



Improving Diplomatic Mission Service Production with Big Data: The Case of Indonesian Embassy in Moscow

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Abstract. The focus of this paper is on the production of government services, provided by administration department of the embassy, which accounts for high percentage of embassy expenditures. This study will act as a blueprint for the Embassy of the Republic of Indonesia in Moscow to adopt and implement Big Data-driven enterprise architecture mainly focused on the Administration Department. It is intended to guide the governmental organizations such as diplomatic missions and consular agencies and provide insightful knowledge to transform their activities and services into e-government solution through the power of digital technology. We discover more about the characteristics of government institutions and products in diplomatic systems that are leading the way in transforming how they operate with information technologies in era of Big Data and digitalization.

Keywords: Government Production · Digital Diplomacy · Big Data · e-Government · Digital Transformation

1 Introduction

The current trend of governments to reorganize into e-governments also requires the restructuring of the most conservative part of governments, such as diplomatic systems, including their central bodies such as Foreign Ministries and diplomatic missions and consular agencies in foreign countries. The diplomatic systems of many countries are being rebuilt in such a way that the services of diplomatic missions are digitalized, the online activities of diplomats are expanding, and digital platforms are integrated into diplomatic systems. Despite the fact that many elements of the digital environment have long been familiar and used in diplomatic systems, including Internet websites, e-mail and social networks, the relative neglect of digital aspects of diplomacy in the framework of diplomatic studies is exceptional. Traditional theories of diplomacy have paid little attention to the digital elements of diplomacy, which means in practice that we are trying to analyse modern changes in diplomatic mission and practice without a suitable

conceptual and analytical basis. In this article, we attempt to develop some analytical and conceptual framework to better identify, explain and understand changes in diplomatic systems, as well as the increased influence of digital platforms and technologies on current diplomatic practice.

Diplomatic missions and government consular agencies use a mix of their own employees, capital, and outside contractors (non-profit organizations or private businesses) to produce specific goods and services to customers in foreign countries. Generally speaking, all activities of the diplomatic mission can be categorised into two groups, namely, the mission governance and the production of services. The mission governance includes, in part, determining what service to provide, how to provide it and how to finance it. The actual production and delivery of services include also the implementation and enforcement of regulations originating both from own Foreign Ministry and local legislation system of the country of presence. The cost of governance constitutes generally minor portion of the embassy budget. The major percentage of diplomatic mission spending is devoted to the production and delivery of services and the implementation and enforcement of regulations. The focus of this work is on those activities, which make up majority of embassy budgets. It is expected and anticipated that digital transformation of the diplomatic mission service production should bring some cuts of direct and indirect costs of production and delivery of diplomatic mission and consular agency services.

The use of digital transformation in government organizations and agencies is constantly evolving [3, 10]; the most recent application of digital government transformation is e-government [1, 4, 7, 9, 11, 13]. E-government, also known as electronic government, refers to the process of digitally transforming a government's operations to deliver services and products to its citizens and industries. This includes transactions between government and business, government and citizen, government and employee, and among different units and levels of government. These demands cover timely and excellent digital services. Digital transformation in the public sector often aims to establish novel frameworks for service delivery and explore innovative approaches to collaborate with stakeholders [6, 9, 18].

Over the initial two decades of e-government, number of claims have been made about the transformative potential of ICT [17]. The anticipation was that digital technologies, including those associated with the internet, would revolutionize government operations. However, the understanding of the term "transform" in this context has varied, often referring to "altering the form or structure". Many scholarly and practitioner articles, whether explicitly or implicitly, define transformation as the integration or consolidation of functions, services, or organizations. Examples of such studies include [1–3, 11, 13], and [15].

This study focuses on better understanding the needs and expectations towards digital transformation (DX) in the Embassy of the Republic of Indonesia in Moscow, especially in the Administration Department. We aim to better prepare the diplomatic organization for digital transition to enable the smooth implementation of e-government projects. To achieve the objective and attain success, it is crucial to concentrate on augmenting the potential of the emerging workforce, nurturing future leaders, fostering digitalization capabilities, and giving priority to purpose-driven digitalization before embarking on

digital government transformation. By addressing the current research gap, the framework proposed in this paper has the potential to make a valuable contribution to future endeavours.

2 Digital Transformation of Government Organization

Digital transformation refers to the utilization of digital technologies and business capabilities to improve operational processes, business models, and customer-centric experiences [2]. Nowadays, organizations strive to utilize emerging technologies to achieve efficient growth, resulting in a positive transformation of their competitive position and the adoption of innovative operational approaches. The impact of digital transformation extends to all organizations and industries, compelling them to embark on digital transformation initiatives to stay competitive in their markets or sectors [8, 15].

Digital transformation enhances stakeholder connections, improves the value chain, and enhances delivery effectiveness. It also provides businesses with a competitive advantage by simplifying plan monitoring, oversight, and implementation, while reducing connectivity challenges and responsibilities. Moreover, through effective utilization, innovation, and operational integration, digital transformation is considered cornerstone for a business' sustainability, resilience, and competitive edge. In simpler terms, adaptive and connected production enable synchronized activities, operations, and policy execution, allowing companies and organizations to efficiently monitor, manage, and establish plans. Consequently, organizations must now embrace digitalization in order to uphold their competitive edge.

The focus of digital transformation of organization in government sector usually is three-fold:

- New value creation
- Customer-Organization relations enhancement
- Government service delivery excellence

Any DX initiative of government organization should include components to address corresponding problems.

- 1) *Transform to Create Value*: Adopting Digital Transformation (DX) could prompt the value chain to form a new lap [2] Through the adoption of digital transformation, organizations can achieve significant improvements in activities such as co-creation, co-distribution, and co-funding, facilitating more effective and consistent communication among departments. This may result in greater efficiency. As a result, the integration of digital transformation not only enhances interconnectivity but also brings new value to the organization, thereby contributing to improved overall operational efficiency.
- 2) *Transform to Enhance Relations*: At first, DX is perceived as a technological revolution that elevates consumer expectations, and organizations can effectively meet these expectations by embracing digital transformations. This indicates that digital transformation has the potential to meet high expectations and is considered a cultural shift. Moreover, the integration of digital technologies by governmental entities

focused on direct customer relations and interactions enhances customer engagement, transparency, and openness.

- 3) *Transform to Improve Delivery Excellence*: Embracing the digital revolution enables the adoption of innovative strategies in service delivery, customer relationship management, and delivery methods. It offers assistance to participants in the value chain, such as customers, external manufacturers, and suppliers, by facilitating efficient relationships. In order to leverage the advantages of these advancements and improve efficiency, organizations need to embrace digital transformation. Consequently, digital transformation essentially entails optimizing the value chain to accomplish the organization's goals.

By embracing digital transformation, government organizations can also make use of these advantages. It is increasingly apparent that digital government reforms are desperately needed. This study has a strong emphasis on e-government, digital government product, and transformative government.

3 The Case of Digital Transformation of Diplomatic Mission

3.1 Business Process Modeling for Embassy Service Production

In the age of information, the significance of information and communication technologies (ICT) and Information Systems (IS) is steadily increasing, contributing to the success of various types of business organizations [17]. The rapid advancements in ICT and IS, along with the influence of IS across diverse fields such as government, business, engineering, education, and medicine, have compelled government organizations and associations to assess their internal and external collaborations. Thus, to establish effective working partnerships, it is crucial to align IS with other governmental departments. One approach to integrating IS with other government entities is by creating a system that meets requirements of the government.

To accomplish this, it is imperative for IS developers to possess a comprehensive awareness and understanding of the government's environment, operations, and business procedures. These factors must be taken into consideration before initiating the IS development phase. Consequently, conducting business process and goal modeling becomes crucial prior to the implementation of IS, guaranteeing the provision of high-quality public services [14].

Any DX initiative of government organization should include components to address corresponding problems.

- 1) *Identification of Goals and Tasks in the Embassy Processes*: The embassy's e-Government infrastructure encompasses a wide array of hardware devices, software applications, and networks, serving various participants with diverse capabilities and technical skills. The key challenge faced by government organizations in their digital transformation journey is the effective formulation of a suitable strategy for managing digital transformation [6]. Therefore, it is crucial to employ a dependable approach for modelling and analysing e-Government goals, ensuring the efficient administration of rapidly evolving e-Government processes and objectives (Fig. 1).

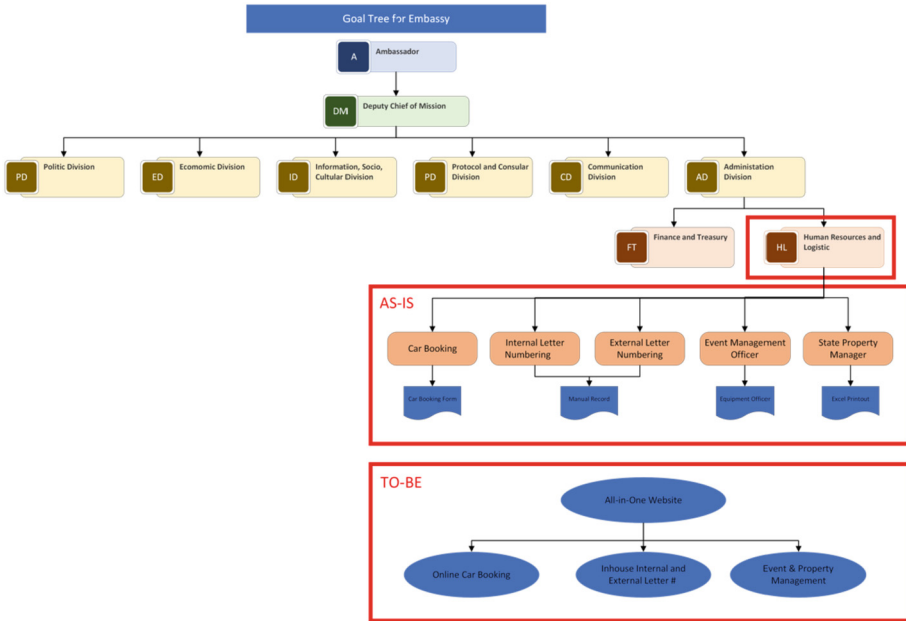


Fig. 1. Identification of goals and tasks in Embassy.

- 2) *Business Process As-Is*: Business, as it stands today in the global economy is shaped by a dynamic and constantly changing environment. It is a complex organization that is driven by the goal of growth, profitability, and innovation. Businesses operate in a highly competitive environment in this linked world that is defined by quick technical breakthroughs, altering consumer tastes, and shifting market dynamics. Additionally, the digital age has transformed business operations by allowing seamless worldwide communication, unrivalled information access, and fresh channels for trade.
- 3) *Business Process To-Be*: Future business has the ability to bring about profound change and present us with intriguing opportunities. As we look to the future, it is likely that new technologies and inventive business methods will reshape established paradigms. Industries are about to undergo a revolution thanks to automation and artificial intelligence, which will streamline operations, boost effectiveness, and provide new growth prospects. As our awareness of environmental impact increases and the demand for ethical goods and services rises, sustainable and socially responsible business practices will emerge as a defining characteristic of successful enterprises. Moreover, as we enter the digital age, communication and business operations will undergo further revolution. Technologies like virtual reality, blockchain, and IoT (Internet of Things) will present new avenues for connectivity and collaboration. Cross-cultural proficiency and adaptation will be essential for firms to succeed as the corporate world becomes more connected and globalized.

To stay competitive and meet the evolving expectations of stakeholders amidst these transformations, businesses need to foster an innovative culture, prioritize customer

needs, and value diversity. The future corporate landscape will rely on the pillars of agility, sustainability, and human-centered values as the foundations of success in a dynamic and transformative environment.

3.2 Data for Embassy Service Production

- 1) *Data Collection*: The primary source of data for this study comprised interviews conducted with employees at the Indonesian embassy in Moscow. To ensure the confidentiality and security of the interviewees and their respective organizations, their names will not be disclosed in the results section. A total of 20 interviews were conducted during the winter of 2023. Among these, seven interviews were conducted with embassy managers, two of whom were from the head administration department, while the remaining interviews were conducted with technical staff members of the embassy's administration department. The duration of the interviews ranged from 20 to 60 min, and they were conducted both individually and in pairs. Following the best practice of qualitative research exemplified with works [5, 12, 14 and 16], the interviews followed a semi-structured format, which is appropriate for exploratory and explanatory research, allowing interviewees to express their thoughts in their own words. Appendix A of the paper [14] provides the interview guide that was utilized during the interviews. However, it should be noted that the interview guide was not strictly adhered to; rather, it served as a flexible framework that facilitated a natural flow of the topics discussed. While the interview questions were generally consistent across interviews, they were tailored to emphasize different aspects based on the role and expertise of each interviewee.
- 2) *Data Analysis*: During the interview, the participant shared valuable insights on the importance of data analysis within the scope of digital transformation. They emphasized that organizations must leverage data to effectively drive their transformation initiatives in today's rapidly evolving digital landscape. The interviewee highlighted the significance of collecting and analyzing the vast amounts of information generated by the administration department and other departments within the embassy, as well as the existing internal systems.

The respondent also emphasized the transformative power of data analysis. Organizations in this case embassy can learn important things about behavior, trends, and operational efficiencies by utilizing sophisticated analytics approaches. They underlined how these insights enable organization to establish a more focused strategies, enhance operations, and make strategic decisions. Additionally, the interviewee emphasized the significance of fostering a data-driven culture within the embassy, where data analysis is a fundamental component of decision-making at all levels.

In their concluding remarks, the interviewee highlighted the critical role of data analysis in the process of digital transformation. They emphasized that leveraging data-driven insights not only facilitates informed decision-making but also enables organizations to optimize their operations within the complex digital ecosystem. The interviewee stressed that embracing data analysis as a fundamental skill empowers enterprises to thrive in the digital era and position themselves for success.

3.3 Factors of Digital Transformation of Embassy

The analysis identified two overarching themes that act as catalysts for organizations to undergo digital transformation: external (environmental, out-house) and internal (organizational, in-house) factors to change. These aspects are summarised in Table 1 and individually discussed and explained in the subsequent subsections.

Table 1. Factors of digital transformation of diplomatic mission

Factors to Change	Factor description	Score
External Factors	Evolving demands and requirements of counterparts	+
	Competitive pressure arising from other Indonesian Embassies globally	++
	Advancements in information technology (ICT)	++
Internal Factors	Finding method(s) to reduce costs	++
	Identifying fresh avenues for growth	+

To assess the different factors, each factor was assigned a score of “+” if it had a moderate impact and a score of “++” if it had a high impact.

1) *External Factors to Change:* The digital transformation of embassies is propelled by environment induced factors. Three key themes associated with external factors that compel embassies to embrace change are: Evolving demands and requirements of counterparts, Need to address the competitive pressure arising from other Indonesian Embassies globally, and Advancements in information technology.

The digital era has brought about significant changes in the demands and expectations of businesses and individuals when engaging with embassies. Traditional methods such as face-to-face meetings and paper-based processes may no longer suffice. With the advancements in digital technology, counterparts now expect convenient and prompt access to diplomatic services through various digital channels. Embassies need to respond to these evolving counterpart needs by embracing digital transformation initiatives. By leveraging digital platforms and tools, embassies can ensure seamless and efficient delivery of services.

The use of various digital methods by embassies might help them deal with this competitive strain. For instance, they may create informative and user-friendly embassy websites that offer detailed details on services, visa requirements, and consular support. Additionally, embassies can improve their online visibility by being active on social media, publishing updates, and interacting with counterparts to foster relationships and cultivate a positive reputation. In addition, embassies can use digital solutions to boost service delivery and operational effectiveness. Processes can be streamlined and administrative duties for counterparts can be decreased, for instance, by introducing secure online appointment systems, document submission portals, or e-consular services.

The way embassies conduct business and interact with their counterparts has been completely transformed by technological advancements. Emerging technologies provide enormous opportunity for embassies to improve their efficiency, effectiveness, and service delivery, from sophisticated communication tools to data analytics systems. The advancement of technology makes it possible for embassies to utilize data analytics. Embassies can learn important information about the tastes, trends, and needs of their counterparts by utilizing modern analytics solutions. This data can help the embassy better engage with counterparts and build relationships by informing targeted marketing initiatives, tailored services, and policy decisions. Finally, the growth of technology is crucial to the digital transformation of embassies.

- 2) *Internal Factors to Change:* Digital transformation is driven by factors within the embassies itself, as they strive to minimize costs, looking at digital transformation as a method of solution. Two key themes associated with inside factor are: Method to reduce expenses and Identifying fresh avenues for growth.

Traditional embassy operations can include significant costs for laborious paperwork, infrastructure, and logistical difficulties. However, by implementing digital transformation strategies, embassies can find ways to simplify operations and cut costs generally. Through digital transformation, embassies may engage with partners and stakeholders throughout the world by using virtual communication technologies like video conferencing and online collaboration platforms. This makes it less necessary to travel widely and incur additional costs, and it also makes it easier to communicate quickly and effectively.

Traditionally, their primary focus has been on consular services and enhancing bilateral relations as part of their core diplomatic responsibilities. However, in the digital age, embassies are actively seeking new avenues to diversify their roles and explore untapped opportunities for growth. By leveraging digital tools and platforms, embassies can broaden their reach, engage with a wider audience, and attract new stakeholders, thus unlocking fresh possibilities for development. With the help of digital transformation, embassies may harness the power of data analytics and market intelligence to spot new trends and possible hubs for cooperation or business alliances. Embassies can proactively discover industries or programs that correspond with their country's capabilities by assessing data about counterpart preferences, market demands, and industry potential, thereby nurturing new economic avenues.

4 Conclusions

This study aimed to explore the factors influencing the successful implementation of digital transformation for a governmental sector, with a specific focus on The Embassy of the Republic of Indonesia in Moscow. The research investigated the drivers behind organizations' adoption of digital transformation and examined the resulting changes within the organization. The findings revealed that digital transformation has the potential to significantly reshape embassy operations, enhance their services, and strengthen their diplomatic endeavors. By embracing emerging technologies such as internet platforms, data analytics, and virtual communication tools, embassies can provide a seamless experience for their counterparts.

Moreover, digital transformation enables embassies to adapt to evolving counterpart needs, leverage technological advancements, reduce costs, and explore non-traditional growth opportunities beyond their conventional diplomatic responsibilities.

Embassy can adapt to the digital era, when connectivity, convenience, and data-driven insights are crucial, by starting a digital transformation journey. Adopting digital techniques encourages more robust interactions with counterparts, makes timely and personalized communication easier, and equips embassy to make data-driven decisions. Last but not least, digital transformation helps embassy to increase their efficacy, broaden their influence, and present themselves as creative and forward-thinking diplomatic bodies.

In order to successfully traverse the shifting terrain, embassies must take advantage of the opportunities given by digital transformation as the world becomes more connected and dependent on digital technologies. Embassy can open up new opportunities, improve bilateral ties, and provide their colleagues with excellent service in the digital age by embracing this transformative path.

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References

1. The OAS.org website. About e-Government (2020). <http://portal.oas.org/Portal/Sector/SAP/DepartamentoparalaGesti%C3%B3n%C3%ABlicaEfectiva/NPA/SobreProgramadeeGo bierno/tabid/811/Default.aspx?language=en-us>
2. Berman, S.J.: Digital transformation: opportunities to create new business models. *Strategy Leadersh.* **40**(2), 16–24 (2020). <https://doi.org/10.1108/10878571211209314>
3. Eggers, W.: The journey to government’s digital transformation. A Deloitte Digital global survey (2015). https://www2.deloitte.com/content/dam/insights/us/articles/digital-transformation-in-government/DUP_1081_Journey-to-govt-digital-future_MASTER.pdf
4. Fang, Z.: E-government in digital era: concept, practice, and development. *Int. J. Comput. Internet Manag.* **10**(2), 1–22 (2002)
5. Golafshani, N.: Understanding reliability and validity in qualitative research. *Qual. Rep.* **8**(4), 597–607 (2003)
6. Hess, T., Benlian, A., Matt, C., Wiesböck, F.: Options for formulating a digital transformation strategy. *MIS Q. Exec.* **15**(2), 123–139 (2016)
7. Kolachalam, S.: An overview of e-government. *Bus. Manag. Sci. Int. Quart. Rev.* **1**, 1–12 (2004). *Accademia di Economia Aziendale Italiana*, 2004. (International Association Europe and Asia, 2003). https://www.researchgate.net/publication/253509856_An_Overview_of_E-Government#fullTextFileContent
8. Kraus, S., Jones, P., Kailer, N., Weinmann, A., Chaparro-Banegas, N., Roig-Tierno, N.: Digital transformation: an overview of the current state of the art of research. *SAGE Open* **11**(3) (2021). <https://doi.org/10.1177/21582440211047576>
9. Malodia, S., Dhir, A., Mishra, M., Bhatti, Z.A.: Future of e-government: an integrated conceptual framework. *Technol. Forecast. Soc. Change* **173** (2021). <https://doi.org/10.1016/j.techfore.2021.121102>
10. Alenezi, M.: Understanding Digital Government Transformation. Preprint (2022). https://www.researchgate.net/publication/358402330_Understanding_Digital_Government_Transformation

11. Yildiz, M.: E-government research: reviewing the literature, limitations, and ways forward. *Gov. Inf. Quart.* **24**(3), 646–665 (2007). <https://doi.org/10.1016/j.giq.2007.01.002>
12. Ritchie, J., Lewis, J., Mcnaughton Nicholls, C., Ormston, R.: *Qualitative Research Practice: A Guide for Social Science Students and Researchers*, p. 456. SAGE (2013)
13. Samsor, A.M.: Challenges and prospects of e-government implementation in Afghanistan. *Int. Trade Polit. Dev.* **5**(1), 51–70 (2020). <https://doi.org/10.1108/itpd-01-2020-0001>
14. Saunders, M., Lewis, P., Thornhill, A.: *Research Methods for Business Students*, 5th edn. Pearson Education Limited, Harlow (2008)
15. Sebastian, I.M., Ross, J.W., Beath, C., Mocker, M., Moloney, K.G., Fonstad, N.O.: How big old companies navigate digital transformation. *MIS Q. Exec.* **16**(3), 197–213 (2017)
16. Strauss, A.L., Corbin, J.M.: *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 3rd edn. SAGE Publications, Inc. Thousand Oaks (2008). <https://doi.org/10.4135/9781452230153>
17. Waller, P.: *Digital Government: Overcoming the Systemic Failure of Transformation. Digital Transformation Through Policy Design with ICT-Enhanced Instruments* (2016). Brunel University London, Working Paper 2, 2016. Available at SSRN: <https://ssrn.com/abstract=2803233> or <https://doi.org/10.2139/ssrn.2803233>
18. Westerman, G., Calm ejane, C., Bonnet, D., Ferraris, P., McAfee, A.: *Digital transformation: a roadmap for billion-dollar Organizations*. MIT Center for Digital Business and Capgemini Consulting. https://www.capgemini.com/wp-content/uploads/2017/07/Digital_Transformation_A_Road-Map_for_Billion-Dollar_Organizations.pdf