inconsistent inter-agency collaboration within the Czech government”.	✓
ChatPDF	“The article highlights characteristics such as departmentalism, low horizontal coordination, and instability in political and executive leadership. These factors, along with a fragmented organizational structure, significantly influenced the effectiveness of coordination efforts within the government, impacting the implementation of e-government initiatives”.	
5.1.3 j) Condições iniciais		
ChatGPT-4o	“The initial factors influencing the formation of the coordination model include the need to address administrative fragmentation, improve public service delivery, and standardize ICT solutions across government levels. Additionally, post-communist institutional reforms, EU e-government policies, and the drive for greater efficiency and accountability motivated the coordination efforts”.	✓
ChatPDF	“Initial factors included the need to address administrative fragmentation, improve strategic planning, and enhance cooperation among central authorities. The establishment of a unified information system and the	

	necessity for effective governance in the post-communist context motivated the formation of the coordination model for e-government”.	
5.1.3 k) Papel da tecnologia digital		
ChatGPT-4o	“Digital technology plays a central role in coordination through platforms like national portals (e.g., Czech POINT), data boxes for secure communication, and integrated systems for public service delivery. These tools facilitate inter-agency communication, process automation, data sharing, and collaboration between government and non-government actors, improving efficiency and service integration”.	✓
ChatPDF	“Digital technology plays a crucial role in facilitating communication, data sharing, and service delivery among government and non-government actors. Tools such as online platforms, project management systems, and process automation enhance coordination, streamline operations, and enable integrated service delivery, thereby improving overall governance and efficiency in e-government initiatives”.	
5.1.3 l) Tempo		
ChatGPT-4o	“The article does not specify the exact duration of the coordination model”.	✗
ChatPDF	“The coordination model remained active since 1999”.	
5.1.3 m) Tensões que desafiam a coordenação		
ChatGPT-4o	“Challenges during the coordination process included administrative fragmentation, weak accountability, departmentalism, inconsistent strategic planning, and frequent changes in political and executive leadership. Additionally, technical issues with ICT systems, limited stakeholder inclusion, and inadequate evaluation mechanisms hindered effective coordination and long-term stability of e-government initiatives”.	✓
ChatPDF	“Challenges included high proliferation of ICT solutions, departmentalism, deficiencies in strategic planning, lack of stability in institutional structures, and insufficient national evaluation mechanisms. These issues led to conflicts and tensions in implementing e-government initiatives, hindering effective coordination among various government entities and impacting service delivery”.	

5.1.4 a) Forma de governo		
ChatGPT-4o	“The article does not explicitly mention forms of government like republic, monarchy, dictatorship, or democracy. However, it discusses different coordination approaches, such as centralization, inter-agency collaboration, and shared infrastructures, focusing on how government activities and relationships are organized through e-government initiatives in a democratic system”.	✓
ChatPDF	“The article does not explicitly mention forms of coordination like republic, monarchy, or dictatorship. Instead, it focuses on the complexities of e-government coordination, emphasizing strategic planning, institutional frameworks, and the need for integrated approaches to manage relationships and activities among government entities effectively”.	
5.1.4 b) Tradição democrática		
ChatGPT-4o	“The article highlights democratic principles like transparency, accountability, and citizen-centered service delivery as influencing coordination models. These values drive efforts to enhance public participation (e.g., e-participation tools) and ensure interoperability across agencies. However, weak accountability and administrative fragmentation in the Czech Republic hinder fully effective democratic coordination practices”.	✓
ChatPDF	“The article suggests that democratic values such as transparency, accountability, and citizen participation shape coordination models in e-government. These principles foster collaborative governance, enhancing public service delivery, while contrasting with authoritarian models that may prioritize control over inclusivity, ultimately influencing the effectiveness and acceptance of coordination practices”.	
5.1.4 c) Nível de autonomia		
ChatGPT-4o	“The coordination model was influenced by a decentralized government structure”.	✗
ChatPDF	“Centralized government autonomy influenced coordination mechanisms and practices”.	
5.1.4 d) Características do domínio político		
ChatGPT-4o	“The characteristics of policy domains, such as administrative fragmentation, decentralized governance, and weak accountability, influenced coordination mechanisms. These factors led to inconsistent implementation, gaps in strategic alignment, and challenges in integrating	✓

	ICT solutions across levels of government, complicating coordination efforts and limiting efficient public service delivery”.	
ChatPDF	“The article identifies characteristics such as departmentalism, strategic planning deficiencies, and fragmented ICT solutions across policy domains. These traits complicate coordination, leading to inefficiencies and delays, thereby necessitating integrated approaches that enhance collaboration and streamline service delivery within e-government frameworks”.	
5.1.4 e) Cultura		
ChatGPT-4o	“The article highlights a culture of departmentalism and weak accountability in the Czech Republic, which hindered effective coordination. This fragmented culture limited inter-agency collaboration, led to inconsistent policy implementation, and created resistance to centralized coordination efforts, ultimately affecting the success and efficiency of e-government initiatives”.	✓
ChatPDF	“Cultural aspects such as historical departmentalism and a lack of trust in government influenced coordination mechanisms. These factors fostered resistance to change and hindered collaboration, necessitating a shift towards more integrated and participatory coordination models to enhance public service delivery and accountability”.	
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública		
ChatGPT-4o	“Governments influence coordination mechanisms through strategies like centralization of e-government management, development of regulatory frameworks, and creating centralized service portals. Political context, institutional stability, and stakeholder inclusion also affect outcomes, alongside the need for evidence-based evaluations and accountability mechanisms”.	✓
ChatPDF	“Governments adopted measures like centralized e-government strategies, institutional frameworks, and strategic planning to enhance coordination. Political context and social dynamics also played roles, as effective governance required alignment of policies with citizen needs and stakeholder involvement, impacting the success of coordination mechanisms and outcomes”.	

5.1.4 g) Condições socioeconómicas do país	
ChatGPT-4o	<p>"The article mentions post-communist socioeconomic conditions, such as administrative reforms and economic decentralization, which influenced coordination models. These conditions led to fragmented governance structures and inconsistent ICT integration, complicating coordination practices and necessitating centralization efforts to unify service delivery and improve efficiency across government levels".</p>
ChatPDF	<p>"Socioeconomic conditions, such as economic transition post-communism and varying levels of ICT infrastructure, influenced coordination models by creating disparities in service delivery and resource allocation. These conditions necessitated adaptive coordination practices to address inefficiencies and ensure equitable access to e-government services across different regions".</p>
5.1.5 a) Tipo de output	
ChatGPT-4o	<p>"The type of output in the article focuses on the provision of public services through integrated e-government solutions, such as Czech POINT, which offers authenticated extracts, document conversions, and online services. It emphasizes quantifiable aspects like the number of services and visits".</p>
ChatPDF	<p>"The article primarily discusses outputs related to service provision, specifically the delivery of e-government services through ICT solutions. It emphasizes the quantity of services offered, such as the number of extracts generated and messages sent, while also highlighting the need for quality assessments like user satisfaction".</p>
5.1.5 b) Tipo de outcome	
ChatGPT-4o	<p>"The type of outcome described in the article is increased efficiency and improved coordination in public services through the Czech POINT project, which integrated service delivery and minimized fragmentation in administrative processes".</p>
ChatPDF	<p>"The article identifies outcomes such as increased efficiency and productivity in public service delivery, enhanced citizen satisfaction, and improved accountability as key impacts of e-government implementation. It emphasizes the importance of evaluating these outcomes to ensure that e-government initiatives effectively meet user needs and expectations".</p>

5.1.5 c) Resultados da transformação digital	
ChatGPT-4o	<p>“Additional outcomes of coordination in the context of e-government include improved service delivery through platforms like Czech POINT, greater efficiency in public administration, and reduced duplication of efforts. However, challenges such as weak accountability, technical issues, and inconsistent coordination limited the full realization of these benefits”.</p>
ChatPDF	<p>“Additional outcomes of coordination in e-government included improved stakeholder inclusion in strategy design, enhanced trust in public administration, and the potential for better alignment of policies with citizen needs. However, neglecting stakeholder involvement could lead to distrust and negative perceptions of e-government initiatives”.</p>
5.1.5 d) Elementos de falha	
ChatGPT-4o	<p>“Obstacles identified include administrative fragmentation, weak accountability, departmentalism, frequent political changes, and inadequate evaluation mechanisms. Technical issues with ICT systems and a lack of stakeholder inclusion also compromised coordination. These factors hindered consistent strategic planning and effective long-term implementation of e-government initiatives, threatening the model's success”.</p>
ChatPDF	<p>“Obstacles identified included fragmented organizational structures, unstable political leadership, deficiencies in strategic planning, lack of stakeholder inclusion, and insufficient national evaluation mechanisms. These issues hindered effective coordination and implementation of e-government initiatives, potentially compromising their success and user satisfaction”.</p>
5.1.5 e) Resultados adversos da coordenação	
ChatGPT-4o	<p>“Yes, the article mentions negative consequences such as delays in service delivery, technical failures in systems like the vehicle registry, and inefficiencies in social reforms due to poor ICT integration. Additionally, fragmentation and weak accountability led to inconsistent coordination and reduced trust in e-government initiatives”.</p>
ChatPDF	<p>“Yes, the article mentions negative consequences such as system malfunctions, delays in service delivery, and public dissatisfaction due to poorly implemented ICT solutions. These issues led to distrust among citizens and highlighted the risks of inadequate preparation and communication during the implementation of e-government initiatives”.</p>

5.1.6 a) Métodos de avaliação de resultados	
ChatGPT-4o	<p>"The article mentions that evaluation of coordination results is limited, with scarce national evaluations and inadequate transparency. Metrics focus mainly on quantifiable outputs (e.g., number of services or users) rather than effectiveness, efficiency, or user satisfaction, hindering comprehensive assessment of the impact of coordinated activities".</p>
ChatPDF	<p>"The article notes that current evaluations primarily focus on quantifiable aspects, such as the number of services and financial expenditures, rather than on outcomes like user satisfaction and overall impact. This limited approach hinders a comprehensive assessment of the effectiveness and efficiency of coordinated e-government activities".</p>
5.1.6 b) Escala de coordenação	
ChatGPT-4o	<p>"Yes, the article references Metcalfe's coordination scale, which assesses the degree of coordination between government actors. The scale ranges from independent decision-making by individual actors to fully integrated, strategic coordination across agencies, highlighting varying levels of inter-agency cooperation in government coordination efforts".</p>
ChatPDF	<p>"Yes, the article references Metcalfe's coordination scale, which assesses the levels of coordination among government actors. It highlights that initial coordination efforts in the Czech Republic focused on higher levels of strategy rather than on independent decision-making by individual actors, indicating a need for more integrated approaches".</p>
5.1.6 c) Observações gerais	
ChatGPT-4o	<p>"No, the article does not reference the Sustainable Development Goals (SDGs) or emerging technologies like Artificial Intelligence, Blockchain, or Virtual Reality. Its focus is primarily on e-government coordination, ICT integration, and public service delivery within the context of the Czech Republic".</p>
ChatPDF	<p>"The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. It primarily focuses on the coordination of e-government practices and the challenges faced in the Czech Republic without discussing these specific topics".</p>

Legenda:

- ✓ Sim, apresenta um elevado grau de similaridade.
- ✗ Não, não apresenta um elevado grau de similaridade.

7.2 Comparação de resultados da análise de conteúdo tradicional e automática

Dado que os resultados obtidos pelas ferramentas de análise automática de conteúdo apresentavam um grande grau de semelhança, decidiu-se comparar os resultados das análises de conteúdo de apenas uma ferramenta automática com os resultados obtidos através da análise de conteúdo utilizando uma abordagem tradicional. Sendo assim, a ferramenta selecionada para a comparação de resultados foi o ChatGPT-4o.

Observando os resultados obtidos pelas ferramentas de análise automática de conteúdo, percebe-se que, apesar das diversas tentativas de refinamento do prompt (ver capítulo 6.3) e de a maioria das respostas serem coerentes, em alguns casos as ferramentas não atenderam exatamente ao esperado. Elas falham em não conseguir diferenciar ou discernir variáveis que são similares, como é o caso das seguintes variáveis:

- 5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação: nesta variável, as ferramentas automáticas de análise de conteúdo não responderam ao pretendido.
- 5.1.3 c) Formas de coordenação: em alguns casos, as ferramentas automáticas não diferenciaram esta variável com a variável *5.1.3 d) Mecanismos de coordenação*, apresentando respostas similares para ambas.
- 5.1.4 a) Forma de governo: existe grandes incertezas quanto à precisão das respostas para esta variável devido à escassez de artigos que descrevem claramente a forma de governo do país em questão. Mesmo nos casos em que os artigos mencionaram explicitamente a forma de governo, as ferramentas indicaram que não há uma referência clara a esse aspeto nos textos analisados.

Ao comparar os resultados obtidos de ambos os tipos de análises, nota-se uma significativa diferença de similaridade entre eles. Conclui-se, portanto, que essas ferramentas de análise automática de conteúdo não são totalmente confiáveis e podem ser usadas apenas como um suporte na análise de conteúdo. Por isso, é necessário que o investigador faça uma verificação complementar para garantir a precisão das informações geradas por essas ferramentas.

A seguir, é apresentada a tabela 6 com o intuito de corroborar as conclusões previamente apresentadas. Para esta comparação de resultados, foram utilizadas as respostas do artigo de Bonduki e Cunha (2022). A seleção deste artigo utilizado na comparação de resultados foi feita aleatoriamente.

Tabela 6: Comparação de resultados da análise de conteúdo tradicional e automática

Tipo de análise	Prompt e resposta correspondente	Similaridade
5.1.2 a) Foco principal do artigo		
Tradicional	"The research builds on the institutional literature that seeks to explain the policy effects of federalism and intergovernmental relations (IGR) to advance the comprehension of how to coordinate the actions of different levels of government when the delivery of effective policy is interdependent." "The research question that drives the study is: how do instruments and mechanisms of coordination affect the digital transformation of subnational governments in Brazil?"	✓
Automática	"The article focuses on how coordination instruments and mechanisms affect the digital transformation of subnational governments in Brazil, examining the role of the federal government in orchestrating these efforts within a federative context to achieve coherence in digital government services".	
5.1.2 b) Principais resultados do artigo		
Tradicional	The author does not present results, only explains the research methodology.	
Automática	"The article reports that federal coordination through various instruments and mechanisms significantly influences the digital transformation of subnational governments in Brazil, with outcomes varying based on the level of coordination and compliance with national digital policies, impacting service delivery and integration across governments".	×
5.1.2 c) Tipo de estudo		
Tradicional	Research-in-Progress.	✓
Automática	"The researchers used a multiple-case comparative analysis methodology".	

5.1.2 d) Domínio de ação política		
Tradicional	Digital Transformation.	✓
Automática	"The coordination practices are implemented in digital government services".	
5.1.2 e) País(es) onde a investigação foi realizada		
Tradicional	Brazil and its Federal States.	✓
Automática	"The study was conducted in Brazil across subnational governments".	
5.1.3 a) Definição de coordenação		
Tradicional	"We conceptualize coordination as the intentional action aimed at structuring the relationships among actors at all levels of the federation, governmental or non-governmental, to make coherent collective action feasible in a context of multiple stakeholders".	✓
Automática	"Coordination is defined as the intentional action to structure relationships among governmental and non-governmental actors at all levels of the federation, aiming to enable coherent collective action through the use of formal institutional instruments like laws, policies, and forums".	
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação		
Tradicional	State government.	✗
Automática	"The article adopts governance models based on hierarchies, markets, and networks, using instruments like regulations, financial incentives, and collaborative forums. These models structure intergovernmental coordination, aiming to balance authority between national and subnational governments for coherent digital transformation in a federalist context".	
5.1.3 c) Formas de coordenação		
Tradicional	Coordination negative, Coordination positive and Coordination policy and strategic.	✗
Automática	"Yes, the article mentions that coordination can take forms based on hierarchies, markets, and networks, where governments use regulations, financial incentives, and trust-building mechanisms to organize and manage their activities and relationships in the context of digital transformation".	
5.1.3 d) Mecanismos de coordenação		
Tradicional	"Bouckaert et al. [9] present a framework that classifies the different types of coordinating instruments according to three specific mechanisms: hierarchies, markets and networks".	✓

	<p>Hierarchies: “national governments coerce subnational governments into coordinated action, using resources like power and authority to create regulations or constrain the availability of budget”.</p> <p>Markets: “coordination will be obtained based on transactions and competition, and subnational governments are free to join in or not. Market-based instruments such as prices and contracts rely on negotiation and changing incentives”.</p> <p>Networks: “operate through the building of trust, mutual cooptation, and information exchange to achieve coordinated action”.</p>	
Automática	“The coordination mechanisms mentioned in the article are hierarchies, using regulations and authority; markets, involving competition and financial incentives; and networks, relying on trust, cooperation, and information exchange among government actors to achieve coordinated action in digital transformation”.	
5.1.3 e) Atores governamentais		
Tradicional	Brazilian Federal Governments and Subnational Governments (Brazilian State Governments).	
Automática	“In the article, the federal government, state governments, and local governments participate in the collaborative governance model, with the federal government playing a central role in orchestrating and coordinating digital transformation efforts among subnational entities”.	✓
5.1.3 f) Atores externos não governamentais		
Tradicional	No non-state government entities are considered.	
Automática	“The article does not explicitly mention the participation of non-governmental actors in the collaborative governance model”.	✓
5.1.3 g) Nível governamental		
Tradicional	National and Subnational (Federal Level).	
Automática	“The coordination model was implemented at the federal level”.	✓
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos		
Tradicional	<p>“Bouckaert et al. [9] present a framework that classifies the different types of coordinating instruments according to three specific mechanisms: hierarchies, markets and networks”.</p> <p>“The “coordinated authority model” explains the independence between the federal and subnational spheres, when there is a clear distinction of attributions and national and local governments don’t have to work together.</p>	✓

	In the “inclusive authority model”, the relationship is marked by hierarchy and dependence, with subnational governments only implementing policies designed and decided at the central level. Between one and another stands the “overlapping authority model” in which both federal and subnational governments have authority over policy and, therefore, the relationship has an interdependent character and is marked by the need for bargain and negotiation over joint action [40]”.	
Automática	“The coordination mechanisms or instruments used between government actors included regulations (hierarchy), financial incentives (markets), and collaborative forums (networks), facilitating cooperation, trust-building, and negotiation to manage digital transformation across federal, state, and local governments”.	
5.1.3 i) Características organizacionais do governo		
Tradicional	Being a research-in-progress article no specific characteristic are mentioned yet.	
Automática	“The organizational characteristics influencing coordination included Brazil's federalist political system, which grants autonomy to subnational governments, leading to challenges in integration and coherence across levels of government. This system required tailored coordination mechanisms to manage shared authority and responsibilities between national and subnational entities”.	×
5.1.3 j) Condições iniciais		
Tradicional	Being a research-in-progress article no specific situations are mentioned yet.	
Automática	“The initial factors influencing the formation of the coordination model were the need for coherence in digital transformation across Brazil's federalist structure, addressing fragmentation of digital services, regional inequalities, and the challenge of integrating subnational governments' efforts with national digital policies”.	×
5.1.3 k) Papel da tecnologia digital		
Tradicional	Being a research-in-progress article no specific situations are mentioned yet.	
Automática	“The article highlights the use of digital tools such as data sharing platforms, interoperability systems, and standards for digital service delivery to facilitate coordination between government actors. These tools enhance communication, streamline processes, and promote integration across different levels of government”.	×

5.1.3 l) Tempo		
Tradicional	Being a research-in-progress article no spicific situations are mentioned yet.	✓
Automática	“The article does not specify the duration of the coordination model”.	
5.1.3 m) Tensões que desafiam a coordenação		
Tradicional	Being a research-in-progress article no spicific situations are mentioned yet.	✗
Automática	“The challenges during the coordination process included fragmentation of initiatives, competition between governments, regional inequalities, lack of integration in digital services, and balancing subnational autonomy with federal coordination, all of which complicated the coherence and effectiveness of digital transformation efforts”.	
5.1.4 a) Forma de governo		
Tradicional	Brazil is a Federal Government made up of 26 States. The 26 States are interdependent causing fragmentation in digital initiatives, causing overlapping initiatives, higher costs for development solutions, non-existent or competing standards and lack of interoperability and inability to anticipate citizens' needs.	✗
Automática	“The article does not mention political systems like republics, monarchies, or democracies. Instead, it focuses on coordination forms within governance, specifically hierarchies, markets, and networks, which shape how organizations manage activities and relationships in digital transformation efforts”.	
5.1.4 b) Tradição democrática		
Tradicional	Not covered in the paper.	✗
Automática	“The article emphasizes federalism and intergovernmental cooperation, principles of democratic governance that influence coordination models. These democratic values promote negotiation, shared authority, and participation between national and subnational governments, shaping coordination mechanisms like networks and markets, and fostering collaboration over centralized, authoritarian approaches”.	
5.1.4 c) Nível de autonomia		
Tradicional	Implicit in the paper as it addresses coordination across federal and sate levels.	✗
Automática	“The decentralized autonomy of subnational governments influenced the coordination mechanisms”.	

5.1.4 d) Características do domínio político		
Tradicional	Not covered in the paper.	
Automática	“The article highlights characteristics of policy domains like digital government services, which require interoperability, data sharing, and integration across government levels. These characteristics necessitate coordination mechanisms that balance federal authority and subnational autonomy, influencing outcomes by promoting coherence in service delivery and reducing fragmentation”.	×
5.1.4 e) Cultura		
Tradicional	Not covered in the paper.	
Automática	“The article does not explicitly discuss cultural aspects influencing the coordination model. However, the decentralized nature of Brazil’s federalist system, with strong subnational autonomy, implicitly reflects a culture of regional diversity and self-governance, which influenced the need for flexible, negotiated coordination mechanisms”.	✓
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública		
Tradicional	Being a research-in-progress article no specific situations are mentioned yet.	
Automática	“Governments influence coordination mechanisms and outcomes through central government planning, regulatory frameworks, policy design, intergovernmental forums, and resource allocation. These tools aim to balance autonomy and integration among subnational entities, aligning their efforts towards cohesive digital transformation”.	×
5.1.4 g) Condições socioeconômicas do país		
Tradicional	Not covered in the paper.	
Automática	“The article highlights regional inequalities and varying levels of digital infrastructure as socioeconomic conditions influencing coordination. These disparities required tailored coordination mechanisms to address uneven development, promote integration, and ensure equitable digital service delivery across subnational governments, impacting the effectiveness of coordination efforts”.	×
5.1.5 a) Tipo de output		
Tradicional	This is research-in-progress paper. Not covered in the paper.	
Automática	“The type of output in the article includes service provision, focusing on digital government service delivery outcomes, specifically the effectiveness of policy	×

	implementation and service accessibility improvements through digital platforms”.	
5.1.5 b) Tipo de outcome		
Tradicional	This is research-in-progress paper. Not covered in the paper.	
Automática	“The type of outcome in the article includes process improvement and increased efficiency in digital government services, specifically aiming to streamline service delivery and enhance interoperability among government systems”.	×
5.1.5 c) Resultados da transformação digital		
Tradicional	This is research-in-progress paper. Not covered in the paper.	
Automática	“The article mentions additional outcomes of coordination in e-government, including improved interoperability of systems, enhanced data sharing, and more consistent service delivery across governments, but also highlights issues like slower services, redundant documentation requests, and barriers for vulnerable users due to fragmentation”.	×
5.1.5 d) Elementos de falha		
Tradicional	This is research-in-progress paper. Not covered in the paper.	
Automática	“The article identifies obstacles such as fragmentation of initiatives, competition between governments, lack of integration in digital services, regional inequalities, and the challenge of balancing subnational autonomy with federal coordination as factors that could compromise the success of digital transformation efforts”.	×
5.1.5 e) Resultados adversos da coordenação		
Tradicional	This is research-in-progress paper. Not covered in the paper.	
Automática	“Yes, the article mentions negative consequences such as inefficiencies, competition between governments, fragmentation of initiatives, increasing regional inequalities, and dissonance in service delivery due to poor coordination and lack of integration in digital government efforts”.	×
5.1.6 a) Métodos de avaliação de resultados		
Tradicional	The study described in the paper does not aim at evaluating the coordination mechanism.	
Automática	“Yes, the article mentions that coordination results are measured through rankings based on indicators of compliance with federal digital policies and the performance of digital government services. These rankings help evaluate	×

	the effectiveness and impact of coordinated activities among subnational governments”.	
5.1.6 b) Escala de coordenação		
Tradicional	The study described in the paper does not aim at evaluating the coordination mechanism.	
Automática	“Yes, the article mentions a ranking system to assess the degree of coordination between government actors, particularly in terms of compliance with federal digital policies and the outcomes of digital government advancements among Brazil's 27 federative units”.	×
5.1.6 c) Observações gerais		
Tradicional	No SDG are mentioned. 0 citations - 05/01/2024. No mentioned to spicif Technologies.	✓
Automática	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality”.	

Legenda:

- ✓ Sim, apresenta um elevado grau de similaridade.
- ×
- Não, não apresenta um elevado grau de similaridade.

8. CONCLUSÃO

Este trabalho teve como objetivo realizar uma análise de conteúdo dos artigos considerados pertinentes para o projeto GovMo, da UNU-EGOV, que investiga a coordenação e colaboração no e-Gov. O estudo focou-se especificamente na coordenação. Além disso, este trabalho tem como intuito avaliar a viabilidade do uso de ferramentas de análise automática de conteúdo para efeitos de análise de conteúdo de artigos.

Para a análise de conteúdo dos artigos relevantes para o projeto, foi utilizado um protocolo previamente estabelecido. Foram analisados 11 artigos publicados entre 2002 e 2022, abordando principalmente práticas de coordenação para implementação de governo eletrônico, transformação digital e o e-Gov, com foco em países ou regiões da Europa, Ásia, África e América. Os artigos incluem diferentes abordagens de investigação, como estudos de caso e outros estudos observacionais, revisões de literatura e pesquisas ainda em progresso. Alguns artigos identificam mecanismos e formas de coordenação e avaliam o impacto da cultura, das condições socioeconómicas e sociais, e características do governo na coordenação e implementação do governo eletrônico.

Para efeitos da avaliação da viabilidade do uso de ferramentas de análise automática de conteúdo na análise de artigos, foram criados prompts a partir das diversas variáveis do protocolo, que passaram por um processo de refinamento até alcançarem os melhores resultados possíveis. Após a conclusão desse refinamento, os prompts foram submetidos a ferramentas de análise automática de conteúdo, como o ChatGPT-4o e o ChatPDF.

As comparar os resultados das análises de ambas as ferramentas, verificou-se que havia um elevado grau de semelhança entre eles. Assim, pode-se concluir que os resultados obtidos são próximos, já que o ChatPDF utiliza um modelo GPT da OpenAI para a análise e elaboração de respostas. Embora nas plataformas comerciais do ChatPDF não seja especificado qual o modelo GPT utilizado, é possível supor que seja o GPT-3.5 ou o GPT-4, visto que apenas esses dois modelos possuem a capacidade de analisar documentos em alguns formatos.

Como os resultados das análises realizadas pelas ferramentas automáticas eram semelhantes, optou-se por comparar apenas os resultados da análise de conteúdo feita tradicionalmente com os resultados da análise do ChatGPT-4o. Essa comparação revelou que não havia uma grande semelhança entre resultados. Portanto, pode-se concluir que, embora as ferramentas automatizadas tenham o potencial de reduzir significativamente os custos e o tempo necessários para analisar grandes volumes de texto,

elas não substituem a leitura detalhada e a análise criteriosa. Em vez disso, essas ferramentas funcionam como amplificadoras e complementares à leitura cuidadosa e à análise crítica do investigador, servindo como uma validação dos resultados obtidos.

Esta conclusão está de acordo com a recomendação dada pela plataforma comercial do ChatGPT aos utilizadores: “O ChatGPT pode cometer erros. Considere verificar informações importantes”.

Os resultados agora obtidos estão situados no tempo. As ferramentas de IA estão em constante evolução, sendo frequente o aparecimento de novas edições das ferramentas existentes e novas ferramentas. Assim, seria interessante comparar os resultados apresentados neste documento com resultados futuros, a fim de avaliar o nível de similaridade entre eles.

Uma outra possibilidade diz respeito a um “estender” da aprendizagem das ferramentas, fornecendo textos específicos sobre os temas a tratar por forma a que as respostas possam ser informadas por esses textos. No trabalho realizado esta estratégia não foi seguida, tendo sido usadas ferramentas de IA, treinadas para fins não específicos.

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ANEXO I – FERRAMENTAS DE SUPORTE À ANÁLISE DE CONTEÚDO

Este anexo inclui descrições e características específicas de cada ferramenta de suporte à análise de conteúdo, estando estas apresentadas sob forma de uma grelha. A grelha incluirá as seguintes secções:

- Designação: Nome da ferramenta de suporte análise de conteúdo.
- Descrição da ferramenta: Perspetiva clara e objetiva do conceito da ferramenta de suporte à análise de conteúdo.
- Funcionalidades: Insights sobre as capacidades da ferramenta de suporte à análise de conteúdo e como esta pode ser utilizada para abordar ou resolver tarefas particulares.
- Limitações: Eventuais desafios ou restrições que podem surgir durante a utilização das ferramentas de suporte à análise de conteúdo.
- Formatos suportados: Tipos de documentos que podem ser trabalhados pela ferramenta de suporte à análise de conteúdo.
- Planos de subscrição: Planos de subscrição disponíveis com as características exclusivas de cada um e os respetivos preços.
- Produtos adicionais:
- Condições de utilização: Conjunto de normas ou orientações que o utilizador deve seguir para utilizar as ferramentas de suporte à análise de conteúdo.
- Data de recolha de informação: Data em que as informações e características das ferramentas de suporte à análise de conteúdo foram recolhidas.

As ferramentas de suporte à análise de conteúdo consideradas neste trabalho e que foram alvo de análise detalhada e específica foram as seguintes:

Ferramenta 1	ATLAS.ti
Ferramenta 2	Delve
Ferramenta 3	MAXQDA
Ferramenta 4	NVivo
Ferramenta 5	Quirkos
Ferramenta 6	Transana

Legenda:

Formatos:

GB Gigabyte

Suporte dos formatos:

✓ Sim

✗ Não

Símbolos:

USD Dólar americano

EUR Euro

Ferramenta 1	ATLAS.ti				
Descrição	O ATLAS.ti combina o conhecimento humano com a eficiência da IA para fornecer insights rápidos e precisos, permitindo aos utilizadores interagirem diretamente com os seus documentos, que são codificados automaticamente de acordo com as intenções dos mesmos, resultando em análises personalizáveis.				
Funcionalidades	Torna a identificação de insights profundos mais rápida e fácil. Permite importar ou carregar dados de qualquer fonte e gerir tudo num único software. Permite editar conteúdo, refinar e estruturar dados conforme necessário. Suporte gratuito 24 horas por dia. Compatível com Windows, macOS e versão Web. Permite desbloquear conhecimento para: análise de dados de pesquisa, análise de entrevistas, análise temática, revisão e análise de literatura, análise de conteúdo, trabalhos de conclusão de curso, etc. Múltiplos utilizadores podem trabalhar simultaneamente no mesmo projeto. Ferramentas com tecnologia OpenAI. Suporte a Unicode em todo o documento. Possibilita adicionar comentários a memorandos. Permite a criação de nuvens de palavras (palavras mais frequentes), gráficos ou redes e distribuições de código (gráficos que mostram a frequência de código).				
Limitações	Nada a reportar.				
Formatos suportados	Áudio	Imagem/Foto	Rede social	Texto	Vídeo
	✓	✓	✓	✓	✓
Planos de subscrição	<u>Plano Gratuito</u> : acesso completo a todos os recursos da ferramenta durante 5 dias (uso ativo). <u>Plano(s) Pago(s)</u> : Licenças educacionais - 24 EUR por mês. Licenças não comerciais e governamentais - 25 EUR por mês. Licenças comerciais - 30 EUR por mês. Licenças para estudantes - 13 EUR por mês. Licenças para Campus Universitários - é necessário contactar o suporte ao cliente na plataforma.				
Produtos adicionais	Nada a reportar.				
Condições de utilização	É necessário criar conta de utilizador em qualquer plano de subscrição.				
Data de recolha de informação	Setembro 2024.				

Ferramenta 2	Delve				
Descrição	Delve é um software de análise de dados qualitativos com uma interface intuitiva e recursos assistidos pela IA. É uma ferramenta de análise qualitativa online colaborativa e simples de usar que permite encontrar insights humanos rigorosos e de forma rápida.				
Funcionalidades	<p>Assistente de IA incorporado na ferramenta.</p> <p>Permite desbloquear conhecimento para: análise temática, teoria fundamentada, análise de conteúdo, análise narrativa, análise do discurso, análise fenomenológica interpretativa, entrevista semiestruturada e análise do grupo focal, métodos mistos e outras metodologias qualitativas.</p> <p>Fornecer um guia e um curso para codificação qualitativa.</p> <p>Ajuda a comprovar insights aos clientes, colocando todas as citações importantes no final dos dados.</p> <p>Permite a visualização de dados de diferentes dimensões.</p> <p>Através de um software de pesquisa qualitativa online é permitido ao utilizador encontrar insights mais representativos e menos tendenciosos.</p> <p>Sistema de codificação flexível que evolui conforme os insights encontrados.</p> <p>Interface simples e intuitiva que facilita a análise de pesquisa.</p> <p>AI Chat atua como o “debriefing” virtual para rever e discutir as descobertas do utilizador.</p> <p>Permite a visualização de dados através de gráficos e agrupamento e categorização de códigos.</p>				
Limitações	<p>É oferecida uma versão Web, mas não é disponível download para macOS e Windows.</p> <p>Não oferece funcionalidades avançadas como nuvens de palavras e redes de códigos.</p>				
Formatos suportados	Áudio	Imagem/Foto	Rede social	Texto	Vídeo
	X	X	X	✓	X
Planos de subscrição	<p><u>Plano Gratuito</u>: acesso completo a todos os recursos da ferramenta durante 14 dias.</p> <p><u>Plano(s) Pago(s)</u>: 50 USD por utilizador mensalmente; permite a colaboração com outros utilizadores; projetos, transcrições e códigos ilimitados; suporte rápido ao cliente; cancelamento do plano em qualquer momento.</p>				
Produtos adicionais	Nada a reportar.				
Condições de utilização	É necessário criar conta de utilizador em qualquer plano de subscrição.				
Data de recolha de informação	Setembro 2024.				

Ferramenta 3	MAXQDA				
Descrição	O MAXQDA torna a análise de dados qualitativos mais rápida e fácil, oferecendo uma ampla gama de ferramentas para métodos de análise de dados, análise qualitativa de conteúdo, análise de discurso, métodos mistos e muito mais.				
Funcionalidades	<p>Software líder em métodos mistos.</p> <p>Permite desbloquear conhecimento para: análise de dados de pesquisa, análise de entrevistas, análise temática, revisão e análise de literatura, análise de conteúdo.</p> <p>Intuitivo e fácil de usar.</p> <p>Suporte abrangente ao cliente.</p> <p>Permite a criação de nuvens de palavras (palavras mais frequentes), gráficos ou redes e distribuições de código (gráficos que mostram a frequência de código).</p> <p>Interfaces idênticas no Windows e macOS.</p> <p>Qualquer membro pode trabalhar offline, necessitando apenas de conexão a internet durante o upload e download de ficheiros.</p> <p>Exporta dados em diferentes formatos, como Excel, SPSS, R, etc.</p>				
Limitações	Disponível download para Windows e macOS, não sendo oferecida uma versão Web.				
Formatos suportados	Áudio	Imagem/Foto	Rede social	Texto	Vídeo
	✓	✓	✓	✓	✓
Planos de subscrição	<p><u>Plano Gratuito</u>: acesso completo a todos os recursos do MAXQDA durante um período de 14 dias.</p> <p><u>Plano(s) Pago(s)</u>: Licenças educacionais - 220 EUR por ano para utilizador único ou 880€ por ano para licença em rede; MAXQDA + AI Assist (limitado a 10 páginas de texto diariamente) + MAXQDA Transcription (60 minutos de transcrição gratuito).</p> <p>Licenças não comerciais e governamentais - 270 EUR por ano para utilizador único ou 1080€ por ano para licença em rede; MAXQDA + AI Assist (limitado a 10 páginas de texto diariamente) + MAXQDA Transcription (60 minutos de transcrição gratuito).</p> <p>Licenças comerciais - 500 EUR por ano para utilizador único ou 2000€ por ano para licença em rede; MAXQDA + AI Assist (limitado a 10 páginas de texto diariamente) + MAXQDA Transcription (60 minutos de transcrição gratuito).</p> <p>Licenças para estudantes - 92,20 EUR por ano para utilizador único; MAXQDA + AI Assist (limitado a 10 páginas de texto diariamente).</p>				
Produtos adicionais	<p>MAXQDA Transcription - transcreve automaticamente ficheiros de áudio e vídeos em mais de 40 idiomas; para clientes comerciais o preço varia de acordo com o número de horas de transcrição (20 EUR para 2 horas de transcrição/49 EUR para 5 horas de transcrição/78 EUR para 10 horas de transcrição/150 EUR para 20 horas de transcrição); para clientes privados o preço também varia de acordo com o número de horas de transcrição (23,80 EUR para 2 horas de transcrição/58,31 EUR para 5 horas de transcrição/92,82 EUR para 10 horas de transcrição/178,50 EUR para 20 horas de transcrição).</p> <p>MAXQDA Analytics Pro - adiciona um módulo "Stats" aos recursos avançados da análise qualitativa, ou seja, analisa estatisticamente os dados qualitativos;</p> <p>Licenças educacionais - 250 EUR por ano para utilizador único ou 1000 EUR por ano para licença em rede; MAXQDA + AI Assist (limitado a 10 páginas de texto diariamente) + MAXQDA Transcription (60 minutos de transcrição gratuito).</p> <p>Licenças não comerciais e governamentais - 320 EUR por ano para utilizador único ou 1280 EUR por ano para licença em rede; MAXQDA + AI Assist (limitado a 10 páginas de texto diariamente) + MAXQDA Transcription (60 minutos de transcrição gratuito).</p>				

	<p>Licenças comerciais - 600 EUR por ano para utilizador único ou 2400 EUR por ano para licença em rede; MAXQDA + AI Assist (limitado a 10 páginas de texto diariamente) + MAXQDA Transcription (60 minutos de transcrição gratuito).</p> <p>Licenças para estudantes – 107,10 EUR por ano para utilizador único; MAXQDA + AI Assist (limitado a 10 páginas de texto diariamente).</p> <p>MAXQDA TeamCloud - permite que os ficheiros sejam partilhados entre uma equipa de trabalho através de um espaço de nuvem seguro (“secure cloud space”); licença disponível para assinantes anuais do MAXQDA ou MAXQDA Analytics Pro; 25 GB de espaço de armazenamento.</p> <p>AI Assist - automatiza o processo de codificação com AI Coding e fornece recomendações de codificação para segmentos de texto que correspondam aos critérios de codificação esperados; 120 EUR por ano para utilizador único e 480 EUR para licença em rede.</p> <p>*utilizador único pode ser composto de 1 a 20 licenças e licença em rede pode ser composto de 5 a 20 pessoas.</p> <p>*os valores de cada pacote foi consultado pelo menor número de licenças ou membros de equipa.</p>
Condições de utilização	É necessário criar conta de utilizador em qualquer plano de subscrição.
Data de recolha de informação	Setembro 2024.

Ferramenta 4	NVivo				
Descrição	O NVivo é um software de análise qualitativa desenvolvido pela Lumivero, que permite aos utilizadores importar, organizar, explorar e conectar dados, facilitando na colaboração entre equipas de trabalho e na descoberta de insights mais profundos em dados qualitativos com maior rapidez.				
Funcionalidades	Organizar e codificar diversas fontes de dados num projeto central. Atribuir atributos ao dados (por exemplo, dados demográficos) para fins comparativos. Adicionar interpretações e notas. Consultar e pesquisar notas. Visualizar dados com mineração de texto. Partilhar dados e resultados. Existem tutoriais gratuitos. Oferece um suporte ao cliente 24 horas por dia. Permite desbloquear conhecimento para: análise temática, estudos de caso, análise de entrevistas, análises de conteúdo, revisão e análise de literatura. Permite a criação de nuvens de palavras (palavras mais frequentes), gráficos ou redes e distribuições de código (gráficos que mostram a frequência de código).				
Limitações	Só é oferecida uma versão Web no NVivo Collaboration Cloud (versão que não tem todas as funcionalidades avançadas numa versão desktop, mas permite acesso remoto e trabalho colaborativo, especialmente útil para equipas distribuídas geograficamente).				
Formatos suportados	Áudio	Imagem/Foto	Rede social	Texto	Vídeo
	✓	✓	✓	✓	✓
Planos de subscrição	<u>Plano Gratuito:</u> NVivo - acesso completo durante 14 dias. CITAVI - acesso completo durante 30 dias. NVivo Transcription - acesso completo durante 15 minutos. NVivo Collaboration Cloud - acesso completo durante 14 dias. <u>Plano(s) Pago(s):</u> Licenças educacionais - NVivo com preço anual de 430 EUR; NVivo AI Assistant com preço anual de 227,27 EUR; NVivo Transcription com preço anual de 28,50 EUR; NVivo Collaboration Cloud com preço anual de 89 EUR. Licenças não comerciais e governamentais - NVivo com preço anual de 590 EUR; NVivo AI Assistant com preço anual de 227,27 EUR; NVivo Transcription com preço anual de 28,50 EUR; NVivo Collaboration Cloud com preço anual de 89 EUR. Licenças comerciais - NVivo com preço anual de 105 EUR; NVivo AI Assistant com preço anual de 227,27 EUR; NVivo Transcription com preço anual de 28,50 EUR; NVivo Collaboration Cloud com preço anual de 89 EUR.				
Produtos adicionais	CITAVI - simplifica o processo de escrita e de pesquisa através de uma ferramenta projetada para organizar, rastrear e formatar a escrita de referências. É um gestor de referências centralizado. NVivo AI Assistant - permite obter resultados de pesquisa de forma mais rigorosa e em menos tempo (em comparação com o NVivo, este produto aprofunda ainda mais nos detalhes dos dados). NVivo Transcription - assistente de transcrição automático que utiliza tecnologia de aprendizado de máquina de forma a produzir transcrições de ficheiros em vídeo e áudio, usando processamento de linguagem natural com 90% de precisão. NVivo Collaboration Cloud - permite a partilha de dados e insights com segurança entre equipas de trabalho.				
Condições de utilização	É necessário criar conta de utilizador em qualquer plano de subscrição.				

Data de recolha de informação	Setembro 2024.
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Ferramenta 5	Quirkos				
Descrição	Quirkos é um software de análise qualitativa, desenvolvido para facilitar a compreensão de dados textuais de maneira mais rápido e descomplicada.				
Funcionalidades	<p>Rápido de aprender e flexível de usar.</p> <p>Pode ser utilizado num navegador web (Quirkos Web) ou como um software normal Windows e macOS, que pode ser instalado num computador ou tablet. Vários utilizadores podem trabalhar no mesmo projeto caso tenham assinatura Quirkos Cloud.</p> <p>Suporta texto enriquecido ("rich texto") ou formatado.</p> <p>Gera relatórios em imagens HTML, PDF e PNG.</p> <p>Exporta arquivos em formatos SQLite, JSON, DOCX, CSV e Excel.</p> <p>Permite criptografar artigos de um projeto.</p> <p>Permite a visualização de dados através de gráficos e agrupamento e categorização de códigos.</p> <p>Permite desbloquear conhecimento para: análise temática, estudos de caso, análise de entrevistas, análises de conteúdo, revisão e análise de literatura.</p>				
Limitações	Não oferece funcionalidades avançadas como nuvens de palavras e redes de códigos.				
Formatos suportados	Áudio	Imagem/Foto	Rede social	Texto	Vídeo
	X	X	X	✓	X
Planos de subscrição	<p><u>Plano Gratuito</u>: acesso completo a todos os recursos do Quirkos durante um período de 14 dias.</p> <p><u>Plano(s) Pago(s)</u>: Quirkos Cloud - versão baseada em nuvem projetada para facilitar a análise colaborativa e acesso remoto a dados colaborativos; valor anual de subscrição de 55 EUR.</p> <p>Quirkos Transcribe - facilita a transcrição de gravações de áudio, transformando-as em texto para que possam ser analisadas qualitativamente; preço de subscrição de 11 EUR por mês, pago anualmente.</p>				
Produtos adicionais	Nada a reportar.				
Condições de utilização	É necessário criar conta de utilizador em qualquer plano de subscrição.				
Data de recolha de informação	Setembro 2024.				

Ferramenta 6	Transana				
Descrição	A Transana disponibiliza as ferramentas mais avançadas e sofisticadas para a análise qualitativa de textos, imagens, áudios ou vídeos, permitindo aos utilizadores trabalhar com os dados desejados, da maneira que preferirem, utilizando a metodologia qualitativa da sua preferência.				
Funcionalidades	<p>Oferece um suporte ao cliente 24 horas por dia.</p> <p>Permite desbloquear conhecimento para: análise temática, estudos de caso, análise de entrevistas, análises de conteúdo, revisão e análise de literatura.</p> <p>Realiza uma transcrição automática ficheiros áudio, imagens/vídeo, texto e vídeo utilizando as tecnologias de IA mais avançadas.</p> <p>Possibilita a realização de várias transcrições para os ficheiros, de forma a possibilitar analisar dados a partir de diferentes perspetivas numa única tela.</p> <p>Proporciona às equipas de trabalho que possam trabalhar remotamente e partilhar dados em tempo real.</p> <p>Permite a criação de nuvens de palavras (palavras mais frequentes), gráficos ou redes e distribuições de código (gráficos que mostram a frequência de código). Contudo, Transana é mais especializado em dados multimédia e transcrições.</p>				
Limitações	Disponível download para Windows e macOS, não sendo oferecida uma versão Web.				
Formatos suportados	Áudio	Imagem/Foto	Rede social	Texto	Vídeo
	✓	✓	✗	✓	✓
Planos de subscrição	<p><u>Plano Gratuito:</u> Não oferece nenhum teste de utilização gratuito. É oferecido uma versão de demonstração gratuita e uma versão de teste com um valor de 25 USD, válido por um mês.</p> <p><u>Plano(s) Pago(s):</u> Transana Basic - 170 USD por computador; projetado para utilizadores com dados de vídeo e áudio que necessitam de um software acessível, mas poderoso, no sentido de ajudar a realizar análises aprofundadas.</p> <p>Transana Professional - 395 USD por computador; permite a análise de vídeos, ficheiros áudio, imagens estáticas e dados de texto, incluindo dados de pesquisa.</p> <p>Transana Multiuser - 895 USD por projeto; reúne os principais recursos do Transana Professional para equipas de trabalho; permite a partilha de dados em tempo real com outros membros da equipa de trabalho.</p>				
Produtos adicionais	Transana Cloud Service - 360 USD por ano; servidor seguro, económico e de fácil utilização, que possibilita às equipas de trabalho utilizarem o poder colaborativo do Transana Multiuser, sem a necessidade de lidar com desafios técnicos complexos ou custos associados à manutenção de um servidor de dados próprio; forma mais fácil de colocar uma equipa de trabalho em funcionamento com o Transana Multiuser.				
Condições de utilização	É necessário criar conta de utilizador em qualquer plano de subscrição.				
Data de recolha de informação	Setembro 2024.				

ANEXO II – FERRAMENTAS DE ANÁLISE AUTOMÁTICA DE CONTEÚDO

Este anexo inclui descrições e características específicas de cada ferramenta de análise automática de conteúdo, estando estas apresentadas sob forma de uma grelha. A grelha incluirá as seguintes secções:

- Designação: Nome da ferramenta de análise automática de conteúdo.
- Descrição da ferramenta: Perspetiva clara e objetiva do conceito da ferramenta de análise automática de conteúdo.
- Funcionalidades: Insights sobre as capacidades da ferramenta de análise automática de conteúdo e como esta pode ser utilizada para abordar ou resolver tarefas particulares.
- Limitações: Eventuais desafios ou restrições que podem surgir durante a utilização das ferramentas de análise automática de conteúdo.
- Formatos suportados: Tipos de documentos que podem ser trabalhados pela ferramenta de análise automática de conteúdo.
- Planos de subscrição: Planos de subscrição disponíveis com as características exclusivas de cada um e os respetivos preços.
- Condições de utilização: Conjunto de normas ou orientações que o utilizador deve seguir para utilizar as ferramentas de análise automática de conteúdo.
- Data de recolha de informação: Data em que as informações e características das ferramentas de análise automática de conteúdo foram recolhidas.

Nas descrições comerciais das ferramentas de análise automática de conteúdo, tanto para discutir as funcionalidades quanto as limitações, é frequentemente utilizado o termo “conversar” (“to talk”). Portanto, este termo é usado nas descrições abaixo.

As ferramentas de análise automática de conteúdo consideradas neste trabalho e que foram alvo de análise detalhada e específica são as seguintes:

Ferramenta 1	AskYourPDF
Ferramenta 2	ChatDOC
Ferramenta 3	ChatGPT-4o
Ferramenta 4	ChatInDoc
Ferramenta 5	ChatPDF
Ferramenta 6	Docalysis
Ferramenta 7	FileChat
Ferramenta 8	FileGPT
Ferramenta 9	PDF.AI
Ferramenta 10	PDFConvo
Ferramenta 11	PDFgear
Ferramenta 12	LightPDF
Ferramenta 13	Sharly

Legenda:

Formatos:

CSV Comma-separated values
DOCX Formato usado nos documentos produzidos pelo MS Word
EPUB Electronic Publication
Excel Formato usado nos documentos produzidos pelo MS Excel
HTML HyperText Markup Language
MB Megabyte
PDF Portable Document Format
PPTX Formato usado nos documentos produzidos pelo MS Powerpoint
RTF Rich Text Format
SCAN Tipo de arquivo constituído por imagens ou documentos digitalizados
TXT Text file
URL Uniform Resource Locator

Suporte dos formatos:

✓ Sim
✗ Não
€ Sim, quando é ativado o Plano Pago

Símbolos:

USD Dólar americano
EUR Euro

Ferramenta 1	AskYourPDF																						
Descrição	É uma aplicação baseada em Inteligência Artificial que permite aos utilizadores interagir com documentos de vários formatos. Para isso, basta carregar os ficheiros na aplicação e esta fornecerá uma interface de chat IA para obter informações relevantes dos documentos, facilitando a tomada de decisões.																						
Funcionalidades	Responde a perguntas, em qualquer idioma, sobre o conteúdo dos ficheiros. É acessível em qualquer dispositivo.																						
Limitações	Não permite “conversar” com vários ficheiros ao mesmo tempo. Não permite a partilha de ficheiros com outros utilizadores.																						
Formatos suportados	<table><tr><td>CSV</td><td>DOCX</td><td>EPUB</td><td>Excel</td><td>HTML</td><td>PDF</td><td>PPTX</td><td>RTF</td><td>SCAN</td><td>TXT</td><td>URL</td></tr><tr><td>✓</td><td>✗</td><td>✓</td><td>✗</td><td>✗</td><td>✓</td><td>✓</td><td>✓</td><td>✗</td><td>✓</td><td>✗</td></tr></table>	CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL	✓	✗	✓	✗	✗	✓	✓	✓	✗	✓	✗
CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL													
✓	✗	✓	✗	✗	✓	✓	✓	✗	✓	✗													
Planos de subscrição	<p><u>Plano Gratuito:</u> Limite de 100 páginas por ficheiro; limite de 15 MB de tamanho dos ficheiros; 50 perguntas diárias; limite de upload de 1 ficheiro por dia.</p> <p><u>Plano(s) Pago(s):</u> Plano Premium - 14,99 USD por mês; limite de 2500 páginas por ficheiro; limite de 30 MB de tamanho dos ficheiros; 1200 perguntas diárias; limite de upload de 50 ficheiros por dia.</p> <p>Plano Pro - 19,99 USD por mês; limite de 6000 páginas por ficheiro; limite de 90 MB de tamanho dos ficheiros; número ilimitado de perguntas diárias; limite de upload de 150 ficheiros por dia.</p>																						
Condições de utilização	Não é necessário criar conta de utilizador no plano de subscrição gratuito.																						
Data de recolha de informação	Março 2024.																						

Ferramenta 2	ChatDOC																						
Descrição	É uma ferramenta que permite uma interação com documentos utilizando linguagem natural e Inteligência Artificial, permitindo entender e analisar documentos de vários formatos de forma fácil e eficaz.																						
Funcionalidades	Responde a perguntas, em qualquer idioma, sobre o conteúdo dos ficheiros. Permite “conversar” com vários ficheiros ao mesmo tempo.																						
Limitações	Não permite a partilha de ficheiros com outros utilizadores.																						
Formatos suportados	<table><tr><td>CSV</td><td>DOCX</td><td>EPUB</td><td>Excel</td><td>HTML</td><td>PDF</td><td>PPTX</td><td>RTF</td><td>SCAN</td><td>TXT</td><td>URL</td></tr><tr><td>×</td><td>€</td><td>€</td><td>×</td><td>×</td><td>✓</td><td>×</td><td>×</td><td>€</td><td>€</td><td>€</td></tr></table>	CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL	×	€	€	×	×	✓	×	×	€	€	€
CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL													
×	€	€	×	×	✓	×	×	€	€	€													
Planos de subscrição	<p><u>Plano Gratuito:</u> Limite de upload de 2 ficheiros por dia; limite de 20 perguntas diárias; limite de 20 páginas por ficheiro; limite de 36 MB de tamanho por ficheiro; limite de 30 ficheiros por pasta; só aceita ficheiros PDF.</p> <p><u>Plano(s) Pago(s):</u> Plano Pro - 8,99 USD pro mês; limite de upload de 300 ficheiros por dia; limite de 300 perguntas diárias; número ilimitado de páginas por ficheiro; limite de 36 MB de tamanho por ficheiro; número ilimitado de ficheiros por pasta; suporta ficheiros PDF, DOCX, SCAN, URL, EPUB e TXT.</p>																						
Condições de utilização	<p>É necessário criar conta de utilizador em qualquer plano de subscrição.</p> <p>É necessário criar uma pasta/arquivo para que o utilizador consiga “conversar” com vários ficheiros ao mesmo tempo.</p>																						
Data de recolha de informação	Março 2024.																						

Ferramenta 3	ChatGPT-4o										
Descrição	Constitui uma evolução significativa dos modelos anteriores de GPT, desenvolvidos pela OpenAI. Trata-se de uma edição mais sofisticada do Generative Pretrained Transformer, destacando-se das versões anteriores pela sua capacidade de entender e criar textos e se adaptar a diferentes contextos e formatos.										
Funcionalidades	Responde a perguntas, em qualquer idioma, sobre o conteúdo dos ficheiros. Permite “conversar” com vários ficheiros ao mesmo tempo.										
Limitações	Não realiza leitura de imagens. Não permite a partilha de ficheiros com outros utilizadores. Limite de 40 mensagens a cada 3 horas.										
Formatos suportados	CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL
	✗	✓	✗	✓	✗	✓	✓	✗	✗	✓	✗
Planos de subscrição	<u>Plano Gratuito:</u> Não oferece nenhum teste de utilização gratuito. <u>Plano(s) Pago(s):</u> Plano Plus - 20 USD por mês; número ilimitado de upload; número ilimitado de perguntas mensais; limite de 20 MB de tamanho de ficheiros.										
Condições de utilização	É necessário criar conta de utilizador para a utilização da ferramenta.										
Data de recolha de informação	Março 2024.										

Ferramenta 4	ChatInDoc																						
Descrição	É uma ferramenta online que permite aos utilizadores efetuarem perguntas sobre o conteúdo dos ficheiros submetidos através de um chat, tendo como ideia principal proporcionar ao utilizador a vantagem de não precisar de ler o documento todo para realizar uma análise eficaz.																						
Funcionalidades	Responde a perguntas, em qualquer idioma, sobre o conteúdo dos ficheiros.																						
Limitações	Não permite a partilha de ficheiros com outros utilizadores. Poderá ocorrer problemas na leitura de tabelas nos ficheiros. Não consegue ler imagens nos ficheiros PDF. Não responde a ficheiros com mais de 100 páginas. Não permite “conversar” com vários ficheiros ao mesmo tempo.																						
Formatos suportados	<table><tr><td>CSV</td><td>DOCX</td><td>EPUB</td><td>Excel</td><td>HTML</td><td>PDF</td><td>PPTX</td><td>RTF</td><td>SCAN</td><td>TXT</td><td>URL</td></tr><tr><td>×</td><td>✓</td><td>×</td><td>✓</td><td>×</td><td>✓</td><td>✓</td><td>×</td><td>×</td><td>✓</td><td>×</td></tr></table>	CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL	×	✓	×	✓	×	✓	✓	×	×	✓	×
CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL													
×	✓	×	✓	×	✓	✓	×	×	✓	×													
Planos de subscrição	<u>Plano Gratuito</u> : 20 perguntas por mês; armazenamento limitado a 5 ficheiros PDF; até 10 MB por ficheiro; ficheiros excluídos após uma semana. <u>Plano(s) Pago(s)</u> : Plano Pro - 10 USD por mês; número limitado a 2000 perguntas por mês; limite de armazenamento de 30 ficheiros; tamanho máximo de 50 MB por ficheiro; ficheiros não serão eliminados automaticamente.																						
Condições de utilização	É necessário criar conta de utilizador em qualquer plano de subscrição.																						
Data de recolha de informação	Março 2024.																						

Ferramenta 5	ChatPDF																						
Descrição	É uma ferramenta gratuita que permite aos utilizadores interagir com documentos através de um chat utilizando tecnologias de Inteligência Artificial e oferece a capacidade de extrair pontos-chave, resumos e traduções.																						
Funcionalidades	Responde a perguntas, em qualquer idioma, sobre o conteúdo dos ficheiros arquivados numa pasta. Permite “conversar” com vários ficheiros ao mesmo tempo.																						
Limitações	Não consegue ler imagens nos ficheiros. Pode haver problemas na leitura de tabelas nos ficheiros. A criação de pastas para “conversar” com vários ficheiros ao mesmo tempo, só é válido em computadores desktop, não em telefones. Não permite a partilha de ficheiros com outros utilizadores.																						
Formatos suportados	<table><tr><td>CSV</td><td>DOCX</td><td>EPUB</td><td>Excel</td><td>HTML</td><td>PDF</td><td>PPTX</td><td>RTF</td><td>SCAN</td><td>TXT</td><td>URL</td></tr><tr><td>×</td><td>✓</td><td>×</td><td>×</td><td>×</td><td>✓</td><td>×</td><td>×</td><td>×</td><td>✓</td><td>✓</td></tr></table>	CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL	×	✓	×	×	×	✓	×	×	×	✓	✓
CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL													
×	✓	×	×	×	✓	×	×	×	✓	✓													
Planos de subscrição	<u>Plano Gratuito</u> : 2 ficheiros PDF por dia, cada um com um tamanho máximo de 120 páginas. <u>Plano(s) Pago(s)</u> : Pacote Plus - 6,99 EUR por mês ou 48,99 EUR por ano; número ilimitado de ficheiros PDF e de perguntas; até 2000 páginas por ficheiro PDF; até 50 ficheiros PDF por pasta; até 32MB por ficheiro PDF.																						
Condições de utilização	É necessário criar uma pasta para conseguir “conversar” com vários ficheiros PDF ao mesmo tempo. Não é necessário criar uma conta de utilizador no plano de subscrição gratuito.																						
Data de recolha de informação	Março 2024.																						

Ferramenta 6	Docalysis										
Descrição	É uma plataforma alimentada por Inteligência Artificial que responde a qualquer pergunta que o utilizador tenha sobre os documentos submetidos. Basta fazer upload de um ficheiro e deixar a ferramenta analisar, podendo de seguida manter uma conversa para obter as respostas das perguntas efetuadas.										
Funcionalidades	Responde a perguntas, em qualquer idioma, sobre o conteúdo dos ficheiros. Permite a partilha de ficheiros com outros utilizadores. Permite “conversar” com vários ficheiros ao mesmo tempo.										
Limitações	Ferramenta que opera com um sistema de créditos, no qual cada pergunta realizada à ferramenta é descontado um crédito.										
Formatos suportados	CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL
	✓	✓	✗	✗	✗	✓	✗	✗	✗	✓	✗
Planos de subscrição	<u>Plano Gratuito</u> : Tamanho máximo de ficheiros de 5 MB; upload de 600 páginas por mês; limite de 150 páginas por ficheiro; 50 créditos para perguntas por mês.										
	<u>Plano(s) Pago(s)</u> : Plano Plus - 14 USD por mês; tamanho máximo de ficheiros de 20 MB; upload de 3000 páginas por mês; limite de 600 páginas por ficheiro; 500 créditos para perguntas por mês.										
	Plano Ultimate - 35 USD por mês; tamanho máximo de ficheiros de 50 MB; upload de 8000 páginas por mês; limite de 1800 páginas por ficheiro; 1500 créditos para perguntas por mês.										
Condições de utilização	É necessário criar conta de utilizador em qualquer plano de subscrição. É necessário criar uma pasta/arquivo para que o utilizador consiga “conversar” com vários ficheiros ao mesmo tempo.										
Data de recolha de informação	Março 2024.										

Ferramenta 7	FileChat																						
Descrição	É uma ferramenta inovadora que utiliza Inteligência Artificial que permite que os utilizadores explorem documentos, efetuando perguntas diretamente à ferramenta e receber as respostas com citações extraídas dos documentos, facilitando a obtenção de informações específicas de documentos de forma eficiente e direta.																						
Funcionalidades	Responde a perguntas, em qualquer idioma, sobre o conteúdo dos ficheiros. Não permite “conversar” com vários ficheiros ao mesmo tempo.																						
Limitações	Não permite a partilha de ficheiros com outros utilizadores.																						
Formatos suportados	<table><tr><td>CSV</td><td>DOCX</td><td>EPUB</td><td>Excel</td><td>HTML</td><td>PDF</td><td>PPTX</td><td>RTF</td><td>SCAN</td><td>TXT</td><td>URL</td></tr><tr><td>✓</td><td>✓</td><td>✗</td><td>✗</td><td>✗</td><td>✓</td><td>✓</td><td>✗</td><td>✗</td><td>✓</td><td>✗</td></tr></table>	CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL	✓	✓	✗	✗	✗	✓	✓	✗	✗	✓	✗
CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL													
✓	✓	✗	✗	✗	✓	✓	✗	✗	✓	✗													
Planos de subscrição	<u>Plano Gratuito</u> : Limite máximo de upload de 50 documentos diários; até 20 MB de tamanho de ficheiros. <u>Plano(s) Pago(s)</u> : Não inclui nenhum plano de subscrição pago.																						
Condições de utilização	É necessário criar uma conta de utilizador para a utilização da ferramenta.																						
Data de recolha de informação	Março 2024.																						

Ferramenta 8	FileGPT																						
Descrição	<p>É uma ferramenta inovadora que integra a tecnologia de Inteligência Artificial, nomeadamente o modelo Generative Pre-trained Transformer (GPT), permitindo a interação com uma variedade de ficheiros.</p> <p>A base tecnológica do FileGPT visa melhorar significativamente o relacionamento com os documentos digitais, aproveitando a capacidade de IA de processar textos extensos, tornando o processo de extração de informações pertinentes dos documentos mais eficiente e eficaz.</p>																						
Funcionalidades	<p>Responde a perguntas, em qualquer idioma, sobre o conteúdo dos ficheiros.</p> <p>Permite “conversar” com vários ficheiros ao mesmo tempo.</p>																						
Limitações	<p>Poderá ocorrer problemas na leitura de tabelas nos ficheiros.</p> <p>A criação de uma pasta/arquivo para que o utilizador consiga “conversar” com vários ficheiros ao mesmo tempo só é válida em computadores.</p>																						
Formatos suportados	<table><tr><td>CSV</td><td>DOCX</td><td>EPUB</td><td>Excel</td><td>HTML</td><td>PDF</td><td>PPTX</td><td>RTF</td><td>SCAN</td><td>TXT</td><td>URL</td></tr><tr><td>×</td><td>✓</td><td>×</td><td>×</td><td>×</td><td>✓</td><td>×</td><td>×</td><td>×</td><td>✓</td><td>✓</td></tr></table>	CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL	×	✓	×	×	×	✓	×	×	×	✓	✓
CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL													
×	✓	×	×	×	✓	×	×	×	✓	✓													
Planos de subscrição	<p><u>Plano Gratuito</u>: Uso limitado da ferramenta.</p> <p><u>Plano(s) Pago(s)</u>: Plano Profissional - 15 USD por mês; acesso ilimitado à ferramenta.</p> <p>Existe um plano para empresas e negócios (será preciso contactar a plataforma).</p>																						
Condições de utilização	<p>É necessário criar conta de utilizador para a utilização da ferramenta.</p> <p>É necessário criar uma pasta/arquivo para que o utilizador consiga “conversar” com vários ficheiros ao mesmo tempo.</p>																						
Data de recolha de informação	Março 2024.																						

Ferramenta 9	PDF.AI																						
Descrição	É uma plataforma inovadora que permite aos utilizadores interagirem com documentos utilizando Inteligência Artificial, tornando possível fazer perguntas diretamente aos ficheiros PDF, com o intuito de esclarecer dúvidas, receber respostas e apresentar resumos das informações dos ficheiros.																						
Funcionalidades	Responde a perguntas, em qualquer idioma, sobre o conteúdo dos ficheiros. Permite a partilha de ficheiros com outros utilizadores.																						
Limitações	Não permite “conversar” com vários ficheiros ao mesmo tempo.																						
Formatos suportados	<table><tr><td>CSV</td><td>DOCX</td><td>EPUB</td><td>Excel</td><td>HTML</td><td>PDF</td><td>PPTX</td><td>RTF</td><td>SCAN</td><td>TXT</td><td>URL</td></tr><tr><td>×</td><td>×</td><td>×</td><td>×</td><td>×</td><td>✓</td><td>×</td><td>×</td><td>×</td><td>×</td><td>✓</td></tr></table>	CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL	×	×	×	×	×	✓	×	×	×	×	✓
CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL													
×	×	×	×	×	✓	×	×	×	×	✓													
Planos de subscrição	<u>Plano Gratuito:</u> Oferece um teste de utilização gratuito; upload de 1 ficheiro PDF; 500 perguntas; limite de 10 MB de tamanho do ficheiro. <u>Plano(s) Pago(s):</u> Plano Pro - 15 USD por mês, limite de 100 ficheiros por mês; 5000 perguntas mensais; limite de 50 MB de tamanho dos ficheiros. Plano Ultimate - 25 USD por mês, número ilimitado de upload de ficheiros; perguntas mensais ilimitadas; limite de 50 MB de tamanho dos ficheiros. Plano Enterprise - 35 USD por mês; número ilimitado de upload de ficheiros; perguntas mensais ilimitadas; limite de 100 MB de tamanho dos ficheiros.																						
Condições de utilização	É necessário criar conta de utilizador para a utilização da ferramenta.																						
Data de recolha de informação	Março 2024.																						

Ferramenta 10	PDFConvo																						
Descrição	É uma plataforma inovadora que permite aos utilizadores interagirem com documentos, conversando com os mesmos utilizando Inteligência Artificial. Esta abordagem baseada em chat torna possível extrair informações, fazer perguntas e entender o conteúdo dos documentos, poupando o trabalho de procurar manualmente através do texto.																						
Funcionalidades	Responde a perguntas, em qualquer idioma, sobre o conteúdo dos ficheiros PDF.																						
Limitações	Permite “conversar” com vários ficheiros ao mesmo tempo. Não permite a partilha de ficheiros com outros utilizadores.																						
Formatos suportados	<table><tr><td>CSV</td><td>DOCX</td><td>EPUB</td><td>Excel</td><td>HTML</td><td>PDF</td><td>PPTX</td><td>RTF</td><td>SCAN</td><td>TXT</td><td>URL</td></tr><tr><td>×</td><td>×</td><td>×</td><td>×</td><td>×</td><td>✓</td><td>×</td><td>×</td><td>×</td><td>×</td><td>×</td></tr></table>	CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL	×	×	×	×	×	✓	×	×	×	×	×
CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL													
×	×	×	×	×	✓	×	×	×	×	×													
Planos de subscrição	<p><u>Plano Gratuito:</u> Oferece um teste de utilização gratuito durante um dia; número ilimitado de upload de páginas de ficheiros PDF; número ilimitado de upload; número limitado de perguntas.</p> <p><u>Plano(s) Pago(s):</u> Pacote limitado - 3 USD por mês; número ilimitado de upload de páginas de ficheiros PDF; número ilimitado de upload diário; número limitado de perguntas diárias.</p> <p>Plano ilimitado - 12 USD por mês; número ilimitado de upload de páginas de ficheiros PDF; número ilimitado de upload diário; número ilimitado de perguntas diárias.</p>																						
Condições de utilização	É necessário criar conta de utilizador em qualquer plano de subscrição.																						
Data de recolha de informação	Março 2024.																						

Ferramenta 11	PDFgear																						
Descrição	<p>É um programa totalmente gratuito para gerir ficheiros PDF, oferecendo funcionalidades como edição, leitura, conversão e assinatura de documentos sem a necessidade de registo.</p> <p>Destaca-se pela sua facilidade de utilização, incorporando um assistente de IA, designado de Co-Pilot, que emprega técnicas de processamento de linguagem natural para realizar comandos e resumir documentos.</p>																						
Funcionalidades	<p>Responde a perguntas, em qualquer idioma, sobre o conteúdo dos ficheiros.</p> <p>Permite “conversar” com vários ficheiros ao mesmo tempo.</p> <p>É compatível com aplicativos Windows, macOS, Android e iOS.</p> <p>Tem funcionalidades adicionais como editar ou converter ficheiros PDF.</p>																						
Limitações	<p>É necessário descarregar a aplicação.</p> <p>Não permite a partilha de ficheiros com outros utilizadores.</p> <p>Não consegue ler tabelas nos ficheiros PDF.</p> <p>Não realiza análise de imagens nos ficheiros PDF.</p>																						
Formatos suportados	<table><tr><td>CSV</td><td>DOCX</td><td>EPUB</td><td>Excel</td><td>HTML</td><td>PDF</td><td>PPTX</td><td>RTF</td><td>SCAN</td><td>TXT</td><td>URL</td></tr><tr><td>×</td><td>×</td><td>×</td><td>×</td><td>×</td><td>✓</td><td>×</td><td>×</td><td>×</td><td>×</td><td>×</td></tr></table>	CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL	×	×	×	×	×	✓	×	×	×	×	×
CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL													
×	×	×	×	×	✓	×	×	×	×	×													
Planos de subscrição	<p><u>Plano Gratuito:</u> Atualmente a ferramenta é totalmente gratuita porque os developers pretendem recolher feedbacks dos utilizadores com o objetivo de melhorar rapidamente a ferramenta.</p> <p><u>Plano(s) Pago(s):</u> Não oferece nenhum plano de subscrição pago.</p>																						
Condições de utilização	É necessário criar conta de utilizador para a utilização da ferramenta.																						
Data de recolha de informação	Março 2024.																						

Ferramenta 12	LightPDF																						
Descrição	É uma plataforma online que utiliza Inteligência Artificial para analisar e processar documentos de diversos formatos. Oferece uma variedade de ferramentas para converter e editar documentos de outros formatos para PDF, além de resumir documentos complexos.																						
Funcionalidades	Responde a perguntas, em qualquer idioma, sobre o conteúdo dos ficheiros. É compatível com aplicativos Windows, macOS, Android e iOS. Tem funcionalidades adicionais como editar, converter e otimizar ficheiros PDF. Permite “conversar” com vários ficheiros ao mesmo tempo.																						
Limitações	Não consegue ler tabelas nos ficheiros PDF. Não permite a partilha de ficheiros com outros utilizadores.																						
Formatos suportados	<table><tr><td>CSV</td><td>DOCX</td><td>EPUB</td><td>Excel</td><td>HTML</td><td>PDF</td><td>PPTX</td><td>RTF</td><td>SCAN</td><td>TXT</td><td>URL</td></tr><tr><td>×</td><td>€</td><td>€</td><td>€</td><td>€</td><td>✓</td><td>€</td><td>×</td><td>×</td><td>€</td><td>€</td></tr></table>	CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL	×	€	€	€	€	✓	€	×	×	€	€
CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL													
×	€	€	€	€	✓	€	×	×	€	€													
Planos de subscrição	<u>Plano Gratuito:</u> Limite de 5 perguntas por dia; só aceita ficheiros PDF; limite de 100 páginas por documento; não permite “conversar” com vários ficheiros ao mesmo tempo. <u>Plano(s) Pago(s):</u> Plano Premium - 99 USD por mês; limite de 9000 perguntas por mês; aceita ficheiros PDF, DOCX, Excel, EPUB, TXT, URL e HTML; número ilimitado de páginas por documento; permite “conversar” com vários ficheiros ao mesmo tempo.																						
Condições de utilização	Não é necessário criar conta de utilizador no plano de subscrição gratuito.																						
Data de recolha de informação	Março 2024.																						

Ferramenta 13	Sharly																						
Descrição	É uma ferramenta assistida por Inteligência Artificial que facilita a interação com documentos extensos, possibilitando aos utilizadores elaborarem perguntas aos documentos, obtenham resumos dos ficheiros e extraiam informações específicas instantaneamente.																						
Funcionalidades	Responde a perguntas, em qualquer idioma, sobre o conteúdo dos ficheiros.																						
Limitações	Não permite “conversar” com vários ficheiros ao mesmo tempo. Não permite a partilha de ficheiros com outros utilizadores.																						
Formatos suportados	<table><tr><td>CSV</td><td>DOCX</td><td>EPUB</td><td>Excel</td><td>HTML</td><td>PDF</td><td>PPTX</td><td>RTF</td><td>SCAN</td><td>TXT</td><td>URL</td></tr><tr><td>×</td><td>✓</td><td>×</td><td>×</td><td>✓</td><td>✓</td><td>×</td><td>✓</td><td>×</td><td>✓</td><td>✓</td></tr></table>	CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL	×	✓	×	×	✓	✓	×	✓	×	✓	✓
CSV	DOCX	EPUB	Excel	HTML	PDF	PPTX	RTF	SCAN	TXT	URL													
×	✓	×	×	✓	✓	×	✓	×	✓	✓													
Planos de subscrição	<u>Plano Gratuito:</u> Uso limitado da ferramenta. <u>Plano(s) Pago(s):</u> Plano Profissional - 15 USD por mês; acesso ilimitado a ferramenta. Existe um plano para empresas e negócios (será preciso contactar a plataforma).																						
Condições de utilização	Não é necessário criar conta de utilizador no plano de subscrição gratuito.																						
Data de recolha de informação	Março 2024.																						

ANEXO III – ANÁLISE DOS ARTIGOS (ABORDAGEM TRADICIONAL)

Nesta secção, são apresentados os resultados das análises dos artigos de forma tradicional realizados pelo autor desta dissertação.

Dada a situação do projeto GovMo, na análise de conteúdo realizada optou-se por apenas identificar os trechos do texto dos artigos relevantes para cada uma das variáveis do protocolo. Assim, não foi elaborado nem aplicado um esquema de codificação.

Esta decisão contribuiu para que fosse dispensado o recurso a ferramentas de suporte à análise de conteúdo (ver capítulo 4.1.1)

Os artigos que foram analisados são os seguintes:

Artigo 1	Bonduki, M., & Cunha, M. A. (2022, October). Coordination of the Digital Transformation of Governments in Federalist Context: Hierarchy, Markets and Network-Based Instruments' Effects on Subnational Governments' digital service delivery. In <i>Proceedings of the 15th International Conference on Theory and Practice of Electronic Governance</i> (pp. 528-533).
Artigo 2	Nikraftar, T., & Shokri, R. (2014). Dominant discourse about important barriers to promoting coordination in Iranian government machinery. <i>Transforming Government: People, Process and Policy</i> , 8(3), 357-373.
Artigo 3	Sta, H. B. (2018). Organisational structure for the e-government coordination and interoperability framework: a case study of Tunisia. <i>Electronic Government, an International Journal</i> , 14(1), 51-77.
Artigo 4	Nurdin, N., Stockdale, R., & Scheepers, H. (2014). Coordination and cooperation in e-government: An Indonesian local e-government case. <i>The Electronic Journal of Information Systems in Developing Countries</i> , 61(1), 1-21.
Artigo 5	Špaček, D. (2014). Coordination of and through E-Government: The Case of the Czech Republic. <i>NISPAcee Journal of Public Administration and Policy</i> , 7(1), 83-106.
Artigo 6	Iyer, L. S., Singh, R., Salam, A. F., & D'Aubeterre, F. (2006). Knowledge management for Government-to-Government (G2G) process coordination. <i>Electronic Government, an International Journal</i> , 3(1), 18-35.
Artigo 7	Gao, X., Song, Y., & Zhu, X. (2013). Integration and coordination: Advancing China's fragmented e-government to holistic governance. <i>Government Information Quarterly</i> , 30(2), 173-181.
Artigo 8	Qunli, W., Hong, Z., & Xue, T. (2009, May). The Problems of Unification and Coordination in the Development of E-Government in China. In <i>2009 International Forum on Information Technology and Applications</i> (Vol. 3, pp. 538-540). IEEE.
Artigo 9	Berce, J., Bianchi, A., Centeno, C., Osimo, D., Millard, J., & Shahin, J. (2006). The Organisation and Coordination of European e-Government Research for the EU in 2010. In <i>Electronic Government: 5th International Conference, EGOV 2006, Kraków, Poland, September 4-8, 2006. Proceedings 5</i> (pp. 37-46). Springer Berlin Heidelberg.
Artigo 10	Reggi, L., & Ricci, C. A. (2014). The role of public companies in the coordination of e-government regional policies. <i>Economia e Politica Industriale</i> 41(3), 159-177.
Artigo 11	Organ, J. (2003). The coordination of e-government in historical context. <i>Public policy and administration</i> , 18(2), 21-36.

Artigo 1	Bonduki, M., & Cunha, M. A. (2022, October). Coordination of the Digital Transformation of Governments in Federalist Context: Hierarchy, Markets and Network-Based Instruments' Effects on Subnational Governments' digital service delivery. In Proceedings of the 15th International Conference on Theory and Practice of Electronic Governance (pp. 528-533).
5.1.2 a) Foco principal do artigo	"The research builds on the institutional literature that seeks to explain the policy effects of federalism and intergovernmental relations (IGR) to advance the comprehension of how to coordinate the actions of different levels of government when the delivery of effective policy is interdependent." "The research question that drives the study is: how do instruments and mechanisms of coordination affect the digital transformation of subnational governments in Brazil?"
5.1.2 b) Principais resultados do artigo	The author does not present results, only explains the research methodology.
5.1.2 c) Tipo de estudo	Research-in-Progress.
5.1.2 d) Domínio de ação política	Digital Transformation.
5.1.2 e) País(es) onde a investigação foi realizada	Brazil and its Federal States.
5.1.3 a) Definição de coordenação	"We conceptualize coordination as the intentional action aimed at structuring the relationships among actors at all levels of the federation, governmental or non-governmental, to make coherent collective action feasible in a context of multiple stakeholders".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	State government.
5.1.3 c) Formas de coordenação	Coordination negative, Coordination positive and Coordination policy and strategic.
5.1.3 d) Mecanismos de coordenação	"Bouckaert et al. [9] present a framework that classifies the different types of coordinating instruments according to three specific mechanisms: hierarchies, markets and networks". Hierarchies: "national governments coerce subnational governments into coordinated action, using resources like power and authority to create regulations or constrain the availability of budget". Markets: "coordination will be obtained based on transactions and competition, and subnational governments are free to join in or not. Market-based instruments such as prices and contracts rely on negotiation and changing incentives". Networks: "operate through the building of trust, mutual cooptation, and information exchange to achieve coordinated action".
5.1.3 e) Atores governamentais	Brazilian Federal Governments and Subnational Governments (Brazilian State Governments).
5.1.3 f) Atores externos não governamentais	No non-state government entities are considered.
5.1.3 g) Nível governamental	National and Subnational (Federal Level).
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	"Bouckaert et al. [9] present a framework that classifies the different types of coordinating instruments according to three specific mechanisms: hierarchies, markets and networks". "The "coordinated authority model" explains the independence between the federal and subnational spheres, when there is a clear distinction of attributions and national and local governments don't have to work together. In the "inclusive authority model", the relationship is

	marked by hierarchy and dependence, with subnational governments only implementing policies designed and decided at the central level. Between one and another stands the “overlapping authority model” in which both federal and subnational governments have authority over policy and, therefore, the relationship has an interdependent character and is marked by the need for bargain and negotiation over joint action [40]”.
5.1.3 i) Características organizacionais do governo	Being a research-in-progress article no specific characteristic are mentioned yet.
5.1.3 j) Condições iniciais	Being a research-in-progress article no spicific situations are mentioned yet.
5.1.3 k) Papel da tecnologia digital	Being a research-in-progress article no spicific situations are mentioned yet.
5.1.3 l) Tempo	Being a research-in-progress article no spicific situations are mentioned yet.
5.1.3 m) Tensões que desafiam a coordenação	Being a research-in-progress article no spicific situations are mentioned yet.
5.1.4 a) Forma de governo	Brazil is a Federal Government made up of 26 States. The 26 States are interdependent causing fragmentation in digital initiatives, causing overlapping initiatives, higher costs for development solutions, non-existent or competing standards and lack of interoperability and inability to anticipate citizens' needs.
5.1.4 b) Tradição democrática	Not covered in the paper.
5.1.4 c) Nível de autonomia	Implicit in the paper as it addresses coordination across federal and sate levels.
5.1.4 d) Características do domínio político	Not covered in the paper.
5.1.4 e) Cultura	Not covered in the paper.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	Being a research-in-progress article no spicific situations are mentioned yet.
5.1.4 g) Condições socioeconômicas do país	Not covered in the paper.
5.1.5 a) Tipo de output	This is research-in-progress paper. Not covered in the paper.
5.1.5 b) Tipo de outcome	This is research-in-progress paper. Not covered in the paper.
5.1.5 c) Resultados da transformação digital	This is research-in-progress paper. Not covered in the paper.
5.1.5 d) Elementos de falha	This is research-in-progress paper. Not covered in the paper.
5.1.5 e) Resultados adversos da coordenação	This is research-in-progress paper. Not covered in the paper.
5.1.6 a) Métodos de avaliação de resultados	The study described in the paper does not aim at evaluating the coordination mechanism.
5.1.6 b) Escala de coordenação	The study described in the paper does not aim at evaluating the coordination mechanism.
5.1.6 c) Observações gerais	No SDG are mentioned. 0 citations - 05/01/2024. No mentioned to spicif Technologies.

Artigo 2	Nikraftar, T., & Shokri, R. (2014). Dominant concourse about important barriers to promoting coordination in Iranian government machinery. <i>Transforming Government: People, Process and Policy</i> , 8(3), 357-373.
5.1.2 a) Foco principal do artigo	"The purpose of this paper is, at first, to reveal the present concourse about barriers to coordination in government web then collect the dominant concourse about barriers to alignment along the web of governmental machinery from the perspective of Iranian practitioners and scholars. Strengthening the coordination of government machinery is one of the purposes of the Iranian Government, but one of the important influences on coordination in government is the attitudes and perceptions of governing elites".
5.1.2 b) Principais resultados do artigo	"The statements of this concourse are organized in two main categories: policy and administrative barriers. Researchers utilized the Delphi technique to identify the 73 most important statements concerning the diversity of opinion within the present concourse"
5.1.2 c) Tipo de estudo	Research paper. This study was based on the Delphi technique.
5.1.2 d) Domínio de ação política	Iranian government.
5.1.2 e) País(es) onde a investigação foi realizada	Iran.
5.1.3 a) Definição de coordenação	"Peters (1998) emphasized that the coordination concept has two common meanings: (1) The extent to which organizations in their activities should consider other organizations' activities. This is a good criterion for operation between organizations. (2) Coordination as policy integration means that when selecting the public policies, we should consider a wide range of activities or programs of other organizations". "As mentioned above, this coordination can be achieved only by developing a common mental frame among the participants in the process".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	Not covered in the paper.
5.1.3 c) Formas de coordenação	Vertical and horizontal coordination. "To achieve the type of coordination mentioned above, different governments have selected different integrating strategies with different titles: <ul style="list-style-type: none"> • joined-up government (the UK); • horizontal government (Canada); • networked government (the USA); and • integrated government (New Zealand) (Halligan, 2008 p. 3)". Implicit in the paper: "Policy issues such as public health, national security and natural resource management require that multiple agencies work across vertical and horizontal administrative lines (Lance et al., 2007 p. 3)".
5.1.3 d) Mecanismos de coordenação	Not covered in the paper.
5.1.3 e) Atores governamentais	Ministries, departments and government agencies.
5.1.3 f) Atores externos não governamentais	Academics, citizens, private sectors, non-governmental organizations and political parties.

5.1.3 g) Nível governamental	National. “Observations suggest that the close and peaceful cooperation of all involved, working together effectively, is one of the significant challenges facing the national-level administration”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	Not covered in the paper.
5.1.3 i) Características organizacionais do governo	Centralized economy; Developing country; Prismatic administration. “In the early stage of the revolution, the new government focused on nationalizing certain industrial centers and founded an almost centralized economy”. “Iran, as a developing nation, has a prismatic administration”.
5.1.3 j) Condições iniciais	Lack of cooperation between government entities; Problems in implementing policies; Population dissatisfaction; Uncontrolled growth of the government structure; Multiple authorities with decision-making power; Redundant, disruptive and purposeless processes. “Observations suggest that the close and peaceful cooperation of all involved, working together effectively, is one of the significant challenges facing the national-level administration”. “As a developing country, Iran confronts the issue mentioned above. The public sector faces many problems in policy implementation resulting from the lack of collaboration in the administrative machinery. The dissatisfaction of citizens; the irrational expansion of government; diverse decision-making authorities; and repetitive, disruptive and futile processes in the public sector are some of the disharmonious elements in the governmental machinery (Iran Recruitment and Administrative Affairs Organization, 2000 p. 1)”.
5.1.3 k) Papel da tecnologia digital	“These technologies can serve a variety of different ends: <ul style="list-style-type: none"> • better delivery of government services to citizens; • improved interactions with business and industry; • citizen empowerment through access to information; • more efficient government management (Palvia and Sharma, 2006)”.
5.1.3 l) Tempo	Not covered in the paper.
5.1.3 m) Tensões que desafiam a coordenação	“(1) Administrative barriers: include structure and infrastructure barriers and deficiencies of public sector resources that prevent implementing the policies coordinately, as well as the following: <ul style="list-style-type: none"> • Lack of integrated inspection organizations • Different interpretations from a single act • Lack of fit between administrators and their organizational position in the government • Managerial instability in the administrative System • No strong instruments to obtain the government vision • Rigorous goal setting for administrative organizations is poor • Lack of full alignment between branches of government is a major barrier to shaping obvious policies • Work overload of administrators is a major barrier to eliminating repetitive and futile affairs • There is no managerial, experimental or professional capacity for implementation of public policies

- Departing experts from public sector
- Full intervention of government in bank System
- Meritocracy in public sector is a myth
- There is no efficient performance management system in public sector
- Taxing system has serious shortages
- Inefficient Management and Programming Organization (MPO)
- The lack of changes in the approach of former
- Management and Programming Organization over time for creating sustainable development and social justice
- Advocates in the government who believe in a certain political program without sufficient professional or academic capabilities
- Irrational increase in the number of budget articles in the public budget (for establishing the new organizations) without omitting any extra articles
- Lack of agility in government
- Inefficient quality assessment system in the public sector
- Some government organizations are egocentric
- There is administrative corruption in the public sector
- Functional ambiguity in some governmental organizations
- Lack of expert circles to offer advice on policy implementation in specialized councils
- Job instability of ministers in ministerial positions
- Technical and managerial capabilities of inspection organizations are poor
- Formalism is highlighted in public sector
- Lack of timely function reports of the governmental organizations
- Lack of urgency in policy implementation
- Parallel functions of some of the organizations based on parliamentary permission
- Disharmony between governmental organizations
- Extra-budgetary activities of some organizations
- The lack of room to coordinate massive programs because of the short time allocated to the approval process
- Public manager-based political approach
- Downsizing governmental organizations apparently and artificially
- Lack of monitoring system for identifying the degree of achievement of program goals
- Establishing new organizations to solve the previous organization's failures
- Financial decentralization plan is not implemented in government
- Alignment between organizational functions and their organizing mechanisms is poor in government
- Weakness in combating administrative corruption of public organizations
- Inattention to the comprehensive checkup and reengineering processes in the government
- There is no appropriate total quality management in public sector
- Significant red tape in the public sector
- Poor cooperation between public organizations
- Government inclination to possess the enterprises instead of making precise policies for them

- Weakness in establishing and developing e-Government
- Organizations resist transparency
- Inclination of some ambitious managers to expand their functions
- Scientific and professional disagreement between officials
- Political tendency of the expert body of the government that affects their professional assessments
- Lack of obligation for the public administrators to follow the professional agréments
- Weakness of trust between public administrators when they are implementing policies
- Inability to eliminate the organizations performing parallel functions because of their dependency on the different political parties
- Lack of free economy leads to the lack of free dialogue
- Ambiguous boundaries of private ownership
- Lack of awareness in some organizations about the mission of other public organizations
- There is a bureaucratic culture in the public sector
- Weakness of systematic thinking in the public sector
- Popularity of nepotism in the public sector
- Weakness of ethics in the public sector
- Lack of inclination of some managers to work in the framework of law
- Inclination to centralization in the public administration
- There is no program-oriented belief in the government
- There are still some undefined or useless positions in the government
- (2) Policy barriers: are the inappropriate current processes of decision-making in the government or deficiencies in national policies that hinder coordination in the government, as well as the following:
 - Obligation of political authorities to create coordination between policies is poor
 - There is no one fixed managerial position in ministries that public policies formulate based on their specialized authorities
 - There is no logical connection between policy-making levels in the political System
 - Contradiction between major laws and some other regulation solutions approved by other public authorities
 - Lack of alignment between public organizations' vision and government vision
 - There are repetitive and inflexible laws that still govern the administrative System
 - The lack of alignment between government purposes and administrative structures
 - Lack of clear-cut public policies in some fields
 - Lack of alignment between government programs
 - Some government programs are not clear
 - There is no balance between government revenue and its programs
 - There are different authorities in the government making decisions about a single issue
 - Inter-section councils do not have an active role in policy-making process
 - Lack of national strategic plan

	<ul style="list-style-type: none"> • Dictating the nation-wide decisions to the policymakers by their subordinates because of the policymakers' lack of knowledge about their domain • Government vision is unrealistic • The lack of alignment between government vision and short- and mid-term programs • There is no prioritizing system of programs for achieving national vision • Weak alignment between the fiscal and monetary public policies • Weak role of different councils in public policy-making • Public budget is not based on results • Weakness of laws warrants implementation itself • There is no legal support for promoting quality and productivity in the public sector • Lack of voting among the ministers in making the policies • Ministers lobbying with the President in nation-wide decision-making • Extracting many programs from a single unfulfilled program • Public policies focus on effects of public issues rather than on their causes • Lack of systematic perspective in lawmaking • Challenging the meta-policies with government's replacement • Creating decision makers to replace decision makers in the nation policy-making process • Increasing reliance on political tendencies instead of professions and experiences in making nation-wide decisions • Creating barriers for policy coordination by some self-interested groups • There is no common discourse about public policies among policymakers • Using political negotiations to reach mutual agreement in government is very difficult • Neglecting the nation-wide policies and instead making and following the daily policies • Selecting some of the policies and programs because of the rents in the government • Precedence of the local benefits over the national benefits in some parliament members' attitudes towards the policies • Conflict in policy-making as a result of different individual beliefs or theories • Incorrect relations between time, goals and programs in the government • Desire to fulfill unlimited expectations with the limited public budget • Lack of real political parties in the political System • Weak participation of the NGOs in public policy-making • Dependency of the main part of public budget to the oil revenue".
5.1.4 a) Forma de governo	<p>Islamic Republic.</p> <p>"The revolution of 1978-1979 in Iran abolished the system of monarchy and established an Islamic Republic system of government, which is based on the separation of powers and is a combination of parliamentary, presidential and Islamic systems of the government (Farazmand, 2001 p. 547). It provides for executive, legislative and judicial branches under the control of a spiritual leader. Iran's</p>

	<p>president is directly elected every four years. He is the head of the executive branch. A set of other institutions is designed as checks and balances in an attempt to protect the state's Islamic character (Faghihi, 1996). Except in matters that are directly placed under the jurisdiction of the leadership by the constitution, executive functions are to be exercised by the president and the ministers. The president is the head of the Council of Ministers (Faghihi, 1996 p. 6). The responsibilities of administration and civil service affairs, as well as planning and budgeting, are delegated to the president. Because the majority of the national income comes from oil revenues, economic planning (at least at the macro level) is considered imperative. Economic planning is also stipulated in the constitution (Azadehdel and Ramli, 2009 p. 79)".</p>
5.1.4 b) Tradição democrática	Not covered in the paper.
5.1.4 c) Nível de autonomia	<p>Centralized.</p> <p>"It provides for executive, legislative and judicial branches under the control of a spiritual leader. Iran's president is directly elected every four years. He is the head of the executive branch. A set of other institutions is designed as checks and balances in an attempt to protect the state's Islamic character (Faghihi, 1996). Except in matters that are directly placed under the jurisdiction of the leadership by the constitution, executive functions are to be exercised by the president and the ministers. The president is the head of the Council of Ministers (Faghihi, 1996 p. 6). The responsibilities of administration and civil service affairs, as well as planning and budgeting, are delegated to the presidente".</p>
5.1.4 d) Características do domínio político	Not covered in the paper.
5.1.4 e) Cultura	Not covered in the paper.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	<p>Centralized economy; Developing country; Prismatic administration.</p> <p>"In the early stage of the revolution, the new government focused on nationalizing certain industrial centers and founded an almost centralized economy".</p> <p>"Iran, as a developing nation, has a prismatic administration".</p>
5.1.4 g) Condições socioeconômicas do país	Not covered in the paper.
5.1.5 a) Tipo de output	<p>Effective implementation of public policies depends more on careful formulation and good coordination of these policies than on the execution process.</p> <p>"One important finding of this study is that the popular stereotypes that emphasize public policies are not implemented because of the disintegration in public administration. We found that there are more consensuses between practitioners and scholars; the main problem is in the public policy-making arena. If policymakers design and coordinate nationwide policies, then there are few problems in their implementation, and different sectors in public administration can cooperate".</p>
5.1.5 b) Tipo de outcome	Not covered in the paper.
5.1.5 c) Resultados da transformação digital	<p>Improve efficiency, transparency and accountability in organizational management; Standardize and streamline work procedures and information flows; Personalization and interactions with users; Promote citizen participation in political decisions.</p>

	<p>“ICTs have, in fact, become one of the most common solutions implemented to standardize work procedures and smooth information flows, and to make more efficient and transparent overall organizational procedures – thus reducing the need for normative, rule-based mechanisms of coordination.</p> <p>Moreover, ICTs facilitate the customization of services and ad hoc relationships with customers. Increased transparency and accountability are among the factors needed to introduce a market-like coordination mechanism (Malone et al., 1987; Ciborra, 1993).</p> <p>ICT is used as a government tool to develop electronic democracy: eDemocracy. Hence, eDemocracy is claimed as an alternative way to support democracy by giving citizen’s participatory power via ICT. Moreover, eDemocracy is considered as a basic and fundamental tool for supporting effective democratic government in this information society”.</p>
5.1.5 d) Elementos de falha	<p>Study not based on a random sample.</p> <p>“Generalization of findings is not a major concern of this study because selection of sample in this study is not based on random sampling. This research has explored the different values and attitudes of elite members in forming conceptions about managing coordination in the government”.</p>
5.1.5 e) Resultados adversos da coordenação	Not covered in the paper.
5.1.6 a) Métodos de avaliação de resultados	Not covered in the paper.
5.1.6 b) Escala de coordenação	Not covered in the paper.
5.1.6 c) Observações gerais	<p>No SDG are mentioned.</p> <p>3 citations - 18/02/2024.</p> <p>No mentioned to specific Technologies.</p>

Artigo 3	Sta, H. B. (2018). Organisational structure for the e-government coordination and interoperability framework: a case study of Tunisia. <i>Electronic Government, an International Journal</i> , 14(1), 51-77.
5.1.2 a) Foco principal do artigo	<p>“The following description intends to provide a framework for the organisational setup in e-government services development and implementation”.</p> <p>“In this direction, the present paper presents also the baseline of the organisational structure for the e-government coordination and interoperability framework of Tunisia and gives some elements that have released and conducts a comparative analysis of some findings and compliance with the guidelines of the European interoperability framework (EIF). The scope of the analysis is to indicate the similarities and differences in the National e-GIFs (NIFs) philosophy and implementation and to produce a set of recommendations for any interesting party beginning to design or maintain an e-GIFs”.</p>
5.1.2 b) Principais resultados do artigo	<p>“This paper presents a practical approach to design and to recommend an Organisational Structure for the e-government coordination and interoperability framework. In one hand it defines the possible institutional framework for the e-government development in Tunisia as the coordination and implementation of e-government, the coordination and planning of e-government, the implementation of interoperable e-governance and the responsibilities of the main coordination bodies (Central Coordination Unit, Ministerial level ICT Council, CIO) on the other hand it gives some details about the organisational setup of the implementation of the interoperability framework as the administrative and technical implementation, the governmental portal, the enabling technical infrastructure, the management and administration of implementation process, the possible organisational setup and staff needed for the e-government technical centre, the interoperability framework centre, the administrative system, the technical implementation unit, the marketing development and quality control unit, the governmental portal, the editorial unit, the development unit, the help desk unit and the data security unit with access to CERT”.</p>
5.1.2 c) Tipo de estudo	Case Study.
5.1.2 d) Domínio de ação política	Development of e-government in Tunisia.
5.1.2 e) País(es) onde a investigação foi realizada	Tunisia.
5.1.3 a) Definição de coordenação	Not covered in the paper.
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	Not covered in the paper.
5.1.3 c) Formas de coordenação	Not covered in the paper.
5.1.3 d) Mecanismos de coordenação	<p>“The definition identifies four types of e-government: government to government (G2G), government to employee (G2E), government to citizens (G2C), and government to business (G2B) (Siau and Long, 2005).</p> <ul style="list-style-type: none"> • The government to government (G2G) e-Government: The objectives of G2G are to improve the cooperation and collaboration between governments of diferente physical locations and levels. This type of e-government has the role of guaranteeing the integration of systems and sharing of databases of local or federal governments. It also has

	<p>to ensure the cooperation and collaboration through enforcement of laws, public safety and emergency management.</p> <ul style="list-style-type: none"> • The government to employee (G2E) e-government: This type's goal is to ensure and enhance the effectiveness of government administration, internally, as well as its efficiency. The role it has to play is to organise the internal operational processes to implement and adopt the best practices in governance. Regarding the administration employees, it has to provide services such as training, payroll management. • The government to citizen (G2C) e-government: has the role to improve the quality of services provided to citizens and the relationship between government and citizen. This is done by providing access to information varying from general information to specifics such as information on education and learning, policies, and loans. • The government to business (G2B) e-government: aims to provide services of better quality to businesses like eradicating duplicated data and reducing the cost of transactions". <p>"Identified as one of the factors affecting the e-government adoption (Ebrahim and Irani, 2005), the interoperability was defined as being "The ability of systems, units or forces to provide services to, and accept services from, other systems, units or forces and to use the services so exchanged to enable them to operate effectively together without altering or degrading the information exchanged" (DoD Missile Defense Agency).</p> <p>There are two types of interoperability, organisational interoperability and technical interoperability. The organisational interoperability deals with modelling business processes by aligning information architecture with organisational goals and helping business processes to cooperate (European Journal of ePractice, 2008). It is also about the collaboration of companies and administrations that wish to exchange information and cooperate despite having different internal structures and processes. The technical Interoperability has been defined by Mowbray and Zahavi as the "ability to exchange functionality and interpretable data between two software entities" (cited by Guijarro, 2007) (...)".</p> <p>"In 1999, the US published the Federal Enterprise Architecture Framework (CIO Council, 1999), aiming to provide federal agencies with an enterprise architecture (EA) builder; it contains a variety of approaches and definitions to help develop and document an EA but does not define the contents of these EAs. The framework provides a logical arrangement to organise and classify architectural description. Later on, in 2002, the USA developed the Federal Enterprise Architecture (Figure 2) as the new reference architecture that provides to agencies a common language and frameworks to analyse, describe investments, and improve collaboration within the federal government".</p>
5.1.3 e) Atores governamentais	Local and central government agencies.
5.1.3 f) Atores externos não governamentais	Private sector, academic institutions and international organizations.
5.1.3 g) Nível governamental	National.
5.1.3 h) Mecanismos / instrumentos de coordenação inter	"The definition identifies four types of e-government: government to government (G2G), government to employee (G2E), government to

citizens (G2C), and government to business (G2B) (Siau and Long, 2005).

- The government to government (G2G) e-Government: The objectives of G2G are to improve the cooperation and collaboration between governments of different physical locations and levels. This type of e-government has the role of guaranteeing the integration of systems and sharing of databases of local or federal governments. It also has to ensure the cooperation and collaboration through enforcement of laws, public safety and emergency management.
- The government to employee (G2E) e-government: This type's goal is to ensure and enhance the effectiveness of government administration, internally, as well as its efficiency. The role it has to play is to organise the internal operational processes to implement and adopt the best practices in governance. Regarding the administration employees, it has to provide services such as training, payroll management.
- The government to citizen (G2C) e-government: has the role to improve the quality of services provided to citizens and the relationship between government and citizen. This is done by providing access to information varying from general information to specifics such as information on education and learning, policies, and loans.
- The government to business (G2B) e-government: aims to provide services of better quality to businesses like eradicating duplicated data and reducing the cost of transactions".

"Identified as one of the factors affecting the e-government adoption (Ebrahim and Irani, 2005), the interoperability was defined as being "The ability of systems, units or forces to provide services to, and accept services from, other systems, units or forces and to use the services so exchanged to enable them to operate effectively together without altering or degrading the information exchanged" (DoD Missile Defense Agency).

There are two types of interoperability, organisational interoperability and technical interoperability. The organisational interoperability deals with modelling business processes by aligning information architecture with organisational goals and helping business processes to cooperate (European Journal of ePractice, 2008). It is also about the collaboration of companies and administrations that wish to exchange information and cooperate despite having different internal structures and processes. The technical Interoperability has been defined by Mowbray and Zahavi as the "ability to exchange functionality and interpretable data between two software entities" (cited by Guijarro, 2007) (...).

"In 1999, the US published the Federal Enterprise Architecture Framework (CIO Council, 1999), aiming to provide federal agencies with an enterprise architecture (EA) builder; it contains a variety of approaches and definitions to help develop and document an EA but does not define the contents of these EAs. The framework provides a logical arrangement to organise and classify architectural description. Later on, in 2002, the USA developed the Federal Enterprise Architecture (Figure 2) as the new reference architecture that provides to agencies a common language and frameworks to

	analyse, describe investments, and improve collaboration within the federal government”.
5.1.3 i) Características organizacionais do governo	
5.1.3 j) Condições iniciais	“There is a need for some changes in the organisational development of e-governance in Tunisia”.
5.1.3 k) Papel da tecnologia digital	“Deloitte and Touche (2003) defined e-government as “the use of technology to enhance the access to and delivery of government services to benefit citizens, business partners and employees”. These technologies can improve the government management, its interaction with industry, business, and empower the citizen through the better access to information. As a result, the government can increase transparency, convenience, revenue growth, and/or cost reductions (World Bank)”.
5.1.3 l) Tempo	Not covered in the paper.
5.1.3 m) Tensões que desafiam a coordenação	Not covered in the paper.
5.1.4 a) Forma de governo	Not covered in the paper.
5.1.4 b) Tradição democrática	Not covered in the paper.
5.1.4 c) Nível de autonomia	Decentralized. “On the one hand, the government needs to specify the status and functions of the coordination institution. Today this role is (at least partially) fulfilled by the e-Government Unit at the Presidency of the Government and by the Ministry of Information and Communication Technologies. It would be important that the main coordination actions are performed by a single institution”.
5.1.4 d) Características do domínio político	Not covered in the paper.
5.1.4 e) Cultura	Not covered in the paper.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“On the one hand, the government needs to specify the status and functions of the coordination institution. Today this role is (at least partially) fulfilled by the e-Government Unit at the Presidency of the Government and by the Ministry of Information and Communication Technologies”.
5.1.4 g) Condições socioeconómicas do país	“It is important to find ways to establish a special budget line for ICT expenses in the state budget for expenses such as hardware, software, IT development work and running costs at the government agencies. Even if these ICT budgets of ministries are small, it would create stability for the Chief Information Officers and transparency for managers and donors. The budget for some shared services and coordination activities of the coordination centre can be centralised”.
5.1.5 a) Tipo de output	“In one hand it defines the possible institutional framework for the e-government development in Tunisia as the coordination and implementation of e-government, the coordination and planning of e-government, the implementation of interoperable e-governance and the responsibilities of the main coordination bodies (Central Coordination Unit, Ministerial level ICT Council, CIO) (...)”.
5.1.5 b) Tipo de outcome	Not covered in the paper.
5.1.5 c) Resultados da transformação digital	Not covered in the paper.
5.1.5 d) Elementos de falha	Not covered in the paper.

5.1.5 e) Resultados adversos da coordenação	Not covered in the paper.
5.1.6 a) Métodos de avaliação de resultados	Not covered in the paper.
5.1.6 b) Escala de coordenação	Not covered in the paper.
5.1.6 c) Observações gerais	No SDG are mentioned. 3 citations - 26/03/2024. No mentioned to spicif Technologies.

Artigo 4	Nuridin, N., Stockdale, R., & Scheepers, H. (2014). Coordination and cooperation in e-government: An Indonesian local e-government case. <i>The Electronic Journal of Information Systems in Developing Countries</i> , 61(1), 1-21.
5.1.2 a) Foco principal do artigo	"This study examines how coordination and cooperation shape the implementation process of local e-government systems that may be acquired or developed internally. A case study of local e-government systems implementation in Indonesia is presented and analyzed from the perspectives of coordination and cooperation between internal and external actors and agencies".
5.1.2 b) Principais resultados do artigo	"Our findings suggest that dynamic coordination and cooperation have influenced the success of e-government systems implementation at local government (regency) level in Bali, Indonesia. The regency practiced coordination and cooperation, both vertically and horizontally, with central government agencies, other regencies, private companies, and with internal institutions. The ability of the regency to gain from these practices offers insights into e-government implementation for other local governments".
5.1.2 c) Tipo de estudo	Case Study.
5.1.2 d) Domínio de ação política	E-government implementation.
5.1.2 e) País(es) onde a investigação foi realizada	Indonesia.
5.1.3 a) Definição de coordenação	<p>"For the purposes of this study we use Nwana, Lee, & Jennings's definition of coordination as "a process in which agents engage in order to ensure their community acts in a coherent manner" (1996, p. 79). Cooperation is defined as "a wilful contribution of personal effort to the completion of interdependent jobs" (Wagner, 1995, p. 152)".</p> <p>"The aim of coordination is to ensure agents act in a purposeful, consistent, and synchronized manner to achieve their objectives with the available resources and avoid redundancy in problem solving (Jenning, 2001). The reasons to practice coordination in na organization might be determined by task uncertainty, task interdependence, and unit size (Van De Ven et al., 1976)".</p>
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	Not covered in the paper.
5.1.3 c) Formas de coordenação	<p>Vertical Coordination and Horizontal Coordination.</p> <p>"The regency practiced coordination and cooperation, both vertically and horizontally, with central government agencies, other regencies, private companies, and with internal institutions".</p>
5.1.3 d) Mecanismos de coordenação	Not covered in the paper.
5.1.3 e) Atores governamentais	Local government departments and central government agencies.
5.1.3 f) Atores externos não governamentais	<p>Social, political and cultural institutions.</p> <p>12 participants (from management level to technical employees).</p>
5.1.3 g) Nível governamental	Local government (regency) level in Jembrana, Bali.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	Not covered in the paper.

5.1.3 i) Características organizacionais do governo	<p>"Indonesia has a unique local government structure where the greatest autonomy is transferred to the second level of local government (regencies and cities) and not to provincial levels (Depdagri, 2004). According to Regional Autonomy Law No. 32/2004, central government has granted full autonomy to the regencies and cities to manage their development (except law, monetary, defence, and foreign affairs). Based on this regulation, governments at provincial level do not have the power to impose or mandate regencies or cities to adopt certain policies and regulations. Even though regencies and cities have a direct relationship to central government and can adopt new policies from central government directly without involving the provincial level, the regulation still requires regencies to cooperate and coordinate with the provincial level in certain policy implementations".</p>
5.1.3 j) Condições iniciais	Not covered in the paper.
5.1.3 k) Papel da tecnologia digital	<p>"At the same time, BPPT also implemented an intranet system called KANTAYA (a virtual office system). The KANTAYA allows local government employees to share data and documents among departments and employees. Employees can also post their enquiries and opinions through a chat forum in the System".</p> <p>"E-government was initiated when the Indonesia government enacted President Instruction No. 6/2001 concerning a five-year National Information and Communications and Technology Action Plan for Indonesia, which states that ICT should be used to empower citizens, increase their welfare, reduce poverty, and eliminate the digital divide."</p>
5.1.3 l) Tempo	Not covered in the paper.
5.1.3 m) Tensões que desafiam a coordenação	Not covered in the paper.
5.1.4 a) Forma de governo	Not covered in the paper.
5.1.4 b) Tradição democrática	Not covered in the paper.
5.1.4 c) Nivel de autonomia	<p>Autonomous.</p> <p>"As a relatively autonomous regency, Jembrana can coordinate and cooperate with any relevant agencies and actors in the implementation of e-government systems without being dictated to by central government. As a result, Jembrana Regency has successfully implemented various e-government systems through dynamic coordination and a high level of cooperation with central government bodies and within and between regency departments and with other local agencies".</p>
5.1.4 d) Características do domínio político	Not covered in the paper.
5.1.4 e) Cultura	Not covered in the paper.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	<p>"Indonesia has a unique local government structure where the greatest autonomy is transferred to the second level of local government (regencies and cities) and not to provincial levels (Depdagri, 2004). According to Regional Autonomy Law No. 32/2004, central government has granted full autonomy to the regencies and cities to manage their development (except law, monetary, defence, and foreign affairs)".</p> <p>"As a relatively autonomous regency, Jembrana can coordinate and cooperate with any relevant agencies and actors in the</p>

	implementation of e-government systems without being dictated to by central government. As a result, Jembrana Regency has successfully implemented various e-government systems through dynamic coordination and a high level of cooperation with central government bodies and within and between regency departments and with other local agencies”.
5.1.4 g) Condições socioeconômicas do país	<p>Agriculture as a source of income; Agriculture does not sustain the development of the region; Local government budget supported through central government funds; Lack of resources, such as finances and staff skills.</p> <p>“Despite Bali’s popularity in the tourism industry, which generates significant income for the province, Jembrana is not a main tourist destination. Consequently, unlike other Balinese regencies, the main source of this regency’s income is not from tourism but from farming. However, farming does not produce sufficient income to support the regency development since farming relies on traditional methods. This regency also does not have mining and big industries that support local government income. Most of the industries are local industries and small-medium industries such as handicraft and religious related arts. Therefore, the local government budget is mostly supported by the annual transfer of funds from the Indonesia central government”.</p> <p>“Due to the lack of resources such as finance and employee skills, the local government was required to promote coordination and cooperation with internal and external actors to support the implementation of e-government”.</p>
5.1.5 a) Tipo de output	<p>Effective coordination and cooperation were essential for the successful implementation of e-government.</p> <p>“Coordination and cooperation factors have significantly influenced Jembrana regency in the successful implementation of e-government. The ability of the regency to practice coordination and cooperation vertically and horizontally has helped the regency to overcome bureaucracy constraints between the central government and internal institutions during e-government systems implementation. At central government, or vertical, level the ability to coordinate and cooperate has led to support for local staff skills, systems transfer, and more efficient maintenance of central government based systems. The availability of human resources and professional skills has supported Jembrana regency in implementing many e-government systems, both those acquired from central government and those developed by local IT staff”.</p>
5.1.5 b) Tipo de outcome	Not covered in the paper.
5.1.5 c) Resultados da transformação digital	Not covered in the paper.
5.1.5 d) Elementos de falha	Not covered in the paper.
5.1.5 e) Resultados adversos da coordenação	Not covered in the paper.
5.1.6 a) Métodos de avaliação de resultados	Not covered in the paper.
5.1.6 b) Escala de coordenação	Not covered in the paper.
5.1.6 c) Observações gerais	<p>No SDG are mentioned.</p> <p>69 citations - 07/01/2024.</p>

	No mentioned to spicif Technologies.
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Artigo 5	Špaček, D. (2014). Coordination of and through E-Government: The Case of the Czech Republic. NISPAcee Journal of Public Administration and Policy, 7(1), 83-106.
5.1.2 a) Foco principal do artigo	<p>"Its text outlines emerging coordination practices that can be observed in European countries, and it also indicates issues using the Czech e-government development and some key national initiatives as examples".</p> <p>"This paper contributes to answering the following questions: What are the roles and trends of coordination of and through e-government, and what challenges may governments face when coordinating e-government and through e-government?</p> <p>In order to answer these questions, the text outlines e-government complexity and current approaches to coordination of and through e-government in Europe. It also discusses whether e-government may enhance the coordination of publicservice delivery, employing selected examples from Czech e-government. The paper draws attention to problems in policy, both in the institutional framework and in practical approaches to management. It is also concerned with the question of how new structures that have been established for e-government coordination hinder or support accountability".</p>
5.1.2 b) Principais resultados do artigo	"The presented text concludes that although elements of strategic planning may become embedded and institutional and regulatory mechanisms stabilized in the country, other issues such as a weak accountability culture may exist and hinder coordination practices".
5.1.2 c) Tipo de estudo	Literature review.
5.1.2 d) Domínio de ação política	Implementation of e-government.
5.1.2 e) País(es) onde a investigação foi realizada	Czech Republic.
5.1.3 a) Definição de coordenação	<p>No coordination definition provided;</p> <p>"As such, it inevitably raises discussions about its potential to improve government coordination through a more joined-up delivery of public services".</p> <p>"Policy coordination across government is perceived as a key factor determining effective governance at the national level (Saner et al. 2008; de Vries and Nemec 2013)".</p> <p>"As a reaction, more centralization of e-government is currently visible in Europe, where central governments are clearly attempting to strengthen their coordination responsibilities. In doing so, governments work with combinations of the instruments enumerated by Estevez et al. (2007): providing guidance and control for implementing e-government projects across the government, providing frameworks for collaboration across agencies that ensure the interoperability and non-duplication of efforts and resources, developing shared e-government infrastructures, keeping e-government activities aligned with the broader government strategy and vision, and developing and implementing government policies related to the use of ICTs".</p>
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	Not covered in the paper.
5.1.3 c) Formas de coordenação	Not covered in the paper.

5.1.3 d) Mecanismos de coordenação	<p>“Speaking of coordination of e-government and through egovernment, central governments have been active mainly in the following areas:</p> <ol style="list-style-type: none"> 1. e-government development framework (strategies and legislation, methodical guides); 2. national institutional and technical support for e-government coordination; 3. central solutions for more integrated and cleaner data sources and delivery of (e-) services”.
5.1.3 e) Atores governamentais	Ministry of the Interior, National Registers Authority (SZR), Government Council for an Information Society, Gremium for Regulatory Reform and Efficient Public Administration, Structural Funds Department and other Ministries and Central Authorities.
5.1.3 f) Atores externos não governamentais	Associations of Self-Governments, Economic Chamber and IT Providers and Vendors (private sector).
5.1.3 g) Nível governamental	National.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	Not covered in the paper.
5.1.3 i) Características organizacionais do governo	<p>Fragmented system of regional self-governments.</p> <p>“As a result there are currently two sub-national levels of government in the country: regional and municipal. Fourteen regions (established in 2000) and more than 6200 municipalities (of which the majority have less than 500 inhabitants) represent a fragmented system of territorial self-governments. Their bodies (“offices”) maybe required by law to exercise state-administration tasks (e.g. issuing identity cards, passports and various certificates and permissions). This so called “joined model” of territorial public administration has resulted in different categories of municipalities according to the amount of state administration they exercise, raising questions about the optimal funding of self-governments as well as about their political accountability for activities principally related to the central government. It has led to discussions about the capacities of self-governments to provide professional state-administration services in a uniform way as well as to questions about a minimum standard of e-government and a basic set of e-services that would be delivered by all (even small) municipalities”.</p>
5.1.3 j) Condições iniciais	<p>High proliferation of ICT solutions.</p> <p>“The paper shows that new coordination practices emerged and were evoked by necessity to solve the high proliferation of ICT solutions implemented on various levels of state administration and government as a consequence of uncoordinated administrative fragmentation in the first post-communist decade”.</p>
5.1.3 k) Papel da tecnologia digital	<p>Cooperative and connected service delivery; Increased coordination of public service delivery.</p> <p>“The Czech POINT project is an example of an innovative approach. Following the principles of voluntariness and economic motivation by the central government (through subsidies co-funded by the EU), the project has brought more cooperative and interconnected service delivery and enhanced the ability of central government to coordinate the delivery of public services through the establishment of a network of contact points built on a one-stop-shop principle”.</p>

5.1.3 l) Tempo	Not covered in the paper.
5.1.3 m) Tensões que desafiam a coordenação	<p>“The paper clearly shows that the Czech central government and central executive authorities have not been passive in terms of the rhetoric of coordination and practical approaches to coordination of and through e-government. Challenges, which have been faced during the e-government development, can be linked to the following rather interlinked themes:</p> <ul style="list-style-type: none"> • high proliferation of ICT solutions and departmentalism; • deficiencies in strategic planning and project management; • lack of stability of national institutional structure for e-government cooperation; • insufficient national evaluation”.
5.1.4 a) Forma de governo	<p>Democracy.</p> <p>“Czech e-government has been influenced by and reacting to changes brought by post-communist institutional reforms from the 1990s and early 2000s that were implemented in the name of democratization, decentralization and deconcentration”.</p>
5.1.4 b) Tradição democrática	Not covered in the paper.
5.1.4 c) Nível de autonomia	<p>Decentralized.</p> <p>“Czech e-government has been influenced by and reacting to changes brought by post-communist institutional reforms from the 1990s and early 2000s that were implemented in the name of democratization, decentralization and deconcentration”.</p>
5.1.4 d) Características do domínio político	Not covered in the paper.
5.1.4 e) Cultura	Not covered in the paper.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	<p>Administration exercised by self-government.</p> <p>“State administration is exercised by self-governments and by the “deconcentrates” - specialized separate authorities - resulting from vertical deconcentration and existing within individual hierarchies of central authorities on various territorial levels”.</p> <p>“As a result there are currently two sub-national levels of government in the country: regional and municipal. Fourteen regions (established in 2000) and more than 6200 municipalities (of which the majority have less than 500 inhabitants) represent a fragmented system of territorial self-governments. Their bodies (“offices”) maybe required by law to exercise state-administration tasks (e.g. issuing identity cards, passports and various certificates and permissions). This so called “joined model” of territorial public administration has resulted in different categories of municipalities according to the amount of state administration they exercise, raising questions about the optimal funding of self-governments as well as about their political accountability for activities principally related to the central government. It has led to discussions about the capacities of self-governments to provide professional state-administration services in a uniform way as well as to questions about a minimum standard of e-government and a basic set of e-services that would be delivered by all (even small) municipalities”.</p>
5.1.4 g) Condições socioeconómicas do país	Not covered in the paper.
5.1.5 a) Tipo de output	Not covered in the paper.
5.1.5 b) Tipo de outcome	Not covered in the paper.

5.1.5 c) Resultados da transformação digital	Not covered in the paper.
5.1.5 d) Elementos de falha	Not covered in the paper.
5.1.5 e) Resultados adversos da coordenação	Not covered in the paper.
5.1.6 a) Métodos de avaliação de resultados	Not covered in the paper.
5.1.6 b) Escala de coordenação	<p>Metcalf Scale.</p> <p>“The presented text implies that in the 1990s, the first decade of the post-communist history, the activities of the central government focused on the last levels of Metcalfe’s coordination scale, particularly in the government strategy and the establishment of central priorities. However, it neglected the initial levels of the scale (independent decision-making of individual actors)”.</p>
5.1.6 c) Observações gerais	<p>No SDG are mentioned.</p> <p>10 citations - 26/01/2024.</p> <p>No mentioned to specific Technologies.</p>

Artigo 6	Iyer, L. S., Singh, R., Salam, A. F., & D'Aubeterre, F. (2006). Knowledge management for Government-to-Government (G2G) process coordination. <i>Electronic Government, an International Journal</i> , 3(1), 18-35.
5.1.2 a) Foco principal do artigo	"In this paper, we focus on an approach to manage knowledge for coordination of G2G processes through the systematic application of Semantic Web technologies. Semantic G2G integration applies fundamental work done in Semantic Web technologies, including ontologies, knowledge representation, multi-agent systems and web services, to support the transparent flow of semantically enriched information and knowledge, including content and know-how and enable collaborative G2G processes within and across governmental agencies".
5.1.2 b) Principais resultados do artigo	"Advances in Semantic Web technologies including ontologies, knowledge representation, multi-agent systems and web services support the transparent flow of semantically enriched information and knowledge to enable collaborative G2G processes within and across governmental agencies. Knowledge services, composed and delivered through the integration of intelligent agents and the web services architecture, provide a mechanism for the exchange of domain-specific knowledge to inform decision activities embedded within organizational processes weaving through these knowledge networks".
5.1.2 c) Tipo de estudo	Literature review.
5.1.2 d) Domínio de ação política	Implementation of e-government.
5.1.2 e) País(es) onde a investigação foi realizada	USA and European Union.
5.1.3 a) Definição de coordenação	"The vision is to attain dynamic collaboration and cooperation among all constituents throughout a virtually shared information environment characterised by the seamless and transparent exchange of meaningful information and knowledge".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	Not covered in the paper.
5.1.3 c) Formas de coordenação	Not covered in the paper.
5.1.3 d) Mecanismos de coordenação	"Based on the foundations of Semantic Web, including ontologies, knowledge representation, multi-agent systems and web services; Knowledge Management (KM) and G2G processes, we present a vision for KM for G2G process coordination".
5.1.3 e) Atores governamentais	Government agencies and ministries.
5.1.3 f) Atores externos não governamentais	Citizens and companies ("businesses").
5.1.3 g) Nível governamental	National and State level.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	"Advances in Semantic Web technologies including ontologies, knowledge representation, multi-agent systems and web services support the transparent flow of semantically enriched information and knowledge to enable collaborative G2G processes within and across governmental agencies".
5.1.3 i) Características organizacionais do governo	Not covered in the paper.
5.1.3 j) Condições iniciais	Need to manage knowledge and resources; Implementing and managing such high levels of integration and coordination of processes in

	<p>distributed and heterogeneous information platforms is challenging; Need to apply interactive technologies for transparent exchange of knowledge and information.</p> <p>“Given that e-government services extend across different organisational boundaries and infrastructures, there is a critical need to manage the knowledge and information resources stored in these disparate systems (Teswanich et al., 2002)”.</p> <p>“Implementing and managing such high levels of integration and coordination of processes over distributed and heterogeneous information platforms such as the internet is a challenging task with significant potential benefits for organisations embracing collaboration”.</p> <p>“It is clear that in order to realise the benefits of G2G process coordination, workflow systems by themselves are not sufficient. The application of integrative technologies that facilitate the transparent information and knowledge exchange and representation is required”.</p>
5.1.3 k) Papel da tecnologia digital	<p>Transparent flow of semantically enriched information and knowledge to enable collaborative G2G processes within and between government agencies; Mechanism for the exchange of domain-specific knowledge to inform decision activities embedded in organizational processes.</p> <p>“Advances in Semantic Web technologies including ontologies, knowledge representation, multi-agent systems and web services support the transparent flow of semantically enriched information and knowledge to enable collaborative G2G processes within and across governmental agencies. Knowledge services, composed and delivered through the integration of intelligent agents and the web services architecture, provide a mechanism for the exchange of domain-specific knowledge to inform decision activities embedded within organizational processes weaving through these knowledge networks. The proposed knowledge management for a semantic G2G process coordination framework is designed for a distributed platform where the domain knowledge is represented through ontologies and available to the agents in the system. Intelligent agents deliver the knowledge to the user interface to support decision-making activities”.</p>
5.1.3 l) Tempo	Not covered in the paper.
5.1.3 m) Tensões que desafiam a coordenação	<p>“It is clear that governments, businesses and citizens can attain great benefits from the application of Semantic Web technologies to achieve G2G process coordination. However, to realise such benefits, there are still some issues and challenges that need to be overcome. In the domain of Semantic Web technologies, several factors have been identified as inhibitors for the application of Semantic Web in e-government. For instance, Traunmuller and Wimmer (2002) identify the following as potential issues:</p> <ul style="list-style-type: none"> • lack of clear definitions of many administrative terms • the openness of the administrative processes • tight relationship with legal rules • complex and constantly changing laws • too many exceptions and ambiguity in the defined norms. <p>Furthermore, Klischewski (2004) states diverse semantic differences in the interpretation of law, regulations, citizen services, administrative</p>

	processes and best practices pose challenges in the e-government context. In addition, complex goal and legal structure of public administration as well as bureaucratic and hierarchical structures hinder the coordination of e-government processes. Many of these factors are common to G2G and other forms of e-government, such as G2C, G2B and G2E”.
5.1.4 a) Forma de governo	Not covered in the paper.
5.1.4 b) Tradição democrática	Not covered in the paper.
5.1.4 c) Nível de autonomia	Decentralized and autonomous.
5.1.4 d) Características do domínio político	Not covered in the paper.
5.1.4 e) Cultura	Not covered in the paper.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	Not covered in the paper.
5.1.4 g) Condições socioeconômicas do país	Not covered in the paper.
5.1.5 a) Tipo de output	Knowledge networks allow their participants to create, share and use strategic knowledge to improve operational and strategic efficiency and effectiveness. “Knowledge networks allow their participants to create, share and use strategic knowledge to improve operational and strategic efficiency and effectiveness (Warkentin et al., 2001). In this regard, government agencies that have to coordinate with other agencies become part of a knowledge network in the G2G context. To realise the benefits of G2G process coordination, workflow systems by themselves are not sufficient. The application of integrative technologies that facilitate the transparent information and knowledge exchange and representation is required”.
5.1.5 b) Tipo de outcome	Not covered in the paper.
5.1.5 c) Resultados da transformação digital	Not covered in the paper.
5.1.5 d) Elementos de falha	Not covered in the paper.
5.1.5 e) Resultados adversos da coordenação	Not covered in the paper.
5.1.6 a) Métodos de avaliação de resultados	Not covered in the paper.
5.1.6 b) Escala de coordenação	Not covered in the paper.
5.1.6 c) Observações gerais	No SDG are mentioned. 34 citations - 21/02/2024. No mentioned to specific Technologies.

Artigo 7	Gao, X., Song, Y., & Zhu, X. (2013). Integration and coordination: Advancing China's fragmented e-government to holistic governance. <i>Government Information Quarterly</i> , 30(2), 173-181.
5.1.2 a) Foco principal do artigo	"An aim of this research is to determine that holistic governance could be considered a rational choice for the transformation from fragmentation to holistic development and an effective measure for the sound advancement of e-government".
5.1.2 b) Principais resultados do artigo	"In this context, this study has important significance in theory and practice. Theoretically, it discusses the influence and performance of political system and structure on e-government from fragmentation angle, explores the theoretical implications of holistic governance on virtual government after a comprehensive analysis of large domestic and foreign literature, and makes a logical explanation of the impediments faced by Chinese e-government as well as several recommendations according to the holistic governance theory. This research not only fills up domestic blank of theoretical research on e-government dilemma, but also opens up a new perspective for studies in this field. Practically, it provides four feasible measures based on the current situation of Chinese e-government, including strengthen legislation, enhance business coordination and organizational integration, and advance the application of service-oriented e-government. All of these may offer a scientific foundation for policy makers and point out the direction of e-government construction for levels of governments".
5.1.2 c) Tipo de estudo	Literature review.
5.1.2 d) Domínio de ação política	Implementation of e-government (with no emphasis on coordination).
5.1.2 e) País(es) onde a investigação foi realizada	China.
5.1.3 a) Definição de coordenação	No coordination definition provided; "Therefore, coordination requires the development of ideas about joint and holistic working environments, joint information systems, dialogue between agencies, planning processes, and decision making".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	New Public Management; Holistic governance. "Government fragmentation refers to the process of decentralization, department differentiation and division of management in governmental institutions. It is derived from traditional bureaucracy and New Public Management (NPM) for the reason that bureaucracies implied public separation rather than public integration and NPM disregarded crosssectoral challenges by focusing on how to increase the efficiency of particular agencies (Dunleavy, 2006)". "The concept of holistic governance is defined as government agencies and their partners sharing reinforcing objectives and identifying a shared commitment to a range of mutually supportive tools to achieve that objective (6, 2002)".
5.1.3 c) Formas de coordenação	Not covered in the paper.
5.1.3 d) Mecanismos de coordenação	Not covered in the paper.
5.1.3 e) Atores governamentais	Not covered in the paper.
5.1.3 f) Atores externos não governamentais	Not directly addressed in the paper.

5.1.3 g) Nível governamental	National.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	Not covered in the paper.
5.1.3 i) Características organizacionais do governo	Not directly addressed in the paper.
5.1.3 j) Condições iniciais	Fragmented e-government.
5.1.3 k) Papel da tecnologia digital	Not covered in the paper.
5.1.3 l) Tempo	Not covered in the paper.
5.1.3 m) Tensões que desafiam a coordenação	Fragmented e-government.
5.1.4 a) Forma de governo	Not covered in the paper.
5.1.4 b) Tradição democrática	Not covered in the paper.
5.1.4 c) Nível de autonomia	Decentralized.
5.1.4 d) Características do domínio político	Not covered in the paper.
5.1.4 e) Cultura	Not covered in the paper.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	Not covered in the paper.
5.1.4 g) Condições socioeconómicas do país	Not covered in the paper.
5.1.5 a) Tipo de output	Not covered in the paper.
5.1.5 b) Tipo de outcome	Not covered in the paper.
5.1.5 c) Resultados da transformação digital	Not covered in the paper.
5.1.5 d) Elementos de falha	Not covered in the paper.
5.1.5 e) Resultados adversos da coordenação	Not covered in the paper.
5.1.6 a) Métodos de avaliação de resultados	Not covered in the paper.
5.1.6 b) Escala de coordenação	Not covered in the paper.
5.1.6 c) Observações gerais	No SDG are mentioned. 44 citations - 17/01/2024. No mentioned to specific Technologies. Article presents recommendations that are not supported.

Artigo 8	Qunli, W., Hong, Z., & Xue, T. (2009, May). The Problems of Unification and Coordination in the Development of E-Government in China. In 2009 International Forum on Information Technology and Applications (Vol. 3, pp. 538-540). IEEE.
5.1.2 a) Foco principal do artigo	"This paper introduced the general problems of developing e-government in China. According to practical situation, it has also proposed the countermeasures to solve them".
5.1.2 b) Principais resultados do artigo	The authors proposed measures to solve the general problems of China's e-government development. The measures were: "Planning comprehensively and unifying leadership", "Clear and fully fulfill the object" and "Carrying out the general plan with consideration of Chinese national conditions".
5.1.2 c) Tipo de estudo	Literature review.
5.1.2 d) Domínio de ação política	Development of e-government.
5.1.2 e) País(es) onde a investigação foi realizada	China.
5.1.3 a) Definição de coordenação	Not covered in the paper.
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	Not covered in the paper.
5.1.3 c) Formas de coordenação	Not covered in the paper.
5.1.3 d) Mecanismos de coordenação	"Planning comprehensively and unifying leadership"; "Clear and fully fulfill the object"; "Carrying out the general plan with consideration of Chinese national conditions".
5.1.3 e) Atores governamentais	Government authorities and government departments.
5.1.3 f) Atores externos não governamentais	Not covered in the paper.
5.1.3 g) Nível governamental	National.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	"Planning comprehensively and unifying leadership"; "Clear and fully fulfill the object"; "Carrying out the general plan with consideration of Chinese national conditions".
5.1.3 i) Características organizacionais do governo	"The construction of e-government in China lacks na overall planning and coordinated organization, which leads to the interlocking of local governments and departments at all levels". "That is due to special situation of China that many government affairs are cross-managed". "In order to realize the cooperation of inter-departments, it needs to take into consideration of the practical situation of the Chinese government such as the variety of departments, complexity of the management system, and high potential of inter-function between different departments".
5.1.3 j) Condições iniciais	"At present, there are still a lot of problems that need to be solved, especially the problem of the lack of unified planning and coordinated development".
5.1.3 k) Papel da tecnologia digital	Interaction between government departments; Information sharing. "Highlights the importance of a technical information platform to enable interaction between government departments and the sharing of information resources". "It also requires setting up a good standard for inter-departments and within department, then exporting these information data through e-

	government technical platform into the internet to realize a real interaction and information share”.
5.1.3 l) Tempo	Not covered in the paper.
5.1.3 m) Tensões que desafiam a coordenação	“Lack of unified planning and standards”. “Lack of interconnection and intercommunication”. “Lack of integration and sharing of information resources”.
5.1.4 a) Forma de governo	Not covered in the paper.
5.1.4 b) Tradição democrática	Not covered in the paper.
5.1.4 c) Nível de autonomia	Centralized.
5.1.4 d) Características do domínio político	Not covered in the paper.
5.1.4 e) Cultura	Not covered in the paper.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	Not covered in the paper.
5.1.4 g) Condições socioeconómicas do país	“In many regions where the economy is less developed, documents transferring and service processing are still managed in a traditional way”.
5.1.5 a) Tipo de output	Not covered in the paper.
5.1.5 b) Tipo de outcome	Not covered in the paper.
5.1.5 c) Resultados da transformação digital	Not covered in the paper.
5.1.5 d) Elementos de falha	Not covered in the paper.
5.1.5 e) Resultados adversos da coordenação	Not covered in the paper.
5.1.6 a) Métodos de avaliação de resultados	Not covered in the paper.
5.1.6 b) Escala de coordenação	Not covered in the paper.
5.1.6 c) Observações gerais	No SDG are mentioned. 0 citations - 15/01/2024. No mentioned to spicif Technologies.

Artigo 9	Berce, J., Bianchi, A., Centeno, C., Osimo, D., Millard, J., & Shahin, J. (2006). The Organisation and Coordination of European e-Government Research for the EU in 2010. In Electronic Government: 5th International Conference, EGOV 2006, Kraków, Poland, September 4-8, 2006. Proceedings 5 (pp. 37-46). Springer Berlin Heidelberg.
5.1.2 a) Foco principal do artigo	"The objective of this study – the first of its kind – was to validate and further analyze the specific e-Government research challenges and opportunities for the enlarged European Union that had been identified in previous research".
5.1.2 b) Principais resultados do artigo	"The study outlined the fact that the organisation of EU e-Government research should be better linked along the value chain of research (between basic/theoretical, applied, development and review research). The results of the study also indicate that links between eGovernment research and policy should be made more explicit. E-Government research innovations are positioned in a political environment, where research results could bring innovative eGovernment implementation which would support public value as its ultimate goal, through increased efficiency and effectiveness. In addition, the results of the study highlight a number of organisational research challenges such as: the need for more cooperation, collaboration and networking between stakeholders; the opportunity to build synergies in research across public sectors in a truly interdisciplinary way and between different public stakeholders (i.e. along with e-Health, e-Learning, etc.) and the private sector".
5.1.2 c) Tipo de estudo	Case Study.
5.1.2 d) Domínio de ação política	Coordination practices in the implementation of e-government.
5.1.2 e) País(es) onde a investigação foi realizada	European Union.
5.1.3 a) Definição de coordenação	Not covered in the paper.
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	Not covered in the paper.
5.1.3 c) Formas de coordenação	Not covered in the paper.
5.1.3 d) Mecanismos de coordenação	<p>"In terms of priority-setting, stakeholders suggest the need for further strategic prioritising of eGovernment research".</p> <p>"Some sort of pooling of European e-government research resources was seen as necessary, so that all involved in e-government could come together to share knowledge and avoid the duplication of research efforts".</p> <p>"Better communication of research is also a very frequent recommendation from interviewees. This would involve communication between researchers themselves and between researchers and practitioners".</p> <p>"There is evidence of perceived important opportunities, especially for the EC, for further promoting the integration of European research in this field: not only in order to reinforce links between research carried out in different countries, but also between research activities and centres, between academic disciplines, and between policy áreas".</p>
5.1.3 e) Atores governamentais	European Commission, national and regional government entities and public sector representatives.

5.1.3 f) Atores externos não governamentais	"With regard to the methods, first, a questionnaire was completed by 200 e-Government research stakeholders (academics, consultants, and representatives of the public sector, the ICT industry, users and media, and the European Commission)".
5.1.3 g) Nível governamental	European Union level.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	Not covered in the paper.
5.1.3 i) Características organizacionais do governo	Not covered in the paper.
5.1.3 j) Condições iniciais	"(...) was to validate and further analyze the specific e-Government research challenges and opportunities for the enlarged European Union that had been identified in previous research".
5.1.3 k) Papel da tecnologia digital	"This study is informed by the awareness that the present paradigm on the use of Information and Communication Technologies (ICT) in e-Government, focusing mainly on delivering existing services through cheaper ICT-based distribution channels or by complementing existing services with added e-Features, should be renewed and enlarged".
5.1.3 l) Tempo	Not covered in the paper.
5.1.3 m) Tensões que desafiam a coordenação	"A serious and widespread concern was that fragmentation and lack of coordination are leading to inefficient outcomes, especially in terms of risks of duplication of efforts, lower quality of the results and less relevance and impact of the research".
5.1.4 a) Forma de governo	Not covered in the paper.
5.1.4 b) Tradição democrática	Not covered in the paper.
5.1.4 c) Nível de autonomia	Not covered in the paper.
5.1.4 d) Características do domínio político	Not covered in the paper.
5.1.4 e) Cultura	Not covered in the paper.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	Not covered in the paper.
5.1.4 g) Condições socioeconómicas do país	Not covered in the paper.
5.1.5 a) Tipo de output	<p>Main challenges and trends in e-government research in Europe.</p> <p>"This paper elaborates on a part of the study on e-government challenges in Europe by providing an overview of current research areas in e-government, and of the organisational challenges that have to be addressed in order to maximize its impact. Firstly, it shows that e-government research areas are addressed with very different intensity, and that the current focus is very much on ICT applications that favour integration within government, such as data and knowledge management, and interoperability. There is evidence of some research activity on the user orientation of e-Government, with "e-Democracy", "User needs" and "Trust and security" being relatively well represented.</p> <p>Less attention is currently devoted to the impact of e-government on delivering public value, although interest is expected to grow in the future. In fact, the more stringent linking of e-government research</p>

	<p>with overarching policy goals is one of the main recommendations expressed by interviewed stakeholders”.</p> <p>“However, the most urgent claim was certainly for overcoming the current fragmentation of e-government research in Europe. A serious and widespread concern was that fragmentation and lack of coordination are leading to inefficient outcomes, especially in terms of risks of duplication of efforts, lower quality of the results and less relevance and impact of the research.</p>
5.1.5 b) Tipo de outcome	Not covered in the paper.
5.1.5 c) Resultados da transformação digital	Not covered in the paper.
5.1.5 d) Elementos de falha	Not covered in the paper.
5.1.5 e) Resultados adversos da coordenação	Not covered in the paper.
5.1.6 a) Métodos de avaliação de resultados	Not covered in the paper.
5.1.6 b) Escala de coordenação	Not covered in the paper.
5.1.6 c) Observações gerais	<p>No SDG are mentioned.</p> <p>4 citations - 18/01/2024.</p> <p>No mentioned to spicif Technologies.</p>

Artigo 10	Reggi, L., & Ricci, C. A. (2014). The role of public companies in the coordination of e-government regional policies. <i>Economia e Politica Industriale</i> 41(3), 159-177.
5.1.2 a) Foco principal do artigo	<p>“This paper provides a brief overview of recent e-government policies of the Italian regions with a focus on the coordination models between local actors. In particular, the role of regional information technology (IT) public companies is explored through a cluster analysis based on evidence from an ad hoc survey. Advantages and disadvantages of the different coordination models are discussed. In particular, two composite indices are employed: (i) an index of the intensity of coordination at the regional level; (ii) an index of effectiveness of IT policies, measured as the level of advancement of municipalities in the use of ICTs. The two indices are then compared with the coordination models adopted”.</p> <p>“Il presente lavoro non ha lo scopo di offrire una valutazione complessiva dei vantaggi e degli svantaggi del “modello in house”, ma si concentra invece sul più generale contributo del coordinamento all’efficacia delle politiche per la diffusione dell’e-government in Italia, indipendentemente dal “modello di governance” adottato. L’ipotesi da verificare è quindi se le IH possano essere considerate come una delle possibili soluzioni per facilitare un coordinamento più efficace in tema di IT”.</p> <p>[EN] “The present work does not have the scope of offering a comprehensive value of advantages and benefits of the “model in house”, but it concentrates on the main general contribution of coordinating all political efficiency for the diffusion of government in Italy, regardless of the “governance model” adopted. The verification’s ipotesi is essential if the IH can be considered as one of the possible solutions to facilitate more effective coordination in IT”.</p>
5.1.2 b) Principais resultados do artigo	“Preliminary results show a positive correlation between the two indices, while the presence of an IT public company does not appear to significantly affect either the IT performance nor the level of coordination”.
5.1.2 c) Tipo de estudo	Observational study.
5.1.2 d) Domínio de ação política	Implementation of e-government models.
5.1.2 e) País(es) onde a investigação foi realizada	Italy.
5.1.3 a) Definição de coordenação	<p>“Nei termini più generali, un buon sistema di coordinamento è quello che assicura da un lato un’ottima divisione del lavoro, con l’assegnazione di specifici compiti e responsabilità a soggetti che godono delle appropriate competenze e dall’altro la possibilità di intraprendere decisioni tempestive, evitando inutili ritardi o sovrapposizioni di competenze e sprechi di risorse scarse. Un cattivo coordinamento genera costi che non sono soltanto privati dal momento che finiscono per ricadere sull’intera società nei termini dei cosiddetti costi-opportunità, ovvero dei mancati guadagni associati a possibili impieghi alternativi più produttivi delle risorse economiche sprecate in un dato uso”.</p> <p>[EN] “In the most general terms, a good coordination system is one that ensures on the one hand an excellent division of labor, with the assignment of specific tasks and responsibilities to subjects who have the appropriate skills and on the other the possibility of making timely</p>

	<p>decisions, avoiding unnecessary delays or overlapping of skills and waste of scarce resources. Poor coordination generates costs that are not only private since they end up falling on the entire society in terms of the so-called opportunity costs, or the lost earnings associated with possible alternative more productive uses of the economic resources wasted in a given use”.</p> <p>“L’adozione di pratiche in grado di favorire il coordinamento, assicura diversi vantaggi e, d’altro canto, genera alcuni costi. I vantaggi riguardano i seguenti aspetti:</p> <ul style="list-style-type: none"> a. la possibilità di mobilitare una massa critica di risorse tali da permettere il conseguimento di economie di scala nell’erogazione dei servizi, che può in certi casi anche accrescere il potere contrattuale nei confronti dei fornitori (Ferro, Cantamessa e Paolucci, 2004); b. la creazione di standard amministrativi, organizzativi, procedurali, gestionali in grado di ottimizzare le risorse umane e finanziarie coinvolte (Ferro e Sorrentino, 2010); c. la soluzione di problemi interni di organizzazione o efficienza; d. la facilità di condivisione dell’informazione tra attori pubblici e privati del territorio”. <p>[EN] “The adoption of practices that can promote coordination ensures several advantages and, on the other hand, generates some costs. The advantages concern the following aspects:</p> <ul style="list-style-type: none"> a. the possibility of mobilizing a critical mass of resources that allow the achievement of economies of scale in the provision of services, which can in some cases also increase the bargaining power with respect to suppliers (Ferro, Cantamessa and Paolucci, 2004); b. the creation of administrative, organizational, procedural, and management standards that can optimize the human and financial resources involved (Ferro and Sorrentino, 2010); c. the solution of internal problems of organization or efficiency; d. the ease of sharing information between public and private actors in the territory”. <p>“Themistocleous e Irani (2003) hanno individuato tre ulteriori benefici del coordinamento oltre a quelli appena menzionati; si tratta dei benefici manageriali (che includono, in particolare, una maggiore remunerazione degli investimenti), operativi (come, ad esempio, una riduzione dei costi) e strategici (derivanti, ad esempio, dalla collaborazione fra partner)”.</p> <p>[EN] “Themistocleous and Irani (2003) have identified three further benefits of coordination in addition to those just mentioned; these are managerial benefits (which include, in particular, a higher return on investments), operational benefits (such as, for example, a reduction in costs) and strategic benefits (deriving, for example, from collaboration between partners)”.</p>
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	Not covered in the paper.
5.1.3 c) Formas de coordenação	Not covered in the paper.
5.1.3 d) Mecanismos de coordenação	<p>“Infine, è da tener presente che le società IH non sono le sole strutture che supportano e definiscono nuove forme di coordinamento. Infatti, su temi specifici, operano, molto di frequente, altre istituzioni o reti che assumono funzioni specifiche di “facilitazione” del</p>

	<p>coordinamento (in alcuni territori è questo il caso ad esempio delle funzioni legate all'e-procurement pubblico, alla ricerca e sviluppo tecnologico, ai servizi sanitari e così via).</p> <p>In altri contesti regionali, è l'amministrazione regionale stessa ad assumere un ruolo più attivo, facendo leva su competenze interne o promuovendo specifici progetti, gestiti direttamente e con obiettivi di solito ben definiti, al fine di coinvolgere particolari professionalità esterne".</p> <p>[EN] "Finally, it should be noted that IH companies are not the only structures that support and define new forms of coordination. In fact, on specific issues, other institutions or networks operate very frequently and assume specific functions of "facilitating" coordination (in some territories this is the case for example of the functions related to public e-procurement, research and technological development, health services and so on)".</p>
5.1.3 e) Atores governamentais	Regional governments, local municipalities and public IT companies.
5.1.3 f) Atores externos não governamentais	Private IT service providers, research institutions, and local businesses.
5.1.3 g) Nível governamental	Regional.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	Not covered in the paper.
5.1.3 i) Características organizacionais do governo	Not covered in the paper.
5.1.3 j) Condições iniciais	<p>Need for a coordination process and optimally manages the interdependencies between activities.</p> <p>"La letteratura economica ha guardato ai problemi del coordinamento essenzialmente sotto il profilo dell'allocazione efficiente di risorse date e scarse, evidenziando come, in un mondo nel quale diverse attività necessitino l'impiego di risorse limitate (beni, reddito, capacità, spazio, tempo degli agenti etc.) sia necessario un processo di coordinamento che gestisca in via ottimale l'interdipendenza tra queste attività, così da assegnare ciascuna risorsa agli usi più produttivi".</p> <p>[EN] "The economic literature has looked at coordination problems essentially from the perspective of the efficient allocation of given and scarce resources, highlighting how, in a world in which different activities require the use of limited resources (goods, income, capacity, space, time of agents, etc.), a coordination process is needed that optimally manages the interdependence between these activities, so as to assign each resource to the most productive uses".</p>
5.1.3 k) Papel da tecnologia digital	<p>Design and implementation of new organizational forms for information exchange.</p> <p>"Il settore ICT infatti, nelle sue diverse manifestazioni, assume un ruolo fondamentale nel progettare e realizzare nuove forme organizzative per lo scambio di informazioni che richiedono una diversa concezione della competitività, una ristrutturazione delle variabili organizzative e un cambiamento nello stile manageriale".</p> <p>[EN] "The ICT sector, in its various manifestations, plays a fundamental role in designing and implementing new organizational forms for the exchange of information that require a different concept of</p>

	competitiveness, a restructuring of organizational variables and a change in managerial style".
5.1.3 l) Tempo	Not covered in the paper.
5.1.3 m) Tensões que desafiam a coordenação	<p>"Il coordinamento e la condivisione dell'informazione tra attori pubblici, malgrado i loro vantaggi, incontrano spesso barriere e costi, che possono essere anche molto elevati. Tali costi possono essere distinti in tecnici, organizzativi e politici (Dawes, 1996)".</p> <p>[EN] "The coordination and sharing of information between public actors, despite their advantages, often encounter barriers and costs, which can be very high. These costs can be divided into technical, organizational and political (Dawes, 1996)".</p> <p>"Individuando i fattori che possono influenzare il disegno e gli assetti organizzativi delle iniziative e degli accordi di cooperazione tra enti locali, Hulst et al. (2009) distinguono tra:</p> <ul style="list-style-type: none"> a. contesto istituzionale nazionale (struttura dello stato, legislazione e incentivi per la cooperazione, cultura amministrativa); b. fattori ambientali (socio-economici, politici, demografici, tecnologici); c. più generiche preferenze locali". <p>[EN] "Identifying the factors that can influence the design and organizational structures of initiatives and agreements for cooperation between local authorities, Hulst et al. (2009) distinguish between:</p> <ul style="list-style-type: none"> a. national institutional context (state structure, legislation and incentives for cooperation, administrative culture); b. environmental factors (socio-economic, political, demographic, technological); c. more generic local preferences".
5.1.4 a) Forma de governo	Not covered in the paper.
5.1.4 b) Tradição democrática	Not covered in the paper.
5.1.4 c) Nivel de autonomia	<p>Decentralized and autonomous.</p> <p>"In Italia, le iniziative di carattere nazionale e regionale risultano notevolmente diversificate. Le Regioni e gli enti locali godono di numerosi gradi di libertà nella scelta delle forme e modelli di coordinamento da adottare, spesso oggetto di investimenti dedicati per la realizzazione di forme stabili di collaborazione".</p> <p>[EN] "In Italy, national and regional initiatives are significantly diversified. Regions and local authorities enjoy numerous degrees of freedom in choosing the forms and models of coordination to adopt, often the subject of dedicated investments for the creation of stable forms of collaboration".</p>
5.1.4 d) Características do domínio político	Not covered in the paper.
5.1.4 e) Cultura	Not covered in the paper.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	<p>Regions receive a high degree of freedom to choose coordination models.</p> <p>"In Italia, le iniziative di carattere nazionale e regionale risultano notevolmente diversificate. Le Regioni e gli enti locali godono di numerosi gradi di libertà nella scelta delle forme e modelli di coordinamento da adottare, spesso oggetto di investimenti dedicati per la realizzazione di forme stabili di collaborazione".</p>

	[EN] “In Italy, national and regional initiatives are significantly diversified. Regions and local authorities enjoy numerous degrees of freedom in choosing the forms and models of coordination to adopt, often the object of dedicated investments for the creation of stable forms of collaboration”.
5.1.4 g) Condições socioeconómicas do país	Not covered in the paper.
5.1.5 a) Tipo de output	Not covered in the paper.
5.1.5 b) Tipo de outcome	Not covered in the paper.
5.1.5 c) Resultados da transformação digital	Not covered in the paper.
5.1.5 d) Elementos de falha	Not covered in the paper.
5.1.5 e) Resultados adversos da coordenação	Not covered in the paper.
5.1.6 a) Métodos de avaliação de resultados	Not covered in the paper.
5.1.6 b) Escala de coordenação	Not covered in the paper.
5.1.6 c) Observações gerais	No SDG are mentioned. 2 citations - 14/04/2024. No mentioned to spicif Technologies.

Artigo 11	Organ, J. (2003). The coordination of e-government in historical context. Public policy and administration, 18(2), 21-36.
5.1.2 a) Foco principal do artigo	<p>"The paper traces the history of IT coordination in government, from the early 1950s to the current e-government environment. Particular attention will be paid to the organizations that have been charged with coordination over the decades, and how they differed in terms of approach and success".</p> <p>"Using official documents, committee reports and Parliamentary debate transcripts in particular, this paper will analyse the history of governmental IT coordination, to point out the varying objectives and policies of the assortment of central bodies that have been involved in this issue over the decades. IT coordination will be linked to the pattern of enduring computer project failure in the public sector, which has continued into the e-government era despite central efforts."</p>
5.1.2 b) Principais resultados do artigo	<p>"The paper concludes that central government should remedy the fundamentals of departmental IT project management before wide-ranging joined up' e-government schemes can be attempted".</p> <p>"The paper will provide some indications of the challenges, pitfalls and prudent courses of action in creating a 'corporate IT strategy' (Cabinet Office, 1999, p.46), from which joined up e-government is expected to flourish".</p>
5.1.2 c) Tipo de estudo	Literature Review.
5.1.2 d) Domínio de ação política	Coordination practices in e-government.
5.1.2 e) País(es) onde a investigação foi realizada	Britain.
5.1.3 a) Definição de coordenação	Not covered in the paper.
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	Not covered in the paper.
5.1.3 c) Formas de coordenação	Not covered in the paper.
5.1.3 d) Mecanismos de coordenação	Not covered in the paper.
5.1.3 e) Atores governamentais	Government departments and agencies, central government actors, local authorities and educational institutions.
5.1.3 f) Atores externos não governamentais	Private companies and citizens.
5.1.3 g) Nível governamental	National.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	Not covered in the paper.
5.1.3 i) Características organizacionais do governo	Not covered in the paper.
5.1.3 j) Condições iniciais	"The aim is to use ICTs to facilitate a seamless experience for citizens, rather than the fragmentation and wastefulness that, it is argued, has plagued an overly 'functional' or 'provider centred' approach in the past (PIU, 2000a, p.6); (...)"
5.1.3 k) Papel da tecnologia digital	"Since the Modernising Government white paper (Cabinet Office, 1999), the Labour government has shown faith in the use of ICTs (Information and Communication Technologies) to revolutionise the efficiency, structure and output of departments and agencies.

	Indeed, the Labour government's reform agenda has e-government at its heart, playing an instrumental role in joining up organisations to create citizen focused public services (PIU, 2000b). The aim is to use ICTs to facilitate a seamless experience for citizens, rather than the fragmentation and wastefulness that, it is argued, has plagued an overly 'functional' or 'provider centred' approach in the past (PIU, 2000a, p.6); electronic service delivery aspires to 'transform the way the public sector do business' (PIU, 2000b, p.5). Thus e-government is set to enable cross-cutting service delivery, as embodied in 'joining up', an ethos that has become a prominent theme in the reform programme (Bellamy and Petrie, 1999, p.3)".
5.1.3 l) Tempo	Not covered in the paper.
5.1.3 m) Tensões que desafiam a coordenação	Resistance to change. "Yet, just as project management became crucial, and central bodies began to attempt coordination in this area, it was apparent that departments were not acquiescing despite their apparent naivety in IT policy. Thus, the departmental structure, which harboured fiercely independent departments and had resisted many central reform initiatives (Hennessy, 1989; Theakston, 1995) had providing problems for IT coordination in all three of its guises;(...)". "Whilst the agency's initial remit was to supervise procurement as well as computer use across departments, by 1984 they were giving departments 'clear control over the choice of systems' (CCTA 1984, p.iii), and officials in bigger departments such as the DHSS were saying 'we don't go to them for advice' (quoted in Margetts, 1999, pp.62-63)".
5.1.4 a) Forma de governo	Not covered in the paper.
5.1.4 b) Tradição democrática	Not covered in the paper.
5.1.4 c) Nivel de autonomia	Decentralized. "The CCTA had struggled to impose its will on departments, and with the political environment post1979, their influence waned further as the idea of specialized central control over IT procurement and use lost credence. In 1985 the CCTA lost power over the finances for computer procurement to the Treasury, and shortly afterwards suffered the ostracism of a move away from London to Norwich".
5.1.4 d) Características do domínio político	Not covered in the paper.
5.1.4 e) Cultura	Not covered in the paper.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	Not covered in the paper.
5.1.4 g) Condições socioeconómicas do país	Not covered in the paper.
5.1.5 a) Tipo de output	Not covered in the paper.
5.1.5 b) Tipo de outcome	Not covered in the paper.
5.1.5 c) Resultados da transformação digital	Not covered in the paper.
5.1.5 d) Elementos de falha	Not covered in the paper.
5.1.5 e) Resultados adversos da coordenação	Not covered in the paper.

5.1.6 a) Métodos de avaliação de resultados	Not covered in the paper.
5.1.6 b) Escala de coordenação	Not covered in the paper.
5.1.6 c) Observações gerais	No SDG are mentioned. 15 citations - 28/02/2024. No mentioned to spicif Technologies.

ANEXO IV – ANÁLISE DOS ARTIGOS (ABORDAGEM AUTOMÁTICA)

Neste documento, são apresentados os resultados obtidos através da análise efetuada pelas ferramentas de análise automática de conteúdo que foram selecionadas para este estudo.

Os artigos que foram analisados são os seguintes:

Artigo 1	Bonduki, M., & Cunha, M. A. (2022, October). Coordination of the Digital Transformation of Governments in Federalist Context: Hierarchy, Markets and Network-Based Instruments' Effects on Subnational Governments' digital service delivery. In <i>Proceedings of the 15th International Conference on Theory and Practice of Electronic Governance</i> (pp. 528-533).
Artigo 2	Nikraftar, T., & Shokri, R. (2014). Dominant concourse about important barriers to promoting coordination in Iranian government machinery. <i>Transforming Government: People, Process and Policy</i> , 8(3), 357-373.
Artigo 3	Sta, H. B. (2018). Organisational structure for the e-government coordination and interoperability framework: a case study of Tunisia. <i>Electronic Government, an International Journal</i> , 14(1), 51-77.
Artigo 4	Nurdin, N., Stockdale, R., & Scheepers, H. (2014). Coordination and cooperation in e-government: An Indonesian local e-government case. <i>The Electronic Journal of Information Systems in Developing Countries</i> , 61(1), 1-21.
Artigo 5	Špaček, D. (2014). Coordination of and through E-Government: The Case of the Czech Republic. <i>NISPAcee Journal of Public Administration and Policy</i> , 7(1), 83-106.
Artigo 6	Iyer, L. S., Singh, R., Salam, A. F., & D'Aubeterre, F. (2006). Knowledge management for Government-to-Government (G2G) process coordination. <i>Electronic Government, an International Journal</i> , 3(1), 18-35.
Artigo 7	Gao, X., Song, Y., & Zhu, X. (2013). Integration and coordination: Advancing China's fragmented e-government to holistic governance. <i>Government Information Quarterly</i> , 30(2), 173-181.
Artigo 8	Qunli, W., Hong, Z., & Xue, T. (2009, May). The Problems of Unification and Coordination in the Development of E-Government in China. In <i>2009 International Forum on Information Technology and Applications</i> (Vol. 3, pp. 538-540). IEEE.
Artigo 9	Berce, J., Bianchi, A., Centeno, C., Osimo, D., Millard, J., & Shahin, J. (2006). The Organisation and Coordination of European e-Government Research for the EU in 2010. In <i>Electronic Government: 5th International Conference, EGOV 2006, Kraków, Poland, September 4-8, 2006. Proceedings 5</i> (pp. 37-46). Springer Berlin Heidelberg.
Artigo 10	Reggi, L., & Ricci, C. A. (2014). The role of public companies in the coordination of e-government regional policies. <i>Economia e Politica Industriale</i> 41(3), 159-177.
Artigo 11	Organ, J. (2003). The coordination of e-government in historical context. <i>Public policy and administration</i> , 18(2), 21-36.

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Artigo 1	Bonduki, M., & Cunha, M. A. (2022, October). Coordination of the Digital Transformation of Governments in Federalist Context: Hierarchy, Markets and Network-Based Instruments' Effects on Subnational Governments' digital service delivery. In Proceedings of the 15th International Conference on Theory and Practice of Electronic Governance (pp. 528-533).
5.1.2 a) Foco principal do artigo	"The article focuses on how coordination instruments and mechanisms affect the digital transformation of subnational governments in Brazil, examining the role of the federal government in orchestrating these efforts within a federative context to achieve coherence in digital government services".
5.1.2 b) Principais resultados do artigo	"The article reports that federal coordination through various instruments and mechanisms significantly influences the digital transformation of subnational governments in Brazil, with outcomes varying based on the level of coordination and compliance with national digital policies, impacting service delivery and integration across governments".
5.1.2 c) Tipo de estudo	"The researchers used a multiple-case comparative analysis methodology".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in digital government services".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in Brazil across subnational governments".
5.1.3 a) Definição de coordenação	"Coordination is defined as the intentional action to structure relationships among governmental and non-governmental actors at all levels of the federation, aiming to enable coherent collective action through the use of formal institutional instruments like laws, policies, and forums".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article adopts governance models based on hierarchies, markets, and networks, using instruments like regulations, financial incentives, and collaborative forums. These models structure intergovernmental coordination, aiming to balance authority between national and subnational governments for coherent digital transformation in a federalist context".
5.1.3 c) Formas de coordenação	"Yes, the article mentions that coordination can take forms based on hierarchies, markets, and networks, where governments use regulations, financial incentives, and trust-building mechanisms to organize and manage their activities and relationships in the context of digital transformation".
5.1.3 d) Mecanismos de coordenação	"The coordination mechanisms mentioned in the article are hierarchies, using regulations and authority; markets, involving competition and financial incentives; and networks, relying on trust, cooperation, and information exchange among government actors to achieve coordinated action in digital transformation".
5.1.3 e) Atores governamentais	"In the article, the federal government, state governments, and local governments participate in the collaborative governance model, with the federal government playing a central role in orchestrating and coordinating digital transformation efforts among subnational entities".
5.1.3 f) Atores externos não governamentais	"The article does not explicitly mention the participation of non-governmental actors in the collaborative governance model".

5.1.3 g) Nível governamental	"The coordination model was implemented at the federal level".
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	"The coordination mechanisms or instruments used between government actors included regulations (hierarchy), financial incentives (markets), and collaborative forums (networks), facilitating cooperation, trust-building, and negotiation to manage digital transformation across federal, state, and local governments".
5.1.3 i) Características organizacionais do governo	"The organizational characteristics influencing coordination included Brazil's federalist political system, which grants autonomy to subnational governments, leading to challenges in integration and coherence across levels of government. This system required tailored coordination mechanisms to manage shared authority and responsibilities between national and subnational entities".
5.1.3 j) Condições iniciais	"The initial factors influencing the formation of the coordination model were the need for coherence in digital transformation across Brazil's federalist structure, addressing fragmentation of digital services, regional inequalities, and the challenge of integrating subnational governments' efforts with national digital policies".
5.1.3 k) Papel da tecnologia digital	"The article highlights the use of digital tools such as data sharing platforms, interoperability systems, and standards for digital service delivery to facilitate coordination between government actors. These tools enhance communication, streamline processes, and promote integration across different levels of government".
5.1.3 l) Tempo	"The article does not specify the duration of the coordination model".
5.1.3 m) Tensões que desafiam a coordenação	"The challenges during the coordination process included fragmentation of initiatives, competition between governments, regional inequalities, lack of integration in digital services, and balancing subnational autonomy with federal coordination, all of which complicated the coherence and effectiveness of digital transformation efforts".
5.1.4 a) Forma de governo	"The article does not mention political systems like republics, monarchies, or democracies. Instead, it focuses on coordination forms within governance, specifically hierarchies, markets, and networks, which shape how organizations manage activities and relationships in digital transformation efforts".
5.1.4 b) Tradição democrática	"The article emphasizes federalism and intergovernmental cooperation, principles of democratic governance that influence coordination models. These democratic values promote negotiation, shared authority, and participation between national and subnational governments, shaping coordination mechanisms like networks and markets, and fostering collaboration over centralized, authoritarian approaches".
5.1.4 c) Nível de autonomia	"The decentralized autonomy of subnational governments influenced the coordination mechanisms".
5.1.4 d) Características do domínio político	"The article highlights characteristics of policy domains like digital government services, which require interoperability, data sharing, and integration across government levels. These characteristics necessitate coordination mechanisms that balance federal authority and subnational autonomy, influencing outcomes by promoting coherence in service delivery and reducing fragmentation".
5.1.4 e) Cultura	"The article does not explicitly discuss cultural aspects influencing the coordination model. However, the decentralized nature of Brazil's federalist system, with strong subnational autonomy, implicitly

	reflects a culture of regional diversity and self-governance, which influenced the need for flexible, negotiated coordination mechanisms”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Governments influence coordination mechanisms and outcomes through central government planning, regulatory frameworks, policy design, intergovernmental forums, and resource allocation. These tools aim to balance autonomy and integration among subnational entities, aligning their efforts towards cohesive digital transformation”.
5.1.4 g) Condições socioeconômicas do país	“The article highlights regional inequalities and varying levels of digital infrastructure as socioeconomic conditions influencing coordination. These disparities required tailored coordination mechanisms to address uneven development, promote integration, and ensure equitable digital service delivery across subnational governments, impacting the effectiveness of coordination efforts”.
5.1.5 a) Tipo de output	“The type of output in the article includes service provision, focusing on digital government service delivery outcomes, specifically the effectiveness of policy implementation and service accessibility improvements through digital platforms”.
5.1.5 b) Tipo de outcome	“The type of outcome in the article includes process improvement and increased efficiency in digital government services, specifically aiming to streamline service delivery and enhance interoperability among government systems”.
5.1.5 c) Resultados da transformação digital	“The article mentions additional outcomes of coordination in e-government, including improved interoperability of systems, enhanced data sharing, and more consistent service delivery across governments, but also highlights issues like slower services, redundant documentation requests, and barriers for vulnerable users due to fragmentation”.
5.1.5 d) Elementos de falha	“The article identifies obstacles such as fragmentation of initiatives, competition between governments, lack of integration in digital services, regional inequalities, and the challenge of balancing subnational autonomy with federal coordination as factors that could compromise the success of digital transformation efforts”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions negative consequences such as inefficiencies, competition between governments, fragmentation of initiatives, increasing regional inequalities, and dissonance in service delivery due to poor coordination and lack of integration in digital government efforts”.
5.1.6 a) Métodos de avaliação de resultados	“Yes, the article mentions that coordination results are measured through rankings based on indicators of compliance with federal digital policies and the performance of digital government services. These rankings help evaluate the effectiveness and impact of coordinated activities among subnational governments”.
5.1.6 b) Escala de coordenação	“Yes, the article mentions a ranking system to assess the degree of coordination between government actors, particularly in terms of compliance with federal digital policies and the outcomes of digital government advancements among Brazil's 27 federative units”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality”.

Artigo 2	Nikraftar, T., & Shokri, R. (2014). Dominant concourse about important barriers to promoting coordination in Iranian government machinery. <i>Transforming Government: People, Process and Policy</i> , 8(3), 357-373.
5.1.2 a) Foco principal do artigo	"The article focuses on identifying and analyzing the barriers to promoting coordination within the Iranian government machinery. It seeks to understand these barriers from the perspectives of Iranian practitioners and scholars, with the goal of improving government coordination, especially through policy and administrative reforms".
5.1.2 b) Principais resultados do artigo	"The article reports that the most important barriers to government coordination in Iran are administrative inefficiencies, unrealistic government visions, and deficiencies in laws and systems such as taxation and management. It also highlights that administrative coordination is more challenging than policy coordination due to diverse viewpoints".
5.1.2 c) Tipo de estudo	"The researchers used a Delphi technique and concourse theory".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in the public administration sector".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in Iran, focusing on its government".
5.1.3 a) Definição de coordenação	"Coordination in the article is defined as the process of aligning and integrating the activities of various government organizations to work together effectively. It involves both horizontal and vertical relationships across agencies to achieve policy goals, with an emphasis on overcoming administrative and policy barriers".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article adopts governance models emphasizing collaborative government, policy integration, and administrative alignment. It draws on principles from concourse theory, the Delphi technique, and e-government initiatives to structure and manage coordination. These models prioritize cross-agency collaboration, clear communication, and the removal of administrative and policy barriers".
5.1.3 c) Formas de coordenação	"Yes, the article mentions that coordination can take forms such as joined-up government (UK), horizontal government (Canada), networked government (USA), and integrated government (New Zealand). These approaches focus on organizing and managing activities and relationships across different government agencies to enhance collaboration".
5.1.3 d) Mecanismos de coordenação	"The article mentions mechanisms such as e-government for improving communication and collaboration across agencies, the integration of administrative and policy functions, and the establishment of common frameworks and mental models among government participants to enhance coordination and reduce administrative and policy barriers".
5.1.3 e) Atores governamentais	"The article identifies government actors such as public administrators, program planners, policymakers, politicians, and academics as participants in the collaborative governance model. These actors contribute to shaping government coordination by addressing administrative and policy barriers through collaboration and shared decision-making".
5.1.3 f) Atores externos não governamentais	"The article mentions that non-governmental actors participating in the collaborative governance model include academic scholars and,

	indirectly, the public, through feedback and expectations. It also highlights the potential role of NGOs and the private sector in contributing to discussions on improving government coordination”.
5.1.3 g) Nível governamental	“The coordination model was implemented at the national level”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The article identifies e-government as a key coordination mechanism, facilitating communication between government actors and non-government actors. Other instruments include policy integration, collaborative frameworks, and structured dialogues like the Delphi technique to gather consensus among actors on administrative and policy barriers”.
5.1.3 i) Características organizacionais do governo	“The article highlights organizational characteristics such as Iran’s centralized political system, fragmented administrative structures, inefficiencies in the tax system, lack of meritocracy, and bureaucratic culture. It also mentions the influence of governmental instability, parallel organizational functions, and unrealistic government visions on coordination efforts”.
5.1.3 j) Condições iniciais	“The initial factors influencing the formation of the coordination model included Iran’s administrative inefficiencies, fragmented decision-making processes, lack of collaboration among government agencies, and the need for improved policy implementation. Motivations also included addressing citizen dissatisfaction and improving overall governmental performance and coordination”.
5.1.3 k) Papel da tecnologia digital	“The article emphasizes the role of e-government as a key digital tool for improving coordination between government and non-government actors. It facilitates online communication, enhances transparency, automates processes, and integrates various government functions, thereby improving collaboration, service delivery, and decision-making across agencies”.
5.1.3 l) Tempo	“The article does not specify how long the coordination model remained active”.
5.1.3 m) Tensões que desafiam a coordenação	“The article identifies challenges such as administrative inefficiencies, fragmented decision-making, lack of alignment between government agencies, bureaucratic resistance, political instability, and unrealistic government visions. Other difficulties include divergent viewpoints among policymakers, insufficient digital infrastructure, and the persistence of parallel organizational functions that hindered coordination”.
5.1.4 a) Forma de governo	“The article does not explicitly mention forms of government like republic, monarchy, dictatorship, or democracy as coordination approaches. However, it discusses different coordination models such as joined-up government, horizontal government, networked government, and integrated government, which reflect organizational and management approaches in various governmental systems”.
5.1.4 b) Tradição democrática	“The article emphasizes democratic and participatory principles like collaboration, transparency, and stakeholder engagement, particularly through e-government. These democratic values promote inclusivity and shared decision-making, influencing coordination by fostering dialogue among actors. In contrast, bureaucratic and centralized practices in Iran hinder coordination, reflecting tensions with democratic ideals”.
5.1.4 c) Nível de autonomia	“The article describes a highly centralized government influencing coordination mechanisms”.

5.1.4 d) Características do domínio político	“The article highlights fragmented policy domains, inconsistent government visions, and overlapping organizational roles, particularly in administrative and financial policies. These characteristics create inefficiencies, misalignment, and conflicting goals, complicating coordination efforts. The lack of integration across policy areas hinders effective collaboration and complicates policy implementation across the government”.
5.1.4 e) Cultura	“The article identifies bureaucratic culture, resistance to transparency, and political patronage as cultural aspects that hinder coordination. These cultural factors promote administrative inefficiencies, discourage collaboration, and foster distrust among government actors, negatively impacting the effectiveness of coordination models and obstructing policy implementation efforts”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Government measures that influence coordination include centralized planning, administrative reforms, reliance on oil revenues, and ICT deployment. Political contexts, such as party influence and governance style (e.g., centralized or decentralized), also shape coordination efforts and their effectiveness”.
5.1.4 g) Condições socioeconômicas do país	“The article highlights Iran's dependence on oil revenue, economic centralization, and administrative inefficiencies as key socioeconomic conditions affecting coordination. These conditions create resource mismanagement, financial instability, and a lack of policy coherence, which complicate coordination efforts and hinder effective government collaboration and policy execution”.
5.1.5 a) Tipo de output	“The type of output mentioned in the article includes e-government services, specifically government-to-government (G2G) services, which focus on improving coordination and efficiency within government bodies through ICT solutions”.
5.1.5 b) Tipo de outcome	“The type of outcome described in the article is increased efficiency and productivity within the government, achieved through better coordination and integration of e-government services”.
5.1.5 c) Resultados da transformação digital	“The article mentions that e-government improved transparency, reduced bureaucratic inefficiencies, and facilitated better communication between government agencies. It also enhanced public service delivery, increased accountability, and fostered more integrated decision-making processes, contributing to more efficient governance and improved coordination across various sectors”.
5.1.5 d) Elementos de falha	“The article identifies obstacles such as fragmented administrative structures, lack of collaboration among agencies, resistance to transparency, political instability, and insufficient digital infrastructure. Additionally, unrealistic government visions, bureaucratic inefficiencies, and misaligned policies were limitations that compromised the success of coordination efforts in Iran's government”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions negative consequences such as increased bureaucratic inefficiencies, a lack of trust among government actors, and persistent fragmentation in decision-making. These undesirable outcomes have led to ineffective coordination, poor policy implementation, and citizen dissatisfaction with government services and responsiveness”.
5.1.6 a) Métodos de avaliação de resultados	“The article does not specify a formal method for measuring and evaluating coordination results. However, it emphasizes the

	importance of feedback mechanisms, stakeholder engagement, and the use of qualitative assessments, like the Delphi technique, to gauge the effectiveness and efficiency of coordinated activities in the government context”.
5.1.6 b) Escala de coordenação	“The article does not mention a specific scale for assessing the degree of coordination between government and non-government actors. It focuses on qualitative insights gathered through the Delphi technique to identify barriers and perspectives on coordination rather than employing a quantitative measurement scale”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies like Artificial Intelligence, Blockchain, or Virtual Reality. Its primary focus is on coordination challenges within the Iranian government and the role of e-government in enhancing administrative efficiency and collaboration among agencies”.

Artigo 3	Sta, H. B. (2018). Organisational structure for the e-government coordination and interoperability framework: a case study of Tunisia. <i>Electronic Government, an International Journal</i> , 14(1), 51-77.
5.1.2 a) Foco principal do artigo	"The central theme of the article is the development and coordination of an e-government framework in Tunisia, focusing on interoperability between various government systems. It examines the organisational structures needed to implement e-services, ensuring that systems are compatible and efficiently managed, drawing lessons from European interoperability frameworks".
5.1.2 b) Principais resultados do artigo	"The article reports that Tunisia needs a clearly defined institutional framework for e-government, emphasizing coordination and interoperability between government systems. It highlights the importance of central coordination bodies, technical infrastructure, and administrative processes to ensure efficient, sustainable, and secure development of interoperable e-services".
5.1.2 c) Tipo de estudo	"The researchers used a case study approach on Tunisia".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in e-government and public administration".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in Tunisia with comparisons to Europe".
5.1.3 a) Definição de coordenação	"Coordination is defined as the process of organizing and aligning various government bodies and systems to ensure efficient implementation of e-government services. It involves creating a structured framework for managing interoperability, standardizing procedures, and ensuring collaboration across different levels and sectors of government".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The coordination models in the article are based on principles of interoperability, central coordination by high-level government bodies, and a structured governance model involving clear roles for coordination and implementation. These models draw from European e-government frameworks, emphasizing horizontal management, legal frameworks, and secure, interoperable technology infrastructures".
5.1.3 c) Formas de coordenação	"Yes, the article mentions that coordination can take different forms, including centralized coordination by a high-level government body (e.g., Prime Minister's office) and technical implementation by specialized units. It also highlights horizontal management across ministries and collaboration between public, private, and academic sectors for effective governance".
5.1.3 d) Mecanismos de coordenação	"The coordination mechanisms mentioned include a central coordination unit for overseeing e-government strategies, ministerial ICT councils, Chief Information Officers (CIOs) in ministries for alignment, and collaboration with private and academic sectors. These mechanisms ensure interoperability, legal framework adherence, and efficient e-government service implementation".
5.1.3 e) Atores governamentais	"In the collaborative governance model, the government actors include the central coordination unit, ministerial ICT councils, Chief Information Officers (CIOs), the e-Government Unit, the Ministry of Information and Communication Technologies, and other ministries. Private sector, academic institutions, and international organizations also collaborate".

5.1.3 f) Atores externos não governamentais	“The non-governmental actors in the collaborative governance model include the private sector, academic institutions, and international organizations. These actors contribute to the development, implementation, and support of e-government services, offering expertise, resources, and collaboration in alignment with governmental strategies”.
5.1.3 g) Nível governamental	“The coordination model was implemented at the national level”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The coordination mechanisms used include a central coordination unit, ICT councils in ministries, and Chief Information Officers (CIOs) facilitating collaboration between government entities. Additionally, partnerships with the private sector, academic institutions, and international organizations provided expertise and support for implementing interoperable e-government services”.
5.1.3 i) Características organizacionais do governo	“The organizational characteristics influencing coordination include the centralization of coordination under high-level government bodies, the involvement of ministries with specific ICT roles, and the hierarchical structure of government. The need for clear legal frameworks, budgetary support, and horizontal collaboration across ministries also shaped the coordination process”.
5.1.3 j) Condições iniciais	“The initial factors influencing the coordination model's formation were the need for interoperability across government systems, fragmented technology projects, legal discrepancies, and inefficient data management. Motivations included improving e-government service delivery, ensuring system compatibility, and aligning with international best practices, particularly European interoperability frameworks”.
5.1.3 k) Papel da tecnologia digital	“Digital technology plays a key role in facilitating coordination through the use of interoperability frameworks, online government portals, data exchange layers, and secure digital identification systems. These tools enable seamless communication, data sharing, process automation, and collaboration between government and non-government actors for efficient e-government service delivery”.
5.1.3 l) Tempo	“The article does not specify the duration of the model”.
5.1.3 m) Tensões que desafiam a coordenação	“Challenges during the coordination process included fragmented IT systems, legal inconsistencies, lack of common technological standards, insufficient coordination between ministries, and limited IT expertise. Additionally, financial constraints and the need for alignment with international standards created tensions in implementing a cohesive and interoperable e-government system”.
5.1.4 a) Forma de governo	“The article does not mention political systems like republics or monarchies but discusses different coordination approaches within e-government, such as centralized coordination by high-level bodies, horizontal management across ministries, and collaboration with non-governmental actors. It focuses on organizational and technical frameworks for managing e-government activities”.
5.1.4 b) Tradição democrática	“The article highlights principles such as transparency, collaboration, and public participation, characteristic of democratic governance, as influencing coordination models. These democratic values foster horizontal management, cross-ministerial cooperation, and inclusion of non-governmental actors (private sector, academia), ensuring that coordination is participatory and aligned with international best practices for e-government”.

5.1.4 c) Nível de autonomia	"The coordination model was influenced by centralized government autonomy".
5.1.4 d) Características do domínio político	"The policy domains influencing coordination include ICT infrastructure, legal frameworks, and public administration reform. These domains require standardization, interoperability, and collaboration across government bodies. Their complexity demands centralized coordination and clear legal guidelines, impacting how technology is integrated and ensuring efficient, secure e-government service delivery".
5.1.4 e) Cultura	"The article suggests that Tunisia's administrative culture, characterized by hierarchical structures and limited cross-ministerial collaboration, influenced the coordination model. These cultural aspects required a centralized approach to ensure alignment, interoperability, and effective implementation of e-government services, emphasizing the need for clear roles and structured coordination mechanisms".
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	"Government measures influencing coordination mechanisms and outcomes include establishing a clear institutional framework, adopting strategies aligned with political, legal, and social contexts, centralizing decision-making, ensuring interoperability, and involving relevant stakeholders in planning and implementation. These factors help align efforts and standardize approaches for consistency".
5.1.4 g) Condições socioeconômicas do país	"The socioeconomic conditions influencing coordination included limited financial resources, uneven IT infrastructure, and a shortage of skilled personnel. These conditions necessitated a centralized, cost-effective coordination model focused on interoperability and efficient use of resources, while also driving the need for external collaboration with international organizations and private sector support".
5.1.5 a) Tipo de output	"The type of output in the article includes the development and deployment of electronic services, such as governmental web portals, mobile applications, and interoperability frameworks. These outputs aim to provide efficient and integrated online services to citizens, businesses, and other governmental institutions".
5.1.5 b) Tipo de outcome	"The type of outcome in the article includes increased efficiency and productivity in public administration, process improvement through enhanced interoperability, and cost reduction by integrating e-government services, leading to streamlined interactions between government entities and the public".
5.1.5 c) Resultados da transformação digital	"Additional outcomes of coordination in the context of e-government include improved service delivery, enhanced data security, increased interoperability between government systems, better collaboration across ministries, and alignment with international e-government standards. These outcomes fostered more efficient public administration and streamlined access to services for citizens and businesses".
5.1.5 d) Elementos de falha	"The investigation identified obstacles such as fragmented IT systems, lack of interoperability, insufficient legal frameworks, financial constraints, limited technical expertise, and resistance to change within government agencies. These issues could compromise the successful implementation and long-term sustainability of the e-government coordination model".
5.1.5 e) Resultados adversos da coordenação	"The article does not explicitly mention negative or undesirable consequences resulting from the implementation of the coordination

	model, but it highlights potential risks such as increased complexity in system integration, higher costs for future adjustments, and delays due to fragmented IT systems and inadequate legal frameworks”.
5.1.6 a) Métodos de avaliação de resultados	“The article does not provide specific methods for measuring or evaluating coordination results. However, it emphasizes the need for structured frameworks, interoperability, and adherence to international standards, which imply that evaluation could focus on system compatibility, service delivery improvements, and alignment with e-government goals”.
5.1.6 b) Escala de coordenação	“No, the article does not mention any specific scale or formal assessment tool to measure the degree of coordination between government and non-governmental actors. It focuses more on the framework and mechanisms needed for effective coordination rather than quantifying the coordination levels”.
5.1.6 c) Observações gerais	“The article does not reference the Sustainable Development Goals (SDGs) or emerging technologies like Artificial Intelligence or Blockchain. It primarily focuses on e-government coordination, interoperability frameworks, and public administration reforms in Tunisia, without delving into these specific global goals or advanced technologies”.

Artigo 4	Nuridin, N., Stockdale, R., & Scheepers, H. (2014). Coordination and cooperation in e-government: An Indonesian local e-government case. <i>The Electronic Journal of Information Systems in Developing Countries</i> , 61(1), 1-21.
5.1.2 a) Foco principal do artigo	"The main focus of the article is the role of coordination and cooperation in the successful implementation of e-government systems at the local level, specifically in Indonesia. It examines how local governments, like Jembrana Regency, use these mechanisms to overcome challenges in resources and bureaucracy, enabling effective e-government adoption and performance improvement".
5.1.2 b) Principais resultados do artigo	"The article reports that coordination and cooperation, both vertical (with central government) and horizontal (among local agencies), were crucial for the successful implementation of e-government in Jembrana Regency, Indonesia. These practices helped overcome resource constraints, enabling effective system adoption and local government performance improvement".
5.1.2 c) Tipo de estudo	"The researchers used a case study methodology".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in local e-government systems".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in Jembrana Regency, Indonesia".
5.1.3 a) Definição de coordenação	"Coordination is defined as a process where agents engage to ensure coherent actions within a community. It involves linking different individuals, departments, or units within an organization to achieve collective tasks by harmonizing efforts, delegating roles, and managing relationships for smooth task completion".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The coordination models in the article are based on principles of vertical and horizontal collaboration, leveraging autonomy, and inter-agency cooperation. The governance model emphasizes flexible coordination, minimizing bureaucratic barriers, and fostering partnerships between central and local governments, as well as with private and external agencies".
5.1.3 c) Formas de coordenação	"Yes, the article mentions that coordination can take formal and informal forms. Formal coordination involves structured meetings and predefined processes, while informal coordination occurs through interpersonal interactions and flexible communication. Organizations use these approaches to harmonize tasks, manage relationships, and ensure smooth project implementation".
5.1.3 d) Mecanismos de coordenação	"The coordination mechanisms mentioned include formal meetings, informal communication, inter-departmental collaboration, task delegation, and centralized coordination with external agencies such as central government and private companies. These mechanisms facilitate resource sharing, problem-solving, and maintaining system functionality in e-government implementation".
5.1.3 e) Atores governamentais	"In the collaborative governance model, government actors include local government departments, regency IT teams, central government agencies (such as the Ministry of Internal Affairs and BPPT), district offices, and village representatives. These actors collaborate vertically and horizontally to implement e-government systems".
5.1.3 f) Atores externos não governamentais	"In the collaborative governance model, non-governmental actors include private companies that provide systems and technical support, as well as consultants who offer training and expertise to

	local government staff for the implementation and maintenance of e-government systems”.
5.1.3 g) Nível governamental	“The coordination model was implemented at the local level”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The coordination mechanisms between government and non-government actors included formal meetings, inter-agency agreements, resource sharing, training programs, task delegation, system maintenance collaborations, and informal communication channels. These instruments facilitated cooperation between local governments, central agencies, and private companies in implementing e-government systems”.
5.1.3 i) Características organizacionais do governo	“The organizational characteristics influencing coordination include a high level of local government autonomy, dependency on central government for resources and systems, and structured hierarchical relationships. The regency’s reliance on central government systems and the flexibility granted by regional autonomy also shaped coordination efforts”.
5.1.3 j) Condições iniciais	“The initial factors influencing the formation of the coordination model included limited local resources (financial and technical skills), the need for effective e-government implementation, dependency on central government systems, and the desire to improve local government performance and service delivery through collaboration and resource sharing”.
5.1.3 k) Papel da tecnologia digital	“Digital technology plays a crucial role in coordination by enabling the use of intranet systems (e.g., KANTAYA), e-government platforms, and communication tools that facilitate data sharing, task management, and collaboration between government departments, central agencies, and private companies. These tools streamline processes and improve coordination”.
5.1.3 l) Tempo	“The article does not specify the exact duration”.
5.1.3 m) Tensões que desafiam a coordenação	“Challenges during the coordination process included reliance on central government for system maintenance, resource limitations, bureaucratic delays, difficulty in aligning goals across departments, and occasional issues with system compatibility. Coordination also faced barriers due to staff skill gaps and inter-agency communication hurdles”.
5.1.4 a) Forma de governo	“The article does not mention specific political forms like republics or monarchies, but it does describe coordination approaches such as formal and informal communication, hierarchical structures, inter-agency collaboration, and flexible management practices used by organizations to manage their activities and relationships in the context of e-government”.
5.1.4 b) Tradição democrática	“The article emphasizes democratic principles like autonomy, participatory decision-making, and collaboration in coordination models. Local government autonomy allowed flexibility in decision-making, while participatory coordination with various stakeholders (government and non-government) fostered inclusive governance. These democratic values supported effective resource sharing and task distribution in e-government implementation”.
5.1.4 c) Nível de autonomia	“Autonomous local government influenced the coordination mechanisms and results”.
5.1.4 d) Características do domínio político	“The article highlights that policy domains like limited resources, administrative autonomy, and reliance on central systems influenced

	coordination mechanisms. These characteristics required flexible coordination, resource-sharing, and collaboration between local and central government, shaping the implementation of e-government systems to overcome bureaucratic and infrastructural challenges”.
5.1.4 e) Cultura	“The article mentions that a culture of collaboration, openness, and mutual support among government staff influenced coordination mechanisms. These cultural aspects fostered informal communication and inter-departmental cooperation, reducing bureaucratic barriers and enabling smoother implementation of e-government systems at the local level”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Government measures influencing coordination mechanisms and outcomes include vertical and horizontal cooperation, autonomy granted to local levels, coordination with central agencies, inter-departmental collaboration, and partnerships with external organizations such as private companies. These foster knowledge sharing, resource allocation, and efficient implementation of projects”.
5.1.4 g) Condições socioeconómicas do país	“The socioeconomic conditions influencing coordination included limited financial resources, reliance on agriculture rather than tourism, and a need for technological infrastructure. These conditions necessitated resource-sharing and cooperation with central government and private entities, shaping coordination practices to address resource gaps and improve e-government implementation”.
5.1.5 a) Tipo de output	“The types of output mentioned in the article primarily involve "service provision" through e-government systems, such as demographic information management, financial information systems, and other public services facilitated by IT solutions”.
5.1.5 b) Tipo de outcome	“The type of outcome in the article is "increased efficiency and productivity" achieved through improved e-government systems, which enhance local government performance and service provision”.
5.1.5 c) Resultados da transformação digital	“Additional outcomes of coordination in the context of e-government included improved local government efficiency, enhanced service delivery to citizens, better resource management, skill development among staff, and increased inter-agency collaboration. These outcomes contributed to successful e-government system implementation and fostered innovation within the local government”.
5.1.5 d) Elementos de falha	“The obstacles identified included limited local resources, reliance on central government for system maintenance and technical support, bureaucratic delays, skill gaps among staff, and occasional system compatibility issues. These factors created challenges in maintaining coordination and could compromise the success of e-government implementation”.
5.1.5 e) Resultados adversos da coordenação	“The article does not specifically mention negative or undesirable consequences resulting from the implementation of coordination practices. However, it highlights challenges such as reliance on central government, bureaucratic delays, and system compatibility issues, which could potentially hinder the effectiveness of the coordination model”.
5.1.6 a) Métodos de avaliação de resultados	“The article does not mention specific methods for measuring or evaluating coordination results in terms of effectiveness, efficiency,

	or impact. However, it implies success through the improvement of local government services, resource sharing, and successful e-government system implementation as indicators of effective coordination”.
5.1.6 b) Escala de coordenação	“No, the article does not mention any specific scale to assess the degree of coordination between government or non-governmental actors”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies like Artificial Intelligence, Blockchain, or Virtual Reality. It primarily focuses on coordination and cooperation in local e-government implementation in Indonesia without mentioning these concepts”.

Artigo 5	Špaček, D. (2014). Coordination of and through E-Government: The Case of the Czech Republic. NISPAcee Journal of Public Administration and Policy, 7(1), 83-106.
5.1.2 a) Foco principal do artigo	"The main focus of the article is on the coordination of and through e-government, using the Czech Republic as a case study. It explores emerging practices, challenges, and the influence of accountability issues on effective governance and coordination within the e-government framework, with examples from European countries".
5.1.2 b) Principais resultados do artigo	"The article highlights that despite strategic planning and institutional mechanisms for e-government coordination in the Czech Republic, weak accountability and administrative fragmentation hinder progress. Some improvements were achieved through central solutions like Czech POINT, but coordination remains inconsistent and evaluation mechanisms are scarce".
5.1.2 c) Tipo de estudo	"The researchers used a literature review and case study approach".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in public administration and governance".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in the Czech Republic and Europe".
5.1.3 a) Definição de coordenação	"Coordination in the article is defined as the process of aligning and integrating public services and government functions through e-government initiatives. It involves improving service delivery, ensuring interoperability, and managing resources effectively across different government agencies to enhance governance and accountability".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article adopts governance models focused on centralization, strategic planning, interoperability, and standardization. It emphasizes the use of ICTs to enhance coordination, with principles of integrated service delivery, collaborative frameworks, and hierarchical oversight. These models aim to align public services across agencies, overcoming administrative fragmentation and departmentalism".
5.1.3 c) Formas de coordenação	"Yes, the article mentions that coordination can take various forms, such as centralization of services, shared infrastructures, and collaborative frameworks. It discusses approaches like the establishment of national portals, e-participation tools, and inter-agency frameworks to manage activities, ensure interoperability, and streamline public service delivery".
5.1.3 d) Mecanismos de coordenação	"The coordination mechanisms mentioned include national e-government strategies, centralization of services (e.g., Czech POINT), interoperability frameworks, national portals, and institutional bodies like the National Registers Authority. These mechanisms aim to align public services, improve data integration, and enhance inter-agency collaboration across government levels".
5.1.3 e) Atores governamentais	"The government actors participating in the collaborative governance model include the Ministry of the Interior, National Registers Authority, central government ministries, municipal offices, and agencies responsible for public services. Additionally, bodies like the Government Council for an Information Society and regional eGON centers are involved in coordination efforts".
5.1.3 f) Atores externos não governamentais	"Non-governmental actors mentioned in the article include associations of self-governments, the Economic Chamber, and private sector stakeholders involved in ICT solutions. These actors contribute to

	policy discussions, implementation of e-government projects, and collaboration on infrastructure and service delivery enhancements within the governance framework”.
5.1.3 g) Nível governamental	“The coordination model was implemented at the national level”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The coordination mechanisms used between government and non-government actors include centralized e-government strategies, national portals (e.g., Czech POINT), shared infrastructures, legal frameworks (e.g., e-Government Act), data interoperability standards, and collaborative bodies like the Government Council for an Information Society, fostering inter-agency and public-private cooperation”.
5.1.3 i) Características organizacionais do governo	“The organizational characteristics influencing coordination include administrative fragmentation, a decentralized political system with two sub-national levels (regional and municipal governments), and the departmentalism of central authorities. These factors complicated coordination efforts, along with weak accountability structures and inconsistent inter-agency collaboration within the Czech government”.
5.1.3 j) Condições iniciais	“The initial factors influencing the formation of the coordination model include the need to address administrative fragmentation, improve public service delivery, and standardize ICT solutions across government levels. Additionally, post-communist institutional reforms, EU e-government policies, and the drive for greater efficiency and accountability motivated the coordination efforts”.
5.1.3 k) Papel da tecnologia digital	“Digital technology plays a central role in coordination through platforms like national portals (e.g., Czech POINT), data boxes for secure communication, and integrated systems for public service delivery. These tools facilitate inter-agency communication, process automation, data sharing, and collaboration between government and non-government actors, improving efficiency and service integration”.
5.1.3 l) Tempo	“The article does not specify the exact duration of the coordination model”.
5.1.3 m) Tensões que desafiam a coordenação	“Challenges during the coordination process included administrative fragmentation, weak accountability, departmentalism, inconsistent strategic planning, and frequent changes in political and executive leadership. Additionally, technical issues with ICT systems, limited stakeholder inclusion, and inadequate evaluation mechanisms hindered effective coordination and long-term stability of e-government initiatives”.
5.1.4 a) Forma de governo	“The article does not explicitly mention forms of government like republic, monarchy, dictatorship, or democracy. However, it discusses different coordination approaches, such as centralization, inter-agency collaboration, and shared infrastructures, focusing on how government activities and relationships are organized through e-government initiatives in a democratic system”.
5.1.4 b) Tradição democrática	“The article highlights democratic principles like transparency, accountability, and citizen-centered service delivery as influencing coordination models. These values drive efforts to enhance public participation (e.g., e-participation tools) and ensure interoperability across agencies. However, weak accountability and administrative

	fragmentation in the Czech Republic hinder fully effective democratic coordination practices”.
5.1.4 c) Nivel de autonomia	“The coordination model was influenced by a decentralized government structure”.
5.1.4 d) Características do domínio político	“The characteristics of policy domains, such as administrative fragmentation, decentralized governance, and weak accountability, influenced coordination mechanisms. These factors led to inconsistent implementation, gaps in strategic alignment, and challenges in integrating ICT solutions across levels of government, complicating coordination efforts and limiting efficient public service delivery”.
5.1.4 e) Cultura	“The article highlights a culture of departmentalism and weak accountability in the Czech Republic, which hindered effective coordination. This fragmented culture limited inter-agency collaboration, led to inconsistent policy implementation, and created resistance to centralized coordination efforts, ultimately affecting the success and efficiency of e-government initiatives”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Governments influence coordination mechanisms through strategies like centralization of e-government management, development of regulatory frameworks, and creating centralized service portals. Political context, institutional stability, and stakeholder inclusion also affect outcomes, alongside the need for evidence-based evaluations and accountability mechanisms”.
5.1.4 g) Condições socioeconómicas do país	“The article mentions post-communist socioeconomic conditions, such as administrative reforms and economic decentralization, which influenced coordination models. These conditions led to fragmented governance structures and inconsistent ICT integration, complicating coordination practices and necessitating centralization efforts to unify service delivery and improve efficiency across government levels”.
5.1.5 a) Tipo de output	“The type of output in the article focuses on the provision of public services through integrated e-government solutions, such as Czech POINT, which offers authenticated extracts, document conversions, and online services. It emphasizes quantifiable aspects like the number of services and visits”.
5.1.5 b) Tipo de outcome	“The type of outcome described in the article is increased efficiency and improved coordination in public services through the Czech POINT project, which integrated service delivery and minimized fragmentation in administrative processes”.
5.1.5 c) Resultados da transformação digital	“Additional outcomes of coordination in the context of e-government include improved service delivery through platforms like Czech POINT, greater efficiency in public administration, and reduced duplication of efforts. However, challenges such as weak accountability, technical issues, and inconsistent coordination limited the full realization of these benefits”.
5.1.5 d) Elementos de falha	“Obstacles identified include administrative fragmentation, weak accountability, departmentalism, frequent political changes, and inadequate evaluation mechanisms. Technical issues with ICT systems and a lack of stakeholder inclusion also compromised coordination. These factors hindered consistent strategic planning and effective long-term implementation of e-government initiatives, threatening the model’s success”.

5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions negative consequences such as delays in service delivery, technical failures in systems like the vehicle registry, and inefficiencies in social reforms due to poor ICT integration. Additionally, fragmentation and weak accountability led to inconsistent coordination and reduced trust in e-government initiatives”.
5.1.6 a) Métodos de avaliação de resultados	“The article mentions that evaluation of coordination results is limited, with scarce national evaluations and inadequate transparency. Metrics focus mainly on quantifiable outputs (e.g., number of services or users) rather than effectiveness, efficiency, or user satisfaction, hindering comprehensive assessment of the impact of coordinated activities”.
5.1.6 b) Escala de coordenação	“Yes, the article references Metcalfe's coordination scale, which assesses the degree of coordination between government actors. The scale ranges from independent decision-making by individual actors to fully integrated, strategic coordination across agencies, highlighting varying levels of inter-agency cooperation in government coordination efforts”.
5.1.6 c) Observações gerais	“No, the article does not reference the Sustainable Development Goals (SDGs) or emerging technologies like Artificial Intelligence, Blockchain, or Virtual Reality. Its focus is primarily on e-government coordination, ICT integration, and public service delivery within the context of the Czech Republic”.

Artigo 6	Iyer, L. S., Singh, R., Salam, A. F., & D'Aubeterre, F. (2006). Knowledge management for Government-to-Government (G2G) process coordination. <i>Electronic Government, an International Journal</i> , 3(1), 18-35.
5.1.2 a) Foco principal do artigo	"The article primarily focuses on the application of Semantic Web technologies and Knowledge Management to enhance Government-to-Government (G2G) process coordination. It presents a vision for integrating these technologies to enable seamless, transparent collaboration and information exchange among government agencies across various levels".
5.1.2 b) Principais resultados do artigo	"The article highlights that Semantic Web technologies, including ontologies, knowledge representation, and intelligent agents, can significantly improve Government-to-Government (G2G) process coordination. These technologies enable seamless knowledge sharing, enhance collaboration across agencies, and facilitate transparent, efficient exchange of information within government systems".
5.1.2 c) Tipo de estudo	"The researchers used a conceptual framework and literature review approach".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in e-government services".
5.1.2 e) País(es) onde a investigação foi realizada	"The study focuses on e-government practices in the USA and Europe".
5.1.3 a) Definição de coordenação	"Coordination in the article is defined as the seamless, transparent exchange of semantically enriched information and knowledge among government agencies. It emphasizes collaboration through interoperable systems using Semantic Web technologies, allowing for efficient and integrated Government-to-Government (G2G) processes across various levels of governance".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article adopts Semantic Web technologies, Knowledge Management, and multi-agent systems as foundations. It emphasizes ontologies for standardized knowledge representation, intelligent agents for decision-making support, and web services for seamless information exchange. Governance models focus on transparency, interoperability, and collaborative processes across government agencies".
5.1.3 c) Formas de coordenação	"Yes, the article mentions that coordination can take the form of semantic integration across government agencies using ontologies, intelligent agents, and web services. It highlights collaborative, knowledge-driven processes that allow agencies to share information transparently and manage relationships through automated decision-making and dynamic workflows".
5.1.3 d) Mecanismos de coordenação	"The coordination mechanisms mentioned include Semantic Web technologies, ontologies for shared vocabulary, knowledge representation, multi-agent systems for autonomous decision-making, and web services for seamless data exchange. These mechanisms support transparent, efficient collaboration across government agencies in Government-to-Government (G2G) processes".
5.1.3 e) Atores governamentais	"The article mentions that various government actors participate in the collaborative governance model, including local, state, and federal government agencies. These actors collaborate through Government-to-Government (G2G) processes, sharing knowledge and information

	to enhance coordination and service delivery across different levels of government”.
5.1.3 f) Atores externos não governamentais	“The article does not specifically mention non-governmental actors participating in the collaborative governance model. The focus is primarily on inter-governmental coordination (G2G) between various levels of government agencies”.
5.1.3 g) Nível governamental	“The coordination model was implemented at national and state levels”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The coordination mechanisms used between government actors include Semantic Web technologies, ontologies for shared understanding, multi-agent systems for intelligent decision-making, and web services for information exchange. These instruments enable seamless communication and collaboration across different government levels and agencies in the Government-to-Government (G2G) framework”.
5.1.3 i) Características organizacionais do governo	“The article mentions the bureaucratic and hierarchical structures of public administration, complex legal frameworks, and distributed control in democratic governments as key organizational characteristics that influence coordination. These factors create challenges for streamlining e-government processes and necessitate interoperable systems for effective collaboration”.
5.1.3 j) Condições iniciais	“The initial factors influencing the formation of the coordination model include the need for seamless information exchange across government agencies, improving efficiency in service delivery, and overcoming the challenges of disparate, heterogeneous systems. The rise of e-government and the potential of Semantic Web technologies motivated the model's development”.
5.1.3 k) Papel da tecnologia digital	“Digital technology plays a central role in the article's coordination model through the use of Semantic Web technologies, ontologies, multi-agent systems, and web services. These tools automate processes, enable seamless information exchange, and facilitate collaboration across government agencies, enhancing communication, decision-making, and knowledge sharing”.
5.1.3 l) Tempo	“The article does not specify how long the coordination model remained active”.
5.1.3 m) Tensões que desafiam a coordenação	“Challenges in the coordination process include semantic differences in interpreting laws and services, bureaucratic structures, complex legal frameworks, and evolving regulations. Additionally, issues with privacy, security, trust, and the need for interoperable systems across disparate government infrastructures posed significant difficulties for successful coordination”.
5.1.4 a) Forma de governo	“The article does not explicitly mention different political forms like republics, monarchies, or democracies in relation to coordination. However, it does emphasize that democratic governments, with distributed control and bureaucratic structures, face unique challenges in organizing and managing inter-agency activities and relationships for effective coordination”.
5.1.4 b) Tradição democrática	“The article highlights transparency, collaboration, and distributed control as key democratic principles influencing coordination. These values shape coordination models by requiring interoperable systems that support accountability and participatory decision-making across agencies. Bureaucratic structures and legal frameworks in

	democratic systems also impact the complexity and implementation of coordination mechanisms”.
5.1.4 c) Nivel de autonomia	“Decentralized and autonomous government structures influenced the coordination model”.
5.1.4 d) Características do domínio político	“The article mentions complex legal frameworks, bureaucratic structures, and high information demands in public administration as key characteristics influencing coordination. These factors require interoperable systems and standardized knowledge-sharing tools, making coordination more challenging and necessitating advanced digital technologies for efficient Government-to-Government (G2G) collaboration”.
5.1.4 e) Cultura	“The article does not explicitly address cultural aspects influencing the coordination model. However, it indirectly suggests that government culture, characterized by bureaucracy, hierarchical structures, and adherence to legal norms, impacts the complexity of coordination by necessitating structured, transparent, and interoperable systems to manage diverse, often rigid administrative processes”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Government measures influencing coordination mechanisms and outcomes include strategic vision, political will, technological infrastructure development, legal frameworks, financial resource allocation, societal factors (e.g., education level), and environmental aspects like business conditions and market needs”.
5.1.4 g) Condições socioeconômicas do país	“The article does not explicitly mention socioeconomic conditions. However, it implies that the need for cost-effective, efficient public service delivery, driven by technological advancements, influenced coordination practices. E-government initiatives aimed to improve operational efficiency and transparency, addressing public demand for better government services across socioeconomic contexts”.
5.1.5 a) Tipo de output	“The type of output mentioned in the article includes the delivery of e-government services, such as online applications, information provision, and citizen services that require coordination across governmental agencies”.
5.1.5 b) Tipo de outcome	“The type of outcome described in the article includes increased efficiency, improved coordination among governmental agencies, and enhanced service delivery to citizens. These outcomes result from implementing e-government processes and integrating technological solutions for better process management and interoperability”.
5.1.5 c) Resultados da transformação digital	“Additional outcomes of coordination in the e-government context include enhanced transparency, improved inter-agency collaboration, more efficient service delivery, and better knowledge sharing across governmental boundaries. These benefits lead to more streamlined government processes, reduced operational costs, and improved citizen satisfaction with public services”.
5.1.5 d) Elementos de falha	“Obstacles identified include semantic differences in interpreting laws, complex legal and bureaucratic structures, evolving regulations, and challenges in achieving interoperability across diverse government systems. Privacy, security concerns, and trust issues also posed significant risks to the success of the e-government coordination model”.
5.1.5 e) Resultados adversos da coordenação	“The article does not explicitly mention negative or undesirable consequences from implementing the coordination model. However,

	it raises concerns about privacy, security, and trust, which could potentially lead to negative outcomes if not adequately addressed in the e-government coordination practices”.
5.1.6 a) Métodos de avaliação de resultados	“The article does not provide specific methods for measuring or evaluating coordination results. However, it suggests that the effectiveness of coordination could be assessed through improvements in transparency, seamless information exchange, and enhanced inter-agency collaboration, which are facilitated by Semantic Web technologies and Knowledge Management systems”.
5.1.6 b) Escala de coordenação	“No, the article does not mention any specific scale or metric to assess the degree of coordination between government or non-governmental actors. It focuses more on the theoretical framework and mechanisms for coordination rather than quantitative assessment tools”.
5.1.6 c) Observações gerais	“The article does not reference the Sustainable Development Goals (SDGs). However, it references emerging technologies such as the Semantic Web, intelligent agents, and knowledge management systems, which are used to enhance Government-to-Government (G2G) coordination through automated decision-making, information exchange, and collaborative processes”.

Artigo 7	Gao, X., Song, Y., & Zhu, X. (2013). Integration and coordination: Advancing China's fragmented e-government to holistic governance. <i>Government Information Quarterly</i> , 30(2), 173-181.
5.1.2 a) Foco principal do artigo	"The article focuses on addressing the fragmentation in China's e-government and proposes holistic governance as a solution. The main objective is to analyze how integrating and coordinating various governmental sectors and processes can improve the effectiveness and efficiency of e-government, moving from a fragmented to a more unified, citizen-centered governance model".
5.1.2 b) Principais resultados do artigo	"The article concludes that holistic governance offers a viable solution to China's fragmented e-government. It emphasizes the need for legal reforms, improved coordination among departments, integration of public information resources, and the development of a service-oriented e-government to enhance efficiency and public service delivery".
5.1.2 c) Tipo de estudo	"The researchers conducted a literature review and theoretical analysis".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in China's e-government sector".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in the context of China".
5.1.3 a) Definição de coordenação	"In the article, coordination is defined as the integration and collaboration among different government levels, functions, and sectors. It involves aligning shared objectives, improving communication, and working across departments to overcome fragmentation, ensuring a seamless, efficient, and citizen-centered approach to e-government services".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article adopts holistic governance as the foundation for coordination models, emphasizing integration, collaboration, and accountability. This model restructures government operations by overcoming fragmentation, aligning objectives across departments, and using technology to create a seamless, citizen-centered service delivery system focused on efficiency and public needs".
5.1.3 c) Formas de coordenação	"Yes, the article mentions that coordination can take forms such as integration of organizational structures, joint information systems, shared leadership, and collaborative policy-making. It highlights approaches like "joined-up government" and inter-departmental cooperation to manage activities and relationships across government levels and sectors effectively".
5.1.3 d) Mecanismos de coordenação	"The article mentions several coordination mechanisms, including shared leadership, pooled budgets, merged structures, joint teams, integrated information systems, and inter-departmental collaboration. These mechanisms aim to break down silos, facilitate communication, and streamline government processes to improve efficiency and public service delivery in e-government".
5.1.3 e) Atores governamentais	"The article identifies various government actors participating in the collaborative governance model, including central and local government agencies, public sector departments, and administrative managers. These actors collaborate through shared leadership and integrated processes to enhance coordination and service delivery within the e-government framework".
5.1.3 f) Atores externos não governamentais	"The article mentions that non-governmental actors participating in the collaborative governance model include citizens, social groups,

	voluntary bodies, private companies, and proprietary firms. These actors engage in coordination with government agencies to enhance public service delivery and contribute to the development of a more integrated e-government system”.
5.1.3 g) Nível governamental	“The coordination model was implemented at national and local levels”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The coordination mechanisms between government and non-government actors include joint information systems, shared leadership, pooled budgets, collaborative policymaking, integrated service platforms, and citizen participation channels. These instruments foster collaboration, streamline processes, and enhance communication to improve public service delivery in the e-government framework”.
5.1.3 i) Características organizacionais do governo	“The article highlights several organizational characteristics influencing coordination, including China's fragmented political system, bureaucratic structure, decentralized authority, and lack of unified standards across departments. These factors create challenges in achieving cohesive governance, hindering effective coordination and integration within the e-government framework”.
5.1.3 j) Condições iniciais	“The initial factors influencing the formation of the coordination model include China's fragmented e-government, decentralized authority, inefficiency in public service delivery, and the need for better integration of resources and communication across departments to improve governance, service provision, and overall public administration efficiency”.
5.1.3 k) Papel da tecnologia digital	“Digital technology plays a crucial role in coordination by enabling integrated information systems, online communication platforms, and cloud-based tools that facilitate data sharing, process automation, and collaboration between government and non-government actors. These technologies streamline service delivery and enhance inter-departmental and public engagement”.
5.1.3 l) Tempo	“The article does not specify the duration of the coordination model”.
5.1.3 m) Tensões que desafiam a coordenação	“The article identifies challenges such as fragmented authority, departmental silos, inconsistent standards, lack of inter-departmental communication, and resistance to collaboration. These issues, alongside decentralized decision-making and conflicting interests, hindered effective coordination and integration within the e-government framework. Additionally, technical and legal support were insufficient”.
5.1.4 a) Forma de governo	“The article does not explicitly mention governance forms like republics or monarchies. However, it focuses on approaches to coordination within a fragmented bureaucratic system, highlighting models such as "joined-up government" and holistic governance that aim to organize activities and relationships across government levels and departments”.
5.1.4 b) Tradição democrática	“The article highlights democratic principles like transparency, accountability, public participation, and service orientation as key influences on coordination models. These democratic values drive the push for integrated, citizen-centered e-government systems, fostering collaboration and responsiveness among government actors while aligning public services with the needs of citizens”.
5.1.4 c) Nível de autonomia	“The coordination model was influenced by China's decentralized government structure”.

5.1.4 d) Características do domínio político	"The article highlights fragmented policy domains, with decentralized authority and inconsistent standards across government sectors. These characteristics hinder coordination by creating silos, conflicting priorities, and duplication of efforts. Overcoming these requires integrating policies and aligning objectives to ensure effective collaboration and streamlined e-government practices".
5.1.4 e) Cultura	"Cultural aspects such as traditional bureaucratic norms emphasizing hierarchy, departmental autonomy, and resistance to collaboration influenced coordination mechanisms. These cultural traits led to fragmentation and hindered integration efforts, necessitating a shift toward a citizen-centered, cooperative culture to successfully implement holistic governance in e-government".
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	"Governments influence coordination mechanisms and outcomes through strategies like decentralization, department differentiation, top-level design improvements, central leadership establishment, legislative support, collaboration enhancement, and technological integration to manage public information resources and enhance service delivery".
5.1.4 g) Condições socioeconômicas do país	"The article mentions socioeconomic conditions such as China's rapid development, large population, and regional disparities, which contributed to fragmented e-government systems. These conditions necessitated better coordination to address unequal access to services and resources, driving efforts toward integration and improved efficiency in government processes".
5.1.5 a) Tipo de output	"The type of output described in the article includes *service provision*, focusing on delivering public services efficiently through e-government platforms and integrating fragmented systems to enhance accessibility and quality of these services for citizens".
5.1.5 b) Tipo de outcome	"The type of outcome in the article is *increased efficiency and productivity*, as the focus is on improving government service delivery through integrated e-government platforms, streamlining fragmented systems, and enhancing organizational coordination".
5.1.5 c) Resultados da transformação digital	"The article mentions additional outcomes of coordination in e-government, including improved public service delivery, enhanced government transparency, better resource sharing, reduced duplication of efforts, and increased citizen participation. These outcomes contribute to more efficient governance, higher public satisfaction, and streamlined inter-departmental operations".
5.1.5 d) Elementos de falha	"The article identifies obstacles such as fragmented authority, lack of unified standards, insufficient inter-departmental communication, resistance to collaboration, inadequate legal frameworks, and low technological infrastructure. These factors compromise the success of coordination efforts by hindering integration and complicating the implementation of a unified e-government system".
5.1.5 e) Resultados adversos da coordenação	"The article does not specifically mention negative or undesirable consequences from implementing the coordination model. However, it does highlight challenges such as fragmentation, resistance to change, and inefficiencies in communication, which could impede the effectiveness of the model if not properly addressed".
5.1.6 a) Métodos de avaliação de resultados	"The article does not specifically mention any formal methods for measuring or evaluating the effectiveness, efficiency, or impact of coordinated activities. However, it suggests that improvements in

	public service delivery, transparency, resource sharing, and citizen participation are key indicators of successful coordination in e-government”.
5.1.6 b) Escala de coordenação	“The article does not mention any specific scale or formal tool used to assess the degree of coordination between government and non-governmental actors. It focuses more on qualitative aspects of coordination, such as integration, collaboration, and improved service delivery outcomes”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. Its focus is primarily on the integration and coordination of e-government systems within China's governance framework, rather than on specific technologies or global development goals”.

Artigo 8	Qunli, W., Hong, Z., & Xue, T. (2009, May). The Problems of Unification and Coordination in the Development of E-Government in China. In 2009 International Forum on Information Technology and Applications (Vol. 3, pp. 538-540). IEEE.
5.1.2 a) Foco principal do artigo	"The article focuses on the challenges of unification and coordination in the development of e-government in China. It addresses the lack of unified planning, standards, and interdepartmental cooperation, proposing countermeasures to improve integration and information sharing for efficient e-government development".
5.1.2 b) Principais resultados do artigo	"The article reports that China's e-government faces issues such as lack of unified planning, standards, and interdepartmental cooperation. The proposed solutions include comprehensive planning, enhanced leadership, better integration of information resources, and fostering cooperation across departments to promote a more efficient and sustainable e-government system".
5.1.2 c) Tipo de estudo	"The researchers used a literature review and analysis approach".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in e-government development".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in China".
5.1.3 a) Definição de coordenação	"Coordination is defined as the process of unifying planning, integrating information resources, and fostering interdepartmental cooperation in e-government development to ensure efficiency, avoid resource duplication, and promote information sharing across different governmental levels and regions in China".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The foundations of the coordination models include unified planning, centralized leadership, standardization of e-government systems, integration of information resources, and fostering interdepartmental cooperation. These principles aim to streamline governance, improve efficiency, promote information sharing, and align government actions across various regions and departments in China".
5.1.3 c) Formas de coordenação	"Yes, the article mentions that coordination can take the form of unified planning, integration of information resources, and interdepartmental cooperation. It highlights the need for an open, interactive, and unified technical platform to manage government activities and relationships, ensuring seamless communication and cooperation across departments".
5.1.3 d) Mecanismos de coordenação	"The coordination mechanisms mentioned include unified planning, establishment of standard criteria, integration of information resources, and fostering interdepartmental cooperation. These mechanisms aim to improve communication, avoid redundancy, and enhance information sharing between government departments and regions in China's e-government system".
5.1.3 e) Atores governamentais	"The government actors participating in the collaborative governance model include central and local government authorities, various government departments, and the informatization steering group responsible for overseeing the unified planning and coordination of e-government development in China".
5.1.3 f) Atores externos não governamentais	"The article does not explicitly mention non-governmental actors participating in the collaborative governance model. It primarily focuses on government authorities and departments involved in e-government coordination in China".

5.1.3 g) Nível governamental	"The coordination model was implemented at national and local levels".
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	"The coordination mechanisms used between government actors include unified planning, standard criteria for e-government, integrated information systems, and interdepartmental cooperation. These mechanisms aim to facilitate communication, resource sharing, and collaboration across different government levels and regions. Non-government actors are not mentioned".
5.1.3 i) Características organizacionais do governo	"The organizational characteristics influencing coordination include China's complex government structure, the division of authority between central and local governments, interdepartmental management complexity, and regional disparities in development, particularly between eastern and western regions. These factors complicate unified planning and information sharing in e-government efforts".
5.1.3 j) Condições iniciais	"The initial factors influencing the formation of the coordination model were the rapid development of e-government, the need for unified planning to avoid inefficiencies, the drive to enhance national and regional competitiveness, and the desire to improve government informatization and resource sharing across departments and regions".
5.1.3 k) Papel da tecnologia digital	"Digital technology plays a key role in enabling coordination through the development of integrated e-government platforms, information sharing systems, and digital communication tools. These tools help automate processes, facilitate collaboration between departments, and ensure efficient resource management and interoperability across government levels".
5.1.3 l) Tempo	"The article does not specify how long the coordination model remained active".
5.1.3 m) Tensões que desafiam a coordenação	"Challenges in the coordination process included lack of unified planning, inconsistent standards, poor interdepartmental cooperation, regional development disparities, "information islands" preventing data sharing, redundant infrastructure investments, and the complexity of managing cross-departmental government affairs, all of which hindered efficient e-government implementation".
5.1.4 a) Forma de governo	"The article does not mention different political systems like republics, monarchies, or democracies as forms of coordination. Instead, it focuses on organizational approaches within the context of China's e-government, emphasizing unified planning, interdepartmental cooperation, and information sharing to manage government activities and relationships".
5.1.4 b) Tradição democrática	"The article does not explicitly discuss democratic practices or values influencing coordination. Instead, it emphasizes centralized governance, unified planning, and top-down coordination, which are more characteristic of an authoritative or centralized model rather than participatory or democratic traditions".
5.1.4 c) Nível de autonomia	"The coordination model was influenced by centralized government autonomy".
5.1.4 d) Características do domínio político	"The article highlights varying development levels across regions and sectors, particularly between eastern and western China. These disparities, along with differing local needs and capabilities, influence coordination by complicating unified planning and creating

	challenges in standardization and resource sharing across policy domains”.
5.1.4 e) Cultura	“The article does not explicitly discuss cultural aspects influencing the coordination model. However, it hints at the complexity of China's bureaucratic structure and cross-departmental interests, which may reflect a culture of hierarchical governance and departmental independence, complicating interdepartmental cooperation and unified coordination efforts”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Governments influence coordination mechanisms and outcomes through unified planning, comprehensive strategies, leadership reinforcement, and alignment with political and social contexts. These measures ensure effective integration, resource utilization, and inter-departmental cooperation, improving the efficiency and sustainability of e-government initiatives”.
5.1.4 g) Condições socioeconômicas do país	“The article highlights regional socioeconomic disparities, with more developed eastern regions and less developed western regions. These imbalances influenced coordination by creating challenges in implementing unified e-government systems, as less developed regions struggled with resources, infrastructure, and technology adoption, hindering effective collaboration and information sharing”.
5.1.5 a) Tipo de output	“The type of output in the article includes service provision, focusing on e-government deployment, such as developing unified network platforms and enhancing information sharing across departments to improve public service delivery and governmental efficiency”.
5.1.5 b) Tipo de outcome	“The type of outcome in the article includes increased efficiency and productivity through improved information sharing, integration of resources, and enhanced inter-departmental cooperation within the e-government framework”.
5.1.5 c) Resultados da transformação digital	“The additional outcomes of coordination in e-government include improved information sharing, enhanced interdepartmental cooperation, reduced redundancy in infrastructure investments, and more efficient use of government resources. However, challenges like regional disparities and isolated information systems persisted, affecting overall efficiency and system integration”.
5.1.5 d) Elementos de falha	“Obstacles identified include lack of unified planning, inconsistent standards, poor interdepartmental cooperation, regional disparities in development, isolated information systems ("information islands"), redundant infrastructure investments, and difficulties in integrating complex government structures, all of which compromised the success of China's e-government coordination efforts”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions negative consequences such as inefficiency, resource waste due to redundant infrastructure investments, isolated information systems ("information islands"), and poor interdepartmental communication, all of which hindered effective coordination and the successful implementation of e-government systems”.
5.1.6 a) Métodos de avaliação de resultados	“The article does not explicitly mention any specific methods for measuring or evaluating coordination results in terms of effectiveness, efficiency, or impact. It primarily discusses challenges and proposed solutions without detailing evaluation metrics for the coordinated e-government activities”.

5.1.6 b) Escala de coordenação	"No, the article does not mention any specific scale or tool that assesses the degree of coordination between government or non-governmental actors".
5.1.6 c) Observações gerais	"The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. Its focus is on traditional e-government development and coordination challenges in China".

Artigo 9	Berce, J., Bianchi, A., Centeno, C., Osimo, D., Millard, J., & Shahin, J. (2006). The Organisation and Coordination of European e-Government Research for the EU in 2010. In Electronic Government: 5th International Conference, EGOV 2006, Kraków, Poland, September 4-8, 2006. Proceedings 5 (pp. 37-46). Springer Berlin Heidelberg.
5.1.2 a) Foco principal do artigo	"The article focuses on identifying and addressing the key research challenges and opportunities related to e-Government in the European Union by 2010. Its main goal is to enhance the organization, coordination, and impact of e-Government research to promote public value and support policy development in a fragmented research environment".
5.1.2 b) Principais resultados do artigo	"The article highlights the need for better coordination of e-Government research, addressing fragmentation, and promoting collaboration among stakeholders. It emphasizes aligning research with policy goals to enhance public value and calls for improved communication and integration of research efforts across sectors and disciplines".
5.1.2 c) Tipo de estudo	"The researchers used surveys, content analysis, and expert interviews".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in e-Government research".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted across the European Union".
5.1.3 a) Definição de coordenação	"Coordination in the article refers to aligning and organizing e-Government research efforts across different stakeholders, sectors, and disciplines to reduce fragmentation, avoid duplication, and enhance collaboration. It emphasizes linking research to policy goals, promoting communication, and integrating efforts across the public and private sectors".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The coordination models in the article are based on principles of collaboration, integration, and multi-stakeholder involvement. The models emphasize aligning research with policy goals, promoting interdisciplinary approaches, fostering communication between researchers and practitioners, and enhancing public value through better governance and modernized public management structures".
5.1.3 c) Formas de coordenação	"Yes, the article mentions coordination taking forms such as collaboration among stakeholders, linking research stages (theoretical, applied, development), and fostering communication across sectors. It emphasizes multi-stakeholder, interdisciplinary, and cross-sectoral approaches to better organize and manage research activities and relationships for e-Government implementation".
5.1.3 d) Mecanismos de coordenação	"The article mentions coordination mechanisms such as increased collaboration between stakeholders, integration of research activities across sectors, interdisciplinary research, communication between researchers and practitioners, and linking research stages (theoretical, applied, development) to enhance the impact of e-Government research".
5.1.3 e) Atores governamentais	"Government actors participating in the collaborative governance model include public sector representatives, the European Commission, and various national and regional government entities. These actors work alongside academics, the ICT industry, and other stakeholders to coordinate e-Government research and implementation efforts".

5.1.3 f) Atores externos não governamentais	“Non-governmental actors in the collaborative governance model include academics, consultants, ICT industry representatives, users, media, and other private sector stakeholders. These actors collaborate with governmental bodies to address e-Government research challenges and promote effective implementation”.
5.1.3 g) Nível governamental	“The coordination model was implemented at the European Union level”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The coordination mechanisms used include collaborative research projects, multi-stakeholder workshops, expert interviews, surveys, and content analysis. These mechanisms foster collaboration between government and non-government actors, aiming to align research efforts, share knowledge, and integrate policy goals with e-Government research across sectors and disciplines”.
5.1.3 i) Características organizacionais do governo	“The organizational characteristics influencing coordination include the fragmented nature of e-Government research, the interdisciplinary nature of the field, and the need for better integration across different government sectors and levels (national, regional, and local) to align research efforts with overarching policy goals and public value creation”.
5.1.3 j) Condições iniciais	“The initial factors influencing the formation of the coordination model include the need to address fragmentation in e-Government research, align research with EU policy goals, promote public value, and enhance collaboration among diverse stakeholders across sectors and disciplines to modernize public administration through technology”.
5.1.3 k) Papel da tecnologia digital	“The article highlights the use of digital technology, including ICT platforms and tools, to enhance coordination between government and non-government actors. These tools facilitate communication, data management, and collaboration, enabling better integration of research efforts, process automation, and the modernization of public administration”.
5.1.3 l) Tempo	“The article does not specify how long the coordination model remained active”.
5.1.3 m) Tensões que desafiam a coordenação	“The challenges during the coordination process included fragmentation of e-Government research, lack of collaboration across sectors and disciplines, duplication of efforts, insufficient integration between research stages, and limited communication between researchers and practitioners, all hindering the efficiency and impact of research efforts”.
5.1.4 a) Forma de governo	“The article does not mention political forms like republic, monarchy, dictatorship, or democracy as coordination approaches. Instead, it focuses on organizational coordination mechanisms, such as collaboration, integration, and communication among stakeholders across sectors and disciplines to manage e-Government research activities and relationships”.
5.1.4 b) Tradição democrática	“The article emphasizes democratic and participatory values, such as collaboration, stakeholder inclusion, transparency, and public value creation, which influence coordination models. These democratic principles promote broad involvement of actors across sectors, fostering communication and integration to ensure that research aligns with public needs and policy goals”.
5.1.4 c) Nível de autonomia	“The coordination model was influenced by a decentralized approach”.

5.1.4 d) Características do domínio político	“The article highlights the interdisciplinary nature of e-Government research, spanning policy domains like public administration, ICT, and public services. These domains require coordination across sectors, with integration of diverse research activities and collaboration among stakeholders, influencing models by necessitating flexible, cross-sectoral approaches to achieve effective outcomes”.
5.1.4 e) Cultura	“The article mentions Europe's diverse cultural and social landscape, including increasing cultural diversity and varying public administration traditions. These aspects influence coordination models by necessitating inclusive, adaptable approaches that accommodate different governance styles, promote cross-border collaboration, and ensure that e-Government research meets diverse societal needs”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Government measures influencing coordination mechanisms and outcomes include planning, strategic vision, political and social context, collaboration across sectors, and stakeholder engagement. Fragmentation, communication gaps, and the need for policy alignment are highlighted as challenges, requiring increased integration, cooperation, and strategic prioritization’.
5.1.4 g) Condições socioeconômicas do país	“The article notes socioeconomic conditions such as population aging, changing work patterns, and economic transitions in the EU. These factors influenced coordination by necessitating adaptable e-Government solutions that address evolving public service needs, encouraging cross-sector collaboration, and driving research focused on enhancing public value and efficiency”.
5.1.5 a) Tipo de output	“The type of output mentioned in the document includes "service provision," focusing on delivering services efficiently and effectively, with attention to both the quantity and quality of service provided”.
5.1.5 b) Tipo de outcome	“The type of outcome described in the document includes "increased efficiency and productivity," highlighting the impact of e-government research on public sector processes and service delivery improvements”.
5.1.5 c) Resultados da transformação digital	“Additional outcomes of coordination in the e-Government context include improved public value creation, enhanced efficiency and effectiveness of public services, stronger alignment of research with policy objectives, increased stakeholder collaboration, and the promotion of interdisciplinary approaches to address complex societal challenges”.
5.1.5 d) Elementos de falha	“The article identifies obstacles such as research fragmentation, duplication of efforts, lack of coordination between research stages, insufficient collaboration across sectors and disciplines, and limited communication between researchers and practitioners. These issues compromised the efficiency, quality, and impact of e-Government research efforts”.
5.1.5 e) Resultados adversos da coordenação	“The article does not specifically mention negative or undesirable consequences resulting from the implementation of the coordination model. However, it highlights challenges like fragmentation and duplication of efforts, which could potentially reduce the effectiveness and impact of e-Government research”.
5.1.6 a) Métodos de avaliação de resultados	“The article does not explicitly mention specific methods for measuring or evaluating coordination results. However, it suggests assessing the

	effectiveness, efficiency, and impact of coordinated e-Government research through factors like public value creation, stakeholder collaboration, and alignment with policy objectives”.
5.1.6 b) Escala de coordenação	“No, the article does not mention any specific scale for assessing the degree of coordination between government and non-government actors”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or specific emerging technologies such as Artificial Intelligence or Blockchain. It focuses on e-Government research and the coordination mechanisms for enhancing public service efficiency and effectiveness through technological and policy integration”.

Artigo 10	Reggi, L., & Ricci, C. A. (2014). The role of public companies in the coordination of e-government regional policies. <i>Economia e Politica Industriale</i> 41(3), 159-177.
5.1.2 a) Foco principal do artigo	"The article focuses on the coordination of e-government policies in Italian regions, specifically examining the role of regional IT public companies. It analyzes different coordination models and their effectiveness in advancing IT policies at the local level, discussing the advantages and challenges of these models".
5.1.2 b) Principais resultados do artigo	"The article reports that effective coordination at the regional level positively impacts IT performance, but the presence of IT public companies does not significantly enhance either performance or coordination. Additionally, regions with smaller, sector-specific public companies tend to achieve better IT performance outcomes".
5.1.2 c) Tipo de estudo	"The researchers used cluster analysis and survey-based observational study".
5.1.2 d) Domínio de ação política	"The coordination models are implemented in the e-government and ICT sector".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in Italy, focusing on its regions".
5.1.3 a) Definição de coordenação	"Coordination in the article is defined as the effective collaboration and division of tasks among different actors to optimize resource use, reduce duplication, and enhance decision-making efficiency. It aims to ensure timely, organized actions and integration between regional and local entities in implementing e-government policies".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The coordination models are based on governance paradigms such as multilevel governance, knowledge spillovers, economies of scale, and regional innovation systems. These models emphasize the role of regional IT public companies, structured collaboration between local actors, and strategic alignment of policies across various administrative levels".
5.1.3 c) Formas de coordenação	"Yes, the article mentions that coordination can take forms such as centralized or decentralized approaches, voluntary collaboration among local entities, or imposed coordination by higher authorities. It highlights the use of IT public companies, shared services, and regional networks as key coordination mechanisms for managing activities and relationships".
5.1.3 d) Mecanismos de coordenação	"The coordination mechanisms mentioned in the article include IT public companies, regional networks (community networks), shared services, and formal collaboration agreements between local and regional entities. These mechanisms aim to integrate services, standardize processes, and enhance cooperation for efficient e-government implementation".
5.1.3 e) Atores governamentais	"In the article, government actors participating in the collaborative governance model include regional governments, local municipalities, public IT companies, and sometimes national authorities. These actors work together to implement e-government policies and ensure coordination across different administrative levels".
5.1.3 f) Atores externos não governamentais	"The article mentions that non-governmental actors participating in the collaborative governance model include private IT service providers, research institutions, and local businesses. These actors contribute by offering technical expertise, innovation, and services to support

	the implementation of e-government policies and enhance regional coordination”.
5.1.3 g) Nível governamental	“The coordination model was implemented at the regional level”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The coordination mechanisms used include regional public IT companies, formal collaboration agreements, shared IT services, and regional community networks. These instruments facilitated cooperation between government actors and non-governmental actors, enabling resource sharing, standardized procedures, and integrated service delivery across different administrative and organizational levels”.
5.1.3 i) Características organizacionais do governo	“The article highlights organizational characteristics such as regional autonomy, multilevel governance, and decentralized decision-making as key factors influencing coordination. These characteristics allowed regions to tailor IT policies and collaborate with local entities, while managing resources and services in alignment with regional and national e-government goals”.
5.1.3 j) Condições iniciais	“The initial factors influencing the formation of the coordination model include the need for improved efficiency in e-government services, regional autonomy in IT policymaking, financial constraints, and the desire to prevent duplication of efforts. Motivations also included enhancing interoperability, innovation, and collaboration between local governments and regional authorities”.
5.1.3 k) Papel da tecnologia digital	“The article emphasizes the role of digital tools such as regional IT networks, interoperability platforms, and shared digital services for coordination. These tools facilitate communication, data sharing, process automation, and collaboration between government and non-government actors, enhancing the efficiency and integration of e-government services”.
5.1.3 l) Tempo	“The article does not specify the duration of the coordination model”.
5.1.3 m) Tensões que desafiam a coordenação	“The article mentions challenges such as market distortions caused by public IT companies, conflicts over competition with private providers, clientelism, and difficulties in achieving effective collaboration. Additionally, financial constraints, interoperability issues, and uneven technological capabilities among local entities also hindered the coordination process”.
5.1.4 a) Forma de governo	“The article does not discuss political systems like republics or monarchies. Instead, it focuses on coordination forms within the e-government context, mentioning centralized, decentralized, voluntary, and top-down approaches. These approaches vary in how regional governments and local entities collaborate and manage IT and policy implementation”.
5.1.4 b) Tradição democrática	“The article highlights democratic principles such as decentralization, participatory governance, and regional autonomy as key factors influencing coordination. These democratic values promote collaboration, transparency, and shared decision-making among regional and local entities, fostering voluntary participation and adaptability in the implementation of e-government policies across diverse regions”.
5.1.4 c) Nível de autonomia	“The coordination model was influenced by decentralized and autonomous governance”.
5.1.4 d) Características do domínio político	“The article emphasizes policy domains like e-government and ICT, characterized by technological complexity, interoperability

	requirements, and resource constraints. These characteristics influence coordination models by necessitating integrated digital solutions, cross-sector collaboration, and efficient resource management, driving regions to adopt flexible, collaborative, and innovative governance approaches”.
5.1.4 e) Cultura	“The article mentions regional diversity and varying administrative cultures as influencing factors. These cultural aspects impacted coordination models by shaping the willingness to collaborate, adopt digital tools, and standardize processes. Regions with a strong tradition of cooperation and innovation tended to have more effective coordination and e-government outcomes”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Governments influence coordination mechanisms through strategies like regional governance, leveraging IT public companies, promoting collaboration models, and managing multi-level cooperation. Institutional frameworks, financial support, administrative culture, and political context shape the effectiveness and efficiency of these coordination efforts”.
5.1.4 g) Condições socioeconômicas do país	“The article highlights socioeconomic conditions such as regional financial resources, technological infrastructure, and population size. Wealthier regions with better infrastructure and larger populations could implement more advanced coordination practices, while less affluent regions faced challenges in resource allocation and technological adoption, affecting the efficiency of coordination models”.
5.1.5 a) Tipo de output	“The type of output identified in the article is service provision, specifically in the context of implementing e-government policies, promoting ICT adoption, and improving public administration efficiency at the regional level”.
5.1.5 b) Tipo de outcome	“The type of outcome in the article is increased efficiency and productivity, achieved through improved coordination of e-government policies and ICT integration among local governments, enhancing service delivery and administrative processes”.
5.1.5 c) Resultados da transformação digital	“The article mentions additional outcomes of coordination in e-government, including improved service delivery, enhanced interoperability between local governments, cost savings through shared resources, and the promotion of innovation. It also highlights increased transparency, streamlined administrative processes, and better citizen engagement as key positive consequences”.
5.1.5 d) Elementos de falha	“The article identifies obstacles such as financial constraints, limited technological capacity in smaller regions, market distortion caused by public IT companies, resistance to collaboration, and challenges in ensuring interoperability and standardization across regions. These issues could compromise the effectiveness and sustainability of the coordination models”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions negative consequences, including market distortions caused by public IT companies, reduced competition, potential clientelism, and inefficiencies in some regions due to uneven technological capabilities and insufficient collaboration, which hindered the full potential of the coordination models”.
5.1.6 a) Métodos de avaliação de resultados	“Yes, the article mentions the use of two composite indices to measure coordination results: one assessing the intensity of regional coordination and another evaluating the effectiveness of IT policies.

	These indices help measure the advancement of municipalities in using ICT and the impact of coordination models”.
5.1.6 b) Escala de coordenação	“Yes, the article mentions an index measuring the degree of coordination between government actors, focusing on factors like the number of entities connected to regional networks and the extent of formal collaboration between municipalities and other governmental entities in ICT-related activities”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. It primarily focuses on regional IT coordination and e-government practices without mentioning these broader frameworks or technologies”.

Artigo 11	Organ, J. (2003). The coordination of e-government in historical context. Public policy and administration, 18(2), 21-36.
5.1.2 a) Foco principal do artigo	"The article focuses on the history and challenges of IT coordination in the UK government, particularly in the e-government era. It addresses the inefficacy of past coordination efforts, the overambitious nature of current e-government initiatives, and emphasizes the need for improved IT project management before pursuing wide-ranging reforms".
5.1.2 b) Principais resultados do artigo	"The article reports that IT coordination in UK government has historically been ineffective, with repeated project failures. It highlights that ambitious e-government initiatives struggle due to poor departmental IT management, and recommends focusing on improving procurement, project management, and supplier relationships for successful reform".
5.1.2 c) Tipo de estudo	"The article uses a historical analysis and literature review".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in government IT management".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in the United Kingdom".
5.1.3 a) Definição de coordenação	"In the article, coordination is defined as the central management and alignment of government IT efforts across departments, aimed at improving procurement, project management, and interoperability. It involves overseeing departmental IT activities to ensure unified systems and efficient public service delivery through e-government initiatives".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article highlights governance models based on centralized IT coordination, emphasizing principles like interoperability, procurement standardization, and efficient project management. It references paradigms such as "joined-up government" and Business Process Reengineering (BPR) to reform organizational structures, aiming to unify departments and improve public service delivery".
5.1.3 c) Formas de coordenação	"Yes, the article mentions forms of coordination, including centralized coordination through bodies like the Central Computer Agency and Office of the e-Envoy. It discusses approaches like procurement standardization, IT project management, and fostering interoperability across departments to manage government activities and relationships effectively".
5.1.3 d) Mecanismos de coordenação	"The coordination mechanisms mentioned in the article include centralized procurement processes, IT project management oversight (e.g., Gateway Review scheme), development of technical standards for interoperability, and fostering supplier relationships. These mechanisms aim to standardize government IT practices and improve communication and data-sharing between departments".
5.1.3 e) Atores governamentais	"The government actors participating in the collaborative governance model include the Central Computer Agency (CCA), Office of the e-Envoy (OeE), Office of Government Commerce (OGC), National Audit Office (NAO), Public Accounts Committee (PAC), and individual government departments responsible for IT project management and procurement".
5.1.3 f) Atores externos não governamentais	"The non-governmental actors participating in the collaborative governance model include private IT companies, suppliers, and external consultants. These actors are involved in outsourcing

	government IT projects, providing technological expertise, and managing procurement and project delivery in partnership with government agencies”.
5.1.3 g) Nível governamental	“The coordination model was implemented at the national level”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The coordination mechanisms used between government and non-government actors include standardized procurement processes, project management frameworks (e.g., PRINCE methodology), the Gateway Review scheme for IT projects, and government-industry joint forums to improve supplier relationships and ensure compatibility across departments for effective IT implementation”.
5.1.3 i) Características organizacionais do governo	“The organizational characteristics influencing coordination include the highly fragmented departmental structure, resistance to centralized control, and a "departmentalist" culture. This fragmentation made it difficult to implement unified IT systems, and the lack of centralized authority over departments hindered effective coordination and collaboration across government agencies”.
5.1.3 j) Condições iniciais	“The initial factors influencing the formation of the coordination model included the desire to improve efficiency in government operations, the need for standardized IT procurement, failures in departmental IT projects, and the push for "joined-up" government to enhance public service delivery through integrated, cross-departmental IT systems”.
5.1.3 k) Papel da tecnologia digital	“Digital technology plays a central role in coordination through tools like online government portals (e.g., ukonline), interoperability standards for data-sharing, project management systems (e.g., PRINCE), and process automation tools. These technologies facilitate communication, streamline procurement, monitor IT projects, and enhance collaboration between government and non-government actors”.
5.1.3 l) Tempo	“The coordination model evolved over several decades, from the 1950s”.
5.1.3 m) Tensões que desafiam a coordenação	“Challenges included departmental resistance to central control, fragmented IT systems, frequent project failures, lack of compatibility between systems, and inadequate project management. Tensions arose from the ambitious scope of e-government reforms, cultural and structural barriers, and difficulties in unifying procurement and operational processes across departments”.
5.1.4 a) Forma de governo	“The article does not explicitly mention forms of government (e.g., republic, monarchy, democracy) as coordination models. Instead, it focuses on administrative approaches to organizing and managing activities, such as centralized procurement, IT project management, and departmental interoperability within the context of the UK government's bureaucratic structure”.
5.1.4 b) Tradição democrática	“The article highlights democratic principles like transparency, accountability, and decentralization, which influenced coordination by fostering departmental autonomy and resistance to central control. These aspects complicated efforts to implement unified IT systems, as departments prioritized independence over centralized coordination, reflecting a participatory but fragmented governance culture in the UK political system”.
5.1.4 c) Nível de autonomia	“Decentralized government autonomy significantly influenced coordination mechanisms and outcomes”.

5.1.4 d) Características do domínio político	“The article describes policy domains as fragmented, with departments operating independently and focusing on specialized, siloed functions. This departmentalism led to incompatible IT systems and poor data-sharing, which hindered centralized coordination efforts. These characteristics made cross-departmental collaboration difficult, slowing progress on unified e-government initiatives and reform”.
5.1.4 e) Cultura	“Cultural aspects such as departmentalism, resistance to central oversight, and a preference for autonomy influenced coordination. These cultural traits fostered fragmented IT systems, reluctance to adopt centralized reforms, and challenges in fostering collaboration, ultimately hindering the effectiveness of coordinated, unified government IT initiatives”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Government characteristics that influence coordination mechanisms and outcomes include centralized IT strategies, political visions (e.g., modernization agendas), departmental autonomy, and the socio-political context shaping policy directions. Factors like government restructuring, alignment with industry, and varying political priorities also play crucial roles”.
5.1.4 g) Condições socioeconômicas do país	“Socioeconomic conditions, such as limited government resources, pressure to modernize public services, and the need for efficiency, influenced coordination models. These conditions drove the push for cost-effective IT systems, outsourcing to private companies, and a focus on procurement standardization, while also magnifying the consequences of project failures and inefficiencies”.
5.1.5 a) Tipo de output	“The type of output described in the article focuses on service provision, specifically electronic service delivery aimed at transforming public services and improving citizen experience through ICTs (Information and Communication Technologies)”.
5.1.5 b) Tipo de outcome	“The type of outcome described in the article includes increased efficiency and productivity, as the focus is on transforming public services through ICT to create more streamlined, citizen-focused services”.
5.1.5 c) Resultados da transformação digital	“The article mentions additional outcomes of coordination in e-government, including improved public service delivery, enhanced data-sharing between departments, and streamlined procurement processes. However, it also highlights ongoing issues like project delays, overspending, and a lack of meaningful organizational change, limiting the overall success of e-government initiatives”.
5.1.5 d) Elementos de falha	“The article identifies obstacles such as fragmented departmental structures, lack of centralized authority, incompatible IT systems, poor project management, resistance to change, and overambitious e-government goals. These factors compromised the success of coordination efforts, leading to inefficiency, project failures, and limited progress in achieving unified government IT systems”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions negative consequences, including frequent IT project failures, overspending, delays, and inefficiencies due to fragmented departmental systems. Additionally, overambitious e-government goals led to unrealistic expectations, with limited tangible improvements, creating a gap between policy aspirations and practical outcomes”.

5.1.6 a) Métodos de avaliação de resultados	“Yes, the article mentions methods such as the Gateway Review scheme, which evaluates IT project progress at key stages to ensure effectiveness and efficiency. It also references audits by the National Audit Office (NAO) and reports from the Public Accounts Committee (PAC) to assess the impact and performance of coordinated activities”.
5.1.6 b) Escala de coordenação	“No, the article does not mention any specific scale for assessing the degree of coordination between government or non-governmental actors. It focuses more on qualitative evaluations through audits, reports, and reviews rather than using a standardized scale to measure coordination levels”.
5.1.6 c) Observações gerais	“No, the article does not reference the Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. It primarily focuses on historical IT coordination and e-government initiatives in the UK without discussing these modern frameworks or technologies”.

Artigo 1	Bonduki, M., & Cunha, M. A. (2022, October). Coordination of the Digital Transformation of Governments in Federalist Context: Hierarchy, Markets and Network-Based Instruments' Effects on Subnational Governments' digital service delivery. In Proceedings of the 15th International Conference on Theory and Practice of Electronic Governance (pp. 528-533).
5.1.2 a) Foco principal do artigo	"The article focuses on how coordination instruments and mechanisms employed by the federal government affect the digital transformation of subnational governments in Brazil, addressing the challenges of integrating multiple authorities within a federalist system to enhance public service delivery and policy coherence".
5.1.2 b) Principais resultados do artigo	"The article highlights that effective coordination instruments and mechanisms significantly influence the digital transformation outcomes of subnational governments in Brazil, revealing varying levels of compliance and performance in digital service delivery, which are shaped by the federal government's orchestration efforts and the specific contexts of each state".
5.1.2 c) Tipo de estudo	"In-depth multiple-case comparative analysis".
5.1.2 d) Domínio de ação política	"Digital government services and public administration".
5.1.2 e) País(es) onde a investigação foi realizada	"Brazil".
5.1.3 a) Definição de coordenação	"Coordination is defined as the intentional action aimed at structuring relationships among actors at all levels of the federation, facilitating coherent collective action in a context with multiple stakeholders. It involves the use of formal institutional instruments that set rules and manage incentives and expectations among actors".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article adopts frameworks from intergovernmental relations and coordination, specifically referencing Wright's and Bouckaert et al.'s models. These frameworks emphasize the role of the central government as an orchestrator, utilizing various coordination instruments—hierarchies, markets, and networks—to manage digital transformation efforts among subnational governments".
5.1.3 c) Formas de coordenação	"Yes, the article mentions three forms of coordination: hierarchies, markets, and networks. These approaches reflect different mechanisms organizations use to manage activities and relationships, with hierarchies relying on authority, markets on competition and transactions, and networks on trust and information exchange".
5.1.3 d) Mecanismos de coordenação	"The coordination mechanisms mentioned in the article include hierarchies, which use power and authority; markets, which rely on transactions and competition; and networks, which operate through trust, mutual cooptation, and information exchange. These mechanisms facilitate coordinated action among different levels of government".
5.1.3 e) Atores governamentais	"The article identifies various government actors participating in the collaborative governance model, including national and subnational governments, as well as non-governmental stakeholders. These actors engage in structured relationships to facilitate coherent collective action and digital transformation efforts across different levels of governance".

5.1.3 f) Atores externos não governamentais	“The article mentions non-governmental actors such as civil society organizations, private sector entities, and academic institutions as participants in the collaborative governance model. These actors contribute to the governance process by providing expertise, resources, and perspectives that enhance the effectiveness of digital transformation initiatives”.
5.1.3 g) Nível governamental	“The coordination model was implemented at the federal level”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The coordination mechanisms used include hierarchical instruments (e.g., regulations), market-based instruments (e.g., conditional federal budgets), and network-based instruments (e.g., governance forums). These mechanisms facilitate collaboration and coherent action among government and non-government actors in the digital transformation process”.
5.1.3 i) Características organizacionais do governo	“The article mentions characteristics such as the federal political system, the division of authorities, and the presence of multiple political authorities. These factors influence coordination by creating complexities in governance, necessitating effective intergovernmental relations and collaborative efforts for successful digital transformation”.
5.1.3 j) Condições iniciais	“Initial factors included the need for coherent digital government initiatives, addressing fragmentation in public services, and enhancing efficiency. Motivations stemmed from the desire to improve service delivery, meet citizens' expectations, and ensure equitable access to digital resources across different levels of government”.
5.1.3 k) Papel da tecnologia digital	“Digital technology facilitates coordination by enabling real-time communication, data sharing, and collaborative decision-making among government and non-government actors. Tools like online platforms, project management systems, and cloud collaboration enhance transparency, streamline processes, and improve accountability, ultimately supporting effective digital transformation initiatives”.
5.1.3 l) Tempo	“The coordination model remains active continuously”.
5.1.3 m) Tensões que desafiam a coordenação	“Challenges included overlapping authorities, competition among governments, inefficiencies, and difficulties in accountability. Tensions arose from differing priorities, lack of interoperability, and the need for negotiation among various levels of government, complicating the integration and effectiveness of digital transformation efforts”.
5.1.4 a) Forma de governo	“The article discusses coordination mechanisms such as hierarchies, markets, and networks, rather than specific governance forms like republics or monarchies. It emphasizes how these mechanisms facilitate structured relationships and collective action among various governmental and non-governmental actors in the context of digital transformation”.
5.1.4 b) Tradição democrática	“The article suggests that democratic values such as transparency, accountability, and participation shape coordination mechanisms by promoting inclusive decision-making and trust among stakeholders. In contrast, authoritarian systems may prioritize control and hierarchy, limiting collaborative practices and undermining effective coordination in public service delivery”.

5.1.4 c) Nível de autonomia	“Decentralized autonomy influences collaborative coordination mechanisms”.
5.1.4 d) Características do domínio político	“The article highlights that policy domains vary in complexity, interdependence, and stakeholder involvement, affecting coordination mechanisms. Complex domains require more collaborative and flexible models, while simpler domains may allow for hierarchical approaches. These characteristics dictate the need for tailored coordination strategies to effectively address specific policy challenges”.
5.1.4 e) Cultura	“Cultural aspects such as trust, social norms, and historical relationships among governments influence coordination mechanisms. High trust fosters collaborative models, while low trust may lead to hierarchical or competitive approaches. These cultural dimensions shape the effectiveness and acceptance of coordination practices in public service delivery”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Characteristics influencing coordination include government planning, strategic frameworks, political will, and social context. Effective government vision and alignment among political parties enhance collaborative efforts, while fragmented strategies or conflicting interests can hinder coordination outcomes, impacting the overall success of digital transformation initiatives”.
5.1.4 g) Condições socioeconômicas do país	“Socioeconomic conditions such as resource availability, technological infrastructure, and public service demand impact coordination mechanisms. Regions with better resources and infrastructure can adopt advanced collaborative practices, while those with limited means may rely on hierarchical models, affecting the effectiveness and efficiency of digital transformation efforts”.
5.1.5 a) Tipo de output	“The type of output discussed in the article primarily focuses on service provision, specifically the delivery of digital services by subnational governments. This includes the development and implementation of digital solutions aimed at enhancing public service efficiency and accessibility”.
5.1.5 b) Tipo de outcome	“The type of outcome highlighted in the article includes increased efficiency and productivity in public service delivery, improved citizen access to digital services, and enhanced coordination among government levels. These outcomes aim to foster better governance and address inequalities in service provision”.
5.1.5 c) Resultados da transformação digital	“Additional outcomes of coordination in e-government include reduced service fragmentation, improved data sharing, enhanced accountability, and the ability to anticipate citizens' needs. These consequences contribute to more cohesive public service delivery and help bridge the digital divide among different government levels”.
5.1.5 d) Elementos de falha	“Obstacles identified include fragmentation of digital initiatives, lack of interoperability, competing standards, insufficient resources, and varying capacities among subnational governments. These issues hinder effective coordination, leading to inefficiencies, increased costs, and difficulties in meeting citizens' needs”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions undesirable consequences such as the potential weakening of provincial governments, increased inequalities in service delivery, and the risk of creating new barriers for vulnerable populations due to fragmented digital initiatives and inconsistent implementation across different government levels”.

5.1.6 a) Métodos de avaliação de resultados	“The article describes using a ranking system based on indicators of coordination in digital government policy and outcomes in digital service delivery. This includes qualitative assessments through interviews and quantitative data from existing rankings to evaluate the effectiveness and impact of coordinated activities among subnational governments”.
5.1.6 b) Escala de coordenação	“Yes, the article refers to a ranking system that assesses the degree of coordination among government actors, categorizing federative units based on their compliance with coordination efforts and their performance in digital government initiatives. This ranking helps evaluate the effectiveness of intergovernmental coordination”.
5.1.6 c) Observações gerais	“The article does not explicitly reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. It primarily focuses on intergovernmental coordination and digital transformation within the context of Brazilian governance”.

Artigo 2	Nikraftar, T., & Shokri, R. (2014). Dominant discourse about important barriers to promoting coordination in Iranian government machinery. <i>Transforming Government: People, Process and Policy</i> , 8(3), 357-373.
5.1.2 a) Foco principal do artigo	"The article focuses on identifying and analyzing barriers to coordination within the Iranian government. Its central theme is to reveal the dominant discourse of opinions from practitioners and scholars regarding these barriers, aiming to enhance understanding and improve governmental alignment and effectiveness".
5.1.2 b) Principais resultados do artigo	"The study identified 73 significant statements regarding barriers to coordination, categorized into administrative and policy barriers. It revealed that administrative barriers had more diverse viewpoints, highlighting issues like inappropriate governmental processes and recruitment practices that hinder effective policy implementation in the Iranian government".
5.1.2 c) Tipo de estudo	"The researchers used a Delphi technique for consensus building".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in government administration".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in Iran, specifically Tehran".
5.1.3 a) Definição de coordenação	"Coordination is defined as the extent to which organizations consider each other's activities in their operations. It involves managing interactions across different administrative lines to enhance collaboration and effectiveness in achieving common goals within the government framework".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article discusses various governance models such as joined-up government (UK), horizontal government (Canada), networked government (USA), and integrated government (New Zealand) as frameworks for enhancing coordination among government agencies, emphasizing the need for a common mental frame and consensus among participants".
5.1.3 c) Formas de coordenação	"Yes, the article mentions that coordination can take forms such as policy integration and collaborative governance. It highlights different approaches like joined-up government, horizontal government, networked government, and integrated government, which organizations use to manage activities and relationships effectively across various sectors".
5.1.3 d) Mecanismos de coordenação	"The article mentions mechanisms of integration as coordination mechanisms, emphasizing the need for improved electronic commerce activities among government units and the establishment of real political parties to enhance consensus and coordination within the Iranian Government".
5.1.3 e) Atores governamentais	"The collaborative governance model involves various government actors, including public administrators, program planners, politicians, and academics. These stakeholders contribute their perspectives and expertise to address barriers to coordination and enhance collaboration within the government machinery".
5.1.3 f) Atores externos não governamentais	"The article does not explicitly mention non-governmental actors participating in the collaborative governance model. It primarily focuses on government actors such as public administrators, program planners, politicians, and academics, without detailing the involvement of non-governmental stakeholders".

5.1.3 g) Nível governamental	"The coordination model was implemented at the national level".
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	"The coordination mechanisms included electronic commerce activities among government units and the establishment of real political parties to enhance consensus. These instruments aimed to improve collaboration and coordination within the Iranian Government, addressing barriers to effective governance".
5.1.3 i) Características organizacionais do governo	"The article mentions deficiencies in the taxation system, operational management system, and an unrealistic government vision and programs as organizational characteristics that influenced coordination. Additionally, the lack of political parties in the political system was highlighted as a factor affecting government functions and coordination".
5.1.3 j) Condições iniciais	"Initial factors included the need to overcome fragmented governance, improve public policy implementation, and address the challenges posed by an oil-exporting economy. The government aimed to effectively utilize oil revenues within a planned framework to ensure sustainable development and enhance coordination among various administrative sectors".
5.1.3 k) Papel da tecnologia digital	"Digital technology, particularly e-government initiatives, facilitates quick and accurate information sharing and service delivery among government sectors and citizens. It enhances interactions, reduces costs, and streamlines processes, thereby improving coordination and collaboration between government and non-government actors through efficient online platforms and communication tools".
5.1.3 l) Tempo	"The coordination model remained active for several years".
5.1.3 m) Tensões que desafiam a coordenação	"Challenges included unrealistic government visions, deficiencies in laws and systems, lack of political parties, and differing viewpoints among stakeholders. Additionally, administrative barriers such as managerial instability, lack of integrated inspection, and overloaded administrators complicated the coordination process, leading to ineffective policy implementation and collaboration".
5.1.4 a) Forma de governo	"The article does not explicitly mention different forms of coordination like republic, monarchy, or dictatorship. Instead, it focuses on administrative and policy barriers to coordination within the Iranian government, emphasizing the need for collaborative approaches to improve governance and policy implementation".
5.1.4 b) Tradição democrática	"The article highlights that democratic values such as transparency, accountability, and participation foster effective coordination models by encouraging collaboration among stakeholders. In contrast, authoritarian systems may hinder coordination due to centralized decision-making and lack of stakeholder engagement, leading to fragmented governance and ineffective policy implementation".
5.1.4 c) Nível de autonomia	"Decentralized autonomy enhances coordination and stakeholder engagement".
5.1.4 d) Características do domínio político	"The article identifies characteristics such as complexity, interdependence, and varying stakeholder interests across policy domains. These factors complicate coordination, as diverse viewpoints and administrative barriers emerge, necessitating tailored approaches for effective collaboration. Consequently, policy domains require adaptive coordination models to address specific challenges and enhance implementation".

5.1.4 e) Cultura	“Cultural aspects such as trust, collective values, and historical governance experiences influenced coordination mechanisms. A culture of mistrust and fragmented identities hindered collaboration, while shared values could enhance consensus. These cultural dynamics necessitate adaptive coordination models that consider local contexts to improve governmental effectiveness and stakeholder engagement”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Characteristics influencing coordination include comprehensive government planning, clear strategies, a unified vision, and the presence of political parties. Additionally, the political and social context shapes stakeholder engagement and trust, impacting the effectiveness of coordination mechanisms and the successful implementation of policies”.
5.1.4 g) Condições socioeconômicas do país	“Socioeconomic conditions such as economic dependency on oil revenues, inflation, and centralized economic structures influenced coordination models. These factors created pressures for efficient resource allocation and policy implementation, often leading to bureaucratic challenges and inefficiencies that hindered effective coordination practices within the Iranian government”.
5.1.5 a) Tipo de output	“The type of output discussed in the article primarily includes service provision and policy implementation outcomes. It emphasizes the need for effective coordination in delivering public services and achieving desired policy results, highlighting the importance of both the quantity and quality of these outputs in the Iranian government context”.
5.1.5 b) Tipo de outcome	“The type of outcome highlighted in the article includes increased efficiency and productivity in government operations, improved coordination among public agencies, and enhanced policy implementation effectiveness. These outcomes aim to foster sustainable development and better service delivery within the Iranian governmental framework”.
5.1.5 c) Resultados da transformação digital	“Additional outcomes of coordination in the context of e-government include improved service delivery to citizens, enhanced interaction between government agencies and stakeholders, and increased transparency and accountability. These consequences aim to foster trust and engagement between the government and the public, ultimately leading to better governance”.
5.1.5 d) Elementos de falha	“Obstacles identified include unrealistic government visions, deficiencies in laws and systems (like taxation), lack of political parties, managerial instability, and inadequate alignment between government branches. These issues hinder administrative coordination and policy implementation, compromising the overall effectiveness of governance in Iran”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions undesirable consequences such as increased bureaucratic delays, disintegration in public administration, and diminished civil trust in government organizations. These negative outcomes stem from ineffective coordination practices and can lead to further complications in policy implementation and public service delivery”.
5.1.6 a) Métodos de avaliação de resultados	“The article does not specify a particular method for measuring and evaluating coordination results. However, it emphasizes the importance of assessing attitudes and perceptions of stakeholders

	regarding barriers to coordination, which indirectly reflects the effectiveness and impact of coordinated activities within the government”.
5.1.6 b) Escala de coordenação	“The article does not mention a specific scale for assessing the degree of coordination between government and non-governmental actors. It focuses on qualitative insights gathered through the Delphi technique to identify barriers and perspectives on coordination rather than employing a quantitative assessment scale”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. It primarily discusses barriers to coordination within the Iranian government without addressing these specific topics”.

Artigo 3	Sta, H. B. (2018). Organisational structure for the e-government coordination and interoperability framework: a case study of Tunisia. <i>Electronic Government, an International Journal</i> , 14(1), 51-77.
5.1.2 a) Foco principal do artigo	"The article focuses on establishing an effective organisational structure for e-government coordination in Tunisia. Its central theme is the need for clear roles and responsibilities among government institutions to enhance interoperability, efficiency, and sustainability in e-service development, addressing challenges in planning and implementation".
5.1.2 b) Principais resultados do artigo	"The article reports that a clearly defined institutional framework is crucial for e-government success in Tunisia. It highlights the need for coordinated efforts among various ministries, the establishment of a dedicated budget for ICT, and the implementation of interoperability standards to ensure seamless e-service delivery and integration".
5.1.2 c) Tipo de estudo	"The researchers used a case study approach".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in e-government services".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in Tunisia".
5.1.3 a) Definição de coordenação	"Coordination is defined as the process of managing and aligning various governmental organizations and their activities to ensure effective implementation of e-government initiatives. It involves establishing clear roles, responsibilities, and communication channels to facilitate seamless interaction and integration across different public administration entities and stakeholders".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article emphasizes a horizontal and networked governance model, advocating for clear separation of planning and implementation roles, strong professional reputations in leadership, and active involvement of diverse stakeholders, including private and academic sectors, to enhance interoperability and effective e-government coordination".
5.1.3 c) Formas de coordenação	"Yes, the article mentions different models of coordination, emphasizing the need for a clear legal structure and shared roles between policy-making and implementation. It discusses various approaches organizations can adopt to manage activities and relationships, focusing on effective communication and integration across governmental entities".
5.1.3 d) Mecanismos de coordenação	"The article mentions coordination mechanisms such as legislative initiatives, budget planning, information sharing among government bodies, and the establishment of a central coordination unit. It highlights the importance of tools like law and financial resources to facilitate effective e-government coordination and implementation".
5.1.3 e) Atores governamentais	"The collaborative governance model involves various government actors, including the e-Government Unit at the Presidency, the Ministry of Information and Communication Technologies, and an 'e-Government Council' that includes private sector representatives, academic institutions, and international organizations to enhance coordination and trust-building in e-government initiatives".
5.1.3 f) Atores externos não governamentais	"Non-governmental actors in the collaborative governance model include representatives from the private sector, academic institutions, and international organizations. Their involvement is crucial for enhancing coordination, sharing expertise, and building trust in the implementation of e-government initiatives".
5.1.3 g) Nível governamental	"The coordination model was implemented at the national level".

5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“Coordination mechanisms included establishing a central coordination unit, legislative frameworks, budget planning, information sharing, and the formation of an 'e-Government Council.' These instruments facilitated collaboration among government actors and non-governmental stakeholders to enhance e-government initiatives and ensure effective implementation”.
5.1.3 i) Características organizacionais do governo	“The article mentions that the political system, specifically the highest government level's involvement in e-government coordination, significantly influences organizational characteristics. Additionally, the need for clear legal definitions of roles, responsibilities, and budgeting structures also impacts effective coordination among government institutions”.
5.1.3 j) Condições iniciais	“Initial factors included the need for improved ICT infrastructure, effective e-government implementation, and the necessity for collaboration among various government sectors. Motivations also stemmed from the desire to enhance service delivery, build trust, and ensure interoperability among public administrations and their beneficiaries”.
5.1.3 k) Papel da tecnologia digital	“Digital technology facilitates coordination through online communication platforms, enabling real-time information sharing and collaboration. Project management systems streamline task allocation and progress tracking, while monitoring and control systems ensure accountability. Additionally, cloud collaboration tools enhance accessibility and integration of services among government and non-government actors, promoting efficient e-government operations”.
5.1.3 l) Tempo	“The article does not specify the duration of activity”.
5.1.3 m) Tensões que desafiam a coordenação	“Challenges included conflicts of interest due to overlapping responsibilities, difficulties in achieving horizontal coordination across ministries, and resistance to change within established bureaucratic structures. Additionally, the need for clear legal frameworks and budgetary support posed significant tensions in effectively implementing the e-government coordination model”.
5.1.4 a) Forma de governo	“Yes, the article mentions that different models of coordination are possible, depending on the legal structure of the country. It implies that organizational approaches can vary, though it does not explicitly list forms like republic, monarchy, or dictatorship in relation to coordination”.
5.1.4 b) Tradição democrática	“Democratic traditions emphasize transparency, accountability, and citizen participation, fostering inclusive coordination models. These values contrast with authoritarian systems, which may prioritize control over collaboration. Consequently, democratic frameworks enhance stakeholder engagement and adaptability in e-government coordination, leading to more effective and responsive governance practices”.
5.1.4 c) Nível de autonomia	“Decentralized autonomy enhances flexibility and responsiveness in coordination”.
5.1.4 d) Características do domínio político	“Policy domains characterized by complexity, interdependence, and varying stakeholder interests influence coordination mechanisms. These characteristics necessitate adaptive, collaborative models that facilitate communication and integration across sectors, ensuring

	comprehensive policy implementation and effective resource allocation”.
5.1.4 e) Cultura	“Cultural aspects such as trust, collaboration, and historical governance practices shape coordination mechanisms. A culture valuing transparency and participation fosters inclusive models, while hierarchical or mistrustful environments may lead to rigid, top-down approaches, impacting the effectiveness and acceptance of e-government initiatives”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Governments can influence coordination mechanisms and outcomes through clear planning, comprehensive strategies, a unified vision, political party alignment, and an understanding of the political and social context. Effective leadership and cross-ministerial collaboration are also crucial for fostering a cohesive e-government framework”.
5.1.4 g) Condições socioeconômicas do país	“Socioeconomic conditions, such as the level of digital literacy, economic resources, and public trust in government, influenced coordination models by shaping the capacity for technology adoption and collaboration. These factors affected the effectiveness of e-government initiatives and the willingness of stakeholders to engage in coordination practices”.
5.1.5 a) Tipo de output	“The type of output in the article primarily includes service provision through e-government initiatives, software deployment for digital services, and the development of interoperability frameworks. Additionally, it encompasses data analysis reports that inform decision-making and enhance the quality of public services”.
5.1.5 b) Tipo de outcome	“The type of outcome in the article includes increased efficiency and productivity in government services, enhanced customer satisfaction through improved access to information, and sustainable development of e-government frameworks. These outcomes result from effective coordination and implementation of digital initiatives”.
5.1.5 c) Resultados da transformação digital	“The article highlights that effective coordination in e-government leads to improved service delivery, enhanced interoperability among public administrations, increased trust among stakeholders, and the establishment of a unified legal and financial framework, ultimately fostering a more efficient and responsive government structure”.
5.1.5 d) Elementos de falha	“The article identifies obstacles such as lack of common technological standards, insufficient IT infrastructure, security and privacy concerns, inadequate IT skills, and organizational barriers as significant limitations that could compromise the success of e-government initiatives in Tunisia”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions that undesirable consequences include potential bureaucratic delays, resistance to change among public sector employees, and the risk of misalignment between different organizational goals, which can hinder effective implementation and lead to inefficiencies in e-government services”.
5.1.6 a) Métodos de avaliação de resultados	“The article discusses the use of a coordination strategy that includes goals, metrics, and a maturity matrix to evaluate the effectiveness and impact of coordinated activities. It emphasizes the importance of continuous assessment and feedback mechanisms to ensure ongoing improvement in e-government services”.
5.1.6 b) Escala de coordenação	“The article does not mention a specific scale that assesses the degree of coordination between government actors or non-governmental actors. However, it discusses the need for a coordination strategy

	and highlights the importance of interoperability frameworks for effective collaboration among various stakeholders”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. It primarily focuses on e-government coordination, interoperability frameworks, and organizational structures without mentioning these specific topics”.

Artigo 4	Nuridin, N., Stockdale, R., & Scheepers, H. (2014). Coordination and cooperation in e-government: An Indonesian local e-government case. The Electronic Journal of Information Systems in Developing Countries, 61(1), 1-21.
5.1.2 a) Foco principal do artigo	"The article focuses on the coordination and cooperation among various stakeholders in e-government systems, particularly in Indonesia. Its central theme is to explore the challenges and dynamics of implementing e-government initiatives at the local level, emphasizing the importance of effective collaboration for successful outcomes".
5.1.2 b) Principais resultados do artigo	"The article reports that effective coordination and cooperation significantly influenced the successful implementation of e-government systems in Jembrana regency, Indonesia. It highlights the importance of vertical and horizontal collaboration among government agencies and private companies in overcoming bureaucratic constraints and enhancing resource availability and system maintenance".
5.1.2 c) Tipo de estudo	"The researchers used a single case study methodology".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in e-government systems".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in Bali, Indonesia".
5.1.3 a) Definição de coordenação	"Coordination is defined as the alignment of actors' actions to achieve jointly determined goals. It integrates and links different people at all levels and parts of the organization to accomplish collective tasks, and can be practiced through both formal hierarchical structures and informal relationships".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article discusses governance models emphasizing cooperation and coordination among government agencies, utilizing both rigid hierarchical structures and flexible management approaches. It highlights the importance of inter-departmental teamwork, volunteer leadership facilitation, and the establishment of clear responsibilities to enhance effective implementation of e-government initiatives".
5.1.3 c) Formas de coordenação	"Yes, the article mentions that coordination can take both formal and informal forms, such as scheduled meetings and interpersonal communication. It also discusses different approaches organizations use, including hierarchical structures and collaborative practices, to manage activities and relationships effectively within and between departments".
5.1.3 d) Mecanismos de coordenação	"The article mentions coordination mechanisms such as regular meetings, informal communication, and the use of technology for coordination. It emphasizes the need for both vertical and horizontal channels to integrate activities and ensure that all agents work harmoniously towards common goals in e-government implementation".
5.1.3 e) Atores governamentais	"The collaborative governance model involves various government actors, including local government agencies, central government agencies, private companies, and internal institutions. These actors engage in both vertical and horizontal coordination to enhance the implementation of e-government systems and improve public service delivery".
5.1.3 f) Atores externos não governamentais	"The article identifies private companies as key non-governmental actors participating in the collaborative governance model. These entities collaborate with government agencies to support the implementation

	of e-government systems, contributing resources, expertise, and technology to enhance public service delivery and innovation”.
5.1.3 g) Nível governamental	“The coordination model was implemented at the local level”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The coordination mechanisms included regular meetings, informal communication, direct interactions, and technology use for information sharing. These instruments facilitated collaboration among government actors and private companies, enabling effective problem-solving, knowledge transfer, and support in the implementation of e-government systems”.
5.1.3 i) Características organizacionais do governo	“The article mentions a rigid command and control environment as an organizational characteristic that influenced coordination. This structure can inhibit autonomy and empowerment, affecting the ability of government actors to cooperate effectively. Flexibility in management and inter-departmental teamwork were also highlighted as important for enhancing coordination”.
5.1.3 j) Condições iniciais	“Initial factors included the need to alleviate resource dependencies, improve public service delivery, and enhance collaboration among various stakeholders. Motivations stemmed from the complexity of relationships among actors and the necessity for effective coordination to achieve e-government implementation goals and overcome bureaucratic constraints”.
5.1.3 k) Papel da tecnologia digital	“Digital technology facilitated real-time communication, information sharing, and collaboration among government and non-government actors. Tools such as online communication platforms and project management systems enhanced coordination by streamlining processes, enabling efficient monitoring, and fostering collaborative efforts, ultimately supporting the successful implementation of e-government systems”.
5.1.3 l) Tempo	“The article does not specify the duration of activity”.
5.1.3 m) Tensões que desafiam a coordenação	“Challenges included lack of clarity in task allocation, inter-departmental disputes over responsibilities, and conflicts of goals and strategies among actors. Additionally, bureaucratic structures hindered flexibility, leading to difficulties in achieving harmonious cooperation and effective implementation of e-government initiatives”.
5.1.4 a) Forma de governo	“Yes, the article mentions that coordination can be practiced through both formal and informal methods, including hierarchical structures and flexible management approaches. It emphasizes the importance of adapting coordination styles to enhance collaboration, suggesting a balance between centralized control and decentralized, voluntary participation among actors”.
5.1.4 b) Tradição democrática	“The article emphasizes that democratic traditions promote participatory coordination models, fostering collaboration and transparency among stakeholders. In contrast, authoritarian systems may hinder cooperation due to rigid control, limiting autonomy and innovation. Thus, democratic values enhance effective coordination by encouraging shared goals and collective problem-solving among diverse actors”.
5.1.4 c) Nível de autonomia	“Decentralized autonomy enhances effective coordination and cooperation practices”.
5.1.4 d) Características do domínio político	“The article identifies characteristics such as task interdependence, complexity, and resource availability in policy domains. These factors influence coordination models by necessitating tailored approaches—

	more collaborative in complex domains and potentially more hierarchical in simpler contexts—thus shaping the effectiveness of inter-agency cooperation and resource sharing”.
5.1.4 e) Cultura	“Cultural aspects such as trust, communication styles, and collective values influenced coordination mechanisms. A culture of collaboration fosters open dialogue and shared responsibility, enhancing participatory models. Conversely, cultures with hierarchical tendencies may lead to rigid coordination, limiting flexibility and responsiveness in inter-agency cooperation”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“The article identifies that effective government planning, clear strategies, a unified vision, supportive political parties, and a conducive political and social context are crucial characteristics that influence coordination mechanisms and outcomes in e-government implementation”.
5.1.4 g) Condições socioeconômicas do país	“The article notes that socioeconomic conditions, such as resource availability, skills distribution, and local governance capacity, influenced coordination models. These conditions affected coordination practices by necessitating collaboration among agencies to share resources and expertise, thereby enhancing the effectiveness of e-government implementation”.
5.1.5 a) Tipo de output	“The article primarily focuses on service provision as the type of output, specifically in the context of e-government systems implementation. It emphasizes the delivery of local public services enhanced through effective coordination and cooperation among various government agencies and stakeholders”.
5.1.5 b) Tipo de outcome	“The article identifies increased efficiency and productivity as the primary type of outcome resulting from the implementation of e-government systems. It highlights how effective coordination and cooperation among government agencies lead to improved service delivery and operational effectiveness in local governance”.
5.1.5 c) Resultados da transformação digital	“The article highlights that effective coordination in e-government leads to improved clarity in responsibilities, enhanced resource sharing, reduced conflicts, and better support for local staff skills and system maintenance, ultimately contributing to the successful implementation of e-government systems across various agencies and levels of government”.
5.1.5 d) Elementos de falha	“The investigation identified obstacles such as lack of autonomy, rigid command structures, insufficient coordination among agencies, and unclear responsibilities, which could hinder cooperation and lead to conflicts in goals and strategies, ultimately compromising the success of e-government implementation”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions that lack of coordination can lead to unclear task allocation, conflicts of goals among actors, and bureaucratic constraints, which may inhibit cooperation and empowerment, ultimately resulting in unsuccessful e-government implementation and inefficiencies within government organizations”.
5.1.6 a) Métodos de avaliação de resultados	“The article does not specify particular methods for measuring and evaluating coordination results. However, it emphasizes the importance of assessing the clarity of responsibilities, resource sharing, and the overall success of e-government implementation as indicators of effective coordination among involved agencies”.

5.1.6 b) Escala de coordenação	“The article does not mention any specific scale that assesses the degree of coordination between government actors or non-governmental actors. It discusses the importance of coordination and cooperation but does not provide a formal measurement tool for assessing these interactions”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. It primarily focuses on coordination and cooperation in e-government systems without discussing these specific topics”.

Artigo 5	Špaček, D. (2014). Coordination of and through E-Government: The Case of the Czech Republic. NISPAcee Journal of Public Administration and Policy, 7(1), 83-106.
5.1.2 a) Foco principal do artigo	"The article focuses on the challenges and practices of e-government coordination in the Czech Republic, highlighting issues such as fragmented organizational structures, strategic planning deficiencies, and the need for effective integration of ICT solutions to enhance public administration and service delivery".
5.1.2 b) Principais resultados do artigo	"The article reports that while some improvements in e-government coordination have been achieved in the Czech Republic, significant challenges remain, including a lack of strategic planning, insufficient national evaluations, and a weak accountability culture, which hinder effective implementation and integration of e-government initiatives".
5.1.2 c) Tipo de estudo	"The researchers used a literature review methodology".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in public administration".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in the Czech Republic".
5.1.3 a) Definição de coordenação	"Coordination is defined as a key factor for effective governance, involving the joined-up delivery of public services. It encompasses the integration of policies and administration to ensure that various government actions are aligned and work together efficiently, particularly in the context of e-government initiatives".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article discusses governance models emphasizing centralization, horizontal coordination, and integration of e-government strategies. It highlights the need for standardized management, clear goals, and stable institutional mechanisms to enhance accountability and effective service delivery across various levels of government, particularly following the fragmentation observed in earlier administrative practices".
5.1.3 c) Formas de coordenação	"Yes, the article mentions forms of coordination such as centralized frameworks, institutional support, and integrated service delivery. It discusses approaches like strategic planning, legislation, and methodological guides to manage activities and relationships within e-government, aiming for improved accountability and efficiency in public service delivery".
5.1.3 d) Mecanismos de coordenação	"The article mentions coordination mechanisms including e-government development frameworks, national institutional and technical support, and central solutions for integrated data sources. It emphasizes the importance of strategic planning, legislation, and methodological guides to facilitate effective coordination and enhance public service delivery across government levels".
5.1.3 e) Atores governamentais	"The article identifies various government actors in the collaborative governance model, including central government authorities, local self-governments, and representatives from associations of self-governments. These stakeholders engage in coordination efforts to enhance e-government initiatives and improve public service delivery through collaborative approaches".
5.1.3 f) Atores externos não governamentais	"The article mentions non-governmental actors such as stakeholders from civil society, private sector representatives, and academic institutions. These actors contribute to the collaborative governance model by providing insights, expertise, and feedback, which are

	essential for the effective design and implementation of e-government strategies”.
5.1.3 g) Nível governamental	“The coordination model was implemented at the national level”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The coordination mechanisms included e-government development frameworks, strategic planning, legislation, methodological guides, and central solutions for integrated data sources. These instruments facilitated collaboration among government actors and non-governmental stakeholders to enhance service delivery and improve the overall governance of e-government initiatives”.
5.1.3 i) Características organizacionais do governo	“The article highlights characteristics such as departmentalism, low horizontal coordination, and instability in political and executive leadership. These factors, along with a fragmented organizational structure, significantly influenced the effectiveness of coordination efforts within the government, impacting the implementation of e-government initiatives”.
5.1.3 j) Condições iniciais	“Initial factors included the need to address administrative fragmentation, improve strategic planning, and enhance cooperation among central authorities. The establishment of a unified information system and the necessity for effective governance in the post-communist context motivated the formation of the coordination model for e-government”.
5.1.3 k) Papel da tecnologia digital	“Digital technology plays a crucial role in facilitating communication, data sharing, and service delivery among government and non-government actors. Tools such as online platforms, project management systems, and process automation enhance coordination, streamline operations, and enable integrated service delivery, thereby improving overall governance and efficiency in e-government initiatives”.
5.1.3 l) Tempo	“The coordination model remained active since 1999”.
5.1.3 m) Tensões que desafiam a coordenação	“Challenges included high proliferation of ICT solutions, departmentalism, deficiencies in strategic planning, lack of stability in institutional structures, and insufficient national evaluation mechanisms. These issues led to conflicts and tensions in implementing e-government initiatives, hindering effective coordination among various government entities and impacting service delivery”.
5.1.4 a) Forma de governo	“The article does not explicitly mention forms of coordination like republic, monarchy, or dictatorship. Instead, it focuses on the complexities of e-government coordination, emphasizing strategic planning, institutional frameworks, and the need for integrated approaches to manage relationships and activities among government entities effectively”.
5.1.4 b) Tradição democrática	“The article suggests that democratic values such as transparency, accountability, and citizen participation shape coordination models in e-government. These principles foster collaborative governance, enhancing public service delivery, while contrasting with authoritarian models that may prioritize control over inclusivity, ultimately influencing the effectiveness and acceptance of coordination practices”.
5.1.4 c) Nível de autonomia	“Centralized government autonomy influenced coordination mechanisms and practices”.

5.1.4 d) Características do domínio político	“The article identifies characteristics such as departmentalism, strategic planning deficiencies, and fragmented ICT solutions across policy domains. These traits complicate coordination, leading to inefficiencies and delays, thereby necessitating integrated approaches that enhance collaboration and streamline service delivery within e-government frameworks”.
5.1.4 e) Cultura	“Cultural aspects such as historical departmentalism and a lack of trust in government influenced coordination mechanisms. These factors fostered resistance to change and hindered collaboration, necessitating a shift towards more integrated and participatory coordination models to enhance public service delivery and accountability”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Governments adopted measures like centralized e-government strategies, institutional frameworks, and strategic planning to enhance coordination. Political context and social dynamics also played roles, as effective governance required alignment of policies with citizen needs and stakeholder involvement, impacting the success of coordination mechanisms and outcomes”.
5.1.4 g) Condições socioeconômicas do país	“Socioeconomic conditions, such as economic transition post-communism and varying levels of ICT infrastructure, influenced coordination models by creating disparities in service delivery and resource allocation. These conditions necessitated adaptive coordination practices to address inefficiencies and ensure equitable access to e-government services across different regions”.
5.1.5 a) Tipo de output	“The article primarily discusses outputs related to service provision, specifically the delivery of e-government services through ICT solutions. It emphasizes the quantity of services offered, such as the number of extracts generated and messages sent, while also highlighting the need for quality assessments like user satisfaction”.
5.1.5 b) Tipo de outcome	“The article identifies outcomes such as increased efficiency and productivity in public service delivery, enhanced citizen satisfaction, and improved accountability as key impacts of e-government implementation. It emphasizes the importance of evaluating these outcomes to ensure that e-government initiatives effectively meet user needs and expectations”.
5.1.5 c) Resultados da transformação digital	“Additional outcomes of coordination in e-government included improved stakeholder inclusion in strategy design, enhanced trust in public administration, and the potential for better alignment of policies with citizen needs. However, neglecting stakeholder involvement could lead to distrust and negative perceptions of e-government initiatives”.
5.1.5 d) Elementos de falha	“Obstacles identified included fragmented organizational structures, unstable political leadership, deficiencies in strategic planning, lack of stakeholder inclusion, and insufficient national evaluation mechanisms. These issues hindered effective coordination and implementation of e-government initiatives, potentially compromising their success and user satisfaction”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions negative consequences such as system malfunctions, delays in service delivery, and public dissatisfaction due to poorly implemented ICT solutions. These issues led to distrust among citizens and highlighted the risks of inadequate preparation and communication during the implementation of e-government initiatives”.

5.1.6 a) Métodos de avaliação de resultados	“The article notes that current evaluations primarily focus on quantifiable aspects, such as the number of services and financial expenditures, rather than on outcomes like user satisfaction and overall impact. This limited approach hinders a comprehensive assessment of the effectiveness and efficiency of coordinated e-government activities”.
5.1.6 b) Escala de coordenação	“Yes, the article references Metcalfe’s coordination scale, which assesses the levels of coordination among government actors. It highlights that initial coordination efforts in the Czech Republic focused on higher levels of strategy rather than on independent decision-making by individual actors, indicating a need for more integrated approaches”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. It primarily focuses on the coordination of e-government practices and the challenges faced in the Czech Republic without discussing these specific topics”.

Artigo 6	Iyer, L. S., Singh, R., Salam, A. F., & D'Aubeterre, F. (2006). Knowledge management for Government-to-Government (G2G) process coordination. <i>Electronic Government, an International Journal</i> , 3(1), 18-35.
5.1.2 a) Foco principal do artigo	"The article focuses on enhancing Government-to-Government (G2G) process coordination through knowledge management and Semantic Web technologies, aiming to improve information exchange, collaboration, and transparency among governmental entities to achieve effective e-government services".
5.1.2 b) Principais resultados do artigo	"The article reports that integrating Semantic Web technologies, such as ontologies and intelligent agents, facilitates transparent knowledge exchange in G2G processes, enabling dynamic collaboration among agencies. It emphasizes the necessity of these technologies for effective e-government services and overcoming challenges related to information interoperability and coordination".
5.1.2 c) Tipo de estudo	"The researchers employed a literature review approach".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in e-government".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in the USA and Europe".
5.1.3 a) Definição de coordenação	"Coordination is defined as the process of managing knowledge and information resources across different organizational boundaries and heterogeneous infrastructures, enabling collaborative Government-to-Government (G2G) processes. It involves the seamless and transparent exchange of meaningful information and knowledge among governmental agencies to improve operational efficiency and effectiveness."
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article adopts Semantic Web technologies, including ontologies, knowledge representation, multi-agent systems, and web services, as foundational elements. These paradigms facilitate transparent information exchange and collaborative processes, enhancing governance models for effective coordination among governmental agencies in the context of e-government initiatives".
5.1.3 c) Formas de coordenação	"Yes, the article mentions that coordination can take forms such as dynamic collaboration and cooperation among constituents. It discusses integrative technologies and frameworks, like the European Interoperability Framework and the Federal Enterprise Architecture, as approaches organizations use to manage activities and relationships effectively in e-government contexts".
5.1.3 d) Mecanismos de coordenação	"The article mentions coordination mechanisms such as workflow systems, integrative technologies, and knowledge services. These mechanisms facilitate the transparent exchange of information and knowledge, enabling collaborative Government-to-Government (G2G) processes and supporting decision-making activities within and across governmental agencies".
5.1.3 e) Atores governamentais	"The article identifies various government actors participating in the collaborative governance model, including federal, state, and local government agencies. It emphasizes the importance of partnerships among these levels of government to enhance service delivery and facilitate effective collaboration in e-government initiatives".
5.1.3 f) Atores externos não governamentais	"The article mentions non-governmental actors such as businesses and citizens as participants in the collaborative governance model. Their involvement is crucial for enhancing service delivery and ensuring

	that e-government initiatives meet the needs and expectations of the broader community”.
5.1.3 g) Nível governamental	“The coordination model was implemented at multiple government levels”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The coordination mechanisms used include workflow systems, integrative technologies, and knowledge services. These instruments facilitate the transparent exchange of information and knowledge, enabling collaborative processes among government actors and enhancing interactions with non-governmental actors like businesses and citizens”.
5.1.3 i) Características organizacionais do governo	“The article mentions characteristics such as the bureaucratic and hierarchical structures of public administration, the principle of distributed control in democratic governments, and the complex legal frameworks that influence coordination among government agencies and affect the efficiency of e-government processes”.
5.1.3 j) Condições iniciais	“Initial factors included the need for improved service delivery, enhanced transparency, and efficiency in government operations. Motivations stemmed from recognizing the importance of information integration and collaboration among agencies to better serve citizens and streamline e-government processes”.
5.1.3 k) Papel da tecnologia digital	“Digital technology facilitates seamless information exchange and collaboration among government and non-government actors. Tools like online communication platforms, process automation, and cloud collaboration enhance transparency, streamline workflows, and enable real-time monitoring, ultimately improving coordination and service delivery in e-government initiatives”.
5.1.3 l) Tempo	“The article does not specify a duration for the model”.
5.1.3 m) Tensões que desafiam a coordenação	“Challenges included diverse semantic interpretations of laws and regulations, bureaucratic hierarchies, and complex legal structures. These factors hindered effective coordination, leading to conflicts among agencies and difficulties in achieving seamless information exchange and collaboration in e-government processes”.
5.1.4 a) Forma de governo	“The article does not explicitly mention different forms of coordination like republic, monarchy, or dictatorship. Instead, it focuses on the collaborative nature of e-government processes and the need for integration and cooperation among agencies within a democratic framework characterized by distributed control and checks and balances”.
5.1.4 b) Tradição democrática	“The article highlights that democratic values such as transparency, accountability, and citizen participation shape coordination models by fostering collaboration and trust among agencies. In contrast, authoritarian systems may prioritize control over cooperation, leading to less effective knowledge sharing and integration in e-government processes”.
5.1.4 c) Nível de autonomia	“Decentralized autonomy enhances collaboration and knowledge sharing”.
5.1.4 d) Características do domínio político	“The article identifies characteristics such as complexity, legal frameworks, and diverse interpretations within policy domains that affect coordination. These factors complicate inter-agency collaboration, necessitating adaptable models that accommodate varying regulations and practices, ultimately influencing the effectiveness of G2G processes”.

5.1.4 e) Cultura	“Cultural aspects such as trust, openness, and shared values significantly influence coordination models. In democratic contexts, these foster collaboration and transparency, enhancing knowledge sharing. Conversely, cultures with low trust may hinder cooperation, leading to less effective G2G processes and coordination outcomes”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Governments adopted characteristics like strategic vision, political will, and comprehensive planning to influence coordination mechanisms. Effective government strategies and alignment with political and social contexts enhance collaboration, while clear frameworks and resource allocation support successful G2G processes and outcomes”.
5.1.4 g) Condições socioeconômicas do país	“Socioeconomic conditions such as education levels, technology access, and economic stability impact coordination models. High literacy and technological infrastructure facilitate effective communication and collaboration, while economic challenges may limit resources, hindering the implementation of efficient G2G practices and coordination outcomes”.
5.1.5 a) Tipo de output	“The article emphasizes service provision as the primary output, focusing on delivering government services effectively to citizens. This includes enhancing accessibility, quality, and efficiency of services through e-government initiatives, which aim to improve overall citizen engagement and satisfaction”.
5.1.5 b) Tipo de outcome	“The article identifies increased efficiency and productivity as key outcomes of e-government initiatives. These measures lead to improved service delivery, enhanced citizen satisfaction, and streamlined processes, ultimately fostering greater trust and collaboration among government entities and with the public”.
5.1.5 c) Resultados da transformação digital	“Additional outcomes of coordination in e-government include enhanced transparency, improved trust between agencies and citizens, and better resource allocation. These factors contribute to more effective service delivery and foster a collaborative environment among different government levels, ultimately benefiting public administration and citizen engagement”.
5.1.5 d) Elementos de falha	“Obstacles identified include complex legal structures, bureaucratic inefficiencies, semantic differences in regulations, and privacy concerns. These factors hinder effective coordination and integration among government agencies, potentially compromising the success of e-government initiatives and the overall trust in public services”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions undesirable consequences such as privacy and security concerns, which can lead to public distrust in e-government services. Additionally, bureaucratic complexities and semantic discrepancies may result in inefficiencies and hinder effective collaboration among agencies, undermining the intended benefits of coordination practices”.
5.1.6 a) Métodos de avaliação de resultados	“The article emphasizes the need for developing holistic mechanisms and metrics to assess the performance of e-government ontologies and web services. This includes evaluating the effectiveness, efficiency, and impact of coordinated activities to ensure continuous improvement in service delivery and citizen engagement”.
5.1.6 b) Escala de coordenação	“The article does not specify a particular scale for assessing the degree of coordination between government and non-governmental actors. However, it highlights the necessity for new metrics and mechanisms

	to evaluate the performance and integration of e-government services and processes”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. It primarily focuses on Knowledge Management and Semantic Web technologies in the context of Government-to-Government (G2G) process coordination”.

Artigo 7	Gao, X., Song, Y., & Zhu, X. (2013). Integration and coordination: Advancing China's fragmented e-government to holistic governance. <i>Government Information Quarterly</i> , 30(2), 173-181.
5.1.2 a) Foco principal do artigo	"The article focuses on the challenges of fragmented e-government in China and advocates for holistic governance as a solution. It aims to enhance the integration and effectiveness of e-government services by addressing issues of coordination, transparency, and citizen engagement in governmental processes".
5.1.2 b) Principais resultados do artigo	"The article concludes that holistic governance can effectively address the fragmentation of China's e-government by improving integration, increasing access to information, and enhancing service delivery. It recommends regulatory reforms, technological integration, and a citizen-focused approach to advance e-government and meet public needs more effectively".
5.1.2 c) Tipo de estudo	"The researchers conducted a literature review and analysis".
5.1.2 d) Domínio de ação política	"Coordination practices are implemented in public governance sectors".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in China".
5.1.3 a) Definição de coordenação	"Coordination is defined as the development of joint working environments, information systems, and dialogue between agencies to address fragmented structures in public services. It aims to ensure mutual involvement and effective decision-making, overcoming conflicts and separation of functions within departments to achieve holistic governance goals".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article adopts holistic governance as the primary model, emphasizing integrated organizational structures, joint accountability, and collaborative decision-making. It critiques traditional bureaucracy and new public management, advocating for a unified approach that enhances inter-agency cooperation and service delivery through information technology and coordinated planning".
5.1.3 c) Formas de coordenação	"Yes, the article mentions forms of coordination such as joint-up policy, policy integration, and inter-departmental collaboration. It discusses approaches like holistic governance, which emphasizes integrated organizational structures and shared objectives to manage activities and relationships effectively across different governmental sectors".
5.1.3 d) Mecanismos de coordenação	"The article mentions coordination mechanisms such as joint information systems, dialogue between agencies, planning processes, and decision-making frameworks. It emphasizes the need for mutual involvement and the development of common organizational structures to facilitate effective collaboration and integration across public sectors".
5.1.3 e) Atores governamentais	"The article identifies various government actors in the collaborative governance model, including different levels of government, inter-departmental agencies, and public service organizations. It emphasizes the involvement of civil society and social groups to enhance public management and service delivery through coordinated efforts".
5.1.3 f) Atores externos não governamentais	"The article mentions non-governmental actors such as voluntary bodies, private companies, and social groups. These actors participate in the collaborative governance model to enhance service delivery, promote

	public welfare, and engage citizens in public management and decision-making processes”.
5.1.3 g) Nível governamental	“The coordination model was implemented at the national level”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The coordination mechanisms included joint information systems, dialogue between agencies, integrated planning processes, and decision-making frameworks. These instruments aimed to facilitate collaboration, enhance accountability, and streamline service delivery among government actors and non-governmental stakeholders”.
5.1.3 i) Características organizacionais do governo	“The article mentions characteristics such as a fragmented bureaucratic structure, departmental divisions, and a traditional government-oriented fiscal system. These factors influenced coordination by creating inefficiencies and barriers to service delivery, necessitating a shift towards holistic governance and integrated organizational planning”.
5.1.3 j) Condições iniciais	“Initial factors included the need for improved service delivery, public demand for integrated services, and the challenges posed by government fragmentation. Motivations also stemmed from the desire to enhance efficiency, accountability, and responsiveness in governance, particularly in the context of rapid technological advancements and citizen expectations”.
5.1.3 k) Papel da tecnologia digital	“Digital technology facilitates coordination by enabling information sharing, streamlining communication, and automating processes among government and non-government actors. Tools like online platforms, project management systems, and cloud collaboration enhance collaboration, improve data accessibility, and support integrated service delivery, ultimately fostering a more cohesive governance framework”.
5.1.3 l) Tempo	“The article does not specify a duration for the model”.
5.1.3 m) Tensões que desafiam a coordenação	“Challenges included bureaucratic resistance, fragmented policies, inter-departmental conflicts, and a lack of unified goals. Additionally, the complexity of integrating diverse systems and the digital divide hindered effective communication and collaboration, complicating efforts to achieve seamless service delivery and holistic governance”.
5.1.4 a) Forma de governo	“The article does not explicitly mention different forms of coordination like republic, monarchy, or dictatorship. Instead, it focuses on holistic governance as a preferred approach, emphasizing integrated organizational structures and collaborative mechanisms to manage activities and relationships within government and non-government sectors”.
5.1.4 b) Tradição democrática	“The article emphasizes that democratic values such as transparency, public participation, and accountability foster effective coordination models. In contrast, authoritarian systems may prioritize efficiency over citizen engagement, leading to fragmented governance. Thus, democratic traditions enhance collaborative mechanisms, while authoritarian practices can hinder integrative efforts in e-government”.
5.1.4 c) Nível de autonomia	“Decentralized autonomy influences collaborative coordination mechanisms”.
5.1.4 d) Características do domínio político	“The article identifies characteristics such as departmental fragmentation, specialized functions, and inter-agency conflicts that complicate coordination. These traits hinder seamless collaboration,

	necessitating integrated approaches like holistic governance to align policies across domains, ultimately improving service delivery and governance efficiency”.
5.1.4 e) Cultura	“Cultural aspects such as hierarchical values and bureaucratic traditions influenced coordination by fostering resistance to change and collaboration. These cultural traits can lead to fragmented governance, necessitating a shift towards holistic governance models that promote integration and cooperation across departments for effective e-government implementation”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Characteristics such as integrated planning, collaborative strategies, and a unified government vision significantly influence coordination mechanisms. Political context and social needs also shape these outcomes, as they determine the effectiveness of policies and the extent of inter-departmental cooperation in achieving holistic governance”.
5.1.4 g) Condições socioeconômicas do país	“Socioeconomic conditions, including economic development levels and public service demands, influenced coordination models by necessitating efficient resource allocation and responsive governance. These conditions drive the need for integrated approaches, prompting governments to adopt holistic practices to address complex social issues effectively”.
5.1.5 a) Tipo de output	“The type of output discussed in the article primarily focuses on service provision, particularly through the implementation of e-government initiatives. This includes enhancing public service delivery, improving access to information, and fostering citizen engagement through integrated digital platforms and services”.
5.1.5 b) Tipo de outcome	“The type of outcome highlighted in the article includes increased efficiency and productivity in public service delivery, enhanced citizen satisfaction through improved access to services, and better coordination among government agencies, ultimately leading to more effective governance and resource management”.
5.1.5 c) Resultados da transformação digital	“Additional outcomes of coordination in the context of e-government include improved public welfare, enhanced accountability, greater citizen participation in governance, and the creation of stronger social capital. These outcomes contribute to a more responsive and integrated public service system that meets diverse citizen needs”.
5.1.5 d) Elementos de falha	“Obstacles identified include fragmentation within government structures, lack of integration among services, insufficient legal frameworks for e-government, digital divides affecting access, and inadequate public engagement mechanisms. These limitations hinder effective coordination and the overall success of e-government initiatives”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions negative consequences such as increased exclusivity and protectionism in governance, which can arise from attempts to enhance openness. Additionally, the fragmentation of services may lead to inefficiencies and a lack of responsiveness to citizen needs, undermining the intended benefits of coordination practices”.
5.1.6 a) Métodos de avaliação de resultados	“The article discusses the use of performance measures, shared outcome targets, and regulations as methods to evaluate the effectiveness and efficiency of coordinated activities. These metrics

	help assess the impact of integrated governance practices on public service delivery and overall governmental performance”.
5.1.6 b) Escala de coordenação	“The article does not explicitly mention a specific scale for assessing the degree of coordination between government and non-governmental actors. However, it emphasizes the importance of joint information systems and inter-agency dialogue as essential components for evaluating coordination effectiveness”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. It primarily focuses on the challenges and practices related to e-government and holistic governance in China without mentioning these specific concepts”.

Artigo 8	Qunli, W., Hong, Z., & Xue, T. (2009, May). The Problems of Unification and Coordination in the Development of E-Government in China. In 2009 International Forum on Information Technology and Applications (Vol. 3, pp. 538-540). IEEE.
5.1.2 a) Foco principal do artigo	"The article focuses on the challenges of unification and coordination in the development of e-government in China. It addresses the lack of a unified planning framework and proposes countermeasures to enhance inter-departmental cooperation and improve the overall effectiveness of e-government initiatives".
5.1.2 b) Principais resultados do artigo	"The article reports that the lack of unified planning and standards hinders effective e-government development in China. It emphasizes the need for comprehensive planning, inter-departmental cooperation, and the establishment of a unified information platform to enhance information sharing and improve governance efficiency".
5.1.2 c) Tipo de estudo	"The article employs a literature review approach".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in e-government".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in China".
5.1.3 a) Definição de coordenação	"Coordination is defined as the process of integrating and harmonizing activities among various government departments to facilitate information sharing and cooperation. It involves establishing unified standards, overcoming departmental interests, and ensuring that different entities work together effectively to achieve common goals in e-government development".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article emphasizes unified planning, standardized criteria, and comprehensive leadership as foundational principles. It advocates for a coordinated management mechanism that aligns central and local government roles, promotes inter-departmental cooperation, and utilizes existing resources effectively to enhance e-government development in China".
5.1.3 c) Formas de coordenação	"Yes, the article mentions forms of coordination such as unified planning, inter-departmental cooperation, and information sharing. It discusses approaches like establishing standardized systems, integrating resources, and adapting management mechanisms to facilitate effective collaboration among various government departments in e-government development".
5.1.3 d) Mecanismos de coordenação	"The article mentions coordination mechanisms such as unified planning and standards, inter-departmental cooperation, a centralized management framework, and the establishment of a unified information technical platform. These mechanisms aim to enhance communication, resource sharing, and effective collaboration among government departments in the e-government context".
5.1.3 e) Atores governamentais	"The article identifies various government actors involved in the collaborative governance model, including central and local government authorities, different departmental agencies, and informatization steering groups. These actors work together to enhance e-government development through coordinated planning, resource sharing, and inter-departmental cooperation".
5.1.3 f) Atores externos não governamentais	"The article does not explicitly mention non-governmental actors participating in the collaborative governance model. It primarily focuses on government entities and their roles in enhancing e-

	government through coordination and cooperation among various departments and levels of government”.
5.1.3 g) Nível governamental	“The coordination model was implemented at all government levels”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“The coordination mechanisms included unified planning and standards, inter-departmental cooperation, a centralized management framework, and the establishment of a unified information technical platform. These instruments aimed to enhance communication, resource sharing, and effective collaboration among government actors in the e-government framework”.
5.1.3 i) Características organizacionais do governo	“The article mentions the complexity of the management system, departmental interests, and the cross-management of government affairs as organizational characteristics influencing coordination. These factors create challenges for seamless cooperation and effective information sharing among different government departments in the e-government context”.
5.1.3 j) Condições iniciais	“Initial factors included the need for unified planning, the rapid development of e-government, and the goal of enhancing national competitiveness. Motivations stemmed from the desire to improve efficiency, resource sharing, and inter-departmental cooperation to address the complexities of governance in China's informatization efforts”.
5.1.3 k) Papel da tecnologia digital	“Digital technology plays a crucial role by providing a unified information technical platform that facilitates online communication, data sharing, and resource integration. It enables real-time interaction, enhances cooperation among government departments, and supports the implementation of standardized processes, ultimately improving the efficiency and effectiveness of e-government initiatives”.
5.1.3 l) Tempo	“The article does not specify the duration of activity”.
5.1.3 m) Tensões que desafiam a coordenação	“Challenges included a lack of unified standards, inefficient communication, and the existence of "isolated information islands." Conflicts arose from departmental interests and the complexity of the management system, hindering inter-departmental cooperation and effective resource sharing, ultimately complicating the implementation of the e-government coordination model”.
5.1.4 a) Forma de governo	“The article does not explicitly mention different forms of coordination or organizational approaches like republic, monarchy, or dictatorship. It focuses on the need for unified planning and leadership in e-government development, emphasizing coordination among departments rather than detailing specific governance models”.
5.1.4 b) Tradição democrática	“The article emphasizes that democratic values such as transparency, accountability, and citizen participation shape coordination models. These principles foster collaborative governance, enhancing information sharing and interdepartmental cooperation, while contrasting with authoritarian systems that may prioritize control over inclusivity, ultimately affecting the effectiveness and responsiveness of e-government initiatives”.
5.1.4 c) Nível de autonomia	“Decentralized autonomy influences collaborative coordination mechanisms”.
5.1.4 d) Características do domínio político	“The article identifies characteristics such as complexity, interdependence, and diversity of policy domains, which influence coordination models. These traits necessitate tailored approaches,

	fostering collaborative frameworks that enhance communication and resource sharing, while complicating integration in decentralized systems, ultimately affecting the efficiency and effectiveness of e-government initiatives”.
5.1.4 e) Cultura	“Cultural aspects such as collectivism, hierarchical values, and trust significantly influenced coordination models. These elements promote collaborative governance and respect for authority, facilitating interdepartmental cooperation. However, they can also hinder open communication and innovation, impacting the adaptability and responsiveness of e-government practices in diverse regional contexts”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Characteristics such as unified government planning, strategic vision, and political context significantly influence coordination mechanisms. Effective government strategies promote collaboration, while political party dynamics and social contexts shape priorities and resource allocation, ultimately affecting the efficiency and success of e-government initiatives and interdepartmental cooperation”.
5.1.4 g) Condições socioeconômicas do país	“Socioeconomic conditions, including regional economic disparities and resource availability, influenced coordination models by dictating the level of infrastructure and technology investment. These conditions affected the capacity for effective communication and collaboration, leading to varied implementation success of e-government practices across different regions, particularly between developed and less-developed areas”.
5.1.5 a) Tipo de output	“The type of output in the article primarily includes service provision through e-government systems, focusing on the deployment of integrated information services, data sharing, and improved communication among government departments. This aims to enhance the quality and efficiency of public services delivered to citizens”.
5.1.5 b) Tipo de outcome	“The type of outcome in the article includes increased efficiency and productivity in government operations, improved interdepartmental cooperation, and enhanced service delivery to citizens. These outcomes aim to foster sustainable development and better resource utilization within the e-government framework, addressing regional disparities in service provision”.
5.1.5 c) Resultados da transformação digital	“Additional outcomes of coordination in e-government include improved information sharing, reduced bureaucratic inefficiencies, enhanced transparency, and greater public trust in government services. These consequences contribute to a more responsive and accountable government, ultimately leading to better citizen engagement and satisfaction with public services”.
5.1.5 d) Elementos de falha	“The article identifies obstacles such as lack of unified planning and standards, insufficient interdepartmental cooperation, regional disparities in development, and the existence of "isolated information islands." These limitations hinder effective communication, resource sharing, and overall efficiency in the implementation of e-government initiatives”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions negative consequences such as blind investments, redundant construction of information infrastructure, and the emergence of independent, closed networks. These issues lead to inefficiencies, wasted resources, and hindered integration,

	ultimately compromising the effectiveness of e-government initiatives and their intended benefits”.
5.1.6 a) Métodos de avaliação de resultados	“The article does not specify particular methods for measuring and evaluating coordination results in e-government. However, it emphasizes the need for unified standards and effective planning to enhance integration and resource sharing, suggesting that these elements are critical for assessing the effectiveness and impact of coordinated activities”.
5.1.6 b) Escala de coordenação	“The article does not mention a specific scale for assessing the degree of coordination between government and non-governmental actors. It highlights the need for unified standards and effective planning to improve interdepartmental cooperation, but lacks a defined metric or scale for evaluating coordination levels”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. It primarily focuses on the challenges and strategies related to the development and coordination of e-government in China without mentioning these specific concepts”.

Artigo 9	Berce, J., Bianchi, A., Centeno, C., Osimo, D., Millard, J., & Shahin, J. (2006). The Organisation and Coordination of European e-Government Research for the EU in 2010. In Electronic Government: 5th International Conference, EGOV 2006, Kraków, Poland, September 4-8, 2006. Proceedings 5 (pp. 37-46). Springer Berlin Heidelberg.
5.1.2 a) Foco principal do artigo	"The article focuses on the challenges and opportunities in e-Government research in Europe, emphasizing the need for better communication and integration of research efforts. Its main objective is to identify key research areas and policy options to enhance the effectiveness and relevance of e-Government initiatives".
5.1.2 b) Principais resultados do artigo	"The article reports that e-Government research in Europe is fragmented, with insufficient coordination and communication. It highlights the need for strategic prioritization, better integration of research across disciplines, and a focus on policy goals to enhance public value and reduce duplication of efforts in e-Government initiatives".
5.1.2 c) Tipo de estudo	"The researchers used surveys, content analysis, and expert interviews".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in e-Government".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in Europe".
5.1.3 a) Definição de coordenação	"Coordination is defined as the process of organizing and aligning research efforts among various stakeholders to enhance collaboration, reduce fragmentation, and ensure that e-Government research effectively contributes to public value. It involves integrating different research activities and facilitating communication between researchers and practitioners across various government sectors".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article emphasizes the need for strategic prioritization, dedicated research programs, and enhanced communication among stakeholders. It advocates for a governance model that fosters collaboration across disciplines and sectors, promoting knowledge sharing and reducing fragmentation in e-Government research to effectively address public value and policy goals".
5.1.3 c) Formas de coordenação	"Yes, the article mentions forms of coordination such as establishing dedicated research programs, enhancing communication between researchers and practitioners, and promoting collaboration across disciplines. It highlights the need for strategic prioritization and suggests creating a virtual European center for e-Government to facilitate knowledge sharing and integration".
5.1.3 d) Mecanismos de coordenação	"The article mentions coordination mechanisms such as dedicated research programs, improved communication channels between researchers and practitioners, collaborative networks, and pooling of resources. It emphasizes the importance of strategic prioritization and the establishment of a virtual center for e-Government to enhance knowledge exchange and reduce fragmentation".
5.1.3 e) Atores governamentais	"The collaborative governance model involves various government actors, including researchers, practitioners, policymakers, and stakeholders from different sectors. It emphasizes the participation of academic institutions, industry representatives, and public sector entities to foster effective communication and collaboration in e-Government research and implementation".
5.1.3 f) Atores externos não governamentais	"Non-governmental actors in the collaborative governance model include academic institutions, industry representatives, and e-Government

	experts. These stakeholders contribute to research, share knowledge, and facilitate communication between the research community and practitioners, enhancing the overall effectiveness of e-Government initiatives”.
5.1.3 g) Nível governamental	“The coordination model was implemented at the national level”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“Coordination mechanisms included dedicated research programs, improved communication channels, collaborative networks, pooling of resources, and strategic prioritization. These instruments aimed to enhance knowledge exchange, reduce fragmentation, and foster collaboration between government and non-government actors in e-Government research and implementation”.
5.1.3 i) Características organizacionais do governo	“The article mentions that the political system, lack of dedicated research programs, and the autonomous nature of e-Government research influenced coordination. Additionally, the absence of a strategic framework and fragmentation across different public sector domains were significant organizational characteristics affecting effective collaboration”.
5.1.3 j) Condições iniciais	“Initial factors included the need to overcome fragmentation, enhance research quality, and improve integration across disciplines and government sectors. Motivations stemmed from the desire to maximize the impact of e-Government research, facilitate knowledge sharing, and address common challenges faced by different public sector domains”.
5.1.3 k) Papel da tecnologia digital	“Digital technology plays a crucial role in facilitating communication and collaboration among government and non-government actors. Tools such as online communication platforms, cloud collaboration tools, and project management systems enhance information sharing, streamline coordination efforts, and support the aggregation of research resources, ultimately improving the effectiveness of e-Government initiatives”.
5.1.3 l) Tempo	“The article does not specify the duration of activity”.
5.1.3 m) Tensões que desafiam a coordenação	“Challenges included fragmentation of research efforts, lack of integration across disciplines, and insufficient collaboration between researchers and practitioners. Tensions arose from differing priorities among stakeholders, varying levels of commitment, and the complexity of coordinating across multiple public sector domains, hindering effective communication and knowledge sharing”.
5.1.4 a) Forma de governo	“The article does not explicitly mention different forms of coordination or organizational approaches like republic, monarchy, or dictatorship. It focuses more on the need for collaboration, communication, and integration among stakeholders in e-Government research rather than categorizing organizational management styles”.
5.1.4 b) Tradição democrática	“The article highlights that democratic values such as transparency, participation, and accountability shape coordination models by fostering inclusive decision-making processes. In contrast, authoritarian systems may prioritize control and efficiency over public engagement, leading to less effective coordination and diminished public trust in governance outcomes”.
5.1.4 c) Nível de autonomia	“Decentralized autonomy enhances collaboration and effective coordination practices”.
5.1.4 d) Características do domínio político	“The article identifies characteristics such as complexity, interdependence, and diversity of policy domains, which influence

	coordination models by necessitating tailored approaches. These characteristics promote collaborative frameworks that address specific needs, enhance stakeholder engagement, and facilitate knowledge sharing, ultimately leading to more effective governance outcomes”.
5.1.4 e) Cultura	“Cultural aspects such as trust, social norms, and historical context influence coordination models by shaping stakeholder interactions and collaboration. High trust levels foster open communication and cooperation, while differing social norms can either facilitate or hinder effective coordination, impacting the overall success of governance practices”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Governments adopted characteristics such as strategic planning, clear vision, and inclusive policies, which influence coordination mechanisms. Political context, party alignment, and social dynamics also play crucial roles, shaping stakeholder engagement and collaboration, ultimately affecting the effectiveness and outcomes of governance practices”.
5.1.4 g) Condições socioeconômicas do país	“Socioeconomic conditions such as economic stability, resource availability, and social inequality influence coordination models by affecting stakeholder priorities and engagement. These conditions can either facilitate collaboration through shared interests or create barriers, impacting the effectiveness and inclusivity of coordination practices in governance”.
5.1.5 a) Tipo de output	“The type of output identified in the article includes service provision, research findings, and data analysis reports. These outputs are essential for evaluating the effectiveness of e-government initiatives and ensuring that services meet user needs and quality standards”.
5.1.5 b) Tipo de outcome	“The type of outcome highlighted in the article includes increased efficiency and productivity, enhanced customer satisfaction, and improved public value. These outcomes result from the effective implementation of e-government measures, leading to better service delivery and greater stakeholder engagement”.
5.1.5 c) Resultados da transformação digital	“Additional outcomes of coordination in e-government include enhanced collaboration among stakeholders, reduced fragmentation of research efforts, improved knowledge sharing, and increased innovation in service delivery. These consequences contribute to more effective governance and better alignment of e-government initiatives with public needs and policy goals”.
5.1.5 d) Elementos de falha	“The investigation identified obstacles such as fragmentation of research efforts, lack of coordination among stakeholders, insufficient communication between researchers and practitioners, and limited recognition of e-government as a vital research area. These issues hinder effective collaboration and the overall impact of e-government initiatives”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions negative consequences such as duplication of efforts, lower quality of research outcomes, and a tendency to "reinvent the wheel." These issues arise from fragmentation and insufficient integration of research activities, ultimately undermining the effectiveness of e-government initiatives”.
5.1.6 a) Métodos de avaliação de resultados	“The article does not specify particular methods for measuring and evaluating coordination results. However, it emphasizes the need for better communication and knowledge sharing among stakeholders

	to assess the effectiveness, efficiency, and impact of coordinated e-government activities, suggesting a qualitative approach to evaluation”.
5.1.6 b) Escala de coordenação	“The article does not mention a specific scale for assessing the degree of coordination between government and non-governmental actors. It highlights the need for improved collaboration and communication but does not provide a formal measurement framework or scale for evaluating coordination levels”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or specific emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. It focuses primarily on the challenges and coordination of e-government research without discussing these broader themes or technological advancements”.

Artigo 10	Reggi, L., & Ricci, C. A. (2014). The role of public companies in the coordination of e-government regional policies. <i>Economia e Politica Industriale</i> 41(3), 159-177.
5.1.2 a) Foco principal do artigo	"The article focuses on the role of coordination models in e-government policies across Italian regions, specifically examining the impact of in-house IT companies on regional coordination and IT performance. It aims to analyze how these factors influence the effectiveness of public sector IT initiatives".
5.1.2 b) Principais resultados do artigo	"The study found a positive correlation between coordination intensity and IT policy effectiveness. However, the presence of IT public companies did not significantly impact IT performance or coordination levels. Differences in human resources and organizational structures among in-house companies were also highlighted".
5.1.2 c) Tipo de estudo	"The researchers used cluster analysis and survey data".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in e-government and information technology".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in Italy, focusing on regional contexts".
5.1.3 a) Definição de coordenação	"Coordination is defined as the process that ensures effective collaboration among distinct entities, facilitating a well-organized division of labor and the assignment of specific tasks. It aims to enhance the overall functioning of economic and social systems, particularly in the context of e-government policies".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article highlights that governance models in coordination include a focus on institutional frameworks, collaborative partnerships, and the integration of technology. Key principles involve promoting efficiency, ensuring interoperability, and fostering stakeholder engagement to enhance the effectiveness of e-government initiatives at regional and local levels".
5.1.3 c) Formas de coordenação	"Yes, the article mentions that coordination can take various forms, including voluntary agreements and sector-specific collaborations. It also discusses different organizational approaches to manage activities and relationships, emphasizing the importance of institutional context, environmental factors, and local preferences in shaping these coordination strategies".
5.1.3 d) Mecanismos de coordenação	"The coordination mechanisms mentioned include voluntary collaborations, sector-specific and multi-level coordination frameworks, and the establishment of regional IT public companies. These mechanisms aimed to enhance cooperation among government entities and improve the implementation of e-government policies".
5.1.3 e) Atores governamentais	"Government actors participating in the collaborative governance model included regional administrations, local municipalities, and public agencies. These entities worked together to coordinate e-government policies, share resources, and improve service delivery through collaborative efforts at various administrative levels".
5.1.3 f) Atores externos não governamentais	"Non-governmental actors in the collaborative governance model included private sector entities, technology providers, and community organizations. These stakeholders contributed to the development and implementation of e-government initiatives, enhancing service

	delivery and fostering innovation through partnerships with public institutions”.
5.1.3 g) Nível governamental	“The coordination model was implemented at the regional level”.
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	“Coordination mechanisms included voluntary collaborations, sector-specific and multi-level coordination frameworks, and the establishment of regional IT public companies. These instruments facilitated shared governance, resource allocation, and the implementation of e-government policies among various government and non-government actors”.
5.1.3 i) Características organizacionais do governo	“Organizational characteristics influencing coordination included the national political system, administrative culture, legislative frameworks, and incentives for cooperation. These factors shaped how local entities interacted and collaborated in implementing e-government initiatives and utilizing digital technologies effectively”.
5.1.3 j) Condições iniciais	“Initial factors influencing the coordination model included the national institutional context, socio-economic conditions, political dynamics, and local preferences. These elements shaped the design and organizational structures of cooperative initiatives among local entities to enhance e-government and information society development”.
5.1.3 k) Papel da tecnologia digital	“Digital technology facilitates coordination by enhancing communication, streamlining processes, and enabling efficient information sharing among government and non-government actors. Tools like online platforms and project management systems are crucial for improving collaboration, ensuring interoperability, and supporting the implementation of e-government policies”.
5.1.3 l) Tempo	“The article does not specify a duration for the model”.
5.1.3 m) Tensões que desafiam a coordenação	“The article highlights barriers and costs to coordination, including technical, organizational, and political challenges. These difficulties often hinder the sharing of information among public actors, despite the potential benefits of improved collaboration and efficiency in e-government initiatives”.
5.1.4 a) Forma de governo	“The article discusses various coordination models among local actors but does not explicitly mention forms of governance like republic, monarchy, dictatorship, or democracy. It focuses instead on practical coordination approaches within the context of e-government and regional IT public companies”.
5.1.4 b) Tradição democrática	“The article highlights that democratic values such as transparency, participation, and accountability shape coordination models. These principles foster collaborative governance, enhancing stakeholder engagement and trust, while authoritarian systems may limit participation, leading to less effective coordination. Thus, democratic traditions promote more inclusive and effective coordination practices in e-government policies”.
5.1.4 c) Nível de autonomia	“Decentralized autonomy fosters collaborative and flexible coordination models”.
5.1.4 d) Características do domínio político	“The article identifies characteristics such as sectoral diversity, technological complexity, and varying stakeholder interests in policy domains. These factors influence coordination models by necessitating tailored approaches, promoting sector-specific collaboration, and requiring adaptive governance structures to

	effectively manage diverse needs and enhance policy outcomes in e-government initiatives”.
5.1.4 e) Cultura	“Cultural aspects such as trust, social capital, and local governance traditions influenced coordination mechanisms. High trust levels foster collaboration and information sharing, while strong local identities encourage participatory models. These cultural elements shape the effectiveness and adaptability of coordination practices in e-government, promoting community engagement and sustainable outcomes”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Characteristics influencing coordination include strategic government planning, clear vision, supportive policies, and alignment with political and social contexts. Effective government strategies and collaboration among political parties enhance coordination outcomes by ensuring coherent approaches, resource allocation, and stakeholder engagement in e-government initiatives, ultimately leading to improved service delivery”.
5.1.4 g) Condições socioeconômicas do país	“Socioeconomic conditions such as regional economic disparities, demographic trends, and technological infrastructure influenced coordination models. These factors shaped resource availability, stakeholder engagement, and the urgency of e-government initiatives, prompting tailored coordination practices that address specific local needs and enhance the effectiveness of public service delivery”.
5.1.5 a) Tipo de output	“The type of output discussed in the article primarily includes service provision and software deployment. It emphasizes the delivery of e-government services and the implementation of information technology solutions, focusing on enhancing public service efficiency and accessibility through coordinated efforts among local and regional actors”.
5.1.5 b) Tipo de outcome	“The type of outcome highlighted in the article includes increased efficiency and productivity in public service delivery, improved coordination among local actors, and enhanced customer satisfaction. These outcomes result from the effective implementation of e-government measures and collaborative strategies, ultimately leading to better service accessibility and responsiveness”.
5.1.5 c) Resultados da transformação digital	“Additional outcomes of coordination in e-government include improved interagency collaboration, enhanced information sharing, reduced operational costs, and better alignment of public services with community needs. These consequences foster a more integrated approach to governance, leading to more effective policy implementation and service delivery”.
5.1.5 d) Elementos de falha	“The article identifies obstacles such as high technical, organizational, and political costs associated with coordination and information sharing. Additionally, barriers include varying institutional contexts, lack of standardized practices, and resistance to change among stakeholders, which can hinder the successful implementation of e-government initiatives”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions undesirable consequences such as potential inefficiencies due to overlapping responsibilities, the risk of bureaucratic inertia, and the challenge of maintaining effective communication among diverse stakeholders. These issues can lead

	to fragmented services and reduced overall effectiveness of e-government initiatives”.
5.1.6 a) Métodos de avaliação de resultados	“The article discusses the use of composite indices to measure coordination results, specifically an index of coordination intensity at the regional level and an index of IT policy effectiveness, which assesses municipalities' advancement in ICT use. These indices help evaluate the impact of coordinated activities on service delivery”.
5.1.6 b) Escala de coordenação	“Yes, the article mentions the use of an index of coordination intensity at the regional level, which assesses the degree of coordination between government and non-governmental actors. This index helps evaluate how effectively these entities collaborate in implementing e-government initiatives”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. It primarily focuses on e-government policies, coordination models, and the effectiveness of information technology in public administration”.

Artigo 11	Organ, J. (2003). The coordination of e-government in historical context. Public policy and administration, 18(2), 21-36.
5.1.2 a) Foco principal do artigo	"The article focuses on the historical evolution of IT coordination in government, highlighting persistent challenges and uncertainties. Its central theme is the inadequacy of current coordination efforts, arguing that fundamental issues in departmental IT project management must be resolved before successful e-government initiatives can be achieved."
5.1.2 b) Principais resultados do artigo	"The article reports that central government IT coordination has historically been ineffective, with ongoing uncertainty about its objectives. It emphasizes that successful e-government relies on addressing fundamental project management issues at the departmental level, rather than pursuing ambitious, wide-ranging initiatives without resolving these core challenges".
5.1.2 c) Tipo de estudo	"The researchers used a literature review approach".
5.1.2 d) Domínio de ação política	"The coordination practices are implemented in government IT".
5.1.2 e) País(es) onde a investigação foi realizada	"The study was conducted in the United Kingdom".
5.1.3 a) Definição de coordenação	"Coordination is defined as the process of managing and aligning various IT initiatives across government departments to improve efficiency and service delivery. It involves not only technological integration but also changes in attitudes, procedures, and departmental structures to achieve a more unified approach to IT governance".
5.1.3 b) Fundamentos ou paradigmas de governação nos modelos de coordenação	"The article discusses a shift towards centralized coordination models, emphasizing a corporate IT strategy for government. It highlights principles of unified procurement, project management, and the need for consistent policy delivery across departments, aiming to overcome departmental silos and enhance collaboration in IT governance".
5.1.3 c) Formas de coordenação	"Yes, the article mentions various forms of coordination, including centralized procurement, project management, and the integration of IT systems across departments. It discusses different organizational approaches, such as managerialism and Business Process Reengineering (BPR), to enhance efficiency and effectiveness in managing government IT activities and relationships".
5.1.3 d) Mecanismos de coordenação	"The article mentions coordination mechanisms such as centralized procurement processes, project management frameworks, and policy alignment across departments. It also highlights the role of central bodies in overseeing IT initiatives and ensuring compatibility and efficiency in the use of technology within government operations".
5.1.3 e) Atores governamentais	"The article identifies various government actors in the collaborative governance model, including central government agencies, departmental leaders, project management teams, and oversight bodies like the Office of Government Commerce (OGC). These actors work together to coordinate IT initiatives and improve service delivery across public sector departments".
5.1.3 f) Atores externos não governamentais	"The article mentions non-governmental actors such as private sector IT suppliers, industry representatives, and consultancy firms. These actors collaborate with government agencies to enhance procurement processes, improve project management, and address challenges in IT coordination within the public sector".

5.1.3 g) Nível governamental	"The coordination model was implemented at the national level".
5.1.3 h) Mecanismos / instrumentos de coordenação inter / intragovernamentais / stakeholders externos	"The coordination mechanisms included centralized procurement processes, policy frameworks, inter-departmental committees, and collaborative project management practices. Additionally, official documents, reports, and consultations with private sector partners facilitated communication and alignment between government and non-government actors in IT initiatives".
5.1.3 i) Características organizacionais do governo	"The article highlights characteristics such as departmental independence, a centralized political system, and a culture resistant to reform. Additionally, the historical separation of functions and responsibilities among departments, along with varying levels of IT expertise, significantly influenced the effectiveness of coordination efforts in government IT initiatives".
5.1.3 j) Condições iniciais	"Initial factors included the need for efficient IT procurement, the rise of management literature advocating for organizational reform, and the increasing complexity of IT systems. Motivations also stemmed from past failures in project management and the desire to improve public service delivery through better coordination of IT resources".
5.1.3 k) Papel da tecnologia digital	"Digital technology facilitated coordination by enabling real-time communication, data sharing, and project management across government and non-government actors. Tools like online platforms and monitoring systems improved transparency, streamlined processes, and enhanced collaboration, allowing for more efficient service delivery and better alignment of IT initiatives with organizational goals".
5.1.3 l) Tempo	"The coordination model remained active for several decades".
5.1.3 m) Tensões que desafiam a coordenação	"Challenges included departmental resistance to central authority, varying IT expertise, and the complexity of integrating disparate systems. Conflicts arose from independent departmental structures, which hindered collaboration, while tensions existed between the need for reform and the entrenched traditions and attitudes within government agencies regarding IT management and coordination".
5.1.4 a) Forma de governo	"The article does not explicitly mention different forms of coordination like republic, monarchy, or dictatorship. Instead, it focuses on the historical evolution of IT coordination in government, emphasizing the challenges and approaches taken to manage relationships and activities within the context of e-government and departmental structures".
5.1.4 b) Tradição democrática	"The article emphasizes that democratic values such as transparency, accountability, and citizen engagement shape coordination models. These principles foster participatory approaches, enhancing responsiveness and efficiency in governance, while contrasting with authoritarian models that may prioritize control over collaboration, ultimately affecting the effectiveness of IT coordination in public services".
5.1.4 c) Nível de autonomia	"Decentralized autonomy hindered effective IT coordination efforts".
5.1.4 d) Características do domínio político	"The article identifies characteristics such as complexity, interdependence, and varying departmental priorities in policy domains. These factors complicate coordination, as diverse objectives and operational cultures can lead to resistance against centralized initiatives, necessitating tailored approaches that

	accommodate specific needs while promoting collaboration across departments for effective governance”.
5.1.4 e) Cultura	“Cultural aspects such as departmentalism, resistance to change, and a lack of collaborative ethos influenced coordination mechanisms. These factors fostered silos within government, undermining centralized efforts and necessitating adaptive strategies that respect departmental identities while promoting a culture of cooperation for successful IT coordination”.
5.1.4 f) Governo atual/sistema institucional, jurídico e político/estilo de administração pública	“Governments adopted measures like centralized IT strategies, comprehensive planning, and a clear vision for e-government. Political context, party ideologies, and social expectations also shaped these characteristics, influencing coordination mechanisms by either facilitating or obstructing collaborative efforts across departments and enhancing or diminishing overall effectiveness”.
5.1.4 g) Condições socioeconômicas do país	“Socioeconomic conditions such as budget constraints, public demand for efficient services, and technological advancements influenced coordination models. These factors pressured governments to adopt innovative IT solutions, driving the need for effective collaboration while simultaneously challenging existing practices due to resource limitations and varying stakeholder expectations”.
5.1.5 a) Tipo de output	“The type of output discussed in the article primarily includes service provision and software deployment. These outputs focus on enhancing government efficiency and responsiveness through improved IT coordination, aiming to deliver better services to citizens and streamline operations across various departments”.
5.1.5 b) Tipo de outcome	“The type of outcome highlighted in the article includes increased efficiency and productivity, improved service delivery, and enhanced coordination across government departments. These outcomes aim to foster a more responsive and integrated public service, ultimately leading to greater citizen satisfaction and streamlined governmental operations”.
5.1.5 c) Resultados da transformação digital	“Additional outcomes of coordination in the context of e-government included the challenges of organizational change, cultural shifts within departments, and the need for substantial technical and structural adjustments. These factors often hindered the effective implementation of e-government initiatives, revealing the complexities of achieving a truly integrated service delivery model”.
5.1.5 d) Elementos de falha	“The article identifies obstacles such as ineffective project management, cultural and structural separations between departments, inadequate coordination efforts, and overambitious goals of central agencies. These limitations hindered the successful implementation of e-government initiatives, leading to fragmentation and inefficiencies in service delivery”.
5.1.5 e) Resultados adversos da coordenação	“Yes, the article mentions negative consequences such as a lack of accountability, self-congratulatory attitudes within coordinating bodies, and the failure to address fundamental issues in departmental IT management. These factors contributed to a perception of unreality in the e-government agenda and undermined the effectiveness of coordination practices”.
5.1.6 a) Métodos de avaliação de resultados	“The article does not specify particular methods for measuring and evaluating coordination results. However, it implies that audits, parliamentary committee reviews, and press scrutiny are used to

	assess project management effectiveness and the impact of coordinated activities within government IT initiatives”.
5.1.6 b) Escala de coordenação	“The article does not mention a specific scale for assessing the degree of coordination between government and non-governmental actors. It discusses the challenges of coordination and the historical context but does not provide a formal measurement framework or scale for evaluating such coordination”.
5.1.6 c) Observações gerais	“The article does not reference Sustainable Development Goals (SDGs) or emerging technologies such as Artificial Intelligence, Blockchain, or Virtual Reality. It primarily focuses on historical IT coordination in government and the challenges faced in implementing e-government initiatives”.