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E-GOVERNMENT, STRATEGIC PLANNING AND CO-PRODUCTION: CAN TECHNOLOGY PROMOTE GREATER CITIZEN ENGAGEMENT IN A RAPIDLY CHANGING AND TURBULENT WORLD: THE UNIVERSITY RESPONSE

Nicolae URS
Roger E. HAMLIN
Juanjuan ZHAO
Amanda R. HAMLIN

Abstract

Any large city mayor or public administrator has a sense that the world with which his/her city must interface is turbulent and changing exponentially faster. Advancing communication, transportation and other technologies have made the people of the world increasingly interconnected. Immediate crises such as financial collapse, pandemics, climate change and military tensions bring the negative side of this global phenomenon to the fore. Nevertheless, even in their absence, other incipient, but persistent, and portentous issues are increasingly demanding of public action. Simultaneously, pressure to engage all citizens in public policy debates and decision-making is growing and becoming central to trust in government and the survival of democracies.

The collision of the two forces, turbulence v. demand for increasing public debate and involvement, gives further salience to the notion that science-based technologies are charging ahead while the development of social technologies, such as democratic institutions, are lagging.

This paper looks at several approaches to citizen engagement: co-production, asset-oriented public management, strategic planning, and participatory modeling. It then addresses various forms of e-governance and investigates how new technologies might be used to expand and improve citizen engagement while allowing the government to deal with the more turbulent environment. Some criticisms and cautions are listed. Finally, the paper investigates how well higher education in public administration is responding to the collision through the offering of specialized courses and programs. The methodology was to catalog the course offerings of the top ranked PA programs. The conclusion is that these programs are not adequately responding to the issues presented in this paper.

Keywords: turbulence, e-government, co-production, asset-oriented, strategic, engagement.

Nicolae URS

Associate Professor, Department of Public Administration and Management, Faculty of Political, Administrative and Communication Sciences,
Babeș-Bolyai University, Cluj-Napoca, Romania
Vice-Dean, Faculty of Political, Administrative and Communication Sciences,
Babeș-Bolyai University, Cluj-Napoca, Romania
Tel.: 0040-264-431.505
E-mail: nicolae.urs@fspac.ro

Roger E. HAMLIN

President and CEO of The Michigan State Policy Center at Proaction Institute, Michigan, United States of America
Professor Emeritus, Michigan State University, East Lansing, United States of America
Associated Dean for International Affairs, Faculty of Political, Administrative and Communication Sciences,
Babeș-Bolyai University, Cluj-Napoca, Romania
Tel.: 001-517-580-2500
E-mail: hamlin@msu.edu

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Juanjuan ZHAO
PhD student, School of Public Administration
and Public Policies, Faculty of Political,
Administrative and Communication Sciences,
Babeș-Bolyai University, Cluj-Napoca, Romania
E-mail: zhao@fspac.ro

Amanda R. HAMLIN
English and Writing Instructor, Oakton Community College
in the Chicago, Illinois, United States of America
Tel.: 001-517-580-9131
E-mail: amanda.hamlin@fspac.ro

1. Introduction

This study looks at the turmoil of recent years, wars, financial crises, pandemics, and the accelerating pace of technological and social change. It asks, what are the effects of this turbulence on public administration. Specifically, it investigates the expanding demand and need for citizen involvement and engagement at a time when fast action on the part of public administrator experts is increasingly necessary. The general thesis is that the tension between these two simultaneous forces creates a new set of demands on public administration. While rapid technological change is partly the cause of the problem, it might also be an opportunity. The study views the pros and cons of the use of technology in promoting citizen engagement. Finally, it asks a question that has not been adequately discussed in the literature: are higher education institutions that are preparing people for work in public administration addressing the dilemma?

The methodology is to catalog course offerings by top ranked universities to see whether they are preparing future administrators for the more turbulent world. The outline of the paper is to look first at the background, problem, and need for this study. Second the paper will discuss the relevant literature and current practices regarding the use of technology to promote citizen involvement. It then states a hypothesis and lays out a methodology for testing whether higher education is responding to the described issue. Finally, this study draws some conclusions about the level of higher education response and the implications for theory, practice, and the field of public administration education. The outline of the paper follows that provided in the book, *The Hourglass: A Guide to Writing Research* (Hamlin, 2023).

2. Background, intellectual problem, and the need for research

Most mayors or public administrators of large cities probably have a sense that the world with which their city must interface is moving exponentially faster over time. Tumult can appear with little warning, and advancing communication, transportation and

other technologies have made the people of the world increasingly interconnect in ways that few consciously realize. Immediate crises such as financial collapse, pandemics, climate change and military tensions bring this global phenomenon to the fore. Yet, even in their absence, other incipient, but persistent, and portentous issues increasingly demand public action. In a world-wide, competitive, free-market economy, every city is in essence in competition with every other city for businesses, jobs, and economic stability, requiring constant policy readjustment.

Increasing turbulence might mean that public leaders feel the need to have their hands more firmly on the controls, relying heavily on technical expertise, with less time and patience to deal with the issues raised by average citizens. Yet, simultaneously, pressure to include all citizens in public policy debates and decision-making is growing. A better educated, affluent, connected, and aware population is demanding to play a greater role in the critical decisions that affect their lives. This demand may be, in part, their frustration with the current turmoil.

Trust in public officials may be at a historic low. It is theorized that engaged and involved populations have higher trust in government and less tendency to believe in conspiracies. Furthermore, involved citizens have a more realistic view of what the government does for them, as well as the limitations that governments face when trying to provide public services in an unpredictable environment.

The interaction of these two forces, rapid and turbulent change v. increasing public debate and involvement, can be seen to collide. Rapid change might seem to require greater demand for expertise and reliance on experts to navigate the more complex world, while greater need for citizen engagement might seem to suggest a more patient, common sense, approach to problems and opportunities. Citizen opinions can also change rapidly, and citizen involvement might create the potential for citizens to promote wrong decisions without the time for thorough discussion and education. The collision gives further salience to the notion that science-based technologies are charging ahead. New weapon systems, the application of AI, and new medicines are a few examples of technologies that can dramatically change public debate. While the development of social technologies, such as democratic institutions, are lagging. Because technology also impacts social structures, the science-social technology gap might explain many of the disruptions and challenges faced by public administration, particularly at the sub-national level where needed expertise is in short supply.

This interaction between the rapidity of change and the need for greater participation in public affairs can have both positive and negative consequences. This paper asks a more optimistic question: Can we have it both ways? Can digital technology be applied in ways that promote citizen involvement in decision-making and policy implementation while allowing public administrators to apply expertise to keep up with the tumultuous environment? If so, are future public administrators being prepared by their educational programs to accomplish this.

While the paper does not answer the questions, it provides a comparative international survey of several efforts to address the issue. Ancillary questions that have been raised by

many authors recently include: (1) has the pandemic promoted the use of technology in government?; (2) are these changes persisting after the pandemic?; (3) have the recent uses of technology improved citizen engagement?; and (4) are we training public administrators to navigate this new world of technology and citizen engagement.

3. The literature and current practice: using technology to promote citizen engagement

This section discusses several types of use of technology that have become common, and the research literature related to their effectiveness beginning with a general framework and definition of e-government.

(a) **E-government**

Many terms have been coined to describe the effect and use of digital technology in municipalities over the last two decades, including such things as smart cities, digital government, e-government and e-governance. 'Smart cities' might be the broadest term referring to all uses of technology by both the private and public sector to improve the function of urban environments including such diverse issues as traffic flow, individual communication, and the availability of health care services, to name a few. The operation of government is only part of the equation.

E-governance is the use of technology to enhance access to the delivery of government services to citizens, business partners and employees as well as NGOs and other enhancers of governance. E-government is a narrower concept that focuses on the function of governmental agencies. With advances in computing power, it is difficult to imagine any part of government that does not involve extensive technology and information generation (Gil-Garcia, 2017). So much data is generated that utilizing it might require big data methodologies (Höchtl, Parycek and Schölhammer, 2015).

E-government can be described as having three levels of citizen engagement: (1) one-way information provision, (2) two-way, transactional activities, and (3) use of technology to fully involve citizens in governmental endeavors.

Many states and municipalities brag about the amount of information they provide online, such as budgets, property tax rolls, meeting minutes and videos, crime information, and service schedules to name a few. This informational form of e-government is the most basic type. Yet even this basic informational role can be challenging for localities. Just keeping accurate and up-to-date data and making it available to citizens may be a challenge. Staff may need special training. Out-of-date information in a crisis or rapidly changing environment might do more harm than good. Also, given the continued existence of the digital divide, information might need to be delivered in multiple ways, and privacy concerns can create constraints. Paying trained staff to maintain information systems is expensive, particularly for a small municipality, and the information must be available in an easily understandable format that is meaningful to the average citizen.

A second level of e-government is where citizens carry out their relationship with the government via the internet, such as paying taxes, applying for licenses, registering

complaints, and responding to government opinion surveys, to name some examples. All these services require special software such as 'shopping carts' and payment acceptance programs, often provided by third parties. Most such services are offered by one or more separate departments of the government on the department's or division's web sites. For purposes of privacy and security, each often requires that the citizen establish an online account with an individual ID and password that only works for that service.

While we have not surveyed all systems, looking at those considered the best, gives an idea of the status of this level of e-government. The state of Michigan recently won an award from the Center for Digital Government for the best overall digital experience in the U.S. The state launched a website in 2022, linked to recently redesigned websites for all departments. In one location citizens can find links to approximately 250 governmental services. When citizens access 'Michigan.gov' and click on 'Online Services', they have direct access to all 250 services. A search box allows them to search for a service even if they don't know the exact name of the service, or which department or branch of the government provides the service. These 250 links offer continuously updated information, provide access to forms needed to apply for licenses, and ways to pay bills, and many other types of services. Possible common databases can be accessed to reduce redundancy and common IDs and passwords can be used on many sites. Services for businesses, corporations and NGOs are included.

While impressive, this level of e-governance relationship is still just transactional. E-government should no longer be just a one-way provision of information or even two-way in the sense of citizens providing information or making payments.

The latest e-government efforts should be graded on the degree of citizen engagement promoted, not just information provided, or transactions facilitated. The third level of e-government needs to be about involving stakeholders and building partnerships. It is about improving urban life through the improvement of democratic institutions, not just the function of physical activities or the flow of data.

E-government was promoted by the pandemic; but are the initiatives of the last few years surviving in the post-pandemic era (Steen and Branson, 2020). Furthermore, is e-government being used to increase deep citizen engagement? The literature contains much discussion about how and whether e-government promotes citizen engagement (Haller, Meng-Hao and Mossberger, 2010). Some have even questioned whether transactional-style e-government can sometimes inhibit real citizen involvement in governmental affairs (Lips, 2012). Some claim this happens by allowing public administrators to hide behind a notion that it takes more specialized expertise to properly analyze and utilize the data. Or, that transactional online services lead to a complacency about what can be accomplished online. So, the simple existence of e-government does not necessarily mean improved citizen engagement. Are public administrators educated and trained to administer e-government in a way that enhances engagement?

The following section investigates examples of several types of technology enhanced citizen engagement with examples from Eastern Europe, North America, and Asia.

Technology enhanced tools of citizen engagement: co-production, asset-oriented management, strategic planning and participatory modeling

Co-production – Co-production is a practice in the delivery of public goods and services where citizens are involved in the creation of public policies and their delivery. This contrasts with a transactional method of public service delivery where citizens are primarily consumers and are not involved in planning, design and production of public goods and services. In the transactional environment citizens are to depend on the experts in the public sector to design the correct public goods for them and then to consume those services. In-co-production, service providers and users work in partnership to reach outcomes that are satisfactory to all partners. Some would say that the approach is value driven, meaning that those who are affected by a governmental service bring that intimate knowledge about value to the table. This could be crucial in times of crisis. This approach might require a different set of skills and a different mindset on the part of those administering programs.

Since public-sector co-production involves citizens and public servants working as partners to achieve public goals, such a relationship requires clear communication, particularly about common goals, and a thorough understanding about what each partner has to offer (Boyle and Harris, 2020). This requires both mutual respect and knowledge of the skill, abilities, and attributes of all stakeholders. Citizens are not just clients or customers of public services, but contributors as equals. The education and training needed to prepare public administrators for this kind of role might be quite different from traditional public administration education.

Some claim the concept has been around for a long time. In 1983, Brudney and England (1983) indicated that 'coproduction consists of citizen involvement or participation (rather than bureaucratic responsiveness) in the delivery of urban services. Some say the term 'co-production' in the public sector has scholarly origins, in the work of Nobel Prize winner Elinor Ostrom (1996) and other economists from the 1970s who studied collaboration between government departments and citizens. They found that service delivery was more effective, even when less efficient, when greater collaboration between professional providers and service users existed. Does this conclusion hold true at a time of a fast-moving crisis, such as a pandemic.

In co-production, citizens cooperate with public agencies voluntarily. Loeffler and Bovaird (2016) said: 'Coproduction is public servants and citizens making better use of each other's assets and resources to achieve better outcomes or improved efficiency'. Some suggest that coproduction is a 'huge, untapped resource' that can trigger 'radical innovation in public services' (Osborne and Strokosch, 2013).

In the past decades, governments have (re)discovered the citizen as an important actor in the design, implementation, and monitoring of public policies and services (Brandsen, Verschuere and Steen, 2018). So, the concept of co-production existed well before the pandemic. Moreover, co-production can exist without digital applications. In some ways the pandemic's demand for social distancing was a challenge for such extensive citizen involvement, particularly for those citizens who did not have access to or readily use the internet.

Yet during the pandemic, co-production received attention as it rarely had before as governments needed the help and cooperation of citizens to fight the virus.

As with the description of e-government, co-production can be described as having different levels of engagement from simple voluntary participation and support of a particular governmental service to full involvement in the design, testing, and implementation of governmental activities.

An example with significant post-pandemic application, the Michigan Covid Alert system utilizes voluntary citizen participation to help track and control the spread of a virus. Michigan, and many other places, including Alabama, Colorado, Connecticut, Louisiana, Minnesota, Nevada, North Carolina, Pennsylvania, Utah, Virginia, and Washington (GAO, 2021) utilized a smart phone app, to help track and isolate disease (Weible *et al*., 2020). If a person voluntarily downloads the app and signs up for the program, the app tracks their location and maps their movements in time and space. If the program volunteer tests positive and reports a positive test (voluntarily), the app notifies all participants who were near that person recently via a text message. It suggests that exposed persons might need to quarantine, or at least be tested. The system, known as MICOVID ALERT in Michigan, is totally voluntary and anonymous. There is no need for the affected individuals to know each other, know who tested positive or know where the potential exposure might have taken place. Mapping of the movements of self-reported positive individuals can help the state health department see patterns of disease transmission.

The U.S. General Accounting Office (GAO, 2021) investigated whether and when these kinds of apps work. They concluded that they work, meaning that in general the volunteers did what they were supposed to. A high percentage notified the app if they tested positive and self-isolated and were tested if they were notified of an exposure. It was less clear from the research, the extent to which the use of the apps affected the amount of disease. However, the GAO suggested that these apps might be useable in future pandemics or other health situations.

One obvious technology change impacting government and citizen involvement is the use of Zoom and related technologies. In Chicago, for example, some aldermen (city council members) hold monthly neighborhood meetings to which all citizens may connect. In the meeting citizens may discuss issues and present ideas. Special meetings have also been arranged for certain issues, such as a public hearing, when a developer requests a zoning change, for example. These kinds of meetings are not just arranged to broadcast information but rather to induce citizen input. In some cases, such meetings are legally required and have legal implications. These Zoom meetings have continued after the pandemic. What kind of training do public administrators need to engage citizens in this way?

The city of Chicago has for years had a participatory budgeting process. A certain part of the city's budget is set aside for neighborhood residents to decide how to use. Ideas for use of the funds are put forward at the neighborhood zoom meetings and discussed. A short list of the most popular projects is then presented for neighbors to vote on. During the pandemic this process went totally online with zoom meetings and online voting, which have continued. Some aldermen also continue to distribute a weekly newsletter

online to all citizens, which updates citizens on both city and neighborhood activities, such as the activities of local NGOs, and new businesses. The city of Cluj-Napoca in Romania offers a similar newsletter as do many cities around the world.

ICT-enabled co-production in Guangxi & Nanning – Guangxi Zhuang Autonomous Region is located in the southern part of the P.R.C, and administers the Beibu Gulf area. The capital city is Nanning. Due to the special geographic location and importance for economics and governance, the provincial government of the region designed and planned a comprehensive development agenda, in which ICT plays an important part.

In the Guangxi context, governments from the provincial level to the municipal level have promoted and mobilized different co-productions. Government-lead co-production, partnering with the private sector and citizens are becoming even more important in emergencies, like COVID-19. China-ASEAN Information Harbor Co., Ltd (CAIH), is a joint-stock, market-oriented info-tech company. The Guangxi government built the digital platform and developed certain apps with the technical support from CAIH with the aim to deliver real-time COVID news to the public, locate confirmed cases, vaccination spots, and report policies and measures for pandemic control and prevention. Citizen participation and cooperation in this process is the key point of doing such ICT-enabled co-production. Government is the policy maker and decision maker as well as the main body to collect data. IT company, CAIH mainly provides technical support to build the digital platform and develop apps with shared data to analyze the real-time mobility and show the real situation and results. At the information level, residents in Guangxi were informed by governments in different areas that they can get real time information and search what they wanted to know about the updated news on official portals.

In addition, citizens were told that they should register personal information through the app that checks their locations and confirms that they have no disease exposure. In this way citizens get assigned a QR code on their smartphone indicating their healthy status (Jiaying, 2020; Zhou, Xuefeng and Wang, 2020; Weiling, 2020). The app is similar to the Michigan Alert example discussed above, but goes beyond that function to act as a vaccination visa in some cases. Residents at some periods were required to show their green QR code to take public transit, for example. Residents were willing to participate and cooperate with governments to deal with the crisis partly due to the collaboration experiences they accumulated in the battle with SARS-1 in 2003.

Nanning, capital of Guangxi, plays a key role in implementing digital government and governance. Nanning Municipal Big Data Bureau aims to integrate information and digital data development and relevant projects, implementing digital Nanning construction initiative and coordinating and operating with other stakeholders. Both the provincial government and the municipal government receive political and financial support to promote digital governance transformation at the city level. Digital government, digital economy, digital society, and digital infrastructure are the main areas of Nanning smart city construction.

For example, under the guidance of Guangxi Big Data Bureau and implemented by Nanning Big Data Bureau, a digital online platform called Ai Nanning (Love Nanning)

is built with the technical support from Digital Guangxi Group, which is a public service platform for government affairs at the city level. It strives to provide public services, support government decision-making and collaborative governance, as well as integrate social resources to achieve a new industrial model of sustainable development. Big data is now being used to power AI information service platforms.

The core of this digital platform is people-oriented and service-oriented. The municipal government of Nanning makes the general plan of platform construction and provides financial support. Governments on the administrative-district level follow the plan and make specific recommendations based on the problems and demands of citizens. For example, it describes how to get online public services, contactless services, online identification of private information, online application for business, internet healthcare, internet education, internet recruitment, online interviews, online consultation, etc. Communities in these administrative districts as organizers and facilitators play a key role in doing investigations and communicating with residents.

As Nabatchi, Sancino and Sicilia stated, co-production usually refers to the direct involvement of citizen 'lay actors' with government in voluntarily providing public services that create value for their communities (Nabatchi, Sancino and Sicilia, 2017; McGranahan, 2015; Ostrom, 1996; Linders, 2011). Co-production can involve citizens and community groups, who are better aware of local conditions and help to assure that interventions reflect specific needs and customs (Ostrom, 1990, p. 92). People who work in communities are sometimes public servants, some are volunteers. They are familiar with the residents and their demands as well as the problems in daily management. Meanwhile, residents who would like to be involved in community's affairs communicate with community employees and discuss some issues. Meanwhile, administrative district governments would invite some of the representatives to have face-to-face communication and discussion and listen to their suggestions in order to find the best solutions to solve complicated problems and promote quality of service and public goods and co-design the digital service platform with technical support from companies, as a result, a comprehensive and digitalized governance platform is constructed and citizens can enjoy online services through the smartphone.

At present, Ai Nanning has been fully linked to the government affairs integration platform of Guangxi and Nanning. Services such as tax processing, provident fund deposits, degree inquiry, as well as the implementation of digital ID cards, motor vehicle driver's licenses, and social security e-cards can all be handled on mobile phones. Ai Nanning also allows people to purchase medicine with the social security e-cards in more than 6,000 drug stores in the region. The total number of registrations of Ai Nanning was more than 5 million in 2020.

Furthermore, the municipal government and the Big Data Bureau explore new aspects of digital society construction and deepen the implementation to develop internet healthcare, internet education, and internet elderly care services in order to promote the equity, inclusiveness, and convenience of public services and accelerate urban governance transformation and social governance innovation. Currently, the digital platform of Ai

Nanning has the capability to provide data service for 75 departments. Artificial intelligence can be used to personalize the citizens' access to relevant information.

Digital government played a crucial role in pandemic prevention and control and became a new driving force for shared and open data (United Nations, 2020). The UN research investigated the impact of digital government in decision-making, public service, societal governance, and pandemic prevention and control, and more specifically whether it created a new space and opportunity for co-production as an alternative paradigm for public management (Steen and Brandsen, 2020; Barbier and Burgess, 2020; Naidoo and Fisher, 2020; Li, 2020). Yet, are public managers being prepared for this new complex role?

Asset-oriented public management – Co-production is similar to asset-oriented or strength-based public management (Kretzmann and McKnight, 1993). This is when a community works with all stakeholders to identify the assets of a community. Its focus then becomes to utilize and enhance those assets. Assets might include the physical characteristics of a community such as location, structures, minerals, and climate: but, it also includes the skills, knowledge, commitment and other positive attributes of its citizens. Tapping these social assets may happen through civil society or just through the involvement of single individuals, or, highly engaged co-production.

Maybe asset-oriented public management takes some things a step further. Embedded in the asset-oriented concept is the notion that public management is more effective if it focuses on positive development, rather than continuously attempting to solve perceived problems. This requires the preparation of public administrators with a whole new mind set. In a turbulent world it becomes natural to focus on the negative. Yet, if the public administration focuses too much on identifying and resolving negatively-defined issues, a couple of things might happen, it is theorized. First, many public servants are trained in a particular expertise and hired into a position appropriate to that expertise. It is natural for them to look at community issues through the lens of that expertise and to look for and define problems related to their own expertise. Problems identified by professionals from outside the community, no matter what their expertise, might be different from the issues identified by citizens of the community. Also, since each professional group has its own disciplinary base, their view of issues might be less interdisciplinary and not be as holistic as that of the citizen dealing with issues personally every day. If you give a man a hammer, he will want to hit something with it, or, a little knowledge can be dangerous.

Second, a 'problem' or deficit-orientation, it is postulated, might lead to an unconscious negative perception of citizens by public servants, viewing them, at best, as inferior consumers needing to be taken care of rather than respected co-producers. In a turbulent world, 'experts' might unconsciously define something as a crisis as a way of keeping control and pushing aside 'inexpert' citizens. This situation can lead to minimization of potential citizen contribution to their own community. Such an environment might also induce an adversarial relationship between bureaucrats and citizens, weaken trust and cause low self-esteem by individuals and communities. How the asset-oriented mind set with a greater respect for citizen expertise and involvement plays out in a more turbulent world is still unclear.

Strategic planning – Community involvement in long-range planning is important so as to start with a common vision of the future for any community. Strategic planning or action planning is an attempt to translate long-term visions into short-range objects. These objectives should guide a plan of action that clearly identifies the tasks to be completed, when, who should carry the tasks out, and with what resources. In this case the word 'resources' does not just refer to money. Resources might include all the identified assets of a community including the time and talent of its citizens. Strategy means, using resources in the most effective way possible, by focusing thinking and action on that which is most important to achieve objectives. Moreover, strategy requires that the situation be continuously reassessed, and objectives, actions, tasks and the allocation of resources be periodically adjusted to address changes in the internal and external environment. Citizen involvement is crucial in every step of the process to keep the focus on the needs of the people, not just the visions of technocrats. In many ways, strategic planning with concomitant community action is the foundation of co-production (Hințea, 2008; Hințea and Neamțu, 2014; Hamlin *et al*., 2019).

The word 'strategy' also insinuates an iterative process critical for management in turbulent times, whereby the current situation is continuously monitored, planned actions reassessed and resources reallocated to meet current needs. In a volatile environment constant reassessment while preserving the long-term vision is a difficult skill.

Can the kind of involvement that is necessary be achieved online? The City of Cluj-Napoca, as an example, has engaged in two rounds of strategic planning involving extensive citizen input both face-to-face and online. The efforts were designed and managed by the Faculty of Political, Administrative and Communicative Sciences of Babeș-Bolyai University. The city has had a long-time focus on digital transformation (Fan, Urs and Hamlin, 2019) and a strong relationship with the university (Hințea, Hamlin and Neamțu, 2022).

Participatory modeling – Modeling is an exercise that tries to build simplified simulations that approximate some aspect of the real world. A key characteristic of any real-world system is that many variables affect many others. A system can be visualized as a tinker-toy in which the nodes are variables, and the sticks represent the relationship between connected variables. Participator modeling is where a group of citizens work together, perhaps using a simplistic-modeling computer app, to build a system model of some issue that concerns them. Through discussion, citizen participants decide which variables are most critical and how critical variables affect one another.

An important characteristic of systems that modeling can simulate is that an outside force affecting one part of the system often reverberates throughout the system. Often feedback loops are present. If one tries to push the system in one direction it becomes difficult to know what secondary and tertiary effects will occur. In the end, unexpected and unintended consequences often result. Public policy often fails because policy makers are not adequately sensitive to the potential for such secondary effects and unintended consequences.

Citizen engagement in public policy making can be difficult to manage or induce. Citizens might feel overwhelmed by the complexity of the systems they face. Or contrarily,

they might push hard for some policy without fully understanding how unintended consequences can come back to bite them. Participatory modeling might be a solution. Basically, citizens work together to build the computer model. They come to a consensus about what variables are critical to what they want to accomplish and what are the relationships between these variables. The modeling program can be a user-friendly app that is designed to build simplistic models that simulate the relevant systems. While model design must be controlled by participants, artificial intelligence may help to link the model process to existing big data. Some advocates of the use of artificial intelligence in urban management talk about using AI to build a digital twin city of an existing real city. It would be a big-data-based simulation of many of the interconnected systems of a city which could be used to test out policy proposals or respond quickly to crises.

At the least, the process can be highly educational, allowing citizens to see more clearly how things work. Citizens can test various ideas by feeding them into the model and seeing what happens. If a wicked feed-back loop produces unintended consequences citizens can see that their ideas might have flaws. Or, they might see that doing more than one thing produces positive synergies.

The participatory modeling process might get some people excited to learn more about the world around them and how they affect it. Models can be 'run' over and over to test how well they represent reality. Appropriately applied AI might help the model learn. Then, citizens can refine links and variables. Multiple iterations can also be used to try various ideas. Through modeling one can get a better sense as to which variables are most critical or impactful to outcomes and therefore have a better idea as to where to focus policy (Hubacek *et al.,* 2017). Participatory modeling can be a form of co-production and can help communities identify their most critical assets. It can also promote citizen engagement in the strategic planning process, in some cases utilizing AI. In times of crisis or rapid change, the model might help the community respond with a new strategy more quickly, without bypassing the perspectives of citizens.

Not only might public administrators need training in the specifics of modeling and how to engage citizens in using it, but having a systems-approach mindset might be valuable understanding for all aspects of public policy. Michigan State University has a faculty group working on participatory modeling and will hold a world-wide conference in June of 2024.

(b) **Problems, critique of use of technology to promote citizen involvement and respond to rapid change**

Is it possible that easy access to information reduces peoples' desire to get together and discuss outcomes? Haller, Meng-Hao and Mossberger (2010) look in-depth at whether e-government promotes citizen involvement. They concluded that even when e-government is only used for services and information it still increases citizen engagement suggesting that technology is transforming governance in multiple ways.

Privacy – There is also the obvious question of privacy. Both the MICOVID ALERT app and the Guangxi Healthy QR Code involve individuals providing personal information and allowing themselves to be tracked. Of course, smart phones already have significant

GPS and Bluetooth capability, and most people do not know to turn off locational services for all apps if they do not want to be tracked. Generally, governments that used this kind of app have promised anonymity and a process to destroy tracking data every 24 hours.

The privacy issue relates to all forms of data collection. To what extent should the data collected about an individual be the personal possession of that individual, or to what extent does society have the right to utilize information to the benefit of all of society?

Unconscious redlining – Then there also is the question of community privacy. A rational home buyer, as an example, or anyone choosing a residential location might want to look up data about the level of crime or disease or the quality of schools in each neighborhood they might potentially choose. They might look up the racial and ethnic composition of a location or even want to know the level of home ownership or mortgage debt in an area of a city. Many of these activities might be rational at the personal level, but one question to be answered about the transparent provision of data to the general public is how detailed should that data be, in terms of exact location or other details.

A neighborhood might be experiencing problems and might be working hard to solve those problems, but if the neighborhood is labeled as a problem area because of the data available to the public, solving those problems might become even more difficult, as potential residents and investors decide to shy away from the area. Official governmental census data often has rules blocking data that might allow a particular person to be identified, and conscious redlining by financial institutions is illegal in many countries, but the semi-conscious labeling of a neighborhood as problematic does not require that level of detail. Unconscious redlining is nearly impossible to guard against. So, the debate between the right to know v. the right to privacy is not just an individual thing and might be more salient as e-government efforts grow.

Digital Divide – One of the difficulties that digital government faces is that many people still do not have access to digital information and services, particularly in poorer communities and rural areas. As digital government grows, governments might assume that all the services they offer can be accessed by all citizens digitally. Some of these services, such as applying for a required license, might have legal consequences, putting the less digitally literate people at a disadvantage. In some countries, for example, some business taxes and other required filings must be filed online, even for very small businesses, and often using a third-party app. Such governments need to make sure that services are offered in a variety of ways.

Cluj-Napoca, Romania, a small city with five major universities, is considered one of the most tech-savvy cities in Central and Eastern Europe (Fan, Urs and Hamlin, 2019). The city is developing a new-town-in-town, full-service technology park entitled, Cluj Innovation City (Hamlin, 2017). However, the city government recognizes that a digital divide still exists in the city and the region. Most digital services also have a face-to-face component for those less digitally literate and the city provides locations where citizens can receive staff help to utilize digital services. It also offers free classes for individuals to learn how to use its digital services (Boc, 2022).

So, the dilemma presented in this paper is real and complex. The tensions related to the collision of a turbulent world and the simultaneous demand for greater citizen engagement

requires a new set of skills and abilities. The important question that this paper addresses is 'how are universities that are preparing future public administrators, responding to the rapidly changing environment?' Are universities preparing public servants to deal with rapid change, potential crises, and disruptions of all kinds, as well as the digital transformation, greater citizen engagement and/or the collision of these trends?

4. Hypothesis and null hypothesis

The hypothesis of this study can be stated as, 'University programs that prepare individuals for a career in public administration are responding to the more turbulent governance environment and to the use of technology in ways that allow for technology to be used to promote greater citizen engagement.' The null hypothesis, if evidence is lacking to support the hypothesis, is that they may not be preparing people well in this area.

5. Methodology

As a first attempt at finding out the answer to the stated research question, we looked at the curriculum and course offerings of the top 21 public administration programs as ranked by the US News and World Report. We identified a set of key words that epitomize the collision of engagement and rapid change and the use of technology. We looked for courses in the bachelor and MPA degree programs of these top schools. If the key word showed up in the title of any course, that university was counted toward the percentage of universities offering that type of course. Both required and elective courses were considered. Required courses offered as service courses to the PA program by other departments were also considered. All related programs offered by the university were considered, including MPP programs and mid-career training.

6. Results

Table 1 indicates the results of the survey of programs. Column one indicates the key words that were looked for in the course titles and curriculum. Column two indicates the estimated percent of programs that seem to address the issues presented here based on the keyword search.

Table 1: Percent of universities offering course with keyword in title

Course title, topic, or keyword	Approx. percent of schools offering keyword courses
Crisis / Emergency Management	28%
Strategic Management for Rapid Change	19%
Technology / E-Government / Smart Cities	31%
Innovation in The Public Sector	29%
Organizational Change	19%
Citizen Engagement	19%
Public/ Private Partnership	19%
Co-Production	0%
Asset-Oriented Public Management	0%
Participatory Modeling	0%

7. Analysis and study limitations

An analysis of the data indicates that Public Administration degree programs are NOT focusing on preparing future professionals in dealing with crises, rapid environmental change, fast-moving market forces, or the demand for increasing citizen engagement. Many of the largest, most established programs seem, in general, to be the least oriented in that direction. The programs of those institutions are highly fixed and perhaps less flexible with fewer electives. Even their elective offerings seem NOT to be addressing the issues raised in this paper. While students may be getting sound traditional training, their education with respect to the issues addressed in this paper seems to be based on on-the-job, trial-and-error, in an environment in which there is little time for trials and not much space for error. Governmental response to the pandemic and to recent wars, and its global effects has been both commendable and imperfect. Particularly at the subnational level many public administrators and their communities lacked the tools to respond. Those communities with on-going efforts to digitalize and involve citizens seemed to do better, but education and training of public administrators may not be providing them with the skills and tools they need.

Some of the skills and competencies discussed in this study might have an importance that goes beyond their application to the digital strategies mentioned in this paper. Might skills needed to fully engage citizens, apply a systems mindset, identify the assets of a community, respond to crises, and have basic digital competencies be necessary for all public administrators and be critical components of all PA curricula. Perhaps, PA as an academic discipline needs dramatic change.

This research and the results have limitations, but the study is considered to be illustrative of the issues raised. Some of the limitations are as follows:

1. Only courses or programs which have the key word in their title have been considered. Clearly, some of these subjects might be touched on in other standard courses (both required and elective). However, whether those topics are actually addressed would demand a study of standard syllabi for those courses (which often do not exist). And, even if included in the syllabi or course descriptions of courses, there is no guarantee that a particular faculty member will include the topics in any given year. Thus, we looked only at courses including the key words in the title as a sign of commitment to study the defined topics.
2. We only looked at the top 21 schools. The weighting within the top 21 list was not relevant, but the list of schools was limiting. On the other hand, to determine whether the profession is putting importance on these topics, one should look to the higher education professional leaders. It is probable that some smaller and newer PA degree programs have focused on the topics discussed here.
3. We only looked at courses in the PA program or probable elective departments linked to the PA program, e.g., a course in strategic planning found in an engineering department, not offered to PA students or oriented to their needs was not counted.

8. Summary and conclusion

The world faced by public administrators and particularly at the municipal level is changing at a rate exponentially faster over time, and crises impacting public administration are ever more prevalent. At the same time, the need for greater real engagement of citizens in the choice, design and delivery of public goods and services is also increasing, in part to reestablish trust in government, creating a kind of collision of forces. Careful and effective use of technology such as various forms of e-governance might be a way of mitigating the bad effects of this collision, but municipalities have not been keeping up in e-governance development. The pandemic's requirement for social distancing, touchless services and isolation may have stimulated some forms of e-governance and this paper described some examples. Necessity is the mother of invention. However, it is not yet clear how much of the changes that took place are lasting after the pandemic. Particularly difficult are those two-way and iterative forms of governance that promote deep citizen involvement and engagement.

A look at the course offerings of the top schools in public administration seems to imply that training of public administrators is also not keeping up with turbulent times, greater citizen engagement, and the use of technology to promote effective responses to these issues. Not only are universities not teaching courses in the specific strategies discussed in this paper such as co-production, asset-oriented public management, strategic planning, and participatory modeling, but they might also fall short in some areas that could be basic to all public administration including promoting deep citizen engagement, implementing systemic thinking, and providing foundational digital skills. Clearly, a more detailed look at curricula is needed to fully answer larger questions.

It may be that top schools are doing a good job of training future captains to use the wheels and levers to sail the ship of state. Yet, it may be a time when those leaders need to know how to use the instruments to fly an accelerating jet airplane through a storm while passengers are demanding greater access to the controls.

References:

1. Barbier, E.B. and Burgess, J.C., 'Sustainability and Development After COVID-19', 2020, *World Development*, vol. 135, 105082.
2. Boc, E., 'Strategic Challenges for the Cities. Case Study: Cluj-Napoca', 2022, *Transylvanian Review of Administrative Sciences*, Special Issue 2022, pp. 5–21.
3. Boyle, D. and Harris, M., 'The Challenge of Co-Production: How Equal Partnerships Between Professionals and the Public Are Crucial to Improving Public Services', 2020, [Online] available at https://neweconomics.org/uploads/files/312ac8ce93a00d5973_3im6i6t0e.pdf, accessed on October 21, 2021.
4. Brandsen, T., Verschuere, B. and Steen, T. (eds.), *Co-Production and Co-Creation: Engaging Citizens in Public Services*, Routledge, 2018.
5. Brudney, J.L. and England, R.E., 'Toward a Definition of the Coproduction Concept', 1983, *Public Administration Review*, vol. 43, no. 1, pp. 59–65.

6. Fan, P., Urs, N. and Hamlin, R.E., 'Rising Innovation City-Regions in A Transition Economy: A Case Study of The ICT Industry in Cluj-Napoca', 2019, *Technology in Society*, vol. 58, 101139.
7. GAO (U.S. Government Accountability Office), 'WatchBlog', 2021, September 16, [Online] available at https://www.gao.gov/blog/covid-19-exposure-notification-apps-are-available.-are-they-working, accessed on March 10, 2022.
8. Gil-Garcia, J.R., Dawes, S.S. and Pardo, T.A., 'Digital Government and Public Management Research: Finding the Crossroads', 2017, *Public Management Review*, vol. 20, no. 5, pp. 633–646.
9. Haller, M., Meng-Hao, L. and Mossberger, K., 'Does E-Government Use Contribute to Civic Engagement with Government and Community', 2010, [Online] available at https://www.maxwell.syr.edu/uploadedFiles/conferences/pmrc/Files/Haller_DOES%20E-GOVERNMENT%20USE%20CONTRIBUTE%20TO%20CIVIC%20ENGAGEMENT%20WITH%20GOVERNMENT%20AND%20COMMUNITY.pdf, accessed on October 23, 2022.
10. Hamlin, A.R., 'Science and Technology Parks: Way of The Future or Over Hyped?', in Hințea, C.M., Moldovan, B.A., Radu. B.V. and Suciu, R.M. (eds.), *Transylvanian International Conference in Public Administration*, Cluj-Napoca, Romania, 2-4 November 2017, Cluj-Napoca: Accent, 2018, pp. 182–190.
11. Hamlin, A.R., *The Hourglass: A Versatile Tool for Approaching Academic Writing*, Proaction Institute Publications, 2023.
12. Hamlin, R.E., Vanravensway, J., Mastej. M. and Hamlin, A.R., 'Strategic Planning in U.S. Municipalities', in Hințea, C., Profiroiu, C.M. and Ticlau, T. (eds.), *Strategic Planning in Local Communities: A Cross-National Study of Seven Countries*, 1st edition, Palgrave Macmillan, 2019, pp. 209–239.
13. Hințea, C.E. and Neamțu, B., 'Strategic Planning in The Framework of Metropolitan Areas in Romania: Going Beyond the Requirements of The Law and Transforming It into An Effective Planning Tool', 2014, *The NISPACee Journal of Public Administration and Policy*, vol. 7, no. 2, pp. 71–97.
14. Hințea, C.E., 'Strategic Planning in The Public Sector Case Study: Strategic Planning in Cluj-Napoca, Romania', 2008, *Transylvanian Review of Administrative Sciences*, vol. 22E, pp. 51–63.
15. Hințea, C.E., Hamlin, R.E. and Neamțu, B., 'University and Community: An Essential Partnership for the Future', 2022, *Transylvanian Review of Administrative Sciences*, Special Issue 2022, pp. 70–98.
16. Höchtl, J., Parycek, P. and Schölhammer, R., 'Big Data in The Policy Cycle: Policy Decision Making in The Digital Era', 2015, *Journal of Organizational Computing and Electronic Commerce*, vol. 26, no. 1–2, pp. 147–169.
17. Hubacek K., Ravera, F.D., Tarrason, D. and Prell, C., 'Participatory Modeling', in Richardson, D., Castree, C., Goodchild, M.F., Kobayashi, A., Liu, W., Marston, R.A and Falconer Al-Hindi, K. (eds.), *International Encyclopedia of Geography: People, the Earth, Environment, and Technology*, John Wiley & Sons, 2017, pp. 1-8.
18. Jiaying, Y., 姚佳┌. 健康┌助┌抗疫, ┌人信息┌被┌用┌ [EB/ OL] [Will Personal Data Be Abused When Using Health QR Code], 2020, [Online] available at http://finance.sina.com.cn/wm/2020-03-17/doc-iimxxstf9687733.shtml, accessed on March 15, 2021.

19. Kretzmann, J. and McNight, J., *Building Communities from The Inside Out: A Path Toward Finding and Mobilizing a Community's Assets*, ACTA Publications, 1993.
20. Li, H., 'Communication for Co-Production: Increasing Information Credibility to Fight the Corona Virus', 2020, *American Review of Public Administration*, vol. 50, no. 6–7, pp. 692–697.
21. Linders, D., 'We-Government: An Anatomy of Citizen Co-Production in The Information Age', 2011, *Proceedings of the 12th Annual International Digital Government Research Conference: Digital Government Innovation in Challenging Times,* June, pp. 167–176.
22. Lips, M., 'E-Government is Dead: Long Live Public Administration 2.0', 2012, *Information Polity*, vol. 17, no. 3–4, pp. 239–250.
23. Loeffler, E. and Bovaird, T., 'User and Community Co-Production of Public Services: What Does the Evidence Tell Us?', 2016, *International Journal of Public Administration*, vol. 39, no. 13, pp. 1006–1019.
24. McGranahan, G., 'Realizing the Right to Sanitation in Deprived Urban Communities: Meeting the Challenges of Collective Action, Coproduction, Affordability, and Housing Tenure', 2015, *World Development*, vol. 68, pp. 242–253.
25. Nabatchi, T., Sancino, A. and Sicilia, M., 'Varieties of Participation in Public Services: The Who, When and What of Coproduction', 2017, *Public Administration Review*, vol. 77, no. 5, pp. 766–776.
26. Naidoo, S. and Fisher, B., 'Sustainable Development Goals: Pandemic Reset', 2020, *Nature*, vol. 583, pp. 198–201.
27. Osborne, S.P. and Strokosch, K., 'It Takes Two to Tango? Understanding The Co-Production of Public Services by Integrating the Services Management and Public Administration Perspectives', 2013, *British Journal of Management*, vol. 24, no. S1, pp. S31–S47.
28. Ostrom, E., 'Crossing the Great Divide: Co-production, Synergy, and Development', 1996, *World Development*, vol. 24, no. 6, pp. 1073–1087.
29. Ostrom, E., *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge University Press, 1990.
30. Steen, T. and Brandsen, T., 'Co-production During and After the COVID-19 Pandemic: Will It Last?', 2020, *Public Administration Review*, vol. 80, no. 5, pp. 851–855.
31. United Nations, 'The Role of Public Service and Public Servants During the Covid-19 Pandemic', Policy Brief, no. 79, June, 2020.
32. Weible, C.M., Nohrstedt, D., Cairney, P., Carter, D.P., ... and Stone, D., 'COVID-19 and the Policy Sciences: Initial Reactions and Perspective', 2020, *Policy Science*, vol. 53, pp. 225–241.
33. Weiling, W., 王┌玲, ┌志┌, 王芳. 新冠肺炎疫情防控┌┌字政府建┌的影┌及建┌ [J] [The Impact of the Novel Coronavirus Epidemic on Digital Government Construction and Advice], 2020, 科技┌┌ [Technology Guide], vol. 386, pp. 97–102.
34. Zhou, L., Xuefeng, C. and Wang, 周亮, 崔雪峰, 王┌蒙. ┌字政府助力打┌'新冠疫情' 阻┌┌ [EB/OL] [Digital Government Supports Fight Against COVID-19], 2020, [Online] available at https://new.qq.com/rain/a/ 20200212A0QT4J00, accessed on November 3, 2021.