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PUBLIC INTELLIGENCE FRAMEWORK FOR STRATEGIC DIGITAL CITY SERVICES

MODELO DE INTELIGÊNCIA PÚBLICA PARA SERVIÇOS DE CIDADE DIGITAL ESTRATÉGICA

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ABSTRACT
Objective: To create a public intelligence framework based on an intelligence assessment agent, within the context of strategic digital city services and utilizing model building theory. **Research Methodology**: This study was guided by model building theory, bibliometric research, and correlated public intelligence framework in cities, acting as an inductive research method with original aspects. **Findings Research**: Testing indicates that this original framework functions for three constructs (public intelligence, intelligence assessment agent, and strategic digital city), and can be applied to provide differentiated public services in cities, improving municipal management and expanding the quality of life for residents. **Conclusion**: Reiterates the public intelligence adoption applicability, particularly with regard to the offer of differentiated public services in cities, favoring municipal management and expanding the citizen's quality of life, as well as urban innovation.

Descriptors: Public intelligence. Intelligence assessment agent. Strategic digital city. Urban innovation.

1 INTRODUCTION

Knowledge can provide a base for establishing policies and expanding public service management. City management has faced an increase in factors such as health, education, economy, politics, mobility (COTTINEAU *et al*., 2017; DONAGHY, 2017; TANG *et al*., 2019), and city services (CLARKE; MOSS, 1990),

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which can present notable challenges for municipal decisions. Congestion of public services and a lack of differentiation from the trivial management model present an urban problem that requires resources to find solutions (POLÈSE, 1998; JANNUZZI; JANNUZZI, 2002; NOGUEIRA; LOPES, 2008; CAMPOS; FUSCO, 2009; COSTA, 2010). Within this context, public intelligence frameworks based on an intelligence assessment agent as part of strategic digital city services can assist in the management process and in urban innovation (ARAUJO, 2020). A multi-service approach to the problem must be properly articulated and prepared to deal with the complexity of cities (FARRELL; HICKS, 2020).

When unusual services are identified in a city, public intelligence emerges as a possibility. The use of a non-trivial management framework derived from intelligence concepts in search of differences can be considered public intelligence (GUERREIRO, 2006; ALAIMO, 2016; MAINKA; SIEBENLIST; BEUTELSPACHER, 2018). An intelligence assessment agent selects the best response in a situation based on learning and training and can be used to solve a myriad of common problems (RUSSELL; NORVIG, 2016; WEISS, 1999). One essential factor for strategic digital cities is access to information and services that demand attention from municipal managers and citizens for decision-making (REZENDE; PROCOPIUCK, 2018). These three main components (public intelligence, the intelligence assessment agent, and the strategic digital city) are part of an environment that considers management as a scenario for action, and cities can implement these components (ZIKOPOULOS; EATOM, 2011). Clarity of purpose and long-term vision is required to understand the public management process, and the public sector has particular requirements for policymakers, managers, and citizens (BLUNKETT, 2020; HARTLEY, 2005).

In terms of research problems, public intelligence is still not widely used; this in turn is a management challenge that influences organizational strategies, resulting in low effectiveness and, in turn, restricted quality of life for residents (SØILEN; CHINNADURAI, 2005). There is a growing need for municipal managers to reconcile available resources with the varying interests and needs of citizens, companies, and organizations (governmental as well as non-

governmental). Low management effectiveness impacts these efforts, with negative outcomes for government efforts and quality of life (GRAHAM; HAYS, 1994; PFEIFFER, 2000; CASTELLS, 2002; STEIN, 2017; KAKLAUSKAS *et al*., 2018). The lack information technology resources such as intelligence assessment agents presents another research problem, and hinders city management processes. Similarly, cities do not always provide managers and citizens with the information needed for effective decision making (BURES; OTCENASKOVA; JASIKOVA, 2012).

Although advances in technology are positively impacting sustainable development in some countries, public management practices are generally still slow to adopt innovations in processes of city administration (MADEIRA; GUIMARÃES; MENDES, 2017). Digital technology is not neutral, and has been present in public services over time (KATTEL; LEMBER; TÕNURIST, 2019). Continued debates on the credibility and effectiveness of public services require a continuous change agenda in cities (BICHARD, 2020). Furthermore, there is limited knowledge about the connection between motivation in public service and job performance by public servants (MIAO *et al*., 2018). At the same time, strategic positioning and structural alignment in the public sector are generally neglected, and updates to strategic management capabilities require regular review at different levels in the public sector (JACOBSEN; JOHNSEN, 2020; NAKROŠIS; ŠIUGŽDINIENĖ; ANTANAITĖ, 2020).

The lack of information technology resources and strategies in cities negatively impacts management results (DAVIES, 2000; BRUIJN; 2006; MARTINS; MARINI, 2010). Open government data that acts as a foundation for strategic digital cities and smart cities is still scarce, hampering dynamics and management (LODATO; FRENCH; CLARK, 2018). Political inclusion in strategic and smart city projects is still precarious, strategic and smart governance face obstacles in the mobile era, and the current literature does not entirely illustrate the full capacity for innovation in the public sector (DONAGHY, 2017; TANG *et al*., 2019; KAMRASS, 2020; MCMULLIN, 2021). Thus, the need for understanding the models of search and information appropriation is evident in a scenario that is increasingly dependent on technology and the internet

(PALETTA; GONZALEZ, 2019), which is part of people's daily lives (MOURA; COSTA; NAKAGAWA, 2018) and market competitiveness (MUSSA; HORA; CORDEIRO, 2018).

Additional research problems are related to public services in a strategic digital city. The population density in cities can lead to different problems, such as congestion of public services due to demand. City management sees this as a challenge to be overcome, and consequent decisions require models that can facilitate strategic actions when scarcity is demonstrated by a lack of services (POLÈSE, 1998; JANNUZZI; JANNUZZI, 2002; NOGUEIRA; LOPES, 2008; CAMPOS; FUSCO, 2009; COSTA, 2010). Lack of planning and management for strategies, information, and public services through information technology resources hinders competent cities and public organizations. Public service innovations mostly come from the private sector, while both the public context and collaboration are often neglected (CHEN; WALKER; SAWHNEY, 2019), which can also have a negative influence on motivation for public service (RITZ *et al*., 2020). Different forms of governance are included, such as public-private partnerships; because many services are derived from these partnerships and are considered homogeneous, understanding and application may be confused (FLETA-ASÍN; MUÑOZ; ROSELL-MARTÍNEZ, 2019). Another point is the strategic nature of strategic planning, which also generates confusion in its conceptualization, function, and applicability that in turn is reflected in results (BRYSON; EDWARDS; VAN SLYKE, 2017). The strategic gaps in inter-organizational governance are also highlighted (ZHANG, 2021).

The objective is to create a public intelligence framework based on an intelligence assessment agent, within the context of strategic digital city services and utilizing model building theory.

The research question: can a public intelligence framework based on an intelligence assessment agent be created within the context of strategic digital city services?

This research is justified by promoting the use of public intelligence to boost efficiency in public management (GRAHAM; HAYS, 1994; PFEIFFER, 2000; CASTELLS, 2002; STEIN, 2017; KAKLAUSKAS *et al*., 2018; MCMULLIN,

2021), as well as by using the intelligence evaluation agent as a technological solution to aid in the management process (MARTINS; MARINI, 2010). Innovations in urban governance play an important role in city management strategies (PASCHOAL; WEGRICH, 2017). Another justification involves the strategic digital city; access to information and services is essential, and this includes attention to decision making by municipal managers and citizens. As more non-trivial public services are offered, management effectiveness can expand (POLÈSE, 1998; JANNUZZI; JANNUZZI, 2002; NOGUEIRA; LOPES, 2008; CAMPOS; FUSCO, 2009; COSTA, 2010). These non-trivial services involve the characteristics inherent to public intelligence: innovation, creativity, quality, productivity, and effectiveness. Notably, information technology can offer motivation and civic engagement to boost citizen participation (ZHANG; FEENEY, 2019), and can substantially increase citizen co-creation and co-production in public innovation and the public sector (VOORBERG; BEKKERS; TUMMERS, 2014). Research for smart and sustainable solutions is also present in the formulation of public policies and transforms into valuable tools for public planning and management (KARPPI; VAKKURI, 2020; ANSELL; MIURA, 2020). The research justification also includes: city processes standardization that contributes to improving urban performance (ABUBAKRE; FAYOUMI; ELEBURUIKE, 2021); city hyper-automation processes (ZHAO *et al*., 2021), extending to public organizations, also framework integration to the cities' supply chain strategy (SANTOS *et al*., 2021); and the inter-organizational governance effectiveness (ZHANG, 2021). It is also noteworthy that competitive intelligence is focused on strategic and intelligent information management, aiming to achieve better results (CARVALHO *et al*., 2018) both in business management and in city management.

Public intelligence, the intelligent assessment agent, and the strategic digital city are part of an environment that considers management as a scenario for action, where public organizations stand out in implementation. An organization can be an institution, association, or entity that acts for common interests in the political, social, or economic realms. This leads to social transformations, which in the city express the longings of the population,

appropriating informational and service technologies so that interactions occur can resolve these needs. What is notable here is the autonomy and will of citizens, supported by technologies that can stimulate city dynamics by extracting relevant information from data, leading to long-term sustainability and also generating or optimizing services (ZIKOPOULOS; EATON, 2011).

2 LITERATURE REVIEW

2.1 PUBLIC INTELLIGENCE

Intelligence is an essential function in modern organizational management, affecting the management of people and the use of human capital in an organization during a period of time (ERÇETIN; POTAS; KOÇ, 2018). Myburgh (2004), in supporting this affirmation, adds that the production of intelligence does not start from data and information, and only after analysis can it be transformed into shareable knowledge.

The concept of public intelligence can be interpreted as a union of concepts related to innovation, creativity, quality, productivity, effectiveness, sustainability, modernity, financial sustainability, competitive intelligence, and knowledge management (REZENDE, 2012). According to Shapiro (1987), intelligence is the result of other processes: acquisition, memory storage, recovery, combination, comparison, and the way it is used in different media. This concept can be complemented by the notion that intelligence is formed by a combination of synthesized and relevant information which can guide decisions related to the concomitant operations and competitive strategies of an organization or city (JANNUZZI; TÁLAMO, 2012).

2.2 INTELLIGENCE ASSESSMENT AGENT

The intelligence assessment agent adopts the concepts of an intelligent agent to carry out evaluation activities, and can consequently be understood to act in a manner considered the best possible when faced with a certain situation, to address different human problems (RUSSELL; NORVIG, 2016; WEISS, 1999).

Intelligent agents or multi-agents can be found in different natural and artificial phenomena, and offer potential for areas such as economics, health, urban planning, and social sciences. The multi-agent system can be compared to human society, presenting human-like characteristics (SCHURR *et al*., 2005; GRAF, 2009; FERNANDES *et al*., 2016; ABREU *et al*., 2018).

Within this line of activity, instance-based learning is presented as a method of classifying objects based on the closest model of the inserted data. It acts as a form of learning by analogy, and rarely requires the addition of new instances into the database. The system is comprised of nonlinear data, with no linear equations or connections in a neural network that demonstrate knowledge (AHA; KIBLER; ALBERT, 1991; AHA, 1992; CLEARY; TRIGG, 1995). Embedded in the concept of instance-based learning is the k-nearest-neighbors (k-NN) algorithm, an effective non-parametric classification method molded by the closest neighbor (GUO *et al*., 2003).

2.3 STRATEGIC DIGITAL CITY

Unlike the concepts of conventional digital cities and smart cities, the strategic digital city (a concept coined by Rezende [2012]) can be understood as the application of information technology resources in municipal management and in supplying information and information services to municipalities or citizens. This is more comprehensive than simply offering the internet to citizens through conventional telecommunication resources, or digitally including citizens in the global computer network. The strategic digital city is based on strategies to meet different municipal objectives, divided into four subgroups: municipal strategies (to achieve the municipality's objectives), municipal information (to assist citizens and municipal managers in decision making), public services (to boost the quality of life), and information technology resources (REZENDE, 2018).

The strategic digital city subprojects consider different municipal themes that have been consolidated for more than 10 years (REZENDE, 2018; FLORES; REZENDE, 2018; ALMEIDA; REZENDE, 2021; FUMAGALLI, REZENDE, GUIMARÃES, 2021; FLORES, REZENDE, 2022).

2.3.1 Strategy in cities

Las Casas (2001) defines strategy as a means for attaining departmentalized objectives. Strategy can be understood to be a standard or a plan that consistently integrates objectives, mission, policies, and actions for cities or organizations. The impact of strategies in cities is directly related to sustainability, economic development, and resident lifestyle (COOPER; HALL, 2008). As a set of rules for decision-making, the strategy offers a tool for addressing turbulence and existing conditions of change (ANSOFF, 1983; WRIGHT; KROLL; PARNELL, 2000).

2.3.2 Information in cities

Information can be a fundamental resource in supporting strategies, assisting decision-making processes, and controlling organizational operations (MCGEE; PRUSAK, 1994; BEUREN, 1998; ARAÚJO, 2010). Notably, the concept of information in information science originates not from a single concept, but rather from all of them. The state of knowledge, or what is known, should also be considered to define the information. Assessed across the sciences, this concept has distinct yet somewhat similar interpretations (CAPURRO; HJORLAND, 2007).

The generation, storage, analysis, and use of information result from the structure that supports the growth and development of an intelligent organization, adapted to a set of requirements and innovations for its technological field, construing an informational perspective (CHOO, 2006; DETLOR, 2010).

2.3.4 Public services in cities

There are multiple definitions for the concept of public service; Meirelles (2019) defines it as any service provided by the administration or through its delegates, with state norms and controls, which satisfies essential or secondary needs of the community or the simple convenience of the state. Mello (1987) expands this concept by combining formal and material approaches to services.

The notion also extends to a smart and multi-service perspective, requiring a long-term view of the public management process in cities (BLUNKETT, 2020; FARRELL; HICKS, 2020; WHITEMAN, 2020). This scenario reveals the need for changes so that public services can be more effective in cities (BICHARD, 2020; OBADIA; RINNER, 2021).

Just as the private sector focuses on customer service, the public sector concentrates on the centrality of the citizens who receive services or clients for the public sector in general (SCHEDLER; PROELLER, 2000; LÊGREID; CHRISTENSEN, 2017). Public services present problems when they are not connected with public management (FARRELL; HICKS, 2020), generating implications for everyone: policy makers, managers, and citizens (LOPEZ-LEE, 1980; HARTLEY, 2005).

When the complexity of public services is not understood, inefficiency and limitations arise, such as neglect of structural alignment in the public sector (MIAO *et al*., 2018; BICHARD, 2020; JACOBSEN; JOHNSEN, 2020). In addition to professional objectivity, a smart political mind with an integrated view of the work, management, and financial control of the city is needed; this requires public servants with versatile leadership and management in dynamic, multidimensional, and political contexts. As problems emerge (such as the Covid-19 pandemic, for example), public servants face major challenges (WHITEMAN, 2020).

2.3.5 Information technology resources in cities

Information technology (IT) by definition includes not only hardware and software, but also communication networks, the digital network of telecommunications services, data transmission protocols, and other services (MARCOVITCH, 1996). These services are called information systems, and are notable in cities because of their strategic relevance in decision making, in the same way that they stand out for their use in daily activities (GREEF; FREITAS; ROMANEL, 2012; O'BRIEN; MARAKAS, 2013).

Information technology can be understood as a set of computational resources that manipulate data and generate information, making it essential in

strategic city planning (O'BRIEN; MARAKAS, 2013; REZENDE, 2018).

3 RESEARCH METHODOLOGY

Research methodology addresses the preparation of research and describes the steps taken to attain the objectives (NACHMIAS; NACHMIAS 1992; MINAYO, 1999). This study was guided by model building theory, bibliometric research, and correlated models of public intelligence in cities, acting as an inductive research method with original aspects. Model theory can be understood as the study of the construction and classification of structures within specific classes of structures; this is characterized by the creation of structures (or sometimes families of structures) that have some characteristic of interest (HODGES, 1993). Theoretical models are seen as theorized constructions attempting to make an explanation to analyze or clarify a concrete reality. Generation of a model theory occurs at two levels, the descriptive and the normative. However, each contains three different stages: observation, categorization, and association (JAPIASSÚ; MARCONDES, 2001; CARLILE; CHIRISTENSEN, 2005).

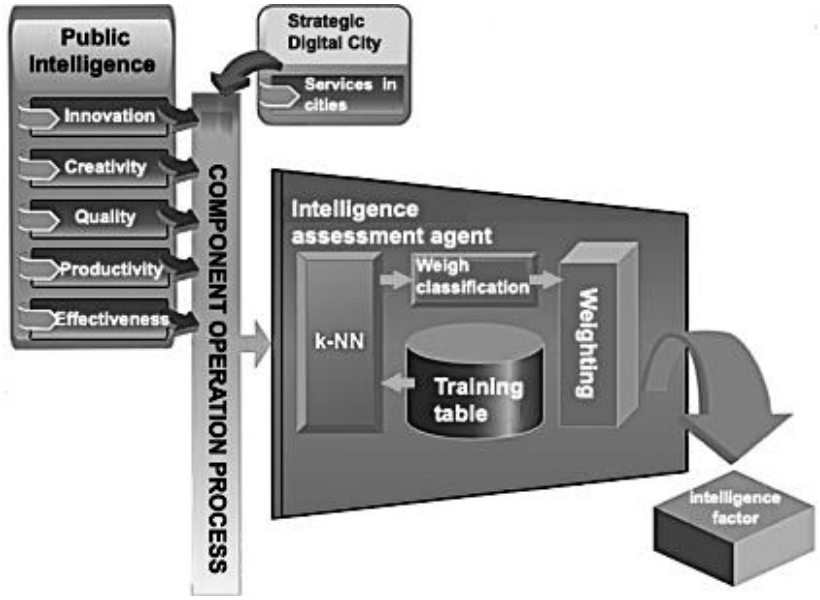
This investigation took place in five phases: in the first, the initial question and exploration was defined, followed by the second stage of constructing the problem, data collection in the third phase, construction and analysis in the fourth stage, and conclusion in the fifth (GIL, 2002).

4 THE PUBLIC INTELLIGENCE FRAMEWORK BASED ON AN INTELLIGENCE ASSESSMENT AGENT WITHIN THE CONTEXT OF STRATEGIC DIGITAL CITY SERVICES

To create the public intelligence framework utilized in this study, which utilized an intelligence assessment agent within the context of the strategic digital city, the k-nearest-neighbor (k-NN) algorithm was used. This information technology resource is adapted to the concepts of instance-based learning. Three constructs were adopted: public intelligence (PI), the intelligence assessment agent (IAA), and the strategic digital city (SDC). PI contains five sub-

constructs, while IAA and SDC have one each. Development of this original framework depicted below permits the use of one of the subprojects within the SDC context: public services (ARAUJO, 2020).

Figure 1 - Intelligence evaluation agent-based public intelligence framework within the context of strategic digital city services



Source: Araujo (2020).

This framework considered characteristics and components utilized by private organizations in order to boost the efficacy of public management, since providing public services that improve the lives of its residents is one of its objectives. In public and more specifically urban management, this mainly occurs through four sub-constructs: municipal strategies, information technology resources, public services, and municipal information. For the SDC, these four sub-constructs must coexist in the form of projects to be elaborated.

Process changes are essential due to variations in existing scenarios as cities seek to meet objectives. Various authors have investigated organizational change and commented on the accelerated speed of social, economic, political, and technological changes and how public organizations need to adapt to these changes (TIENARI; TAINIO, 1999; SENGE, 1999; RODRIGUEZ, 2002; BRAGA; LIMA, FELIX, 2018).

Within this scenario, the SDC can benefit from an intelligence framework with the characteristics of other models that yield improvements for society. While

results in private organizations are obtained through customer satisfaction, they are seen in the public sector through improved quality of life for residents.

The framework developed here contains several innovative characteristics, first by using some aspects obtained from correlated frameworks that are well-founded and tested and should help operationalize the proposed framework of PI within the context of SDC services (ARAUJO, 2020).

The framework works with structured data through a component operations process and an IAA. Results are determined using an intelligence factor (IF), which is notably quantitative. After the IF is obtained, a categorization scale associated with the IF is applied to qualitatively identify the degree of intelligence found in SDC services, thus making it possible to identify the expanded use of PI in the city. Instrumental variables are also a common tool in political science (SOVEY; GREEN, 2011).

The sub-constructs used in the framework present variables that define them through evidence of their existence. Fifteen variables are used in the framework, each related to some sub-construct. PI accounts for five sub-constructs (innovation, creativity, quality, productivity, and effectiveness), while the IAA and SDC constructs have only one sub-construct (factor of intelligence and city services, respectively).

Within the framework, the component operations process relates the quantitative variables associated with the PI and SDC sub-constructs as well as their confluence. This process should result in a vector of variables to be projected for an intelligence evaluation agent.

The IAA uses the k-NN instance-based learning algorithm, along with a weighted classification, to determine an intelligence factor which may be able to determine the degree of PI in the SDC context using a scale. This process is considered to be cyclical; at the end of one cycle, another cycle can be generated once new values are obtained for the variables.

5 RESULTS AND DISCUSSION

Because the framework can be applied to the context of SDC services, it was tested in the city of Curitiba. The spatial delineation was defined according

to the premise that there is no formal evidence of a SDC project. Instead, because the city presented the four components that characterize it as a SDC, practical experiments can be conducted by applying the framework.

This practical experiment focused on verifying the applicability of the framework. A group of services was analyzed and classified according to bands of results for a training table. This table was then used by an intelligent agent for a quantitative classificatory analysis presented as an intelligence factor (IF).

The framework was tested by demonstrating the variables related to the constructs used to develop the framework and simulating with values. The variables were defined according to a research protocol prepared by the authors, and then tested to determine usability.

5.1 Research Protocol or Criteria for Experimentation

The research protocol considered elements related to the research question and its objectives, relevance, delineation, and population to constitute the variables and the form of data analysis. The protocol covers the three constructs: public intelligence, the intelligence assessment agent, and SDC public services.

The framework to construct PI was tested using data from the city's official website. To define the variables in the research protocol and the data origin, the nominative indication of each inserted value was emphasized, as well as the degree attributed to each variable with regard to the sub-constructs.

The agent intelligence assessment construct identifies the degree to which PI is applied by means of the developed framework. The research protocol was developed considering the variable which resulted from the process of implementing the framework.

Municipal public services are an important component of the SDC and need to meet the demands of citizens as well as managerial criteria. The research protocol for the SDC construct was comprised of variables capable of presenting relevant data for the framework of the public service component.

5.2 Framework Construct Demonstrations

The construct was demonstrated by running the framework to test it with the variables and results obtained.

5.3 Demonstration of the Public Intelligence Construct

Evidence of PI in services operationalized with the framework was found based on the characteristics presented in the framework itself. Ten variables were used to test the framework for the PI construct.

Fourteen municipal public services identified through the municipal website were used to demonstrate this construct. Five descriptive variables were used to describe each service, while another five numerical variables indicated the grade obtained for these services.

The results demonstrated the usability of the framework in relation to the PI construct by virtue of the use of its variables.

5.4 Demonstration of the Intelligence Assessment Agent Construct

The IAA uses the intelligence factor (IF) variable because of its operations. This IF is based on the operationalization of the framework.

For this reason, Jupyter Notebook software was used to execute the agent's actions using the k-NN algorithm and consequently test the framework. The public service data for this algorithm were obtained from the municipal website, and fed a forecast file to serve as a database for the IAA.

This in turn generated a training table, with a result of 45.24% for the IF variable.

5.5 Demonstration of the Strategic Digital City Construct

Access to municipal public services was observed through the city of Curitiba’s website, following consultation with the municipality. The values for service name and service description were obtained from the data source. Results for the variables expected quantity of service, executed quantity of service, expected cost of service, and effective cost of service had to be

simulated, since they were not identified in the reported data source. This did not affect the execution of the framework, since it was used for testing purposes.

Testing of the SDC constructs produced data applicable to the PI construct, due to a confluence and integration of the data through the component operations process.

The results for the variables in the SDC construct were satisfactory; the variables service name and service description were directly identified in the city data source via the municipal website. The simulated variables expected quantity of service, quantity of service executed, anticipated cost of service, and effective cost of the service made testing possible and demonstrated the applicability of the framework, although the SDC was not accurately portrayed.

5.6 Comparative Demonstration of the Construct

The services offered and identified in the SDC produced insertions into the framework, offering a result that can assist in decision making. This not only tested the presence of PI in municipal management, but also classified the use of PI via an intelligence factor (IF).

After the IF was obtained, the result classification was used to weight the result and produce a classification based on this same training table, yielding a value of 45.24 with a level of -1, indicating a mid-level degree of effectiveness in measuring the use of PI.

Testing of the variables related to the constructs in this framework (public intelligence, the intelligence assessment agent, and the strategic digital city) indicated that the framework is functional as well as viable according to its theoretical underpinnings. The variables were able to identify the use of PI in the city under investigation, as well as the degree of this use, based on a sample of public services. The constructs were related through sub-constructs that yielded the results presented as variables, demonstrating the usability of the framework in the city under study, and can be applied in other cities.

6 CONCLUSION

Besides knowledge, cities require technological and intelligent alternatives for management, including urban innovation. Developing a public intelligence framework based on an intelligent agent and testing it with city data determined that even though the city did not have a strategic digital city project, it can be characterized as a SDC.

Public management can be supported through technological resources that use public intelligence about services within a SDC context. This is evidenced by identifying the need to maintain these services, resulting in direct and indirect effects on public management. Although these results were not evaluated, they should have an impact on improving quality of life by offering a spectrum of non-trivial services.

This research contributes to the field of public management and technology with its innovative proposal involving constructs and an IAA within the context of services in a strategic digital city, where availability, use, and dissemination play an essential role in decision making. The original framework permitted the investigation of different aspects of the proposed constructs and variables during the different phases of the research. Each of the constructs thus emerges as a procedural phase during the different analyses of the parts that comprise the framework. By indicating the presence or absence of public intelligence in city management (and the proportionality of this existence) needs can be identified for a preventive review of the public services offered to society.

One limitation of this research lies in the use of variables; although they were also found in the literature and confirmed by the real-case analysis, they may need to be expanded or modified in future studies. Another involves using a sample for testing that does not include all the available content. These limitations are the result of the proposal for the framework, which involves only testing to demonstrate the applicability and not a deeper examination to classify the context of strategic digital city services.

The public services offered can be expanded through information technology, with innovation present in its essence. In this way, not only basic

needs can be met, but services that are lacking can be expanded. The results indicate that differentiated public services can provide improvements in quality of life as well as urban innovation in multiple dimensions. Further research is needed to test this framework in other cities and to determine whether similar improvements and benefits can be obtained in other urban settings.

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MODELO DE INTELIGÊNCIA PÚBLICA PARA SERVIÇOS DE CIDADE DIGITAL ESTRATÉGICA

RESUMO
Objetivo: Desenvolver um modelo de inteligência pública com base em um agente de avaliação de inteligência no contexto de serviços de cidade digital estratégica e utilizando a teoria de construção de modelos. **Metodologia**: Este estudo foi norteado pela teoria da construção de modelos, pesquisa bibliométrica e arcabouço de inteligência pública correlata em cidades, atuando como um método de pesquisa indutiva com aspectos originais. **Resultados**: Os testes indicam que esta estrutura original funciona para três construtos (inteligência pública, agente de avaliação de inteligência e cidade digital estratégica) e pode ser aplicada para fornecer serviços públicos diferenciados nas cidades, melhorando a gestão municipal e expandindo a qualidade de vida dos residentes. **Conclusão**: Reitera a aplicabilidade da adoção da inteligência pública, principalmente, no que se refere à oferta de serviços públicos diferenciados nas cidades, favorecendo a gestão municipal e ampliando a qualidade de vida dos cidadãos, bem como a inovação urbana.

Descritores: Inteligência pública. Agente de avaliação de inteligência. Cidade digital estratégica. Inovação urbana.

MODELO DE INTELIGENCIA PÚBLICA PARA

SERVICIOS DE CIUDAD DIGITAL ESTRATÉGICA

RESUMEN
Objetivo: Desarrollar un modelo de inteligencia pública basado en un agente de evaluación de inteligencia en el contexto de servicios estratégicos de ciudad digital y utilizando la teoría de construcción de modelos. **Metodología de la Pesquisa**: Este estudio se guio por la teoría de la construcción de modelos, la investigación bibliométrica y el marco de inteligencia pública correlacionada en las ciudades, actuando como un método de investigación inductivo con aspectos originales. **Resultados**: Las pruebas indican que esta estructura original funciona para tres constructos (inteligencia pública, agente evaluador de inteligencia y ciudad digital estratégica) y se puede aplicar para brindar servicios públicos diferenciados en las ciudades, mejorando la gestión municipal y ampliando la calidad de vida de los residentes. **Conclusión**: Reitera una aplicabilidad da adopción da inteligencia pública, principalmente no que se refiere a la oferta de servicios públicos diferenciados en las ciudades, favoreciendo una gestión municipal y ampliando una cualidad de vida dos ciudadanos, bien como la innovación urbana.

Descriptores: Inteligencia pública. Agente de evaluación de inteligencia. Ciudad digital estratégica. Innovación urbana.

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