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# ELECTRONIC GOVERNMENT AND PROCESS MANAGEMENT IN DECISION-MAKING IN UNIVERSITY MANAGEMENT

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## ABSTRACT

*In a Peruvian university management context, it was proposed that the level of influence of electronic government and process management be determined in decision-making. The proposal was basic, explanatory, correlational - causal. Three hundred forty-one professors from three public universities in Lima were sampled – those surveyed with validated and reliable instruments. The electronic government variable, the Assessing E-Governance Online-Service Quality (EGOSQ), was used (Cronbach's Alpha = 0.971). For Process Management, the Process Management Measurement Scale (EMGpP) was used (Cronbach's Alpha = 0.852). The Decision-making variable was the Decision-Making Measurement Questionnaire (CmTdD) (Cronbach's Alpha = 0.947). Descriptive statistics were used for data analysis, complemented by an Ordinal Logistic Regression (ORL) analysis. The results determined a significant incidence of the average level of the Electronic Government variable and the poor and acceptable levels of Process Management on the poor and regular levels of decision-making, with an incidence that varied between 51.4% and 61.5. %. The conclusions highlighted the importance of e-government and Process Management in improving decision-making and university management, suggesting the need to continue improving these areas to achieve more efficient and effective management, recommending the decision-making variable, and linking it with other management variables, in addition to those addressed in this research.*

**KEYWORDS:** Educational Management, Higher Education, Electronic Government, Decision-Making.

## 1. INTRODUCTION

In today's global society, changes are occurring at breakneck speed, making the integration of virtual and physical worlds a daily reality for citizens. In this context, the structures of modern society are constantly technified, responding to the demands of users and the need for fast processes, accessible with a simple click (Reyes, 2017). However, these advances are not uniformly manifested in all social spheres or in all countries. Uneven developments and different levels of development mean that many public entities are lagging behind. Although they are not alien to the current environment, many do not have the necessary advanced technological resources, which creates a perception of 'imaginary technology' and leads to criticism and discontent when services do not meet expectations (Carvajal, 2012).

In the international arena, Mexico stands out among Latin American countries for its marked digital divides and social inequalities. 45% of the population is dissatisfied with public services due to their inaccessibility, and 55% do not use electronic platforms because they do not receive timely attention, resorting to face-to-face procedures (Vilgis et al., 2023). In the other Latin American countries, educational quality faces challenges typical of the region, such as insufficient allocation of funds, corruption, and political instability, which hinder the continuous implementation of policies in education, science, technology, and innovation (Ruíz-González et al., 2020).

In Peru, despite significant digital growth over the past 16 years, the pandemic reduced this progress by 19.2% due to inequality gaps. The indicators showed a low use of digital platforms, placing the country below the Latin American average (Ruiz-Cueva et al., 2022). The pandemic revealed the lack of effective policies for Digital Government, with problems such as lack of resources, insufficient training, and poor planning of public entities, in addition to decentralization (Valenzuela et al., 2023).

During the Covid-19 pandemic, the public administration experienced a historic breaking point that transformed its structures and functions. This allowed the consolidation of a Peruvian national modernization project that had been stalled. In 2022, a framework law for the modernization of public management was enacted, establishing directives and strategies to implement e-government, promoting a dynamic model of service and interaction with the population, and increasing transparency to reduce corruption and regain social

trust (Marín-Sánchez et al., 2020; Zavaleta, 2023).

From this perspective, political leaders strive to improve and redesign the structure of public organizations, using governance as a key element to connect public management with citizens. They emphasize the need for open e-government to modernize administration and increase the effectiveness of process management. However, some specialists advocate a traditional governance model with elements of technological modernity, due to the risks of total dependence on technology, such as possible system collapses or cyberattacks, which could slow down recovery (Vargas et al., 2017). Although this argument could justify the slow implementation of e-government, it is likely that the real cause is the inefficiency in decision-making and bureaucracy of the Peruvian public system.

The term modernization has been theorized as the ability of the organizational structure of public entities to adapt. However, its meaning is more complex. This is the main reason for developing this research, framed in the neoliberal paradigm adopted by most Western nations for a long time. Thus, a better theoretical understanding of the variables is intended, emphasizing definitions from the scientific-technical rigor of the social sciences. This research will also provide practical information on the expectations and perceptions of university teachers regarding e-government and process management, relating it to the decision-making of university managers. This information will allow a better understanding of the peculiarities of Peruvian public universities and the formulation of relevant recommendations.

In this sense, the proposed objective is to determine the level of influence of e-government and process management in decision-making in a management context of a university in Lima, Peru. The study is justified for two reasons: the provision of improved and contextualized instruments for the post-pandemic phase, and a multivariate analysis approach that will detail the influence of independent variables on the dependent variable and its dimensions, which can be replicated in other universities according to the proposed model. Epistemologically, understanding public management in a university environment will allow us to explore conceptions of change in management paradigms as human constructs in constant evolution, facilitating the explanation of human behavior according to its socio-historical context. From a social perspective, the project seeks an adaptive, dynamic, data-based and real-time governance model, standardizing evaluation and

supervision in decision-making. Smart governance and the acceleration of industrial and academic innovation will create a system adaptable to changing conditions, supporting the development of global legal, technological and educational practices in an ever-changing society.

### 1.1 Theoretical Approach

According to Almarza (2002), chaos theory is based on theoretical models supported by mathematical formulas and experimental techniques to explain the unpredictable and non-linear nature of reality. This theory, initially developed by Prigogine (2004), uses the uncertainty principle to describe how small fluctuations can have significant effects in the future. This author argued that reality is configured through a continuous oscillation between order and chaos, where each state of chaos generates new organized structures (Morin, 2005). This theory is relevant in modern organizational contexts, where rapid changes driven by ICT reflect the turbulence of the environment.

On the other hand, the theory of cybernetics, introduced by Norbert Wiener, focuses on the systems of control and communication between humans and machines. This theory seeks to establish common factors that favor its operation, focusing on processes of transformation and transfer of information to adapt the responses to the needs of the user. Feedback is crucial in this theory to create reliable automated systems (Hulett & Escalante, 2012). Currently, ICTs and supplementary tools are essential for customer service, evidencing the evolution of computer systems towards complex interaction networks that go beyond human interrelation in various areas, including government and business.

The literature reveals interesting glimpses of the links between these variables. In this way, Valdivia (2024) investigated the influence of work performance and administrative management on e-government, using a quantitative, non-experimental and causal correlational approach with three variables. Rodríguez & Alvarado (2023) pointed to the lack of e-government maturity in public entities due to insufficient investment in information technologies and a skills gap among officials, exacerbated by corruption. Bayona-Oré & Oncoy (2023) identified technical, organizational, and semantic barriers in e-government, highlighting the lack of funding as a matter of political will.

Ruiz-Cueva et al. (2022) studied open government and transparency in a state university, finding a good association between these variables, but a great

distrust in the usefulness of electronic platforms due to the lack of an internal strategy. Salazar (2022) concluded that digital government positively influences citizen participation and satisfaction in a district municipality. Tejada (2021) concluded that ICTs modernize public administration, improving services and citizen satisfaction. Díaz-Calderón (2021) found that the functionality of digital government is directly related to citizen satisfaction due to the perception of transparency. Fernández et al. (2021) attributed the failure of the implementation of e-government systems in Peru to social fragmentation and the lack of fair policies. While Flores & Núñez (2021) highlighted the regulatory gaps that prevent the modernization of management in the country.

Valenzuela et al. (2023) analyzed the evolution of digital government in the Americas, highlighting the high citizen acceptability but weaknesses in government implementation. Manoharan et al. (2023) compared the effectiveness of electronic platforms in European municipalities, concluding that continuous quality is essential. In Colombia, Ramirez-Madrid et al. (2022) found a strong positive influence of e-government on citizen perception. Sadik-Zada et al. (2022) noted that e-government reduces corruption, especially in rural areas. Criado (2021) compared the coverage of e-government in developed and emerging countries, highlighting the importance of ICTs.

Khan & Krishnan (2021) and Avazov & Lee (2020) demonstrated the effectiveness of e-government in the management of public services in Uzbekistan. Arredondo et al. (2020) and Revinova & Chavarry (2020) analyzed the relationship between e-government and corruption, highlighting the need for investment in digital infrastructure. Vera & Martínez (2020) and Pariso & Marino (2020) addressed the modernization of the state and the reduction of bureaucracy through e-government in Mexico and Europe, respectively. Butt et al. (2019) and Sundberg (2019) discussed challenges and opportunities of e-government in Pakistan and Europe, highlighting the importance of infrastructure and democracy. Quituizaca-Farfan et al. (2022) explored decision-making in educational and organizational settings, highlighting the importance of education and management in decision-making.

Electronic Government, or e-government, refers to the use of technology to improve the connection between people and government, facilitating services to citizens, businesses, and other organizations. This connectivity encompasses more than the internet,

including various forms of interaction that optimize the provision of public services, reducing paperwork and waiting times, and allowing procedures without time restrictions, which increases state efficiency (Akman et al., 2005; Agrawal et al., 2007). In addition, it implies the creation of policies and administrative measures that improve the quality of care and the exercise of democracy (Rainie & Larsen, 2002).

In Peru, efforts to implement digital government began in late 2010, with regulations such as the Law on the Modernization of the State (Law No. 27658 - PCM, 2002). In 2018, D.S. No. 1412-2018 strengthened the digitalization of public services. However, it was during the Sars-CoV-2 pandemic in 2020 that it was significantly operationalized. In the first quarter of 2021, budgets were allocated to acquire means and equipment, in accordance with regulations such as R.M. No. 065-2021-EF/44, with the aim of improving the management of online services, promoting digital identity and increasing the security of state data.

On the other hand, according to Contreras et al. (2017), process management involves managing an organization through processes to improve quality and meet user needs. Key principles include achieving results and delivering responses aligned with organizational objectives. It is characterized by an arrangement focused on the needs of the user, documenting and regulating defined processes, and visualizing the relationships between plans and recipients. This approach is organized horizontally and transversally, interacting with various units to continuously fine-tune processes.

Contreras et al. (2017) also highlighted three types of processes: strategic, operational, and supportive. Within this framework, benefits such as increased productivity, user satisfaction, quality and execution of goals, and the improvement of resources are achieved, contributing to greater long-term sustainability.

Hidalgo-Bonifaz et al. (2020) expand on this perspective, pointing out that process management is crucial not only for productivity, but also because it provides methodological and technical assistance, improving the feasibility and monitoring of procedures, reducing errors and economic losses, and thus benefiting the organization as a whole.

According to Galdos (2015), decision-making involves analyzing various options to solve an unwanted situation, significantly impacting products, services, and personal or professional development. Decisions must be impartial, prioritizing relevant information and avoiding details that could distort the outcome. The academic literature indicates that data-based evaluations of the

control system are not objective, and several factors can mitigate prejudices and promote valuable decisions (Solomons, 1991).

Making decisions involves choosing the best possible action after careful analysis. This process is constantly evolving, incorporating better elements of judgment to minimize errors and improve service outcomes (Johansen & O'Brien, 2016). Accurate and self-reflective judgments are essential, requiring the location and use of appropriate resources to increase the odds of success.

Lapuente & Van de Walle (2020) and Stoner et al. (1996) highlighted the importance of identifying, selecting, and choosing an appropriate route in decision-making. Robbins & Judge (2010) emphasized that managers face multiple options, and must ensure the best decision. Chiavenato (2006) underscored the relevance of this process for organizational planning, highlighting the need to manage information and reduce risks. Bonome (2009) adds that effective and low-risk alternatives should be considered, evaluating future opportunities to improve the organization.

## 2. METHODOLOGY

The proposed paradigm was the positivist one, corresponding to a quantitative approach. It was a basic type proposal, of explanatory level, causally associating two independent variables that explained the behavior of another dependent one. A non-experimental, correlational-causal design was proposed (Hernández-Sampieri & Mendoza, 2018). A total of 341 professors from three public universities in Lima were sampled. They were surveyed with validated and reliable instruments.

To measure the e-government variable, the Assessing E-Governance Online-Service Quality (EGOSQ) (Agrawal et al., 2009) was used, which had a high reliability (Cronbach's alpha = 0.971). For the variable Process Management, the Process Management Measurement Scale (EMGpP) (Salazar, 2018), (Cronbach's alpha = 0.852) was used. For the variable Decision Making, the Decision Making Measurement Questionnaire (CmTdd) (Bratvold & Begg, 2010) was used, adapted by Galdós (2015) and Johansen & O'Brien (2016) and contextualized by Pecho (2022) (Cronbach's alpha = 0.947).

For data analysis, descriptive statistics were used, complemented by an Ordinal Logistic Regression (RLO) analysis for hypothesis testing. It is also indicated that good research practices were kept constant, using informed consent for each respondent and respecting the identity of each of them.

3. RESULTS

Table 1: Frequencies of the levels of the e-government variable (X1) and their dimensions.

Dimensions and variable Electronic Government	Low		Medium		High	
	n	%	n	%	n	%
D1. Information generated	8	2.3	180	52.8	153	44.9
D2. Interaction on electronic platforms	47	13.8	174	51.0	120	35.2
D3. Integration	33	9.7	178	52.2	130	38.1
<b>Variable: Electronic Government</b>	<b>8</b>	<b>2.3</b>	<b>167</b>	<b>49.0</b>	<b>166</b>	<b>48.7</b>

In the e-Government variable, it was observed that most of the respondents were at the medium level with 49% (167 people), closely followed by the high level with 48.7% (166 respondents), and only 2.3% at the low level (8 people). This suggests that the implementation of e-government in this entity is mainly between the

medium and high levels, which is positive. In the dimensions, the medium level was predominant, especially in D1 (information generated) with 52.8%, and in D3 (integration) with 52.2%. However, in D2 (interaction on electronic platforms), the low level had 13.8%, followed by D3 with 9.7%.

Table 2: Frequencies of the levels of the process management variable (X2) and their dimensions.

Dimensions and variable Process management	Poor		Acceptable		Efficient	
	n	%	n	%	n	%
D1: Strategic processes	46	13.5	175	51.3	120	35.2
D2: Missional or operational processes	41	12.0	156	45.7	144	42.2
D3: Support or support processes	11	3.2	138	40.5	192	56.3
<b>Variable: Process management</b>	<b>13</b>	<b>3.8</b>	<b>184</b>	<b>54.0</b>	<b>144</b>	<b>42.2</b>

For the independent variable Process Management, the majority were at the acceptable level with 54% (184 people), followed by the efficient level with 42.2% (144 respondents), and only 3.8% at the deficient level. The D3 dimension (support or support processes) was the only one with a

predominance at the efficient level (56.3%). The dimensions D1 (strategic processes) and D2 (missional or operational processes) showed dominance at the acceptable level with 51.3% and 45.7%, respectively. The deficient level had notable percentages in D1 (13.5%) and D2 (12.0%).

Table 3: Frequencies of the levels of the decision-making variable (Y) and their dimensions.

Dimensions and variable Decision making	A little		Regular		Well	
	n	%	n	%	n	%
D1: Identifying the situation	17	5.0	212	62.2	112	32.8
D2: Defining the Questionable Situation	24	7.0	158	46.3	159	46.6
D3: Diagnosis of the causes of the situation	28	8.2	165	48.4	148	43.4
D4: Identification of objectives	17	5.0	165	48.4	159	46.6
D5: Transformation in the solution	16	4.7	141	41.3	184	54.0
D6: Evaluation of the chosen selection	61	17.9	145	42.5	135	39.6
<b>Variable: Decision Making</b>	<b>25</b>	<b>7.3</b>	<b>165</b>	<b>48.4</b>	<b>151</b>	<b>44.3</b>

In the dependent variable Decision making, the regular level dominated with 48.4% (165 people), followed by the good level with 44.3% (151 people), and the bad level with 7.3% (25 people). The D5 dimension (transformation in the solution) had 54% at the good level, being the only one with this behavior. The other dimensions predominated at the regular level, highlighting D1 (identification of the situation) with 62.2% and D3 (diagnosis of the causes) with 48.3%. At the bad level, D6 (evaluation of the chosen selection) had 17.9%, followed by D3 with 8.2%.

In the inferential analysis, after the ordinal logistic regression test ( $\alpha = 0.05$ ) it was observed that, for the main contrast, it was observed that both independent variables, Electronic Government (X1) and Process

Management (X2), showed statistical significance on the dependent variable, Decision Making (y). In this case, the Poor and Fair levels of Decision-Making were significant with  $p=0.000$ . The cross-analysis revealed that E-Government (x1) had a significant level at the medium level, while Process Management (X2) showed significance at the acceptable ( $p=0.000$ ) and deficient ( $p=0.022$ ) levels. This indicates a significant influence of the medium level of E-Government and the deficient and acceptable levels of Process Management on the poor and regular levels of Decision-Making in the management of a university in Lima.

For the dependent dimension: Identification of the Situation (D1), statistical significance was found with  $p=0.000$  for the bad and fair levels. E-Government

(X1) was significant only at the medium level ( $p=0.000$ ), while Process Management (X2) showed significance at the acceptable level ( $p=0.000$ ), but not at the deficient level ( $p=0.408$ ). This suggests a

significant influence of the medium level of E-Government and the acceptable level of Process Management on the poor and regular levels of Situation Identification in university management.

**Table 4: Contrasts with RLO between X1 and X2 versus Decision Making (Y) and its dimensions.**

	Estimation	Desv. Error	Forest	gl	Say.	95% confidence interval	
						Lower limit	Upper limit
[Toma decision = Malo (1)]	-6,674	,474	198,301	1	,000	-7,603	-5,745
[Toma decision = Regular (2)]	-2,243	,276	65,941	1	,000	-2,785	-1,702
[Gov. electr= Low (1)]	-25,454	,000	.	1	.	-25,454	-25,454
[Gov. electr= Medium (2)]	-1,802	,307	34,456	1	,000	-2,404	-1,201
[Gov. electr= High (3)]	0a	.	.	0	.	.	.
[Proces management= Deficient (1)]	-2,656	1,158	5,261	1	,022	-4,925	-387
[Process management= Acceptable (2)]	-2,875	,316	82,594	1	,000	-3,495	-2,255
[Process management = Efficient (3)]	0a	.	.	0	.	.	.
[D1 Situac ID = Malo (1)]	-5,473	,403	184,595	1	,000	-6,263	4,684
[D1 Identif situac = Regular (2)]	-,731	,191	14,651	1	,000	-1,105	-,357
[Gov. electr= Low (1)]	-2,093	1,540	1847	1	,174	-5,112	,926
[Gov. electr= Medium (2)]	-2,093	,313	44,831	1	,000	-2,706	-1,481
[Gov. electr= High (3)] <sup>0w</sup>	0a	.	.	0	.	.	.
[Proces management= Deficient (1)]	-1,009	1,219	,686	1	,408	-3,397	1,379
[Process management= Acceptable (2)]	-1,282	,282	20,627	1	,000	-1,835	-,729
[Process management = Efficient (3)]	0a	.	.	0	.	.	.
[D2 Def situation = Bad (1)]	-5,131	,391	172,318	1	,000	-5,898	-4,365
[D2 Def situation = Fair (2)]	-1,266	,207	37,381	1	,000	-1,672	-,860
[Gov. electr= Low (1)]	-1,066	,000	.	1	.	-1,066	-1,066
[Gov. electr= Medium (2)]	-1,066	,260	16,870	1	,000	-1,575	-,557
[Gov. electr= High (3)]	0a	.	.	0	.	.	.
[Proces management= Deficient (1)]	-25,492	,000	.	1	.	-25,492	-25,492
[Process management= Acceptable (2)]	-1,461	,264	30,523	1	,000	-1,979	-,943
[Process management = Efficient (3)]	0a	.	.	0	.	.	.
[D3 diagn causes = Bad (1)]	-5,123	,361	201,518	1	,000	-5,830	-4,416
[D3 diagn causes = Fair (2)]	-1,416	,216	42,996	1	,000	-1,839	-,992
[Gov. electr= Low (1)]	-24,295	,000	.	1	.	-24,295	-24,295
[Gov. electr= Medium (2)]	-,958	,270	12,641	1	,000	-1,487	-,430
[Gov. electr= High (3)]	0a	.	.	0	.	.	.
[Proces management= Deficient (1)]	-2,311	1,034	4,996	1	,025	-4,337	-,285
[Process management= Acceptable (2)]	-2,192	,279	61,504	1	,000	-2,740	-1,644
[Process management = Efficient (3)]	0a	.	.	0	.	.	.
[D4 Item ID = Malo (1)]	-5,779	,395	214,397	1	,000	-6,552	-5,005
[D4 Object ID = Regular (2)]	-1,855	,246	56,894	1	,000	-2,338	-1,373
[Gov. electr= Low (1)]	-,837	1,340	,390	1	,532	-3,463	1,789
[Gov. electr= Medium (2)]	-,837	,284	8,707	1	,003	-1,392	-,281
[Gov. electr= High (3)]	0a	.	.	0	.	.	.
[Proces management= Deficient (1)]	-2,980	1,074	7,704	1	,006	-5,085	-,876
[Process management= Acceptable (2)]	-2,711	,301	81,142	1	,000	-3,301	-2,121
[Process management = Efficient (3)]	0a	.	.	0	.	.	.
[D5 Transformation soluc = Bad (1)]	-7,468	,562	176,318	1	,000	-8,571	-6,366
[D5 Transform solution = Regular (2)]	-3,112	,386	64,891	1	,000	-3,870	-2,355
[Gov. electr= Low (1)]	-24,376	,000	.	1	.	-24,376	-24,376
[Gov. electr= Medium (2)]	-,885	,312	8,080	1	,004	-1,496	-,275
[Gov. electr= High (3)]	0a	.	.	0	.	.	.
[Proces management= Deficient (1)]	-4,405	1,189	13,721	1	,000	-6,736	-2,074
[Process management= Acceptable (2)]	-3,597	,409	77,223	1	,000	-4,400	-2,795
[Process management = Efficient (3)]	0a	.	.	0	.	.	.
[D6 Evaluation selesc = Bad (1)]	-4,586	,345	176,916	1	,000	-5,261	-3,910
[D6 Evaluation selesc = Regular (2)]	-1,446	,216	44,781	1	,000	-1,870	-1,023
[Gov. electr= Low (1)]	-1,569	,000	.	1	.	-1,569	-1,569
[Gov. electr= Medium (2)]	-1,569	,270	33,674	1	,000	-2,099	-1,039
[Gov. electr= High (3)]	0a	.	.	0	.	.	.
[Proces management= Deficient (1)]	-23,699	8595,77	,000	1	,998-	16,871,109	16,823,710
[Process management= Acceptable (2)]	-2,288	,284	64,782	1	,000	-2,845	-1,731
[Process management = Efficient (3)]	0a	.	.	0	.	.	.

For the dimension: Definition of the Situation (D2), both independent variables showed significance ( $p=0.000$ ) for the bad and fair levels. E-Government (X1) was significant at the medium level, while Process Management (X2) was significant only at the acceptable level ( $p=0.000$ ). This indicates a significant influence of the average level of e-Government and the acceptable level of Process Management on the Situation Definition.

Regarding the dimension: Diagnosis of the Causes (D3), both the medium level of Electronic Government ( $p=0.000$ ) and the levels: acceptable ( $p=0.000$ ) and deficient ( $p=0.025$ ) of Process

Management showed significance at the bad and fair levels. This shows a significant influence on the Diagnosis of Causes.

For Objective Identification (D4), E-Government (X1) showed significance at the medium level, while Process Management (X2) was significant at the acceptable ( $p=0.000$ ) and deficient ( $p=0.006$ ) levels.

Finally, both in the Transformation in the Solution dimension (D5) and the Evaluation of the Chosen Selection (D6), both independent dimensions showed significance at the Bad and Fair levels, with E-Government being significant at the medium level and Process Management at the acceptable and deficient levels.

**Table 5: Pseudo-R-squares of X1 and X2 for Decision Making (Y) and their dimensions.**

Dependent Variable and its Dimensions	Cox and Snell	Nagelkerke	McFadden
<b>Dependent Variable: Decision Making</b>	<b>,514</b>	<b>,615</b>	<b>,399</b>
D1: Identifying the situation	,299	,372	,219
D2: Defining the Questionable Situation	,370	,444	,257
D3: Diagnosis of the causes of the situation	,387	,460	,266
D4: Identification of objectives	,372	,454	,271
D5: Transformation in the solution	,513	,630	,428
D6: Evaluation of the chosen selection	,460	,526	,297

According to the general results of the analysis, the levels of influence reflected in the values of the Cox-Snell and Nagelkerke pseudo-R-squares were determined, which indicated a minimum incidence of 51.4% (0.514) and a maximum of 61.5% of the significant levels on the bad and regular categories of the Decision Making variable.

In contrast with D1 (Identification of the situation), the values of the pseudo-R-squares revealed a minimum incidence of 29.9% (0.299) and a maximum of 37.2% on the bad and fair categories. For D2 (Definition of the situation), the values indicated a minimum incidence of 37.0% (0.370) and a maximum of 44.4%.

Regarding D3 (Diagnosis of the causes of the situation), the pseudo-R-squares showed a minimum incidence of 38.7% (0.387) and a maximum of 46%. For D4 (Identification of objectives), the results reflected a minimum incidence of 37.2% (0.372) and a maximum of 45.4%.

In the case of D5 (Transformation in solution), the values of the pseudo-R-squares revealed a minimum incidence of 51.3% (0.513) and a maximum of 63%. Finally, for D6 (Evaluation of the chosen selection), the results indicated a minimum incidence of 46% (0.460) and a maximum of 52.6%. These results underline the significant influence of the variables studied on the bad and fair categories in each dimension evaluated.

#### 4. DISCUSSIONS AND CONCLUSIONS.

The results obtained in the study on e-government indicate that most of the respondents are at an

average level, representing 49% (167 people) of the total units analyzed. Although this result is promising, it is still considered to be in a transition phase towards an optimal level in the management of tools that allow better digital services to be offered at the university. This finding is consistent with previous research, such as that of Rodríguez and Alvarado (2023), who also identified medium levels in an environment similar to that of this study. In addition, high level was the second most frequent category with 48.7% (166 respondents), almost equaling the medium level, suggesting a positive trend towards improvement. However, it is crucial to continue researching to better understand the particularities that may go unnoticed in mass responses, as these singularities are key to historical social changes (Salazar., 2022).

Regarding the independent variable, process management, it was found that most of the respondents were at the acceptable level, representing more than half of the total (184 out of 341 people). This suggests a predisposition towards process work rather than the focus on products characteristic of previous management models (Contreras et al., 2017). This approach was reinforced by the change in the post-COVID-19 work model, which highlighted the importance of process management not only for reasons of productivity and sustainability, but also for its ability to improve the viability and monitoring of procedures, reducing errors and economic losses (Hidalgo-Bonifaz et al., 2020).

Despite these strengths in process management, it is essential not to neglect the other dimensions. Flores and Núñez (2021) recommend implementing programs to strengthen these areas, highlighting the need to standardize processes and promote continuous training using information and communication technologies (ICTs) as key tools. Franciskovic et al. (2020) underscore the importance of leadership and support from authorities to facilitate the work and provide the necessary resources for the implementation of these programs (Huapaya, 2019).

Regarding the dependent variable, decision-making, it was observed that the regular level predominated with about 50% of the respondents, closely followed by the good level. This result is consistent with the independent variables previously analyzed. Decision-making becomes a crucial factor in public management (Galdós, 2015), as it influences the achievement of objectives. However, the 7.3% of people in the bad level indicate the need to improve the credibility of public institutions, which is essential to regain citizen trust (Vera & Martínez, 2020).

The study determined a significant incidence of the medium level of e-government and the deficient and acceptable levels of process management on the poor and regular levels of decision-making in a university in Lima, with a good incidence between 51.4% and 61.5%. This progress is attributed to changes in the style of work due to the pandemic, highlighting the importance of training and training of human capital for institutional development (Robbins & Judge, 2010; Chiavenato, 2006).

Likewise, a significant incidence of the medium level of e-government and the acceptable level of process management was found on the bad and regular levels in the identification of the situation, with an incidence between 29.9% and 37.2%. This indicates a lower acuity in this process, highlighting the need to strengthen this area to improve management (Chiavenato, 2006). In addition, the significant influence of the medium level of e-government and the acceptable level of process management on the bad and fair levels in the definition of the situation ranged from 37.0% to 44.4%. The pandemic has changed paradigms, and it is crucial to consider a wide range of alternatives in decision-making to minimize risks (Bonome, 2009).

On the other hand, there was a significant incidence of the medium level of e-government and the deficient and acceptable levels of process management on the poor and regular levels in the diagnosis of the causes of the situation, with an

incidence between 38.7% and 44.4%. Objectivity is essential at this stage to avoid failures and ensure an accurate diagnosis (Bratvold & Begg, 2010). There was also a significant incidence of the medium level of e-government and the deficient and acceptable levels of process management on the poor and regular levels in the identification of objectives, with an incidence between 37.2% and 45.4%. Clarity in diagnosis facilitates this phase (Bratvold & Begg, 2010), and it is important that the objectives are achievable and evidence-based.

On the other hand, there was a significant incidence of the medium level of e-government and the deficient and acceptable levels of process management on the bad and regular levels in the transformation into the solution, with an incidence between 51.3% and 63.0%. Experience and technological support are key in this phase (Bratvold & Begg, 2010; Pariso & Marino, 2020; Sundberg, 2019; Charalabidis et al., 2019). In addition, a significant incidence of the medium level of e-government and the acceptable level of process management was revealed on the bad and regular levels in the evaluation of the chosen selection, with an incidence between 46.0% and 52.6%. The ability to objectively evaluate options is crucial to the success of this phase (Bratvold & Begg, 2010), and information management is vital to guide policies and operations (Quituzaca-Farfan et al., 2022; Castro, 2022).

By way of conclusions, it is indicated that a significant incidence of the medium level of the e-Government variable and the deficient and acceptable levels of Process Management on the poor and regular levels of Decision Making was determined, with an incidence that varied between 51.4% and 61.5%. Likewise, it was evidenced that the average level of e-Government and the acceptable level of Process Management significantly influenced the bad and regular levels of situation identification, with an incidence between 29.9% and 37.2%. In addition, a significant incidence of these same variables was observed in the poor and regular levels of the definition of the situation, with an impact that ranged between 37.0% and 44.4%.

For the diagnosis of the causes of the situation, the medium level of e-Government and the deficient and acceptable levels of Process Management had a significant impact on the bad and regular levels, with an incidence between 38.7% and 44.4%. Regarding the identification of targets, these same levels of the variables studied showed a significant incidence in the bad and fair levels, varying between 37.2% and 45.4%. The transformation in the solution was also significantly affected by the average level of e-

Government and the deficient and acceptable levels of Process Management, with an incidence between 51.3% and 63.0%. Finally, for the evaluation of the chosen selection, the average level of e-Government and the acceptable level of Process Management significantly influenced the bad and fair levels, with an incidence between 46.0% and 52.6%.

These conclusions highlight the importance of e-Government and Process Management in the

improvement of decision-making and university management, suggesting the need to continue improving these areas to achieve a more efficient and effective management, suggesting that social researchers explore the decision-making variable further. linking it with other management variables in addition to those addressed in this research. In this way, it will be possible to better understand this variable for its future application in similar contexts.

## REFERENCES

- Agrawal, A. (2009). Assessing E-Governance Online-Service Quality (EGOSQ). In M. Janssen (Ed.), *E-Government Development and Diffusion: Inhibitors and Facilitators of Digital Democracy* (pp. 133-148). IGI Global. <https://doi.org/10.4018/978-1-60566-713-3.CH009>
- Agrawal, A., Shah, P., & Wadhwa, V. (2007). EGOSQ-Users' Assessment of e-Governance Online-Services: A Quality Measurement Instrumentation. *Foundations of E-Government*, 3, 231-244. <https://bit.ly/3xSwWRV>
- Akman, I., Yazici, A., Mishra, A., & Arifoglu, A. (2005). E-Government: A global view and an empirical evaluation of some attributes of citizens. *Government Information Quarterly*, 22(2), 239-257. <https://doi.org/10.1016/J.GIQ.2004.12.001>
- Almarza, F. (2002). Chaos Theory. Epistemic interpretation model and solution tool: reconciliation between sciences and humanities. *Writings University Journal of Art and Culture School of Arts*, 14(15), 107-150. <https://bit.ly/3hmt1rx>
- Arredondo, F. G., Vázquez, J. C., & de la Garza, J. (2020). Electronic government and its impact on corruption perceptions in Latin America. *Electronic Government*, 16(3), 223-235. <https://doi.org/10.1504/EG.2020.108454>
- Avazov, S., & Lee, S. (2020). E-Government Adoption in Uzbekistan: Empirical validation of the Unified Model of Electronic Government Acceptance (UMEGA). *ACM International Conference Proceeding Series*, 338-339. <https://doi.org/10.1145/3396956.3397008>
- Bayona-Oré, S., & Oncoy, E. (2023). Interoperability for E-Government: Barriers. *Risti: Revista Ibérica de Sistemas e Tecnologias de Informação Iberian Journal of Information Systems and Technologies*, 4(57), 631-639. <https://www.proquest.com/openview/79f1543b41abfbd28746e5328948246b/1?pq-origsite=gscholar&cbl=1006393>
- Bonome, M. G. (2009). *Rationality in decision-making: analysis of Herbert A. Simon's decision theory*. NetBiblo.
- Bratvold, R. B., & Begg, S. H. (2010). *Making good decisions*. SPE - Society of Petroleum Edits.
- Butt, N., Warraich, N. F., & Tahira, M. (2019). Development level of electronic government services: An empirical study of e-government websites in Pakistan. *Global Knowledge, Memory and Communication*, 68(1-2), 33-46. <https://doi.org/10.1108/GKMC-05-2018-0045/FULL/XML>
- Carvajal, G. (2012). On the technological discourse of modernity. *Colombian Magazine of Philosophy of Science*, 12(25), 37-59. <https://www.redalyc.org/articulo.oa?id=41429046002>
- Castro, D. N. (2022). University management. Contributions from the perspective of Ecuador. *Revista Universidad y Sociedad*, 14(2), 547-553. [http://scielo.sld.cu/scielo.php?script=sci\\_abstract&pid=S2218-36202022000200547&lng=es&nrm=iso&tlng=es](http://scielo.sld.cu/scielo.php?script=sci_abstract&pid=S2218-36202022000200547&lng=es&nrm=iso&tlng=es)
- Charalabidis, Y., Loukis, E., Alexopoulos, C., & Lachana, Z. (2019). The Three Generations of Electronic Government: From Service Provision to Open Data and to Policy Analytics. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 11685 LNCS, 3-17. [https://doi.org/10.1007/978-3-030-27325-5\\_1/COVER](https://doi.org/10.1007/978-3-030-27325-5_1/COVER)
- Chiavenato, I. (2006). *Introduction to the General Theory of Management* (7th ed.). McGraw Hill Inter-American. <https://bit.ly/3fpP7mo>
- Congress of the Republic. (2018, December 9). Digital Government Law - D.L. No. 1412. *El Peruano*, 1691026-1691031. <https://bit.ly/2ND2S70>
- Contreras, F., Olaya, J. C., & Matos, F. (2017). *Management by processes, indicators and standards for information units*. Nuevo Mundo Edits.
- Criado, J. I. (2021). Digital Public Administration in Latin America: Digitalization, Public Innovation, and the Future of Technologies in the Public Sector. In *The Emerald Handbook of Public Administration in Latin America* (pp. 343-374). Emerald Group Publishing Ltd. <https://doi.org/10.1108/978-1-83982-676->

420201014/FULL/XML

- Díaz-Calderón, R. R. (2021). Satisfaction with e-government implementation. *Revista Ciencia Nor@ndina*, 4(2), 61–69. <https://doi.org/10.37518/2663-6360X2021V4N2P61>
- Fernández, A. E. F., Villanueva, J. A., & Reyes, C. A. (2021). Peruvian democracy: failed state, unfinished republic, and no citizenship. *Business Horizon*, 8(1), 438–446. <https://doi.org/10.26495/RCE.V8I1.1656>
- Flores, S. P., & Núñez, L. A. (2021). Process Management in the Framework of the Modernization of Public Management in Peru. *Alpha Centauri*, 2(3), 140–164. <https://doi.org/10.47422/ac.v2i3.54>
- Franciskovic, J., Hamann, A., & Miralles, F. (2020). ICTs, An opportunity for citizen participation in subnational governments. *Republican Review*, 2020(29), 21–46. <https://doi.org/10.21017/REV.REPUB.2020.V29.A85>
- Galdós, G. (2015). *Decision making*. UPC Publishing. <https://doi.org/10.19083/978-612-318-030-0>
- Hernández-Sampieri, R., & Mendoza, C. P. (2018). *Research methodology: The quantitative, qualitative and mixed routes*. Mc Graw Hill Education.
- Hidalgo-Bonifaz, L. A., Márquez-Sañay, F. R., Mesías, G.-E. D., & Cargua-López, R. C. (2020). Process Management in Industry: The Case of the Oil Industry. *Polo del Conocimiento: Revista Científico - Profesional*, 5(2), 395–411. <https://doi.org/10.23857/pc.v5i2.1283>
- Huapaya, Y. A. (2019). Process management toward educational quality in Peru. *Interdisciplinary Peer-Reviewed Journal Koinonia*, 4(8), 243–261. <https://doi.org/10.35381/r.k.v4i8.277>
- Hulett, N. L., & Escalante, P. P. (2012). Electronic Government, An Epistemological Look. *Evaluation and Research*, 7(1), 95–104. <http://bdigital.ula.ve/storage/pdf/evaluacion/v7n1/art08.pdf>
- Johansen, M. L., & O'Brien, J. L. (2016). Decision Making in Nursing Practice: A Concept Analysis. *Nursing Forum*, 51(1), 40–48. <https://doi.org/10.1111/NUF.12119>
- Khan, A., & Krishnan, S. (2021). Moderating effects of business-systems corruption on corruption in basic national institutions and electronic government maturity: Insights from a dynamic panel data analysis. *International Journal of Information Management*, 59, 102349. <https://doi.org/10.1016/J.IJINFOMGT.2021.102349>
- Lapiente, V., & Van de Walle, S. (2020). The effects of new public management on the quality of public services. *Governance*, 33(3), 461–475. <https://doi.org/10.1111/GOVE.12502>
- Manoharan, A. P., Melitski, J., & Holzer, M. (2023). Digital Governance: An Assessment of Performance and Best Practices. *Public Organization Review*, 23(1), 265–283. <https://doi.org/10.1007/S11115-021-00584-8/TABLES/9>
- Marín-Sánchez, O., Rodríguez Landauro, A. J., Marín Machuca, O., Marín Sánchez, U., Gamero C., B. E., & Vértiz Osore, J. J. (2020). Overview of the COVID-19 pandemic. *Villarreal Chair*, 8(1), 2310–4767. <https://doi.org/10.24039/cv202081758>
- R.M. No. 065-2021-EF/44, 1 (2021) (testimony of Ministry of Economy and Finance). <https://bit.ly/3s73OTG>
- Morin, E. (2005). *Introduction to Complex Thinking*. Gedisa.
- Pariso, P., & Marino, A. (2020). From digital divide to e-government: Re-engineering process and bureaucracy in public service delivery. *Electronic Government*, 16(3), 314–325. <https://doi.org/10.1504/EG.2020.108495>
- Pecho, M. C. (2022). *Social responsibility and decision-making in the improvement of the management of recyclable elements of a collection center in a population center of Lima, 2021* [César Vallejo University. Graduate School (PhD Thesis)]. [https://repositorio.ucv.edu.pe/bitstream/handle/20.500.12692/68908/Pecho\\_R\\_MC-SD.pdf?sequence=4&isAllowed=y](https://repositorio.ucv.edu.pe/bitstream/handle/20.500.12692/68908/Pecho_R_MC-SD.pdf?sequence=4&isAllowed=y)
- Law No. 27658.1 (2002) (Testimony of the Executive Power of Peru). [https://cdn.gacetajuridica.com.pe/laley/LEY%2027658\\_LALEY.pdf](https://cdn.gacetajuridica.com.pe/laley/LEY%2027658_LALEY.pdf)
- Prigogine, I. (2004). *Just an illusion?* Tusquets edits.
- Enrique Quituzaca-Farfán, L., Bladimir Vásquez-Bazaran, C., & Alexandra Uriguen-Aguirre, P. (2022). Influence of the external and internal environment on managerial decision-making. *593 Digital Publisher CEIT*, 7(2), 339–354. <https://doi.org/10.33386/593dp.2022.2.1046>
- Rainie, L., & Larsen, E. (2002). *The Rise of the E-Citizen: How People Use Government Agencies' Web Sites*. Pew Research Center. <https://policycommons.net/artifacts/629633/the-rise-of-the-e-citizen/1610941/>
- Ramirez-Madrid, J. P., Escobar-Sierra, M., Lans-Vargas, I., & Montes, J. M. (2022). Government influence on e-government adoption by citizens in Colombia: Empirical evidence in a Latin American context. *PLOS ONE*, 17(2), e0264495. <https://doi.org/10.1371/JOURNAL.PONE.0264495>
- Revinova, S., & Chavarry, D. P. (2020). E-Government and Government Support for the Digital Economy in Latin America and the Caribbean. *Proceedings of the 2nd International Scientific and Practical Conference*

- "Modern Management Trends and the Digital Economy: From Regional Development to Global Economic Growth" (MTDE 2020), 1003–1011. <https://doi.org/10.2991/AEBMR.K.200502.166>
- Reyes, R. (2017). Modernity, Modernism and Technology: conceptions and evaluations. *Revista Comunicación*, 25(2–16), 48–56. <https://doi.org/10.18845/RC.V25I2-16.3183>
- Robbins, S. P., & Judge, T. A. (2010). *Organizational Behavior* (p. 37).
- Rodríguez, V. M., & Alvarado, C. A. (2023). Application of maturity models for the use of electronic government. *Campus Magazine*, 28(35). <https://doi.org/10.24265/campus.2023.v28n35.01>
- Ruiz-Cueva, J., Pinedo-Tuanama, L., Barbarán-Mozo, P., & Pretell-Paredes, L. (2022). Open Government Management and Use of the Transparency Portal in a Peruvian Public University. *UTE Approach*, 13(1), 73–81. <https://doi.org/10.29019/ENFOQUEUTE.799>
- Ruiz-González, C. F., & Briceño-Cotrina, O. S. (2020). Reality and perspective of Higher Education in Peru. *Journal of Science and Technology*, 16(4), 97–108. <https://doi.org/10.22201/IISUE.20072872E.2017.21.216>
- Sadik-Zada, E. R., Gatto, A., & Niftiyev, I. (2022). E-government and petty corruption in public sector service delivery. *Technology Analysis & Strategic Management*, 1–17. <https://doi.org/10.1080/09537325.2022.2067037>
- Salazar, A. (2018). *Administrative management and human talent management and its impact on process management in the National Registry of Identification and Civil Status of the Cercado de Lima, 2017* [César Vallejo University. Graduate School (PhD Thesis)]. <https://repositorio.ucv.edu.pe/handle/20.500.12692/20086>
- Salazar, R. J. (2022). Digital government and citizen participation: perception of public officials on the role of the Peruvian municipality. *University and Society*, 14(S1), 280–288. <https://rus.ucf.edu.cu/index.php/rus/article/view/2631>
- Solomons, D. (1991). Accounting and social change: A neutralist view. *Accounting, Organizations and Society*, 16(3), 287–295. [https://doi.org/10.1016/0361-3682\(91\)90005-Y](https://doi.org/10.1016/0361-3682(91)90005-Y)
- Stoner, J. A. F., Freeman, R. E., & Gilbert, D. R. (1996). *Administración* (6ta ed.). Prentice Hall Hispanoamericana, S.A. <https://www.docdroid.net/qTdJwnK/administracion-6ta-edicion-j-a-f-stoner-r-e-freeman-d-r-gilbert-jr-bypriale-fl-pdf#page=2>
- Sundberg, L. (2019). Electronic government: Towards e-democracy or democracy at risk? *Safety Science*, 118, 22–32. <https://doi.org/10.1016/J.SSCI.2019.04.030>
- Tejada, A. A. (2021). The use of information and communication technologies in the modernization of the system of administration of justice in Peru. *Lex: Journal of the Faculty of Law and Political Science of the Universidad Alas Peruanas*, 19(27), 331–346. <https://doi.org/10.37956/jbes.v4i2.69>
- Valdivia, N. B. (2024). *Influence of work performance and administrative management on the electronic government of the district municipality of La Joya, Arequipa, 2023* [César Vallejo University]. <https://repositorio.ucv.edu.pe/handle/20.500.12692/138011>
- Valenzuela, L. A., Ocaña, Y., Soto, C. V., Cotrina, J. C., & Fuster, D. (2023). E-Government and its Development in the Region: Challenges. *International Journal of Professional Business Review*, 8(1), 11. <https://doi.org/10.26668/businessreview/2023.v8i1.939>
- Vargas, R., Reyes, R. P., & Recalde, L. (2017). Cyber-defense and cybersecurity, beyond the virtual world: Ecuadorian model of cyber-defense governance. *URVIO - Revista Latinoamericana de Estudios de Seguridad*, 20, 31. <https://doi.org/10.17141/URVIO.20.2017.2571>
- Vera, M. C., & Martínez, M. C. (2020). Public policies of electronic governance and corruption in Mexico. *Public Policy and Administration*, 19(3), 133–141. <https://www.ceeol.com/search/article-detail?id=904210>
- Vilgis, V., Jordán, V., & Patiño, A. (2023). *Measuring the Internet Economy in Latin America: The Cases of Brazil, Chile, Colombia, and Mexico*. ECLAC. <https://hdl.handle.net/11362/48908>
- Zavaleta, E. (2023). Corruption in Public Administration and its Impact on Political, Economic and Social Development in the Peruvian Context. *Comuni@cción*, 14(1), 72–85. <https://doi.org/10.33595/2226-1478.14.1.786>