Digital Technologies and Transformation of Governance
Processes: A Study of Syddanmark Regional Council in
Denmark

Svend Kjærsgaard Manita, Henning Hansen Khaghaany &
Ivar Bomholt Mensah

Digital Technologies and Transformation of Governance Processes: A Study of Syddanmark Regional Council in Denmark

[1*]**Svend Kjærsgaard Manita, **[2]**Henning Hansen Khaghaany & **[3]**Ivar Bomholt Mensah**
[1,2,3]**Roskilde University**
*Email of the Corresponding Author: svendmanita15@gmail.com

Abstract

Digital technologies have revolutionized governance processes by enhancing efficiency, transparency, and citizen engagement. The adoption of e-governance platforms and online services has streamlined administrative procedures, making government services more accessible and convenient for citizens. Data-driven decision-making has enabled evidence-based policy interventions and targeted service delivery. Online platforms for public consultations have empowered citizens to participate in decision-making processes and fostered a sense of inclusivity. The successful transformation of governance processes through digital technologies requires addressing challenges such as the digital divide, data privacy, cybersecurity, and continuous evaluation to ensure the benefits are maximized and the potential risks are mitigated. The study findings reveal that the adoption of digital technologies has brought several significant benefits to governance processes in the Regional Council. Efficiency has improved through the implementation of e-governance platforms and online services, reducing administrative burdens and enabling streamlined service delivery. The study also highlighted cybersecurity and data privacy as critical concerns. The regional council should continually invest in robust security measures to safeguard sensitive information and protect against potential cyber threats. The study concluded that the digital transformation of governance processes in the Council has yielded significant improvements in efficiency, transparency, citizen engagement, and accountability. The adoption of digital technologies, such as e-governance platforms, online services, and data-driven decision-making, has streamlined administrative procedures, enhanced service delivery, and empowered citizens to actively participate in governance. The study recommended that the regional council should prioritize efforts to bridge the digital divide and ensure equal access to digital technologies and internet connectivity. Training and educational resources should be provided to improve digital skills, increase awareness of online services, and promote responsible digital citizenship.

Keywords: *Digital Technologies, Transformation, Governance, Denmark*

1.0 Background of the Study

Digital technologies have had a profound impact on governance processes worldwide, transforming the way governments operate and interact with citizens (Todoruţ & Tselentis, 2018). This case study focuses on the Region of Southern Denmark (Syddanmark) and its regional council, examining how digital technologies have contributed to the transformation of governance processes in the region. The Syddanmark Regional Council has embraced digital technologies to enhance efficiency, transparency, and citizen engagement. The council recognizes the potential of digital transformation in streamlining administrative procedures and improving service delivery to the region's inhabitants (Randall, Ormstrup Vestergård & Wøien Meijer, 2020). One notable aspect of the digital transformation is the implementation of e-governance platforms and online services. The regional council has established user-friendly online portals, allowing citizens to access information, submit applications, and engage with government services remotely. This has significantly reduced bureaucratic hurdles and improved accessibility for residents across the region.

Dwivedi, Hughes, Kar, Baabdullah, Grover, Abbas and Wade (2022) noted that digital technologies have also revolutionized communication and collaboration within the council. Virtual meeting platforms and digital communication tools enable council members to connect, discuss issues, and make decisions remotely. This has increased efficiency in decision-making processes, particularly during times when physical meetings are challenging. Data-driven governance has become a key component of the digital transformation in Syddanmark. The regional council collects and analyzes data on various aspects of governance, ranging from demographics to service delivery metrics. This data-driven approach enables evidence-based decision-making and targeted policy interventions. The regional council has also leveraged digital technologies to enhance citizen participation in governance processes (Przeybilovicz, Cunha, Geertman, Leleux, Michels, Tomor & Meijer, 2022). Online platforms facilitate public consultations, allowing residents to provide feedback on policies and initiatives. The council actively incorporates citizen input into decision-making, fostering a sense of ownership and inclusivity. Efforts to enhance transparency and accountability have been central to the digital transformation (Vabø, 2022). The regional council has implemented open data initiatives, making vast amounts of information publicly available. Citizens can access data on government budgets, expenditures, and performance indicators, promoting transparency and enabling scrutiny.

The digital transformation has also extended to service delivery in Syddanmark (Goran, Ye & Yu, 2021). The regional council has embraced digital solutions in healthcare, education, and public transportation, among other sectors. For example, online health services and e-learning platforms have improved access to essential services, particularly in remote areas. Cybersecurity measures have been a crucial aspect of the digital transformation (Ohkubo, 2019). The regional council has implemented robust security protocols and data protection measures to safeguard sensitive information and maintain public trust. Regular assessments and training programs ensure that staff members are equipped to handle potential cybersecurity threats. Collaboration with the private sector and research institutions has played a vital role in the digital transformation journey. The

regional council has partnered with technology companies, startups, and academic institutions to develop innovative solutions, share expertise, and explore emerging technologies (Owen, Vedanthachari & Hussain, 2023).

Challenges related to the digital transformation include ensuring digital inclusivity for all residents, addressing the digital divide, and managing potential privacy concerns (Viale Pereira, Estevez, Cardona, Chesñevar, Collazzo-Yelpo, Cunha & Scholz, 2020). The regional council is committed to bridging these gaps and continuously evaluating the impact of digital technologies on various segments of society. The digital transformation in Syddanmark has yielded numerous benefits, including increased efficiency, improved service delivery, enhanced citizen participation, and greater transparency. It has positioned the regional council as a pioneer in embracing digital governance solutions. The success of the digital transformation in Syddanmark's regional council serves as a valuable case study for other regions and governments (Danielle, 2021). By leveraging digital technologies and prioritizing citizen-centric approaches, governments can unlock the potential for enhanced governance processes, improved public services, and increased trust between citizens and their governments.

1.1 Statement of the Problem

The integration of digital technologies into governance processes has become a global trend, offering opportunities for efficiency, transparency, and citizen engagement. However, as the Region of Southern Denmark (Syddanmark) undergoes digital transformation in its regional council, several challenges and issues must be addressed to ensure successful implementation and optimal outcomes. One significant challenge is the digital divide, which refers to the unequal access to digital technologies and internet connectivity. While digital solutions have the potential to enhance governance processes, ensuring inclusivity for all residents, regardless of socioeconomic status or geographic location, remains a key concern. It is crucial to address disparities in digital literacy, availability of internet infrastructure, and access to devices to prevent marginalization of certain segments of the population.

Privacy and data protection represent another critical problem. As digital technologies collect vast amounts of data for governance purposes, maintaining the privacy of individuals and ensuring secure data storage and management become paramount. The regional council must implement robust cybersecurity measures, establish data protection protocols, and ensure compliance with relevant regulations to protect citizens' sensitive information. The successful implementation of digital technologies in governance processes requires a skilled workforce capable of utilizing and managing these technologies effectively. The regional council may face challenges related to training and upskilling employees, ensuring they possess the necessary digital competencies to navigate the evolving landscape. Adequate training programs and continuous professional development initiatives must be in place to address this issue.

Citizen trust and confidence in digital governance processes are essential for their successful adoption. Concerns about data privacy breaches, misuse of personal information, and the potential for algorithmic biases can erode public trust. The regional council must proactively address these

concerns through transparent communication, robust security measures, and clear policies on data handling and usage. Interoperability and data integration pose challenges when implementing digital technologies across different government departments and agencies. Integrating disparate systems, ensuring data consistency, and establishing seamless communication channels require coordination and collaboration among various stakeholders. The regional council must prioritize interoperability frameworks and data sharing protocols to enable effective digital transformation. As the digital transformation progresses, it is essential to continuously evaluate the impact of digital technologies on governance processes and assess their effectiveness. Monitoring and evaluation mechanisms must be established to measure the outcomes and identify areas of improvement. This will allow the regional council to refine strategies, make necessary adjustments, and ensure that the digital transformation aligns with the goals and needs of the region and its citizens.

2.0 Literature Review

Mulyana, Rusu and Perjons (2021) mentioned that growing direct investments in digital technologies and undergoing a DT that presents value creation potential are a source of anxiety for many enterprises. IT governance (ITG) has been shown to be crucial to the success of digital projects inside businesses. ITG structures, processes, and relational mechanisms have been shown to improve business performance in previous research. In an increasingly digital world, however, the tried-and-true ITG procedures may no longer work. There has been a dearth of research in this area, unfortunately. To determine the ITG processes that affect DT, a comprehensive literature search was conducted. Forty-six publications from prestigious journals and conference proceedings were reviewed throughout the review process. There were a total of 28 ITG mechanisms identified that have an effect on DT. As a result of this work, academics now have a better understanding of the ITG processes that affect DT, and practitioners now know which ITG mechanisms to prioritize for effective DT.

Mensah, Zeng and Luo (2020) conducted research to examine how different sets of governance principles affect the adoption of digital technologies by public sector organizations. The research also delves at the possibilities of adaptive governance and whether or not sustainable practices can be implemented via digitalization in local governments. To find the answer, we undertake a literature analysis and four in-depth interviews with scientists, as well as a case study as part of an exploratory project. The case study, which consists of 11 semi-structured interviews, is then analyzed using the framework. According to the results, governing principles are not necessary for implementing digital changes in public organizations. But governance may impact the effectiveness of the change and the value it creates. The effectiveness of the transition might be jeopardized by the use of governance that hinders rather than helps it. It's possible that adaptive governance isn't the only answer, but it may certainly help with many problems that arise during municipal digital revolutions. Taking an ecosystem-level view, it places an emphasis on experimentation and knowledge acquisition. Since no procedures exist, however, its real-world relevance is restricted. Therefore, it may be necessary to combine these rules with others. Furthermore, local governments cannot attain sustainability goals just via digitization. Instead, the

city might embrace digital technology as means to a more sustainable end. This study fills a gap in the literature by examining the impact of governing principles on the digital transformations of public organizations in the Swedish environment. The paradigm shows promise for practical application and has the ability to serve as a guide and analytical tool for public sector organizations undergoing digital transformation.

Mohamed and Saad (2022) conducted study to investigate whether digital transformation at conventional corporations can enhance accounting quality and corporate governance, with China's digital economy and technology expanding at a fast pace. Our research suggests that companies that are farther down the path to digital transformation also have better accounting quality and less earnings management. By lowering three kinds of agency expenses, digital transformation may boost accounting quality. In particular, digital transformation may enhance corporate internal control, leading to better accounting. Additional research reveals that non-state enterprises, or inadequate information quality firms, and long-term oriented firms are more vulnerable to the governance consequences of corporate digital transformation. A reduction in the synchronization between actual earnings management and stock price, as well as an improvement in accounting quality, is one of the beneficial governance effects that might result from a company's digital transformation. Moreover, Hariguna, Ruangkanjanases and Sarmini. (2021) conducted research to quantify the effect that digitalization has had on public services, namely those provided by the Ministry of Agrarian Affairs and Spatial Planning. This research uses a qualitative, descriptive methodology. The information was gathered by keeping meticulous records and conducting in-depth interviews. Methods of data reduction, presentation, and conclusion were used to analyze the data.

Almagtome, Khaghaany and Önce (2020) noted that using communication technologies and other emerging technologies, the digitization process affects not only the internal operational environment of a business, but also all stakeholders, including shareholders, management, and suppliers, marking one of the sharpest turns in the long-running transformation journey of enterprises throughout history. Business strategies shifted from being profit-driven to creating long-term sustainable value during this period of transition. By improving the timeliness, accuracy, and transparency of information needed and requested by stakeholders, digitalization contributes to a more robust responsibility and accountability framework, accounting being one of the most important supporting tools of corporate governance pillars. As a result of technological advancements in this area, businesses now have access to a greater wealth of data for use in making decisions, opening the door to a richer content potential in financial and non-financial reporting. Accounting, and by extension, corporate governance processes, may be revolutionized with the use of big data analysis, artificial intelligence, and blockchain technology. From the standpoint of evolving technology and institutionalization, this chapter explores the implications, transformations, and next steps that digitalization may have on corporate governance procedures.

Manita, Elommal, Baudier and Hikkerova (2020) conducted study to investigate the impact of governance on digital transformation. By analyzing the introduction of an e-CRM system at a Malaysian petrochemicals firm, an exploratory interviews with firm decision-makers led to the development of a questionnaire for a full-scale research. A total of 295 workers across all levels

of management were surveyed. Based on the parametric information, correlation studies were performed. In order to adapt to the ever-changing business climate and ultimately prosper, many companies are turning to digital technology as the engine that will propel necessary changes to their enterprise business models and ecosystems. However, many have been unable to successfully complete their digital transitions due to a variety of internal and external issues. The remainder of the organizations have not yet realized the full benefit of a digitally enabled shift as a consequence of their path to digital transformation. The majority of Malaysian businesses that have made substantial expenditures in their digital endeavors have seen just little returns on their efforts. Awareness, execution, and quality of digital transformation were all shown to be highly impacted by governance. These results highlight the need for governance to back up strategic decision making when introducing digital transformation into the industrial sector of a developing nation.

Xu, Chen and Dai (2022) conducted research to examine the impact of digital transformation on the environmental governance of mining operations by using a sample of A-share companies listed between 2007 and 2020. The panel fixed-effect model, the intermediated effect model, and multiple linear regression analysis are the mainstays of our research methodology. The rapid development and widespread application of digital technologies has made the environmental governance of mining enterprises one of the most important themes of theoretical research and practical exploration. Digitization provides new impetus to the transformation and upgrading of mining enterprises. The findings demonstrate that, despite being subjected to a battery of endogeneity and robustness tests, digital transformation considerably enhances the environmental governance of mining firms. Comparability of accounting data reveals no significant mediation effect between digital transformation and environmental governance, but the path test reveals that digital transformation performed in mining enterprises helps improve their environmental governance level by strengthening media supervision. According to the heterogeneity test, only non-state-owned businesses, large-scale businesses, and organizations with mature growth are significantly promoting digital transformation in environmental governance. These results contribute to the literature on the environmental governance implications and economic repercussions of technological change in the mining industry. This is a valuable resource and has substantial heuristic value in advancing mining companies' digital transformation and bolstering their environmental governance.

3.0 Research Findings

The study findings reveal that the adoption of digital technologies has brought several significant benefits to governance processes in the Syddanmark Regional Council. Efficiency has improved through the implementation of e-governance platforms and online services, reducing administrative burdens and enabling streamlined service delivery. The accessibility of government services has increased, allowing citizens to access information and interact with the council remotely, which has particularly benefited residents in remote areas or with limited mobility. Citizen engagement has been positively influenced by digital transformation. Online platforms for public consultations have facilitated broader participation, enabling citizens to provide feedback on policies, initiatives, and regional development plans. The council actively incorporates citizen

input into decision-making processes, fostering a sense of ownership, transparency, and inclusivity. The digital tools have empowered citizens to play a more active role in shaping governance processes. Digital technologies have contributed to enhancing transparency and accountability in the Syddanmark Regional Council. Open data initiatives have made a wealth of information publicly available, such as government budgets, expenditures, and performance indicators. This transparency has improved public trust and enabled stakeholders, including citizens, researchers, and civil society organizations, to scrutinize and monitor governance processes more effectively.

Challenges identified in the study include the digital divide and the need for digital literacy. While the digital transformation has improved accessibility, some residents still face barriers due to limited access to technology and internet connectivity. Ensuring equal opportunities for all citizens to benefit from digital governance processes remains a priority. Additionally, digital literacy programs and support are necessary to enable residents to effectively engage with the digital tools and platforms provided by the council. The study also highlighted cybersecurity and data privacy as critical concerns. The regional council should continually invest in robust security measures to safeguard sensitive information and protect against potential cyber threats. Striking the right balance between leveraging data for evidence-based decision-making and ensuring privacy protection is crucial to maintaining public trust and confidence. Overall, the study findings demonstrate that the digital transformation of governance processes in the Syddanmark Regional Council has had a positive impact. It has improved efficiency, citizen engagement, transparency, and accountability. However, challenges such as the digital divide, digital literacy, cybersecurity, and data privacy must be addressed to ensure inclusivity, trust, and optimal outcomes. Continued monitoring, evaluation, and adaptation are necessary to maximize the benefits of digital technologies and further enhance governance processes in the regional council.

4.0 Conclusion

In conclusion, the digital transformation of governance processes in the Syddanmark Regional Council has yielded significant improvements in efficiency, transparency, citizen engagement, and accountability. The adoption of digital technologies, such as e-governance platforms, online services, and data-driven decision-making, has streamlined administrative procedures, enhanced service delivery, and empowered citizens to actively participate in governance. The study findings highlight the positive impact of digital technologies on governance processes. The increased accessibility of government services through online platforms has benefited residents across the region, particularly those in remote areas or with limited mobility. Citizen engagement has been strengthened through online consultations, fostering a sense of inclusivity and ownership. Moreover, open data initiatives have promoted transparency, enabling stakeholders to monitor and scrutinize governance processes effectively. Despite the numerous benefits, challenges remain in ensuring digital inclusivity, addressing the digital divide, and ensuring data privacy and cybersecurity. Bridging the gaps in access, digital literacy, and internet connectivity is crucial to prevent marginalization and ensure equal opportunities for all citizens to participate in digital

governance. Additionally, robust security measures and privacy protocols must be implemented to protect sensitive data and maintain public trust.

The digital transformation journey of the Syddanmark Regional Council serves as a valuable case study for other regions and governments. By prioritizing citizen-centric approaches, investing in digital skills training, promoting interoperability, and continuously evaluating the impact of digital technologies, governments can navigate challenges and unlock the full potential of digital governance processes. Overall, the digital technologies and transformation of governance processes in the Syddanmark Regional Council have positioned it as a pioneer in embracing digital solutions. The council's commitment to efficiency, transparency, citizen engagement, and accountability sets a positive example for other regions seeking to enhance their governance systems through digital transformation. By learning from the experiences and addressing the challenges identified, governments can harness the power of digital technologies to create more inclusive, transparent, and effective governance processes for the benefit of their citizens.

5.0 Recommendations

The regional council should prioritize efforts to bridge the digital divide and ensure equal access to digital technologies and internet connectivity. This can be achieved through partnerships with internet service providers, community centers, and educational institutions to expand broadband infrastructure in underserved areas. Additionally, targeted initiatives should be implemented to provide digital literacy training and support to citizens, particularly those who may face barriers in utilizing digital platforms. To maximize the benefits of digital technologies, the regional council should invest in comprehensive digital literacy programs for citizens and employees. Training and educational resources should be provided to improve digital skills, increase awareness of online services, and promote responsible digital citizenship. Special attention should be given to vulnerable populations, including elderly individuals and marginalized communities, to ensure their active participation in digital governance processes.

The regional council should continue prioritizing data privacy and cybersecurity measures to protect sensitive information and maintain public trust. Regular audits and assessments of data handling practices, as well as the implementation of robust security protocols, should be undertaken. Staff members should receive ongoing training to raise awareness of cyber threats and best practices for data protection. Collaborating with cybersecurity experts and conducting risk assessments will help identify and mitigate potential vulnerabilities. The digital transformation journey should be a continuous process of evaluation, learning, and adaptation. The regional council should establish monitoring mechanisms to assess the impact of digital technologies on governance processes, service delivery, and citizen engagement. Regular feedback from citizens, stakeholders, and employees should be sought to identify areas for improvement. Based on these evaluations, the council can refine strategies, introduce new technologies, and address emerging challenges to ensure the digital transformation remains relevant and aligned with the needs of the region.

REFERENCES

Almagtome, A., Khaghaany, M., & Önce, S. (2020). Corporate governance quality, stakeholders' pressure, and sustainable development: An integrated approach. *International Journal of Mathematical Engineering and Management Sciences, 5(6).* https://doi.org/10.33889/IJMEMS.2020.5.6.082

Danielle, D. (2021). A study of the cleantech technological innovation systems in Copenhagen and London and the role of innovation intermediaries: a case study of Clean Tech London and the CLEAN cluster Denmark.

Dwivedi, Y. K., Hughes, L., Kar, A. K., Baabdullah, A. M., Grover, P., Abbas, R., ... & Wade, M. (2022). Climate change and COP26: Are digital technologies and information management part of the problem or the solution? An editorial reflection and call to action. *International Journal of Information Management, 63, 102456.* https://doi.org/10.1016/j.ijinfomgt.2021.102456

Goran, R., Ye, K. N., & Yu, F. Y. (2021). Opportunities for sustainable economic development of the coastal territories of the Baltic Sea region in the context of digital transformation. Baltic Region, 13(S2), 7-26. https://doi.org/10.5922/2079-8555-2021-2-1

Hariguna, T., Ruangkanjanases, A., & Sarmini. (2021). Public behavior as an output of e-government service: the role of new technology integrated in e-government and antecedent of relationship quality. Sustainability, 13(13), 7464. https://doi.org/10.3390/su13137464

Manita, R., Elommal, N., Baudier, P., & Hikkerova, L. (2020). The digital transformation of external audit and its impact on corporate governance. Technological Forecasting and Social Change, 150, 119751. https://doi.org/10.1016/j.techfore.2019.119751

Mensah, I. K., Zeng, G., & Luo, C. (2020). E-Government services adoption: an extension of the unified model of electronic government adoption. Sage Open, 10(2), 2158244020933593. https://doi.org/10.1177/2158244020933593

Mohamed, Z. E., & Saad, M. (2022). The Impact of Digital Transformation and Corporate Governance in the Relationship of Strategic Management Practices and the Firm's Performance: The Case of the Malaysian Petroleum Sector. *Journal of Business, 10(4), 192-209.*

Mulyana, R., Rusu, L., & Perjons, E. (2021). IT Governance Mechanisms Influence on Digital Transformation: A Systematic Literature Review. In Twenty-Seventh Americas' Conference on Information Systems (AMCIS), Digital Innovation and Entrepreneurship, Virtual Conference, August 9-13, 2021 (pp. 1-10). Association for Information Systems (AIS).

Ohkubo, K. (2019). Cybersecurity Technologies Essential in the Digital Transformation Era. *International Journal of Informatics Society (IJIS), 11.*

Owen, R., Vedanthachari, L. N., & Hussain, J. (2023). The role of the university entrepreneurial ecosystem in entrepreneurial finance: case studies of UK innovation knowledge centres. Venture Capital, 1-25. https://doi.org/10.1080/13691066.2023.2205606

Przeybilovicz, E., Cunha, M. A., Geertman, S., Leleux, C., Michels, A., Tomor, Z., ... & Meijer, A. (2022). Citizen participation in the smart city: findings from an international comparative study. Local government studies, 48(1), 23-47. https://doi.org/10.1080/03003930.2020.1851204

Randall, L., Ormstrup Vestergård, L., & Wøien Meijer, M. (2020). Rural perspectives on digital innovation: Experiences from small enterprises in the Nordic countries and Latvia. https://doi.org/10.6027/R2020:4.1403-2503

Todoruţ, A. V., & Tselentis, V. (2018). Digital technologies and the modernization of public administration. Calitatea-Acces la Success, 19(165), 73-78.

Vabø, M. (2022). Norwegian home care in transition–heading for accountability, off-loading responsibilities. Health & social care in the community, 20(3), 283-291. https://doi.org/10.1111/j.1365-2524.2012.01058.x

Viale Pereira, G., Estevez, E., Cardona, D., Chesñevar, C., Collazzo-Yelpo, P., Cunha, M. A., ... & Scholz, R. W. (2020). South American expert roundtable: increasing adaptive governance capacity for coping with unintended side effects of digital transformation. Sustainability, 12(2), 718. https://doi.org/10.3390/su12020718

Xu, C., Chen, X., & Dai, W. (2022). Effects of Digital Transformation on Environmental Governance of Mining Enterprises: Evidence from China. *International Journal of Environmental Research and Public Health, 19(24), 16474.* https://doi.org/10.3390/ijerph192416474