Susman – Assignment 4 – Potential for Technology to Transform Government

Government has traditionally relied on its bureaucracy to achieve service delivery. This bureaucratic structure relied on the expertise of the agency personnel (i.e., bureaucrats) to efficiently carry out the government service functions. This structure, however, also resulted in a fairly rigid framework for government where significant emphasis was placed on the value and benefit of bureaucratic expertise at the expense of citizen involvement (Porumbescu, 2017). In an effort to overcome the rigidity of the bureaucratic framework, there is a tendency to view each new technological initiative such as digital government, eGovernment, or eProcurement as a potential panacea to a more egalitarian, citizen-centric government (Porumbescu, 2017).

In keeping with this optimistic view of technology's transformative power, many see the latest new technological initiatives of "big data," "open government," and the "Internet of Things" ("IoT") as the answer to transforming the traditional bureaucratic hierarchy of government to a more egalitarian, citizen-centric government. Similar to the outcomes of prior technological initiatives, I believe the new initiatives will result in greater citizen involvement in some areas, however, the need to rely on expertise will continue to significantly guide government administrative procedures. While I do not see these new technology initiatives as transforming government, these initiatives, like the previous ones, will provide some improvements.

In reaching my view of the whether big data, open government, and the IoT have the potential to be the technology initiatives that successfully bring about the desired transformation of government, I first examined each of the new initiatives. Starting with "big data" which is the generic term that refers to extremely large amounts of data that have the ability to be organized with new technological tools to provide the holder of the data with new information and insights (Gallaugher, 2014, p. 259). In the context of government, big data allows government to analyze massive amounts of data to gain better insights into its provision of public goods and services as well as the needs of its citizens. The key distinguishing characteristics of big data are: (i) the sheer volume of available data; (ii) the velocity (i.e., speed) at which it is collected; (iii) the variety of different types of data available and collected; and (iv) its value due to the use of new technological tools and techniques that allow for its analysis (Porumbescu, 2018). These four key characteristics make big data one of the most valuable assets of the government. To realize

the value of big data, however, governments must become adept at data management (Porumbescu, 2018). If managed correctly, big data promises government the ability to simultaneously improve both its efficiency and effectiveness through the improvement of government's knowledge and back-end functions (Porumbescu, 2018).

Next, while big data provides an analytical paradigm for government, open government is an administrative reform paradigm (Porumbescu, 2017). More specifically, open government is a managerial reform approach to overcoming complex social issues through the use of a more collaborative citizen-centric process rather than the traditional rigid bureaucratic structure (Porumbescu, 2017). Open government focuses on improvement to services and transactions citizens already utilize (Porumbescu, 2017). The goal of open government is to improve the front-end provision of public services through informing, engaging, and collaborating with its citizens (Porumbescu, 2017). Improvement of front-end services through this collaborative paradigm of open government is also seen as increasing the democracy of government (Porumbescu, 2017). These dual goals are sought to be obtained through two key principles: (i) open data; and (ii) online portals (Porumbescu, 2017). In the era of big data, government has, to a large extent, successfully embraced the first principle of open data (Porumbescu, 2017). The second principle of open data, online portals, is still a work in progress (Porumbescu, 2017).

Lastly, IoT is based on a connected society and is related to, but different from, big data and open government (Porumbescu, 2018). The IoT supplies the large variety of data that is one of the key characteristics of big data (Porumbescu, 2018). Open government's focus is on the use of the prevalence of new technologies as a means for greater connection and collaboration with its citizens (Porumbescu, 2018). Unlike the focus on data or on individual citizens, IoT focuses on the devices that connect to the internet (Porumbescu, 2018). This focus on devices is important because it allows for an analysis of how data in the era of big data is collected and from where it is collected (Porumbescu, 2018).

The potential use of IoT for government is seen in the emergence of "smart cities" (Porumbescu, 2018). While there is no agreed upon definition of a "smart city" some of its key characteristics are sensors connected to the IoT pervading the city and providing a near constant two-way flow

of data to a centralized, shared repository that then allows the government to analyze and react to the data in real-time or near real-time (Porumbescu, 2018). The result of this increased data flow and analysis is the improvement of service delivery to citizens, and such improved service delivery correspondingly shapes citizen behavior (Porumbescu, 2018). In other words, the IoT has the potential to build on big data and open government to allow seamless integration between the government and its citizens (Porumbescu, 2018). Further, since one of the core foundations for a smart city is a centralized, shared data repository, this eliminates the rigid siloing that continues to exist in government bureaucracy (Porumbescu, 2018).

As outlined above, these three technological initiatives have the potential for transformative change resulting in improvements to both government's efficiency and effectiveness while at the same time providing for greater citizen involvement in government's administrative process. These transformative changes, however, are based on a couple of significant assumptions and lack consideration of several well-known challenges to organizational business process changes and technology implementation. First, the success of these three initiatives is based on the overarching assumption that, if government provides public services through online portals, citizens will use the online portals (Silcock, 2001, p. 92). Studies show this assumption is not necessarily true and that there are a variety of factors that play into whether citizens will use and engage with government through online portals (pp. 92-93). This assumption is further exacerbated by the tendency of government to design its online portals based on what government assumes is important without regard to aesthetics or citizen views (Porumbescu, 2017). Additionally, and just as significant, the success of citizens using of online portals for government engagement and services does not take into account the digital divide (Silcock, 2001, p. 94).

Next, for big data, open government, and IoT/smart cities to achieve their potential, the traditional siloing and turf wars must be overcome. The implementation of these new initiatives are similar to the implementation of any new technology and corresponding business process change in that such implementation is more likely to be successful if the organizational cultural already embraces innovation, collaboration, and cross-functional teams (Harris, 2007). Without this type of culture already in place, success of a new technology initiative is significantly

dependent upon managerial commitment and leadership (Chen, 2010, pp. 431-437). Given the large failure rate of government technology projects, the need for management/leadership in overcoming organizational and cultural challenges cannot be overstated (Weerakkody, Dhillon, Dwivedi, & Currie, 2008, pp. 3-4).

Further, the ever-present tensions between politicians, bureaucrats, and citizens must be addressed (Porumbescu, 2017). During the past couple of months, the proceedings in the U.S. Congress have provided a glimpse of the tensions that exist between politicians and bureaucrats. Similarly, the tensions between bureaucrats and citizens must be addressed (Porumbescu, 2018). While big data and the IoT provide a potential solution to alleviating some of these tensions, they may also exacerbate some tensions (Lavertu, 2014, p. 864). For example, these new technological initiatives will provide greater ability for citizens to review what government is doing (pp. 864-865). However, citizens reviewing government's actions may lack the necessary understanding of the complexities involved (p. 867). Government will need to rely on its bureaucrats' expertise to help provide the needed context (p.868). So, while the technology may provide greater citizen involvement, the role of bureaucrats is still critical.

As discussed above, big data analytics, open government and smart cities will still need to rely on bureaucratic expertise to be successful. Another example is for big data to be useful, increasingly complex algorithms that are able to analyze more and more variables and explain dependencies are needed (Porumbescu, 2018). Further, to successfully implement smart cities, government must have a complete understanding of the complexity and connections involved (Nam & Pardo, 2011, p. 288). Government will need to look to bureaucrats for this expertise (Lavertu, 2014, pp. 868-869). While the skill set needed by government bureaucrats may shift such as a new reliance on data scientists, such expertise will still be needed (pp. 868-869).

Overall, I see big data, open government and the IoT as additional tools that may be used by government. They alone, however, will not transform government. How these tools are used will be dependent on politics and the relationship between government bureaucrats and citizens (Porumbescu, 2017). I, therefore, believe that the traditional tendencies of government will

continue albeit with more incremental improvements to the citizen involvement and improvements to the efficiency and effectiveness of bureaucracy.

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