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ABSTRACT

In public administration (PA) literature, there are a number of big questions regarding institutional and organizational factors. Competency formation, availability of resources and citizen empowerment [1] are among them. The importance of big questions must not rely on instrumentality; rather should focus on how and whether they have consequences and value for society [2]. The literature also questions “the paradox of publicness” [3, 4] by referring the “special status of public organization” claim of [5] and “publicness theory” of [6]. Given that public organizations have different characteristics with regard to operational processes and organizational structures operating in a particularized environment [7:6], they pursue different ends [5]. Replying to these big questions, we put forward public sector innovation (PSI) and co-creation of public values (PVs) as particularly important when contextual and conditional indicators are at the table. PVs and innovations in government may serve the government to reorganize PA as a whole through producing holistic and long-term strategies to enhance public service delivery system in a multi-actor-environment. For this we need a functional mediator, thus we employ information and communication technologies (ICTs). Through ICT-led tools, various and differentiated stakeholders can meet on a continuous base to frame the collective ground. For governments, ICTs may well be used to realize collaboration, coordination, and co-creation values that would alleviate some of the issues addressed via the big questions.

CCS CONCEPTS

• **Social and professional Topics** → Computing/technology policy, *Government technology policy*

KEYWORDS

Public sector innovation, public values, ICTs

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1 INTRODUCTION

We, as people and governments, live in a turbulent world. It is so long argued by [8] that stable state as we desire has long before left its place to a dynamic state, in both personal and public meaning. In this transformation, we should accept and analyze the notion of technological change and its all derivatives including ICTs in our public and private life.

As the advances in ICTs continue to transform how the government behaves faster than ever before, they also add novel or additional political and administrative burdens, challenges, and affairs in government business in addition to boosting many opportunities. However, as simply put by [9], we are not aware of the depth and magnitude of the changes induced by transformation around, and they “have often been underestimated”. Public institutions are in need of being aware the changes and react them swift and prompt manner, not with regard to institutional, organizational but perceptual as well due to “pervasive institutional inertia” [9:1-2]. Thus, for operationalization of challenges and opportunities induced by changes and transformation, governments are required to innovate their business, including public service production and delivery, to improve democratic outcomes, and to undertake necessary administrative reforms. In this context innovation in the public sector or PSI refers to the process of managing issues

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in government business through original ways and finding new answers through new ideas, services and/or manners of application [10, 11, 12].

This so-called “accelerated” transformation in the public sector through ICTs use also promotes to co-create public values (PVs). While the potential effects of digitally enabled innovations have been discussed in the literature largely with reference to efficiency and effectiveness gains of governments, recently there has also been growing attention on the public value creation effects of the ICT-led innovations. According to [13:212], innovation is concerned with “the creation of something new – a practice, idea, service delivery approach, technology – in a way that creates value”. Since an innovative government aims to achieve public purposes, it also targets creating public value [14, 15, 12].

Finding an answer to what other value(s) are at stake, or how value(s) can be gathered is not an easy task. To answer this question, we can read the situation backward as: if a government is innovative, it instinctively has the potential to create/establish value(s). If it is required to promote PSI for the lack of availability of resources in public organizations, the initial step should be to respond whether and how the relationship between value and innovation is addressed since establishing a value is also innovative per se. Thus, this study aims to discuss what an innovative government is and how to frame “innovativeness” regarding government business. This discussion should give way to a simple model to visualize the innovativeness level of the government.

In this model, we regard the concept of the public as the administrative body. Therefore, we use two main measurements to qualify public innovativeness as “Government Capacity Growth (GCG)” and “Government Capacity Performance Growth (GCPG)”. The former considers the relative digital progress of a certain government, its budget-based improvement in national level and Open Government Data (OGD) promotions in amount, quality and frequency. Within the context of GCPG, we highlight three main pillars that encourage the innovative structure of the public sector: (i) Supply-Sided Variables (S), (ii) Demand-Sided Variables (D) and Self-Sufficiency Level of Citizens (SS). GCPG evaluate the change in the quantity and quality of public services supplied within the consideration of end-user feeding. Citizens can serve to the model as a feedback mechanism for the innovative initiatives of the government to assess the rate and pace of government response so that this approach improves “citizen consultation mechanism”. The ultimate goal of the innovative government would be to ensure that citizens are self-sufficient to meet their needs in public services provided by ICTs-led projections.

In this paper, in the first part, we present the conceptual backgrounds. Then in the second part, we elaborate on how to innovate in the public sector and co-produce PVs via ICTs. Thereafter we discuss the model and we draw some conclusions in the final part.

2 Conceptual Frameworks

2.1 Public Sector Innovation (PSI)

Regardless of where applied, innovation could be defined as “a new idea, which may be a recombination of old ideas, a scheme that challenges the present order, a formula, or a unique approach which is perceived as new by the individuals involved [16:591]. As [16] stated, this definition includes both technical and managerial aspects of innovation in close connection in organizational settings as it would infer both technical and managerial dimensions in harmony with each other [16:592]. Given the similarities and differences among public and private spheres, there may be some sort of differentiation among various sectors with regard to innovation concept and how it is applied. Knowing that the range and taxonomy of PSI are diverse related to service design, service delivery, managerial and organizational, conceptual, policy and systematic innovation [17] we, in this study, focus on PSI particularly associated with organizational capacity aspects in public sector. Due to some institutional tensions on public sector organizations derived from “publicness” [3, 18], PSI aspects could differ from its counterparts in other spheres. For this very reason, we should be aware of that innovation in the public sector is mainly driven by service improvement [19] and defining, framing and creating of PVs. [20:250] argue that increasing policy complexity and rising citizen expectations urge governments to innovate. Theoretical background traces back to reinventing governments and NPM efforts, particularly under the Clinton administration which established more than 200 labs to make governments more efficient and effective [20:251]. They state that traditional bureaucratic systems lack necessary foundation to acquire capabilities to pursue innovation, moreover they tend to accept changes gradually rather than evolutionary as proposed by innovation [20:251]. Thus the government is also supposed to innovate in organizational and structural terms to align with the requirements of PSI and PVs.

The issue arising from public vs. private cutback management approaches can be tackled on the basis of the common definition of cutback management as “the management of organizational change toward lower levels of resource consumption and organizational activity” [21:180]. This definition can find the best answer for public organizations in the concept of PSI, which refers to the process of dealing with the current issues in an original way and finding new answers through new ideas, services and/or manners of application [10, 11, 12]. The recent studies have revealed the original character of the PSI that an innovative government eventually aims to achieve public purposes, thus create public value(s) [15, 14]. As aligned with other conceptual backgrounds, processes pertaining to PVs require working in harmony, coordination, and co-creation. Thus, starting from the transformation of curricula of public administration departments, we need to develop novel organizational cultures with regard to communication, co-creation, and co-production. For this very point, [19] cites the necessity that PSI requires negotiation and dispute resolution as among the main PVs. Moreover, a recent study [56] argues that

co-creation is functional to generate higher levels of PV among other positive outputs. This is, according to them, co-creation infers the inclusion of non-traditional shareholders and use of ICTs, which would decrease or remove the barriers allowing more room for higher levels of PVs (56:88-89).

2.2 Public Values (PVs)

The changes in the world context, particularly those in political economic, social and environmental fields, lead to a new perspective in public and private sectors. In this continuously changing context, PVs have developed as an alternative paradigm in public administration theory as contradictory to new public management (NPM) paradigm since it has some internal inconsistencies [57, 58]. PV is a relatively new framework coming into prominence in parallel to the inability of NPM to respond to the public need for values as equality, justice and public interest [22:249]. According to Moore [23, 24], public sector managers can create PV in order to tackle with strategic challenges in the public sector similar to private sector managers who create private value in order to realize their strategic goals. In this manner, public managers have to canalize themselves to act in accordance with strategic thinking and entrepreneurship [25:1]. Despite providing a pioneering discussion to PV paradigm, Moore's study lacked an open definition of the concept of PV so as to leave it to public managers' own discretion [23:297, 24:17-23].

The respective ambiguity has been filled with the sequent conceptualizations of [26:132] discussing the definition of "public values", and [27:13-14] inventorying a list of PVs including human dignity and accountability. [27] argue that providing public interest and the common good should be the main concern of the public sector. PV can also be traced into functions and actions that ultimately result in the satisfaction of stakeholders [22:259-260] since PVs are created by multi-actors, not solely by the public sector, but by "private sector, voluntary sector and informal community organizations as well as governments" [28:46]. According to [29:42], PVM has started a change in public service in order to redefine to cope with "the challenges of efficiency, accountability, and equity". PVM provides a legitimate democracy and effective management as a dimension of networked governance in which bottom-up approach and complex networks are at stake in the decision making process [29:41-56].

In the PV framework, public managers consider citizens as effective stakeholders in the process of public service production because it is inclined to lay weight on the promotion of citizens and their interests [30:5]. Since it is argued that the definition of PV infers involvement of public per se [56]. In this venue, [31] argue that utilizing ICTs should also have the generation of PVs embedded in addition to its own functionalities to serve public. Thus, the inclusion of ICTs or ICTs-led innovativeness is expected to foster the generation of PVs, not imperatively to do so. The experience of public services, including a decrease in the numbers of homelessness or the increase of the healthcare opportunities, can be regarded as the generation of PVs in the

context of reflected citizen preferences [32:135]. [33:119] asserts that "ICTs can and do have transformational impacts on public values" but also warn that these impacts are not taken for granted better in every case. Similarly, generation of PVs should not be bound to a stationary or definitive inventory of PVs. We in this study focus on dynamic generation process, rather than ICTs-led innovation is supposed to how/whether to produce certain PVs.

2.3 Using ICTs to Innovate Government and to Create PVs

As we briefly talk about the underlying causal relationships among ICTs as technological change, PSI as government innovation and cutback management in previous parts, we aim to provide a diagrammatic causal interaction among these concepts before carrying on framing the model and the metrics.

Here we argue that the ideal governments as service designers and providers and citizens as service demanders and consumers are about to change for some time due to transformation induced by many factors including technological changes. For this very reason, first, we are about to leave a steady state for a dynamic environment where governments are supposed to welcome citizens and other societal actors as shareholders. Second governments are under increasing pressure to cutback provisional costs, including transactional costs. Thus we argue that governments are required to find feasible and reasonable solutions to overcome the increasing rate of allocations in general terms (i.e. human resources, financial resources, intellectual resources, etc.) to meet challenges and affairs in all government business. Among all other options, innovation, particularly PSI, and PVs co-creation serves for this very purpose. Third, we evaluate input from shareholders, including citizens, as a must in this process since it is a requirement brought by technological transformation process (i.e. access to information, open data, blurring the domainial distinction between government and their subjects). It is also due to legitimacy and trust issues regarding government business at the citizens' side for which concept of PVs presents a remedy. Thus, fourth, ICTs may serve well in this process since it augments stakeholders' engagement including citizens because we need to networked governance operate. Moreover, in relation to the technological transformation process, governments might have an opportunity for their e-government status to convey from informational [34] stage into interactional status via promoting ICTs use.

This is because ICTs are among the most important drivers of innovation promoting creativity, constancy, connectivity, citizen-engagement and courage for long-term progress in newer ideas and models [35, 36, 55]. There is considerable development in the literature claiming that ICTs-driven innovation enables public mechanisms to provide more efficient, interactive, responsive and trustworthy services to citizens [37, 38, 39]. It is emphasized that ICTs help with "improving efficiency and introducing innovation in the delivery of government services, enriching governments' relationships with citizens, and

strengthening trust in, support for and legitimacy of government organizations” [40:143].

ICTs also support citizen-enabled participation in public decision-making processes, particularly at local levels [40:142]. In their discussion, [41] suggest that ICT-related innovation can create PV through facilitating a more responsive and reliable government that enable enhanced interaction with citizens. The improved channels of public participation enabled by ICTs transform the relationship between government and citizens, improve democratic processes and governance, and thus create PV. Therefore, they argue that PV paradigm can be a useful tool to evaluate ICTs’ impacts. Similarly, [38] accentuate the potential of ICTs to create PV, and emphasize that ICTs-related reforms should be evaluated on the basis of their ability to convey the expected value to the public and meeting collective expectations. It is argued that governments not only have the opportunity to improve public service provision effectively and innovatively but also better interact with shareholders by utilizing ICTs [42]. Since the collaboration of governmental agencies may contribute to innovation by learning from each other, ICTs are essential for various inter- and intra-governmental agency collaboration in producing PVs [42]. We also take attractions here to the notion of sustainability, that is to maintain this inter – and intra – organizational interaction on a continuum.

In relation to the power of ICTs in enabling civic engagement and creating PV, [43] point out that public has become more interactive and active contributors of policymaking through timely sharing of information online, collective and real-time discussions on social media, and online mobilization around common policy goals. They argue that as a result of this process, ICTs contribute to the PV creation by forcing governments to improve democratic outcomes, transparency, and public services.

Some studies have focused on the specific nature of the PVs to be created by ICTs. For example, [34] highlights the importance of ICTs in the co-creation of PVs such as safety, security, and prosperity. ICTs-led innovations are particularly found effective in engaging citizens for co-production and crowdsourcing, and are also considered within the framework of a collaboration model [39]. In a similar study, [44] finds that ICTs can successfully create PV by improving public participation, especially when they are used to develop a shared space that enhances community engagement with government. The study demonstrates that in the communities of South Africa where people are concerned about directly interacting with government, ICTs help to organize the members of the community to get together in the same area, share their ideas with the government, and feel that they are appreciated.

Research indicates that ICTs may promote PV creation in a variety of ways. According to [45], PV creation is strongly supported by ICTs, basically due to improved involvement of the public in policy-making and implementation. They explain that social media and other tools provide citizens with a variety of opportunities to engage in decision making that are quick, effective and flexible, and it does not require time-consuming procedures. In addition, they are effective in interacting with

people of similar interests. Accordingly, ICTs contribute to the PV creation by nurturing public involvement, responsiveness, and confidence in the government. Their study also finds that ICTs-led knowledge exchange and collaboration across different organizations allow to progress to a frontier of competing PVs, including responsiveness, public health, and cost-savings [45:199]. In addition, the study demonstrates that public organizations’ ability to increase resource acquirement is boosted by public intelligence analytics and information dissemination, and this, in turn, advances PV goals. [46:86] points out that open government data disclosure using ICTs may also contribute to governmental innovation and public value creation. OGD efforts affiliated with three main PVs as transparency, participation, and collaboration [47] per se. In addition to that, Chatfield & Reddick [48:123] evaluates OGD itself an innovation with regard to public policy and found that state governments that adopted OGD policies earlier have had actively diffused innovation policy across the different government departments. Thus, here, we can focus on a model as a starting point for how the public sector could be innovative with regard to employing ICTs use to boost PVs and adjusting cutback management.

3 PUBLIC INNOVATIVENESS MODEL

To create genuine public values through ICTs-led innovation, as indicated in the conceptual backgrounds of the study, is an operative way to deal with the evolution of stable government into a dynamic government in the turbulent world. Prior studies have discussed various conceptual and operational models to evaluate public sector innovation; however, there seems to be a void of a functional model to explain the process of ICTs-led governmental innovation in terms of value creation. As an operational model that represents how a government delivers value to its beneficiaries as well as how it actually runs innovation through ICTs-enabled implications, we have developed an integrative operational model, namely the Public Innovativeness Model (PIM). This model proposes a process analysis of how public service can be regarded as innovative in reference to ICTs-oriented implementations. The model also can contribute to the enhancement of government performance as cumulative acquisition, but not homogeneous, for both public bodies and the public itself.

To present a fair model for innovativeness, we should focus on the extent to which government supports for ICTs-enabled policies to improve the capability of services and the beneficiaries (thus, shareholders) of services at any particular time. So, the main issue should be the annual change of digitalization rate of services, institutions and/or information. In this study, we regard the concept of public as the offers of an administrative body in framing the minimums of the government innovativeness.

We use two main determinants to qualify public innovativeness as “Government Capacity Growth (GCG)” and “Government Capacity Performance Growth (GCPG)”. GCG and GCPD are the main factors contributing to ICTs-driven

government innovation (Figure 1) that act as gearwheels to run the innovation process and change its speed and direction. The innovation process is, in fact, a complex system that inputs and outputs interact with each other. The main difference between GCG and GCPG is, therefore, the former is the immediate predecessors of the later. The sub-drivers of GCG are, therefore, the inputs of GCPG while the output drivers of GCPG wheel feedback GCG as its inputs.

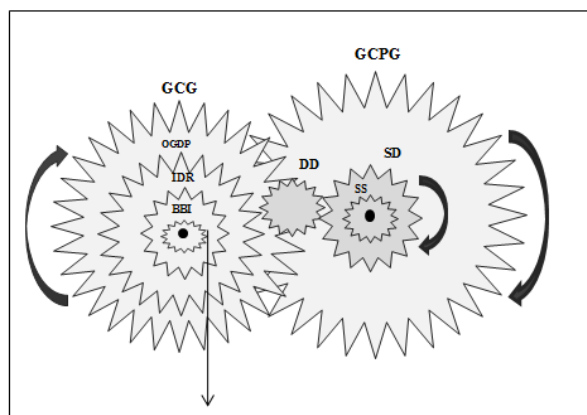


Figure 1: Public Innovativeness Model

GCG considers the budget-based improvement (BBI) of the related body, infrastructural development rate (IDR) and Open Government Data Progress (OGDP) in amount, quality and frequency. BBI refers to the consistency between the periodical increase in the budget of the unit of analysis and spending allocated by the unit for the ICT development during the same period. If the budgeting ratio approaches 1 (one), the unit also approaches to achieve the optimal level of BBI. Each unit cannot have the same budget or priorities so that the amount of funding designated to the related expenditure line would be inequitable and incomplete for the model. This model aims to measure the intent of the unit to ensure policies towards ICT development. The financial support should be supported by a technical improvement and informational database to increase the capacity of the unit. IDR is related to technical improvement including the gradual development of technological capital and human capital. OGDG provides information about the particular issue regularly fed by incremental data so that it would enable the unit to deal with the current issues in an original or new way, thus foster innovation.

Government Capacity Performance Capacity (GCPG) refers to performance budgeting, which ties expenditures and efforts for ICT programs to goals identified for that program. Within the context of GCPG, we highlight three main pillars that encourage the innovative structure of the public sector: (i) Supply-Sided Determinants (SD), (ii) Demand-Sided Determinants (DD) and Self-Sufficiency Level of Citizens (SS). GCPG evaluate the change in the quantity and quality of public services supplied within the consideration of end-user feeding.

Citizens can serve to the model as a feedback mechanism for the innovative initiatives of the government to assess the rate and pace of government response so that this approach improves “citizen consultation mechanism”. This mechanism consists of two-sided determinants, titled as SD and DD. While evaluating the innovativeness level of the public sector, it could be more plausible to monitor the improvement in ICT programs of the unit. The programs should enable citizens to engage in decision-making and digital transformation mechanisms. These opportunities such as education programs, campaigns, digital platforms are called as “auxiliaries” (SD) are supplied tools to understand the complex, unpredictable and changing nature of public expectations. The principal aim of the model is to evaluate the innovativeness of the unit. Therefore, the rate of public participation or the reasons why or why not citizens are eager to participate would not our concern. In this sense, we focus on the response rate and response time of the unit to citizens’ feedbacks while conceptualizing DD. The ultimate goal of the innovative government would be to ensure that both service providers and citizens are self-sufficient to meet their needs in public services provided by ICTs-led projections (SS).

Based on the theoretical framework suggested by [34], innovation in e-governance seems more applicable when the shareholders can establish a bond between the technological transformation of public services and the creation of public value. This interconnection requires a co-productive approach to form a measurement model for innovativeness. The determinants in the model are developed with regard to a meta-analysis conducted by [49] on ICTs utilization for PVs to promote public sector innovation. The analysis has revealed that there are various perspectives and positions raised in the literature to answer what the enablers or barriers before public value(s) creations through ICTs-led innovation are (Table 1).

To designate the progress of the government in ICTs-led innovation alone is not, therefore, adequate on its own to measure actual development level, we also need a guideline indicating some potential directions to government authorities. Since there is an extensive list of factors that complicates measuring the effect of each specific variable on the innovation process, Table 2 categorizes all determinants obtained from the meta-analysis under general headings. It gives a model-based relation between determinants and potential enablers/barriers. This categorization is supposed to simplify the dispersed determinant universe with the intended categories grouping relevant determinants.

Table 1: Enablers and barriers before PV creation through ICTs-led Innovation

Levels	Barriers	Enablers
Citizen-level	<p>The unequal interest of each layer of society in digital involvement</p> <p>Lack of opportunities, abilities, and motivation</p> <p>Digital divide and compatibility of the individuals' lifestyle with the technology</p> <p>Citizen distrust in government</p>	<p>Platform-based public activities for dynamic interaction between platforms, users, and public institutions</p> <p>Collective knowledge creation, while protecting the privacy, and security of the system</p> <p>e-Collaboration</p>
Governmental/Institutional level	<p>Commitment, leadership and support at managerial level</p> <p>Institutional environment</p> <p>Political goals</p> <p>Ideational stuck in efficiency and disregard of democratic outcomes in administrative reforms</p> <p>Complex, unpredictable and changing public expectations</p>	<p>Public service delivery capability</p> <p>Public engagement capability</p> <p>Co-production capability</p> <p>Resource acquisition capability</p> <p>Public-sector innovation capability</p> <p>Ambiguous goals and norms</p> <p>Easier information management and analysis</p>
Barriers to e-government transformation in general	<p>Personnel, technical and financial capacity</p> <p>Legal issues</p> <p>Culture</p> <p>Framing e-governance in terms of its contribution to society and production of PV</p>	Supporting structural, organizational and new collaborative governance models
International level	Disparities between developing and developed countries in governance structures and policy frameworks	To determine what kind of ICT policies work best in countries' unique situation

Source: [49]

Table 2:Relation between the determinants of the PIM and the enablers/barriers before PV creation through ICTs-led innovation

Levels	Barriers	Enablers	Drivers
Citizen-level	The unequal interest of each layer of society in digital involvement Lack of opportunities, abilities, and motivation Digital divide and compatibility of the individuals' lifestyle with the technology Citizen distrust in government	Platform-based public activities for dynamic interaction between platforms, users, and public institutions Collective knowledge creation, while protecting the privacy and security of the system e-Collaboration	BBI SD DD SS
Governmental/Institutional level	Commitment, leadership, and support at managerial level Institutional environment Political goals Ideational stuck in efficiency and disregard of democratic outcomes in administrative reforms Complex, unpredictable and changing public expectations	Public service delivery capability Public engagement capability Co-production capability Resource acquisition capability Public-sector innovation capability Ambiguous goals and norms Easier information management and analysis	CCG DD
Barriers to e-government transformation in general	Personnel, technical and financial capacity Legal issues Culture Framing e-governance in terms of its contribution to society and production of PV	Supporting structural, organizational and new collaborative governance models	CCG DD
International level	Disparities between developing and developed countries in governance structures and policy frameworks	To determine what kind of ICT policies work best in countries' unique situation	Out of context

4 DISCUSSION AND CONCLUSION

We, in this paper, insistently argue that transformation in the public realm requires innovative, shared measures and efforts directed to first understand, then to manage the processes. What is important here is not to take for granted that public is a sole entity, public organizations reflect the same organizational structure and functionality and organizations are universal. Therefore, we argue first that causes and factors inducing a transformation in public sectors seem similar, or the same, however, measures and policies should reflect the sensitivity and authenticity of the public sector, institution or the case in question. Nevertheless, we can denote some basic elements in this process of transformation, its reasons, and its repercussions on organizational setup, its mediators, its barriers/enablers and its causal interaction.

As a start, we see that classical distinction supposed by traditional public administration between the government and its subjects is about to erode due to transformation mainly induced by technological change. This transformational process has some challenges, opportunities, and barriers/enablers. From here, we argue that government, by its existential presence, is to innovate and co-create, if not to decelerate, particularly when

public sector organizations are about to decline, or if there are compelling/prevaling cutback measures.

Among many other things, recession, economic, and following financial crisis [50], or decisions aiming austerity (sometimes bail out) urge governments to take measures, including cutbacks in allocations devoted to public service provision, one of the main justification for the existence of government. [5] sees cutback measures in government business among usual practices as efforts with regard to growth. Nonetheless, when we give a look on the cutback management literature, it seems that there is a need to employ cutback management efforts through a "holistic and long-term perspective rather than a short-term, reductionist approach" [51: 428]. The cutback is of serious concern when increased public service demands collide with the lack of resources [52] due to limitations imposed on government spending. Thus that would be feasible to find novel efforts, as this paper argues like PSI and co-creation of PVs, to tackle the issue since "cutback management is neither easy nor pleasant" [53:257]. As [54] argue that citizen demands for increasing high-quality and need-meeting (i.e. user-friendly, timely and negotiable) public services are at stake, it is not an easy option to cut the allocations back. For this very reason, governments are supposed to invent strategies to improve their organizational structures and

procedural workflows during decline times. In a similar vein, [18] argues that we would benefit from cutback literature “focusing not on strategies for mitigating decline but rather on the role of decline in organizational life cycles and its implications for devising resilient, long-term managerial strategies” [18:561]. Moreover, [3] shares a similar opinion that a holistic and long-term perspective should be preferred instead of short-term and reductionist approach [3:564]. Thus, in this context we argue, in this paper, that efforts directed to PSI and co-creation of PVs through ICTs is of functionality to serve sustainable, devising and resilient and managerial strategy in government business, both in decline and rise times.

All this innovation and PVs coproduction should be mediated by a complex conceptual environment. [49] provide the ranges of enablers and barriers that demonstrate the multivariable nature of ICTs-led innovation promoting PVs. The meta-analysis furnishes collateral evidence to find out the innovation process that it is not an easy task to measure the effect of each specific variable/determinant on the process as a whole. The PIM categorizes all determinants obtained from the meta-analysis under general headings and establishes a model-based relation between determinants and potential enablers/barriers. This categorization is supposed to simplify the dispersed determinant universe with the intended categories grouping relevant determinants. For example, (political) leadership is expected to be of crucial to smooth functioning of this process; otherwise, we might see some cases of societal disruptions that would erode not only the government but also anything constructed. Leadership is supposed first to define aims, provide necessary tools, presuppose regarded processes and devise means and ways to manage communication, conflicts, and competition among all shareholders. Thus, leadership as the mediate effect establishes the substantial factor in improving government capacity and increasing the country-specific IDR. Here we mean an intra-collaboration among government agents and agencies, then an inter-collaboration among shareholders of the government to co-create and co-produce. Thus, it is supposed to design and build adequate capacity growth to run the government institutions first as required in order to smooth functioning capacity performance. If government capacity is not adequate enough, then it would have repercussions on capacity performance growth. At this point, the model presents a conceptual system and flow enabling to cope with the demands and requirements of turbulent times with the tools and processes envisioned by and during stable times rather than observing the effect of every specific factor on the value-creating ICTs-led innovation attempts.

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