

## Article

## Risk in public administration: a systematic review focused on a future research agenda

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Risk as a research phenomenon in the government sector is still an embryonic, challenging, and multifaceted subject. This study aimed to review the existing literature around risk in Public Administration and outline future research directions within this area based on mapping the existing production in the five main journals specialized in public administration. The researched studies were analyzed and classified according to the area or government sector and organizational levels in which the research was conducted, seeking to identify the relationship between risk and other analysis factors and theories. This article contributes theoretically and methodologically to advancing the field of knowledge, synthesizing existing publications, pointing out gaps in the literature, and proposing theoretical perspectives and methodological approaches that address the dynamics of the risk phenomenon in future research. In addition, it contributes practically to professionals who deal with risk in the public context, managers, public servants, and private partners, among others.

**Keywords:** risk; governance; innovation; public administration; literature review.

**Risco na administração pública: uma revisão sistemática focada em uma agenda de pesquisas futuras**

O risco como fenômeno de pesquisa no setor governamental é ainda um tema embrionário, desafiante e multifacetado. Este estudo teve como objetivo revisar a literatura existente sobre risco na Administração Pública e traçar rumos futuros nesta área, a partir do mapeamento da produção existente nas cinco principais revistas especializadas em administração pública. Os estudos pesquisados foram analisados e classificados de acordo com a área ou setor governamental e níveis organizacionais em que a pesquisa foi realizada, buscando identificar a relação entre o risco e outros fatores de análise e teorias. Este artigo contribui teórica e metodologicamente para o avanço do campo do conhecimento, sintetizando as publicações existentes, apontando lacunas na literatura e propondo perspectivas teóricas e abordagens metodológicas que abordem a dinâmica do fenômeno do risco em pesquisas futuras. Além disso, contribui de forma prática para profissionais que lidam com risco no contexto público, gestores, servidores públicos e parceiros privados, entre outros.

**Palavras-chave:** risco; governança; inovação; administração pública; revisão da literatura.

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## Riesgo en la administración pública: una revisión sistemática enfocada en una futura agenda de investigación

El riesgo como fenómeno de investigación en el sector gubernamental es todavía un tema embrionario, desafiante y multifacético. Este estudio tuvo como objetivo revisar la literatura existente sobre el riesgo en la administración pública y delinear direcciones futuras en esta área, a partir del mapeo de la producción existente en las cinco principales revistas especializadas en administración pública. Los estudios relevados fueron analizados y clasificados según el área o sector gubernamental y niveles organizacionales en los que se realizó la investigación, buscando identificar la relación entre el riesgo y otros factores de análisis y teorías. Este artículo contribuye teórica y metodológicamente al avance del campo del conocimiento, sintetizando publicaciones existentes, señalando vacíos en la literatura y proponiendo perspectivas teóricas y enfoques metodológicos que aborden la dinámica del fenómeno del riesgo en futuras investigaciones. Asimismo, ayuda de manera práctica a los profesionales que lidian con el riesgo en el contexto público, directivos, servidores públicos y socios privados, entre otros.

**Palabras clave:** riesgo; gobernanza; innovación; administración pública; revisión de la literatura.

### 1. INTRODUCTION

Defined by Committee of Sponsoring Organizations of the Treadway Commission (COSO, 1992) as the possibility that an event occurs and adversely affects the achievement of an entity's objectives, the risk is an inherent part of any human activity, being present in every type of day-to-day or non-daily action performed by individuals. Every human being begins undertaking risks with different degrees of impact from birth. However, the risk propensity of individuals is not an inherent and stable characteristic but is strongly influenced by context (Kanner, 2005). People who consider appropriate risk behavior in a specific situation may be considered inappropriate in different circumstances (Weißmüller, 2022).

Historically, public, or private companies have managed several types of risk in a departmental way. In this sense, finance often dealt with exchange rate or interest rate fluctuations, risks, insurance dealt with natural disasters and civil liability, and operations managed quality and safety risks. In the public sector, financial and economic risks have been addressed, for example, in public-private partnerships (Burke & Demirag, 2018; Ham & Koppenjan, 2001; Ke, S. Wang, & Chan, 2013) and outsourcing (Farneti & Young, 2008) and operational risks were addressed in emergency management (Comfort, 2007; Roberts & Wernstedt, 2018; Wise & Freitag, 2002) and flu and COVID-19 pandemics (Liu, Lin, Q. Wang, Y. Chen, & J. Zhang, 2021; Vecchi, Cusumano, & Boyer, 2020).

However, studies indicate the need to integrate organizational risk management (Colquitt, Hoyt, & R. B. Lee, 1999). In this regard, the COSO (2004, p. 4) defined enterprise risk management as an enterprise-wide risk assessment and management process designed to "provide reasonable assurance regarding the achievement of the entity objectives". This involves integrating risk into governance and compliance structures. For Moeller (2011), governance refers to the process of establishing rules and procedures within all levels of a company, communicating these rules to the appropriate levels of stakeholders, monitoring performance against these rules, and administering rewards and

punishments based on relative performance or compliance with these rules. The term compliance as the duty to comply, to be in compliance and to enforce internal and external regulations imposed on the organization's activities (Morais, 2005).

Companies should not consider risk as a problem to be mitigated. Instead, companies with the ability to manage a particular risk should seek a competitive advantage from it (Bromiley, McShane, Nair, & Rustambekov, 2015). A two-way view of risk is important for research purposes, as it considers not only aspects that may be related to risk aversion but also issues related to entrepreneurship and innovation. Defined as "an organization's commitment to the intensity of entrepreneurial actions" (Kim, 2010, p. 783), entrepreneurial orientation in public organizations entails degrees of risk taking, innovation, and proactiveness (Miller, 1983). In this sense, "innovation" is endeavoring to develop and implement creative, unusual, or novel solutions to problems, including new (combinations of) services, organizations, or processes (Currie, Humphreys, Ucbasaran, & McManus, 2008).

The public sector was always seen as highly bureaucratic and regulated, making a more innovative approach to risk difficult. Many areas of public services, such as social service, have become highly regulated and driven by inspection, auditing, performance management, and targets that militate against taking risks and promoting innovation (Munro, 2010).

Risk management in the public field has inevitably generated tension between government and citizens. When "bureaucrat" enters the minds of ordinary people, the image likely evokes a litany of popular pejoratives: lazy, incompetent, robotic, or with an aversion to risk (D. Lee & Van Ryzin, 2020). These stereotypes neglect the "perversity" of the problems, the complexity of government programs and the decision-making constraints public managers operate (Head & Alford, 2015).

However, risk management in public administration has been evolving. Rouillard (2004) pointed out that this evolution moves towards a new form of governmental action based on responsibility and delegation. Public programs are being redesigned to provide more incentives for individuals to monitor their risks and take responsibility for their management. Several new actors, public companies, or private agents are now sharing responsibilities in delivering public services. This positive engagement with risk is an essential prerequisite of effective risk management in public service innovation (Brown & Osborne, 2013).

For a long-time, Public Administration has been trying to transform itself through various waves of managerial reform (for example, new public management, public value management, public governance, etc.) aimed at making government more market and performance oriented (Swann, 2016). In this sense, increasing risk-taking is a cornerstone of public efforts for "new public management" (C. Chen & Bozeman, 2012). Although the method has long been used in finance, safety, health, and the environment, it has gained considerable attention as governments increased efforts to modernize decision-making and present a risk management perspective in all critical areas of government action (Treasury Board of Canada Secretariat [TBCS], 2001).

The literature on entrepreneurship in the public sector states that it is necessary to take risks by being more entrepreneurial and improving performance (Kim, 2010; Miller, 1983). However, this theme is still an embryonic subject for Public Administration. Few studies meet the expectations of growth in risk management in the public sector. Most of these surveys are restricted to countries

considered developed (Souza, Braga, Cunha, & Sales, 2020). But what is the content of existing research on the risk phenomenon within the scope of Public Administration? Thus, this study aims to review the existing literature on risk in Public Administration and outline future directions for further research.

This article will allow future researchers to have contact with the state of the art in the subject; analyze the synthesized research; provide an overview of the complexity of this phenomenon in Public Administration; identify new ways to interpret the previous studies; and address gaps and research questions creating foundations for advanced theoretical and methodological their studies.

## 2. METHODOLOGY

With the objective/research question “to review the existing literature in the area of risk in public administration and outline future directions for further research”, a structured literature review was carried out following the methodology proposed by Jesson, Matheson, and Lacey (2011) to investigate and assess how risk has been researched and conceptualized within the Public Administration to date. A systematic review is a comprehensive review of all published articles selected to address a specific issue using a systematic relevant study identification method to minimize bias and errors (Jesson et al., 2011). In this way, literature reviews are an appropriate method to assess the state of research on a particular phenomenon systematically and critically: they help to inform the development of concepts and theories (Rowe, 2014) and to develop agendas for future research (Schwarz, Mehta, Johnson, & Chin, 2007; Webster & Watson, 2002).

For this, the following plan/protocol was followed to search the literature for studies of interest to the research, following criteria for exclusion and inclusion of articles and applying the evaluation of their quality using the “research hierarchy” (Jesson et al., 2011). As this is a new phenomenon in the public area, both conceptual and empirical publications were reviewed. The decision to include both types of publications was due to the limited availability, so far, of publications on the subject in the sources surveyed, with the intention being to explore all studies already published in the 5 (five) main Journals specialized in Public Administration.

To select those journals, the Scimago Journal & Country Rank was used. The first filter was to choose the “Public Administration” subject category, listing only WoS (Web of Science) Journals, and the year was 2021. After that, all the Q1 were listed. The next step we select only the journals with the terms “Public Administration” and “Public Management”. As a result, six journals were selected. Finally, the last filter was applied, the journal must be classified in the Business, Management and Accounting subject. The final list comprises five journals: The American Review of Public Administration, International Public Management Journal, Journal of Public Administration Research and Theory, Public Administration Review, and Public Management Review.

Searches based on a single keyword were used to identify all studies that included the term “*risk*” and to avoid an excessively narrow focus in the case of using terms composed. In addition, the period was not determined to locate everything published in journals since their existence on a digital platform. In all, 3,563 works were found containing the keyword, as follows: 1,289 in the Public Administration Review, 782 in the Public Management Review, 672 in the Journal of Public

Administration Research and Theory, 549 in *The American Review of Public Administration*, and 271 in the *International Public Management Journal*.

All the research abstracts were read to filter the studies of interest, and only those dealing with risk as an object of administrative study were selected. Because “*risk*” was the only word used for the search, most articles did not deal directly with risk or in a way related to another administrative factor. They lacked adequate meaning for the search and, therefore, were discarded. Articles that contained the word “*risk*” in a random context or that dealt, for example, with risk of infection and treatment of diseases and risk of natural phenomena were discarded for not dealing with administrative risk, which is the object of this study.

After reading and filtering, only 42 works were left, separated for a full reading. After reading the articles, ten articles were discarded because they did not deal with the word risk as an administrative factor or editorial articles or book reviews. Thus, the literature review was based on 32 articles published in the 5 (five) main Journals focused on Public Administration.

The selected articles were classified concerning two pre-defined criteria - government area and organizational level so that each article obtained at least two categories. The government areas were derived from the researchers’ readings carried out and grouped. The levels referred to in this study as an individual, organizational, and environmental corresponded, respectively, to the organization’s micro, meso, and macro levels (Jilke, Olsen, Resh, & Siddiki, 2019) and were named as such for didactic improvement.

This classification makes it possible to identify the areas of government where risk has been addressed by researchers with greater frequency, as well as the distribution of studies across the three organizational levels. Some of the articles were fit into more than one area or organizational level due to the diversity of aspects and contexts considered.

For analysis, thematic analysis coding techniques were used, as described by Ezzy (2002). The objective of this technique is to identify themes in a set of information. “It is more inductive than content analysis because the categories in which topics will be qualified are not decided before content analysis” (Ezzy, 2002, p. 88). In this way, the creation of categories of analysis was avoided in a hurry, without prior knowledge of the content of the articles studied, allowing a more adequate analysis to the research objectives.

The final step of the review, each of the selected articles was synthesized in a spreadsheet containing the main concepts and theories, objective/research question, context, methodologies applied and its main findings, so that it was possible to know the content of existing research on risk in the Public Administration. In this way, the literature review focused on synthesizing theoretical and empirical discoveries made so far and preparing a future research agenda for academics and scholars in the area.

To pursue the rigor and reliability of the results, the articles were initially read and classified by one researcher and then by the second researcher.

### 3. RESEARCH ON RISK IN PUBLIC ADMINISTRATION

Risk is part of human nature and is present in the actions developed by individuals, as any activity developed produces a specific type of exposure to some risk and leads to a possible change. Thus, risk can be defined simply as exposure to change, the probability that some future event or set of events will occur (Paxson & Wood, 1998). In other words, the risk was defined by COSO (1992) as the possibility that an event occurs and adversely affects the achievement of an entity's objectives.

In Public Administration, as in all types of organizations, the types of risks that occur and must be managed by the government in the context of public policy are many and varied - industrial accidents or service failures (catastrophes or air accidents), natural disasters (floods), risks to public health (flu and COVID-19 pandemics), direct security risks (terrorism), economic risks (bank failure), failure of established systems (child protection tragedies) and risk of reputational damage (for organizations or professionals associated with the above risks) (Brown & Osborne, 2013).

Research on risk in the public sector encompasses different areas and considers distinct aspects. Empirical and conceptual studies associate and seek to identify factors that contribute to risks in issues of ethics and organizational integrity (Molina, 2018), their influence on organizational learning and adaptation processes (F. Zhang, Welch, & Miao, 2018), on performance (Hinz & Ingerfurth, 2013; Swann, 2016), as criteria for entrepreneurship (Hinz & Ingerfurth, 2013; Swann, 2016), governance systems (Berardo & Lubell, 2016; Carboni & Milward, 2012; Farneti & Young, 2008) and sustainability (Terman, Feiock, & Youm, 2020). Furthermore, many approaches are made through the correlation of risk with cognitive issues such as decision-making (S. Nicholson-Crotty, J. Nicholson-Crotty, & Fernandez, 2017; Roberts & Wernstedt, 2018; Wise & Freitag, 2002), perception (Eckerd, 2014; Wise & Freitag, 2002; F. Zhang et al., 2018), risk propensity and aversion (C. Chen & Bozeman, 2012; DeHart-Davis, 2007; Ricard, Klijn, Lewis, & Ysa, 2016) and the behavior of individuals in situations that involve risk (Roberts & Wernstedt, 2018; Tepe & Prokop, 2018).

In terms of theories, the researchers drew on economic strategy (Rouillard, 2004), cognitive theory (Comfort, 2007), contingency theory (Farneti & Young, 2008), game theory (Ke et al., 2013), neo-institutional theory (Hinz & Ingerfurth, 2013), risk perception theory (Eckerd, 2014), positive theory and normative theory (Thompson & Rizova, 2015), relative risk theory (S. Nicholson-Crotty et al., 2017), leadership theories (Ricard et al., 2016), learning theory (F. Zhang et al., 2018), decision theory (Tepe & Prokop, 2018), perspective theory (Roberts & Wernstedt, 2019) and collaboration theory (Terman et al., 2020).

As for the methodologies used, existing studies have been based on collection and analysis methods that involve documentary research (Molina, 2018), interviews, and questionnaires (Burke & Demirag, 2018; Ke et al., 2013; Terman et al., 2020), discourse analysis (Comfort, 2007). Furthermore, many studies are conceptual, in which they develop and test theoretical hypotheses (DeHart-Davis, 2007; Hinz & Ingerfurth, 2013; Ricard et al., 2016) and use various quantitative methods (C. Chen & Bozeman, 2012; Eckerd, 2014; F. Zhang et al., 2018).

Existing studies on risk in Public Administration can be classified by area of government (public safety and emergency, transport, health, energy efficiency, environment, external relationship, and management in general) and organizational level at which the analyzes took place so that each survey considered at least one area and level. Box 1 allows a view of this classification, according to each area/

level in which the studies were conducted. It is noteworthy that some studies can fit into more than one area or organizational level due to the diversity of aspects and contexts considered.

**BOX 1 CLASSIFICATION OF ARTICLES ACCORDING TO AREA AND ORGANIZATIONAL LEVEL**

	Type	Government Area							
		Security and Emergency	Transportation	Health	Energy Efficiency	Environment	External Relationship	Management	
Environmental	Market	Comfort (2007)			Vecchi et al. (2020)	Terman et al. (2020)		Ke et al. (2013); Terman et al. (2020); Weißmüller and Vogel (2021)	
	Theoretical							Carboni and Milward (2012)	
Organizational	Market	Molina (2018); Wise and Freitag (2002)			Deslatte (2020)	Deslatte, Swann, and Feiock (2021); Swann (2016)	Wise and Freitag (2002)	Burke and Demirag, (2018); Ham and Koppenjan (2001)	Rouillard (2004); S. Wang and Feeney (2016)
	Theoretical							Farneti and Young (2008)	Brown and Osborne (2013); Thompson and Rizova (2015)
Individual	Market	Donahue, Eckel, and Wilson (2014); Roberts and Wernstedt (2018); F. Zhang et al. (2018)	F. Zhang et al. (2018)		Hinz and Ingerfurth (2013); Liu et al. (2021)	Deslatte et al. (2021)	Eckerd (2014)	Berardo and Lubell (2016)	C. Chen and Bozeman (2012); DeHart-Davis (2007); Deslatte and Swann (2020); Eckerd (2014); S. Nicholson-Crotty et al. (2017); Ricard et al. (2016); Tepe and Prokop (2018); Weißmüller (2022)
	Theoretical								

Source: Elaborated by the authors.

The search for a new taxonomy aims to systematize existing knowledge and then trace possible advances in each area.

### 3.1 Areas of government

The areas or sectors of Public Administration in which the studies conducted on risk are concentrated are heterogeneous. The surveys sought to respond to problems related to public safety and emergency, transport, health, energy efficiency, environment, external relations, and management in general. As a result, risk takes on the most varied roles in the analyzes carried out by researchers within each of those areas. This section will address what risk connections occur within government areas or sectors and how.

In public safety and emergency, studies address aspects related to decision-making in situations of risk and uncertainty (Donahue et al., 2014; Roberts & Wernstedt, 2018; Wise & Freitag, 2002). In this context, the role of the decision-maker and the cognitive process in different threats are highlighted. Of course, this process can be influenced by factors, such as the individual's exposure to situations of uncertainty. In addition, managers usually seek to reference how other people behaved to make more informed decisions in the risk analysis process.

Risk is a significant component of management decision making. For Wise and Freitag (2002), the risk propensity of managers affects the priorities for the implementation of a government program and the responsibility potentially affects the managerial perception of risks and, therefore, the managerial propensity to risk. This means that responsibility and risk need to be treated as a systemic issue within public policy.

Another risk bias in this area, which is also related to studies in the field of public transport, is the issue of organizational adaptation and learning. This is because organizations usually learn from their previous experiences and seek to adjust to the needs imposed by the environment. Research on risk in public transport also considers the perception of risk as an impact factor on organizations. Perceived risk can encourage organizations to take non-routine and non-incremental actions aimed at increasing adaptive capacity (Comfort, 2007).

In healthcare, researchers are concerned with exploring how entrepreneurship (proactivity, innovation, and risk) affects performance, considering the heterogeneity of ownership and environmental conditions. In this case, risk taking is considered one of the components of entrepreneurial activities. This means that a professional with an entrepreneurial profile is necessarily inclined to assume and deal with risks in their decisions. For Hinz and Ingerfurth (2013), entrepreneurship and an entrepreneurial orientation of established organizations represent a current challenge for hospital management. Such a challenge may not be exclusive to the healthcare area and represent a need for any governmental and private area.

Also, in relation to health, there are studies that relate risk to the pandemic context (Deslatte, 2020) providing an overview of reasoning motivated by supporters and how this influenced the response to the coronavirus pandemic (Deslatte, 2020), as well as supply procurement (Vecchi et al., 2020) and information dissemination/communication (Liu et al., 2021). In this sense, the social

and behavioral sciences present several relevant insights to help guide responses to the pandemic, including how prejudice and risk aversion influence threat perception, the influence of social context (norms, inequality, polarization), the convenience of working collectively, and how trust in leadership can influence individuals (Bavel et al., 2020).

In energy efficiency, studies on learning heuristics stand out and how organizational learning impacts managers in risk assessments in sustainability initiatives (Deslatte et al., 2021) and in situations of formal and informal collaboration between interstate governments. For Terman et al. (2020), collaborative decisions present considerable risks that can be amplified or mitigated by the mechanisms through which collaboration takes place. In short, the risks to be considered in the collaboration process are coordination risks, division risks, and defection risks.

Regarding the environment, studies have been carried out considering how risk is perceived by the actors involved, the innovation and proactivity, which refer to risk-taking behaviors and, therefore, reflect on organizational performance. Understanding how the cognitive processes of managers and the public involved take place is of foremost importance for research in organizational risk. The most interesting novelty in this context is the inclusion of public opinion in risk perspectives, which makes it possible to identify the existing differences between the perceptions of public managers and citizens, as analyzed by Eckerd (2014).

Majority of the research is found in relations with the private sector, emphasizing risk studies in Public-Private Partnerships (PPP) and outsourcing of services. In this context, risks are treated more broadly and come a little closer to the concept of business risk management. Furthermore, in the private sector, cognitive and behavioral factors that refer to risk perception, analysis, aversion, and propensity are considered, in addition to financial risks, which also lead to organizational performance issues. Thus, the strategic risk behavior (Weißmüller & Vogel, 2020), the search for the identification of the main risk factors involved, how these risk factors affect the success and effectiveness of PPP projects and the development of mechanisms/models of risk allocation (Ke et al., 2013) have been addressed recurrently.

Another essential aspect addressed in these studies is the critical level of long-term uncertainties in PPPs. Many changes can occur throughout a partnership agreement, including political and market changes, which provide risks and uncertainties. Understanding these uncertainties, measuring them, and creating governance mechanisms that meet the public administration and the private partner's needs have been the object of many studies on risk in the public sector.

In outsourcing services, the focus of the studies is on the ideal governance models for the project's success. As the risk of an outsourced service increases, so does the sophistication of the governance model needed to manage it. Thus, the decision to outsource a high-risk service must depend, in part, on whether the municipality can work within a more sophisticated governance model (Farneti & Young, 2008). Researchers are interested in developing ideal governance models that can meet the specific needs of services, not necessarily being a model for each federative entity or public agency.

Naturally, a more significant number of scholars have been working on risk in an institutionalized and global manner, not focusing on a specific area of the public sector but

considering public management in general, which involves multi-sector, multi-organizational, or network analyses. These studies relate risk to issues of ethics and organizational integrity (Molina, 2018), the behavior and attitudes of individuals within organizations in an experimental way (Tepe & Prokop, 2018; Weißmüller, 2020), bringing cognitive aspects into complex and adaptive systems (Comfort, 2007) forward for analysis in Public Administration in general, in addition to revisiting the issues of risk perception, aversion, and propensity, present in several studies. In this area, there are studies on entrepreneurial orientation (Deslatte & Swann, 2020), leadership styles, and innovation (Ricard et al., 2016) allied to the aspects of risk in the search for its reflexes on organizational performance.

Studies focused on risk behavior and risk attitudes according to the education of individuals (Tepe & Prokop, 2018). Public and non-profit sectors (C. Chen & Bozeman, 2012) also deserve attention since professionals in the public management area are historically considered bureaucrats and risk averse. Equally important, studies have sought to address risk combined with creating public value (Thompson & Rizova, 2015).

As studies closer to the complete concept of business risk management, the issues studied by the researchers correspond to the management of financial resources and economic strategy (Rouillard, 2004), systemic, and conjunctural problems (Carboni & Milward, 2012) and public policies and administration (Thompson & Rizova, 2015). Although few studies effectively converge to risk management in public administration, they are more present in research that focuses on public management in a globalized way.

### 3.2 Analysis levels

Risk in Public Administration has been analyzed at different organizational levels, which enriches the power of detailing and specification. This detailing is important so that it is possible to identify all aspects of risk and its influence on people, processes, and the environment. In this section, studies on risk in Public Administration are classified and analyzed according to organizational levels.

Research in the public context has increasingly addressed the complex nature of risk, making it possible to identify at least three levels of analysis: individual, organizational, and environmental. There is a universe of questions within each level that can be taken as an object of study. Furthermore, more than one level can also be considered, depending on the research problem and the intended emphasis. At the individual level, studies emphasizing the cognitive aspects of individuals in decision-making and their behavior in situations of risk and uncertainty stand out. A growing research program in behavioral public administration uses theories from psychology to test the micro-foundations of managerial behavior at the individual level (Grimmelikhuijsen, Jilke, Olsen, & Tummers, 2017). In the study of Public Administration, identifying management biases and decision shortcuts holds promise for improving the understanding of the decision-making process (Roberts & Wernstedt, 2019).

The preparation, perception, propensity, aversion, and tolerance to risks are also analyzed at the individual level on the part of managers. Research on entrepreneurial orientation (innovation,

risk-taking, and proactivity) and how it acts concerning organizational capabilities, strategy, and performance, stand out (Deslatte et al., 2021; Deslatte & Swann, 2020). Studies also address the differences in risk perception of managers concerning ordinary citizens (Eckerd, 2014; Donahue et al., 2014) and confirm the influence of risk propensity with the bureaucratic personality (DeHart-Davis, 2007). Others suggest that risk tolerance is a performance function with the decision maker's goals or aspirations (S. Nicholson-Crotty et al., 2017). In this sense, innovation and proactivity emerge as aspects of leadership that influence entrepreneurial performance.

At the organizational level, ethics and integrity are addressed through management systems. A systems approach to managing organizational integrity risks must consider the full range of policies, institutions, representative practices, and actors that work to promote the integrity of public institutions, with close attention to how these elements of the system support or hinder each other (Molina, 2018). Government programs and policies are approached within risk management and decision-making responsibility. For Wise and Freitag (2002), responsibility and risk must be treated as systemic issues within public programs.

Innovation also emerges as a risk-related component in studies from an organizational point of view and can be mediated (organizational innovation) by a culture of organizational risk-taking (Deslatte et al., 2021; S. Wang & Feeney, 2016). By its nature, innovation comes with risks - such as the failure of innovation, its non-adoption by producers or users of a good or service, or its inability to be sustainable in the long term (Brown & Osborne, 2013). Thus, the effective management process of innovation requires acceptance and involvement with different types of risk, according to the nature of the innovation.

Other aspects of the institutional bias that have emerged in risk research in Public Administration involve the creation of value. For (Thompson & Rizova, 2015) governments can create public value through risk management. They do this by creating stable institutional structures that allow markets to function effectively.

As for studies of risk in Public Administration, from the environmental perspective, most of the scientific production combines risk with outsourcing contracts, public-private partnerships, and collaborative networks. In this scenario, the issues addressed involve the macro environment and the relationship of the public administration with companies and external people in the development of projects or the provision of decentralized services.

In outsourcing, Farneti and Young (2008) argue about the importance of the governance structure. Before defining the governance model, it is necessary to decide whether to outsource some or all the services. It is also important to consider the different risks that may exist depending on the nature of the outsourced service, especially when it involves the citizen as beneficiary/receiver of the product or service. Therefore, it is necessary to assess the risk associated with poor supplier performance whenever faced with an outsourcing decision.

For Carboni and Milward (2012), government control is limited when privatizing services because services are produced outside the hierarchy. Moreover, the governance of these arrangements is a huge task that is often poorly specified, limiting the State's capacity to understand and manage systemic risk in these arrangements.

Regarding public-private partnerships, Ke et al. (2013) seek to provide information about the impact of poor risk allocation on the performance of a public-private partnership project. Vecchi et al. (2020) analyze the challenges governments face in procurement in times of crisis by COVID-19. Terman et al. (2020) investigate transaction risks in formal and informal collaboration. For the authors, collaboration allows governments to take advantage of the financial and administrative savings when costs are aligned and shared across beneficiary jurisdictions. Among the risks of collaboration are the pursuit of coordination, division, and desertion.

Public networks include interdependent public and private actors working together to produce public services. This interdependence produces some risks that are the subject of some studies. Following this reasoning, the failure of public networks has potentially catastrophic effects for citizens who depend on public services, as well as the failure of the financial system in 2008 (Carboni & Milward, 2012). In this sense, risks become systemic; that is, an entire system of interdependent actors will collapse if one actor fails.

#### 4. FUTURE RESEARCH

Research opportunities offer a variety of paths for further investigation into this exciting new phenomenon of risk in Public Administration. As described in the previous sections, recent research has shown that risk is a multifaceted phenomenon and this area is still underexplored.

Although the idea of risk management is quite old, it was only in 1992 that the term corporate risk management gained prominence, with the publication of the Internal Control – Integrated Framework, by the Committee of Sponsoring Organizations of the Treadway Commission (COSO, 1992). This youth and scarcity of studies make risk a particularly exciting and challenging phenomenon. In this context, we prepared an agenda for future research on risk in Public Administration and highlighted some possibilities of theoretical and methodological resources for its exploration.

Currently, it is possible to identify several promising areas of research that can be developed about the phenomenon of risk in the scope of Public Administration. First, risk lacks studies in which it can be the main actor. Even though it is a new area of organizational studies, the lack of research that addresses risk as something to be managed, with in-depth analysis of the underlying aspects of government organization, reveals a gap to be explored. Studying risk management systems in transitioning governments, for example, can be interesting. Some questions that can guide this process are: How are the risks of discontinuation of planning from previous governments mapped? How are they managed to avoid or minimize transition impacts? How do professionals in the field deal with this change? These questions allow reflections for advances, mainly from an ontological point of view.

Governance structures and audit also promise to be an important research question on risk in Public Administration. Few studies, such as Brown and Osborne (2013), Carboni and Milward (2012), and Farneti and Young (2008), have addressed the issue of governance structure in public service outsourcing, privatization, and public sector innovation. With the advent of business risk management,

the government is also being pressured to reorganize itself to adopt a governance structure that makes it possible to manage its risks. This involves information system, control and technology issues that have not yet been explored as a research area on risk in Public Administration. In this sense, research problems that seek to identify crucial information for the system, those responsible for feeding and their profile, the necessary technologies, monitoring, and evaluation can be explored to identify critical points.

Innovation is also a very contemporary and promising aspect of researching risk in the public sector. Public Administration has always been highly legalistic and bureaucratic, limiting its dynamic and innovative capacity. With the advent of “positive” risk for entrepreneurial organizations, government organizations are faced with this dilemma (bureaucracy vs. entrepreneurship), being conservative or innovating. A good research technique can be to carry out a historical analysis of the trajectory of the public sector and its bureaucratic personality. In addition, scenarios can be projected, and an “ideal entrepreneurial profile” identified for the Public Administration, considering potential gains and risks. Research questions can compare theories about the entrepreneur/innovator profile and public managers or industry professionals: What are the profile characteristics? What are the deficiencies? Are there any differences between public and private sector professionals regarding the propensity to take risks and innovate? What are the causes of this difference in behavior? These issues can be revealing and break paradigms in Public Administration.

Regarding analysis levels, future research may also address aspects of risk at the individual, organizational or environmental levels. At the individual level, cognitive and behavioral issues of the actors involved, entrepreneurial behavior, leadership personality, mediation and negotiation, risk perception and aversion can be further explored. Furthermore, with the issue of citizen participation in government processes, resulting from technological innovations and the creation of digital platforms for popular participation. This series of demands for complex studies will require a more robust approach to risk than the research carried out so far. Analyzing how this process of public agent involvement, users and ordinary citizens in risk management takes place is a gap that has not yet been filled.

There are other potentially exploitable aspects at the organizational level, in addition to the issue of governance structure and internal control systems. Financial gain (or economy), agility in processes and cultural change can be good research opportunities. What financial gains or resource savings can arise for public coffers from good risk management? How can internal processes become more agile and less bureaucratic even if they include new procedures to manage risks? How can an organizational culture with a conservative and bureaucratic identity become entrepreneurial by decreasing risk aversion? These are questions still to be explored or still seldom studied so far.

At the environmental level, risk management has barely studied inter-institutional relations and relations with the public in a macro way, as in the definition of collective actions and policies. Collaborative networks between different government agencies or spheres, for example, is a very opportune area for good risk research. Another exciting and promising factor concerns how risk management can positively impact the target audience. Furthermore, the issues of legislation, external

control and implementation processes of risk management in developing countries are equally promising as a research opportunity.

The findings of this study made it possible to list an extensive and challenging research agenda that can help leverage risk studies in Public Administration. Box 2 summarizes the main theoretical and methodological approaches used in previous studies and the agenda for future research proposed in this study.

**BOX 2 MAIN APPROACHES AND RESEARCH AGENDA**

		Previous Studies		Questions for future research
		Main theories	Main methods used	
Organizational Level	Environmental	<ul style="list-style-type: none"> <li>- Cognitive theory</li> <li>- Game theory</li> <li>- Collaboration theory</li> </ul>	<ul style="list-style-type: none"> <li>- Interviews and questionnaires</li> <li>- Speech analysis</li> <li>- Hypothesis testing</li> </ul>	<p><b>Governments in transition:</b></p> <ul style="list-style-type: none"> <li>- How are the risks of discontinuation of planning from previous governments mapped?</li> <li>- How are they managed to avoid or minimize transition impacts?</li> <li>- How do professionals in the field deal with this change?</li> </ul> <p><b>Bureaucracy vs. entrepreneurship:</b></p> <ul style="list-style-type: none"> <li>- What are the profile characteristics they have? What are the deficiencies?</li> <li>- Are there really any differences between professionals in the public and private sector regarding the propensity to take risks and innovate?</li> <li>- What are the causes of this difference in behavior?</li> <li>- How to use or adapt ERM frameworks (i.e., COSO) for Public Administration?</li> </ul> <p><b>Financial gains (or savings), agility in processes and cultural change:</b></p> <ul style="list-style-type: none"> <li>- Are the financial gains or resource savings that can arise for public coffers from good risk management?</li> <li>- How can internal processes become more agile and less bureaucratic even if they do include new procedures to manage risks?</li> <li>- How can an organizational culture with a conservative and bureaucratic identity become entrepreneurial by decreasing risk aversion?</li> </ul>
	Organizational	<ul style="list-style-type: none"> <li>- Economic strategy</li> <li>- Contingency theory</li> <li>- Positive theory and normative theory</li> </ul>	<ul style="list-style-type: none"> <li>- Documentary research</li> <li>- Interviews and questionnaires</li> <li>- Hypothesis testing</li> </ul>	
	Individual	<ul style="list-style-type: none"> <li>- Neo-institutional theory</li> <li>- Theory of risk perception</li> <li>- Theory of relative risk</li> <li>- Leadership theories</li> <li>- Learning theory</li> <li>- Decision theory</li> <li>- Theory of perspective</li> </ul>	<ul style="list-style-type: none"> <li>- Interviews and questionnaires</li> <li>- Hypothesis testing</li> </ul>	

Source: Elaborated by the authors.

These findings are important, as they are a response to future researchers who will develop studies in the area, as they can find here a complete overview of the existing literature in terms of theories, methodologies, governmental areas and organizational levels. In addition, the proposed research agenda meets the aspirations of citizens and managers for a more “managerial” Public Administration.

## 5. FINAL CONSIDERATIONS

This study sought to review the existing literature on risk in Public Administration and outline future directions within this area. A mapping of the academic production published in the 5 (five) main Journals specialized in Public Administration was carried out to achieve this purpose.

As for the objective of outlining future directions, this was achieved as a vast array of research opportunities, potentially unexplored until then, was presented. In addition, some theoretical perspectives used were presented that can be better explored and added to new research questions. Additionally, commonly used methods and techniques were also approached, and some methodological possibilities were projected that meet the dynamics of the risk phenomenon in the scope of Public Administration.

Based on this literature review, the contribution of this study lies in providing future researchers with an overview of existing studies that address the risk phenomenon in the governmental context, enabling them to know the theoretical and methodological perspectives used and the existing gaps so that new studies can effectively contribute to the development of the area. Furthermore, in terms of methodological contribution, the use of classification by government area/sector and organizational level is unprecedented within the scope carried out for this study. Thus, this study contributes theoretically and methodologically to the advancement of the area and contributes in a practical way to professionals who deal with risk in the context of Public Administration, managers, public servants, private partners, among others.

Finally, this study is far from answering all the questions that involve research into the phenomenon of risk in the public area, nor is it capable of fully mapping all the studies carried out so far. Therefore, the analysis proposed and carried out here is limited to academic production published in the five main journals specialized in public administration. In addition, the relationships made by researchers between risk and other organizational factors were explored with greater emphasis, as there are still few studies in the area, and even less when it comes to risk management in the terms proposed by the COSO.

Risk is a multifaceted phenomenon and any attempt to exhaust all its nuances, whether as a research object or organizational factor to be managed, will certainly not be completely successful. Learning to manage risk more efficiently and effectively can be achieved through carefully designed social and technical systems that are incorporated into a continuous organizational, inter-organizational and inter-jurisdictional learning process (Comfort, 2007). This thought reinforces the view of risk complexity and the challenges for researchers and practitioners when approaching it. Nevertheless, researching and managing risks is exciting and promises satisfactory results for the administration area and, in particular, for the public sector.

## REFERENCES

- Bavel, J. J. V., Baicker, K., Boggio, P. S., Capraro, V., Cichocka, A., Cikara, M., ... Willer, R. (2020). Using social and behavioural science to support COVID-19 pandemic response. *Nature Human Behaviour*, 4(5), 460-471. Retrieved from <https://doi.org/10.1038/s41562-020-0884-z>
- Berardo, R., & Lubell, M. (2016). Understanding what shapes a polycentric governance system. *Public Administration Review*, 76(5), 738-751. Retrieved from <https://doi.org/10.1111/puar.12532>
- Bromiley, P., McShane, M., Nair, A., & Rustambekov, E. (2015). Enterprise risk management: review, critique, and research directions. *Long Range Planning*, 48(4), 265-276. Retrieved from <https://doi.org/10.1016/j.lrp.2014.07.005>
- Brown, L., & Osborne, S. P. (2013). Risk and innovation. *Public Management Review*, 15(2), 186-208. Retrieved from <https://doi.org/10.1080/14719037.2012.707681>
- Burke, R., & Demirag, B. (2018). Risk management by SPV partners in toll road public private partnerships. *Public Management Review*, 21(5), 711-731. Retrieved from <https://doi.org/10.1080/14719037.2018.1523450>
- Carboni, J. L., & Milward, H. B. (2012). Governance, privatization, and systemic risk in the disarticulated state. *Public Administration Review*, 72(S1), S36-S44. Retrieved from <https://doi.org/10.1111/j.1540-6210.2012.02670.x>
- Chen, C. A., & Bozeman, B. (2012). Organizational risk aversion: Comparing the public and non-profit sectors. *Public Management Review*, 14(3), 377-402. Retrieved from <https://doi.org/10.1080/14719037.2011.637406>
- Colquitt, L.L., Hoyt, R.E., Lee, R.B. (1999). Integrated risk management and the role of the risk manager. *Risk Management and Insurance Review*, 2(3), 43-61. Retrieved from <https://doi.org/10.1111/j.1540-6296.1999.tb00003.x>
- Comfort, L. K. (2007). Crisis management in hindsight: Cognition, communication, coordination, and control. *Public Administration Review*, 67(s1), 189-197. Retrieved from <https://doi.org/10.1111/j.1540-6210.2007.00827.x>
- Committee of Sponsoring Organizations of the Treadway Commission. (1992). *Internal control, integrated framework: executive summary*. Washington, DC: Author.
- Committee of Sponsoring Organizations of the Treadway Commission. (2004). *Enterprise risk management - integrated framework: executive summary framework*. Washington, DC: Author.
- Currie, G., Humphreys, M., Ucbasaran, D., & McManus, S. (2008). Entrepreneurial leadership in the English public sector: paradox or possibility? *Public Administration*, 86(4), 987-1008. Retrieved from <https://doi.org/10.1111/j.1467-9299.2008.00736.x>
- DeHart-Davis, L. (2007). The unbureaucratic personality. *Public Administration Review*, 67(5), 892-903. Retrieved from <https://doi.org/10.1111/j.1540-6210.2007.00776.x>
- Deslatte, A. (2020). The erosion of trust during a global pandemic and how public administrators should counter it. *The American Review of Public Administration*, 50(6-7), 489-496. Retrieved from <https://doi.org/10.1177/0275074020941676>
- Deslatte, A., & Swann, W. L. (2020). Elucidating the linkages between entrepreneurial orientation and local government sustainability performance. *The American Review of Public Administration*, 50(1), 92-109. Retrieved from <https://doi.org/10.1177/0275074019869376>
- Deslatte, A., Swann, W. L., & Feiock, R. C. (2021). Performance, satisfaction, or loss aversion? A meso-micro assessment of local commitments to sustainability programs. *Journal of Public Administration Research and Theory*, 31(1), 201-217. Retrieved from <https://doi.org/10.1093/jopart/maaa021>
- Donahue, A. K., Eckel, C. C., & Wilson, R. K. (2014). Ready or not? How citizens and public officials perceive risk and preparedness. *The American Review of Public Administration*, 44(S4), 89S-111S. Retrieved from <https://doi.org/10.1177/0275074013506517>
- Eckerd, A. (2014). Risk management and risk avoidance in agency decision making. *Public Administration Review*, 74(5), 616-629. Retrieved from <https://doi.org/10.1111/puar.12240>
- Ezzy, D. (2002). *Qualitative analysis: practice and innovation*. London, UK: Routledge.

- Farneti, F., & Young, D. W. (2008). A contingency approach to managing outsourcing risk in municipalities. *Public Management Review*, 10(1), 89-99. Retrieved from <https://doi.org/10.1080/14719030701763211>
- Grimmelikhuijsen, S., Jilke, S., Olsen, A. L., & Tummers, L. (2017). Behavioral public administration: combining insights from public administration and psychology. *Public Administration Review*, 77(1), 45-56. Retrieved from <https://doi.org/10.1111/puar.12609>
- Ham, H. V., & Koppenjan, J. (2001). Building public private partnerships: assessing and managing risks in port development. *Public Management Review*, 3(4), 593-616. Retrieved from <https://doi.org/10.1080/14616670110070622>
- Head, B. W., & Alford, J. (2015). Wicked Problems: Implications for public policy and management. *Administration & Society*, 47(6), 711-739. Retrieved from <https://doi.org/10.1177/0095399713481601>
- Hinz, V., & Ingerfurth, S. (2013). Does ownership matter under challenging conditions? On the relationship between organizational entrepreneurship and performance in the healthcare sector. *Public Management Review*, 15(7), 969-991. Retrieved from <https://doi.org/10.1080/14719037.2012.757348>
- Jesson, L. K., Matheson, L., & Lacey, F. M. (2011). *Doing your literature review: traditional and systematic techniques*. London, UK: Sage.
- Jilke, S., Olsen, A. L., Resh, W., & Siddiki, S. (2019). Microbrook, mesobrook, macrobrook. *Perspectives on Public Management and Governance*, 2(4), 245-253. Retrieved from <https://doi.org/10.1093/ppmgov/gvz015>
- Kanner, M. D. (2005). A prospect dynamic model of decision-making. *Journal of Theoretical Politics*, 17(3), 311-338. Retrieved from <https://doi.org/10.1177/0951629805052882>
- Ke, Y., Wang, S., & Chan, A. P. C. (2013). Risk misallocation in public-private partnership projects in China. *International Public Management Journal*, 16(3), 438-460. Retrieved from <https://doi.org/10.1080/10967494.2013.825508>
- Kim, Y. (2010). Stimulating entrepreneurial practices in the public sector: the roles of organizational characteristics. *Administration & Society*, 42(7), 780-814. Retrieved from <https://doi.org/10.1177/0095399710377432>
- Lee, D., & Van Ryzin, G. G. (2020). Bureaucratic reputation in the eyes of citizens: an analysis of US federal agencies. *International Review of Administrative Sciences*, 86(1), 183-200. Retrieved from <https://doi.org/10.1177/0020852318769127>
- Liu, B., Lin, S., Wang, Q., Chen, Y., & Zhang, J. (2021). Can local governments' disclosure of pandemic information decrease residents' panic when facing COVID-19 in China? *International Public Management Journal*, 24(2), 203-221. Retrieved from <https://doi.org/10.1080/10967494.2020.1840463>
- Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science*, 29(7), 770-791. Retrieved from <https://www.jstor.org/stable/2630968>
- Moeller, R. R. (2011). *COSO enterprise risk management: establishing effective governance, risk, and compliance processes*. Hoboken, NJ: John Wiley & Sons. Retrieved from <https://doi.org/10.1002/9781118269145>
- Molina, A. D. (2018). A systems approach to managing organizational integrity risks: Lessons from the 2014 veterans affairs waitlist scandal. *The American Review of Public Administration*, 48(8), 872-885. Retrieved from <https://doi.org/10.1177/0275074018755006>
- Morais, E. J. (2005). *Controles internos e estrutura de decisão organizacional: o caso da controladoria do Banco do Brasil* (Dissertação de Mestrado). Universidade Federal do Paraná, Curitiba, PR. Retrieved from <http://hdl.handle.net/1884/34217>
- Munro, E. (2009). Managing societal and institutional risk in child protection. *Risk Analysis*, 29(7), 1015-1023. Retrieved from <https://doi.org/10.1111/j.1539-6924.2009.01204.x>
- Nicholson-Crotty, S., Nicholson-Crotty, J., & Fernandez, S. (2017). Performance and management in the public sector: testing a model of relative risk aversion. *Public Administration Review*, 77(4), 603-614. Retrieved from <https://doi.org/10.1111/puar.12619>
- Paxson, D., & Wood, D. (1998). *The blackwell encyclopedic dictionary of finance*. Oxford, UK: Blackwell Publishers.
- Ricard, L. M., Klijn, E. H., Lewis, J. M., & Ysa, T. (2016). Assessing public leadership styles for innovation: a comparison of Copenhagen,

- Rotterdam, and Barcelona. *Public Management Review*, 19(2), 134-156. Retrieved from <https://doi.org/10.1080/14719037.2016.1148192>
- Roberts, P. S., & Wernstedt, K. (2018). Decision biases and heuristics among emergency managers: just like the public they manage for? *The American Review of Public Administration*, 49(3), 292-308. Retrieved from <https://doi.org/10.1177/0275074018799490>
- Rouillard, L. (2004). Managing risk. *Public Management Review*, 6(1), 95-111. Retrieved from <https://doi.org/10.1080/14719030410001675759>
- Rowe, F. (2014). What literature review is not: diversity, boundaries, and recommendations. *European Journal of Information Systems*, 23(3), 241-255. Retrieved from <https://doi.org/10.1057/ejis.2014.7>
- Schwarz, A., Mehta, M., Johnson, N. A., & Chin, W. W. (2007). Understanding frameworks and reviews: a commentary to assist us in moving our field forward by analyzing our past. *Data Base for Advances in Information Systems*, 38(3), 29-50. Retrieved from <https://doi.org/10.1145/1278253.1278259>
- Souza, F. S. R. N., Braga, M. V. A., Cunha, A. S. M., & Sales, P. D. B. (2020). Incorporation of international risk management standards into federal regulations. *Revista de Administração Pública*, 54(1), 59-78. Retrieved from <https://doi.org/10.1590/0034-761220180117x>
- Swann, W. L. (2016). Modelling the relationship between entrepreneurial orientation, organizational integration, and programme performance in local sustainability. *Public Management Review*, 19(4), 1-24. Retrieved from <https://doi.org/10.1080/14719037.2016.1199729>
- Tepe, M., & Prokop, C. (2018). Are future bureaucrats more risk averse? The effect of studying public administration and PSM on risk preferences. *Journal of Public Administration Research and Theory*, 28(2), 182-196. Retrieved from <https://doi.org/10.1093/jopart/muy007>
- Terman, J. N., Feiock, R. C., & Youm, J. (2020). When collaboration is risky business: the influence of collaboration risks on formal and informal collaboration. *The American Review of Public Administration*, 50(1), 33-44. Retrieved from <https://doi.org/10.1177/0275074019867421>
- Thompson, F., & Rizova, P. (2015). Understanding and creating public value: business is the engine, government the flywheel (and also the regulator). *Public Management Review*, 17(4), 565-586. Retrieved from <https://doi.org/10.1080/14719037.2013.841982>
- Treasury Board of Canada Secretariat. (2001). *Integrated Risk Management: Framework*. Ottawa, Canada: Government of Canada. Retrieved from [https://publications.gc.ca/collections/collection\\_2019/sct-tbs/BT22-78-2001-eng.pdf](https://publications.gc.ca/collections/collection_2019/sct-tbs/BT22-78-2001-eng.pdf)
- Vecchi, V., Cusumano, N., & Boyer, E. J. (2020). Medical supply acquisition in Italy and the United States in the era of COVID-19: the case for strategic procurement and public-private partnerships. *The American Review of Public Administration*, 50(6-7), 642-649. Retrieved from <https://doi.org/10.1177/0275074020942061>
- Wang, S., & Feeney, M. K. (2016). Determinants of information and communication technology adoption in municipalities. *The American Review of Public Administration*, 46(3), 292-313. Retrieved from <https://doi.org/10.1177/0275074014553462>
- Webster, J., & Watson, R. T. (2002). Analyzing the past to prepare for the future: writing a literature review. *MIS Quarterly*, 26(2), xiii-xxiii. Retrieved from <https://www.jstor.org/stable/4132319>
- Weißmüller, K. S. (2022). Publicness and micro-level risk behaviour: experimental evidence on stereotypical discounting behaviour. *Public Management Review*, 24(2), 601-630. Retrieved from <https://doi.org/10.1080/14719037.2020.1862287>
- Weißmüller, K. S., & Vogel, R. (2021). Sector-specific associations, trust, and survival of PPPs: A behavioral experiment based on the centipede game. *Journal of Public Administration Research and Theory*, 31(3), 578-595. Retrieved from <https://doi.org/10.1093/jopart/muaa050>
- Wise, C. R., & Freitag, C. M. (2002). Balancing accountability and risk in program implementation: The case of national fire policy. *Journal of Public Administration Research and Theory*, 12(4), 493-523. Retrieved from <https://doi.org/10.1093/oxfordjournals.jpart.a003545>
- Zhang, F., Welch, E. W., & Miao, Q. (2018). Public organization adaptation to extreme events: mediating role of risk perception. *Journal of Public Administration Research and Theory*, 28(3), 371-387. Retrieved from <https://doi.org/10.1093/jopart/muy004>

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## DATA AVAILABILITY

The entire dataset supporting the study's results is available upon request to the corresponding author Varlei Gomes de Oliveira. The dataset is not publicly available due to copyright issues of the articles used in the literature review.