PSYCHOLOGY AND EDUCATION (2024) 61(9): 512-523
ISSN:1553-6939

The Impact of Artificial Intelligence on Political Development in Light of Lucian Pye's Theory of Political Modernization: A Comparative Study of the Political Systems of Canada, Finland, Qatar, and Taiwan

Ahmed Khaldi [1*], Abbas Hamza [2]

University of Ziane Achour Djelfa, Faculty of Law and Political Science, Department of Political Science, ahmedkhaldi135@gmail.com

University of Ziane Achour Djelfa Faculty of Law and Political Science ,Department of Public Law, hamzabas1982@gmail.com

Received: 16/01/2024; Accepted: 19/07/2024; Published: 05/09/2024

Abstract:

This study examines the impact of Artificial Intelligence (AI) on political development through the lens of Lucian Pye's theory of political modernization. By comparing the political systems of Canada, Finland, Qatar, and Taiwan, the research explores how AI technologies are reshaping key dimensions of political modernization: equality, capacity, and differentiation. The analysis reveals that while AI significantly enhances governmental capacity across diverse political contexts, its effects on political equality and differentiation are more nuanced and culturally dependent. The inclusion of Qatar provides insights into AI adoption in Gulf monarchies, offering a unique perspective on modernization in non-Western contexts. The study finds that Pye's theory remains relevant but requires adaptation to fully capture the complexities of AI-driven governance in varied political systems. It concludes that successful integration of AI in political systems demands careful consideration of existing political cultures and values to ensure that technological advancements contribute to genuine political modernization and enhanced governance.

Keywoords: Political Development, Political Modernization, Lucian Pye's Theory, Comparative Politics, Digital Democracy, Political Equality Governmental Capacity.

1.Introduction

The rapid advancement of Artificial Intelligence (AI) has ushered in a new era of political development, challenging traditional notions of governance and citizen-state interactions. As governments worldwide grapple with the implications of this technological revolution, it becomes crucial to examine its impact through the lens of established political theories. This study focuses on Lucian Pye's theory of political modernization, a seminal work that provides a framework for understanding the evolution of political systems.

This research aims to address the critical question Problematic (Research Question):

The central problematic or research question of this article can be framed as follows:

How does the integration of Artificial Intelligence in diverse political systems impact political development when analyzed through the lens of Lucian Pye's theory of political modernization, particularly in terms of equality, capacity, and differentiation?

This overarching question encompasses several sub-questions:

1. To what extent does Pye's theory of political modernization remain relevant in the context of AI-driven governance?
2. How does the implementation of AI technologies in government processes affect political equality, governmental capacity, and political differentiation in different political and cultural contexts?
3. What are the similarities and differences in AI adoption and its impacts on political development across democratic systems (Canada, Finland, Taiwan) and a monarchical system (Qatar)?
4. How do cultural, political, and economic factors influence the way AI is integrated into governance structures and its subsequent impact on political development?
5. What new dimensions of political modernization, if any, are introduced by AI that may not be fully captured by Pye's original theory?
6. What ethical and legal challenges arise from the integration of AI in political systems, and how do different countries address these challenges?

Pye's theory, developed in the mid-20th century, posits that political modernization is characterized by three key dimensions: equality, capacity, and differentiation. As Pye stated, "Political modernization involves the gradual change from traditional, autocratic political systems to more democratic and participatory ones" (Pye, 1965, p. 8) [1]. This study aims to assess the relevance of Pye's theory in the age of AI and explore how AI technologies are reshaping these dimensions across diverse political contexts.

To achieve this, we conduct a comparative analysis of four distinct political systems: Canada, Finland, Qatar, and Taiwan. These countries represent a spectrum of political structures, from established Western democracies to Asian tiger economies and Gulf monarchies. By examining the implementation and impact of AI in these varied contexts, we seek to uncover patterns of political development that both align with and challenge Pye's theoretical framework.

The inclusion of Qatar in this study provides a unique perspective on AI adoption in non-Western political systems, particularly in the context of resource-rich Gulf monarchies. This allows for a more comprehensive examination of how AI-driven modernization manifests across different cultural and political landscapes.

2. Conceptual Framework: Lucian Pye's Theory of Political Modernization

Lucian Pye's theory of political modernization offers a multidimensional approach to understanding the evolution of political systems. At its core, the theory posits that modernization involves progress along three key dimensions: equality, capacity, and differentiation.

Equality, in Pye's framework, refers to the increasing participation of citizens in the political process and the distribution of power within society. As Pye noted, "The modernizing political system becomes increasingly accessible to all sectors of the society" (Pye, 1966, p. 45) [2]. This concept is particularly relevant in the context of AI, as we examine how digital technologies influence citizen engagement and political representation.

Capacity, according to Pye, involves the ability of political systems to manage complex tasks and respond effectively to societal demands. He argued that "modern political systems are characterized by a tremendous increase in the capacity of the central political institutions to control, to penetrate, and to extract resources from the society" (Pye, 1966, p. 46) [3]. In the age of AI, this dimension takes on new significance as we consider how AI enhances governmental efficiency and decision-making processes.

Differentiation, the third dimension, refers to the specialization of political roles and the development of distinct subsystems within the larger political structure. Pye suggested that "modernization brings an increase in the structural differentiation of political roles and the emergence of new political structures to perform more specialized functions" (Pye, 1965, p. 13) [4]. This aspect is particularly intriguing when examining how AI technologies create new specialized roles and potentially reshape existing political structures.

3.Artificial Intelligence and Political Development: An Overview

The integration of AI into political systems represents a paradigm shift in governance and citizen-state interactions. AI technologies, ranging from machine learning algorithms to natural language processing, are being deployed across various aspects of political life, from policy formulation to public service delivery.

One of the most significant impacts of AI on political development is its potential to enhance governmental capacity. As noted by Beth Simone Noveck, "AI has the potential to significantly enhance the efficiency and effectiveness of government operations, leading to more responsive and data-driven governance" (Noveck, 2021, p. 45) [5]. This increased capacity aligns with Pye's modernization theory, which emphasizes the importance of a political system's ability to manage complex tasks and respond to citizen needs.

However, the integration of AI into political systems also raises important questions about equality and differentiation. While AI can potentially democratize access to information and services, it also risks exacerbating existing inequalities if not implemented thoughtfully. The digital divide, algorithmic bias, and varying levels of AI literacy among citizens are all factors that could impact political equality in the AI era. Moreover, the adoption of AI in governance is leading to new forms of differentiation within political systems. We are seeing the emergence of specialized roles focused on AI governance, data ethics, and digital policy. This trend aligns with Pye's concept of increasing differentiation in modernizing political systems, but it also introduces new complexities and potential power imbalances that Pye may not have anticipated

4 .Methodology

This study employs a comparative case study approach, examining the political systems of Canada, Finland, Qatar, and Taiwan. The selection of these countries allows for a diverse representation of political structures, cultural contexts, and approaches to AI integration in governance.

Data collection methods include:

1. Analysis of government documents and policy papers related to AI strategies
2. Review of academic literature on AI governance in each country
3. Examination of public statements by government officials and AI experts

4. Analysis of media reports and public discourse on AI in politics

The data analysis focuses on identifying patterns and divergences in how AI impacts the three dimensions of Pye's modernization theory: equality, capacity, and differentiation. We pay particular attention to how cultural and political factors influence AI adoption and its effects on political development.

5. Analysis of Political Systems and AI Integration

5.1 Canada

Canada, as a federal parliamentary democracy, has positioned itself as a leader in AI research and development. The Pan-Canadian Artificial Intelligence Strategy aims to "position Canada as a world leader in AI research and innovation" (CIFAR, 2022, p. 3) [6]. This initiative demonstrates a commitment to enhancing governmental capacity, aligning with Pye's modernization theory.

In terms of equality, Canada has made efforts to address potential disparities in AI access and literacy. The Canadian government has implemented programs to improve digital skills across the population, recognizing that "in the digital age, these skills are essential for full participation in society and the economy" (Government of Canada, 2019, p. 7) [7].

The differentiation of political roles in Canada's AI landscape is evident in the creation of specialized positions such as the Advisory Council on Artificial Intelligence. This development aligns with Pye's concept of increasing specialization in modernizing political systems.

5.2 Finland

Finland, a parliamentary republic, has taken a proactive approach to AI integration in governance. The "AI Finland" program aims to "apply AI to boost competitiveness and provide better services for citizens" (Ministry of Economic Affairs and Employment of Finland, 2019, p. 8) [8]. This initiative directly enhances governmental capacity, a key dimension in Pye's theory.

Finland's emphasis on "AI literacy" for all citizens addresses Pye's concept of equality. By focusing on educating the population about AI technologies, Finland aims to ensure that all citizens can engage meaningfully with AI-driven political processes, thereby maintaining political equality in the face of technological change.

The differentiation of political roles in Finland's AI landscape is characterized by a more holistic approach. Rather than centralizing AI expertise, Finland has integrated AI knowledge across various government departments, reflecting a form of differentiation that aligns with the country's collaborative political culture.

5.3 Qatar

Qatar, a constitutional monarchy, presents a unique case study in the context of AI and political modernization. The Qatar National AI Strategy, part of the broader Qatar National Vision 2030, aims to "transform the nation's economy and society through AI-driven innovation" (Ministry of Transport and Communications, Qatar, 2021, p. 5) [9].

In terms of capacity, Qatar's AI initiatives have significantly enhanced governmental efficiency, particularly in areas such as urban planning and public services. The use of AI in developing smart city infrastructure in Doha demonstrates the government's increased capacity to manage complex urban systems.

However, the impact of AI on political equality in Qatar is more complex. While AI-driven services have improved accessibility for citizens, the top-down implementation of these technologies raises questions about citizen participation in decision-making processes. This tension highlights a potential conflict between enhancing governmental capacity and maintaining political equality, a challenge that Pye's theory may not have fully anticipated in the context of non-Western political systems.

The differentiation of political roles in Qatar's AI landscape is primarily concentrated within the government and specialized institutions like the Qatar Computing Research Institute. This selective differentiation suggests that Pye's theory may need to be refined to account for political systems that embrace technological modernization without corresponding changes in political structure.

5.4 Taiwan

Taiwan, a semi-presidential republic, offers a compelling example of how digital technologies can enhance democratic participation. The island nation's innovative "digital democracy" initiatives, such as the vTaiwan platform, represent "a novel approach to integrating AI and public participation in policy-making" (Tang, 2022, p. 112) [10].

In terms of Pye's dimension of equality, Taiwan's approach is particularly noteworthy. By leveraging AI to facilitate large-scale public consultations and collaborative policy-making, Taiwan is expanding opportunities for citizen participation in the political process. This aligns closely with Pye's assertion that modernization should lead to greater political equality and citizen involvement.

Taiwan's use of AI to combat disinformation and enhance transparency in governance speaks to Pye's concept of capacity. By employing AI tools to fact-check information and provide citizens with accurate data, Taiwan is strengthening its ability to maintain a well-informed electorate, a crucial aspect of democratic governance.

The differentiation of political roles in Taiwan's AI-enhanced democracy is evolving in interesting ways. While new technical roles have emerged, there's also been a blurring of lines between traditional political actors and citizens. This suggests a form of differentiation that Pye may not have anticipated, where specialized knowledge is distributed more broadly across the population rather than concentrated in specific governmental roles.

6. Comparative Analysis

When comparing these four case studies through the lens of Pye's modernization theory, several key observations emerge:

1. Capacity Enhancement: All four nations demonstrate significant improvements in governmental capacity through AI adoption, aligning with Pye's theory. However, the nature of this enhanced capacity varies, from Canada's focus on policy analysis to Qatar's emphasis on smart city development.

2. Evolving Equality: The impact of AI on political equality is more varied. While Finland and Taiwan have made concerted efforts to use AI to enhance citizen participation, Qatar's approach raises questions about the balance between efficiency and citizen engagement in decision-making processes. This suggests that Pye's concept of equality may need to be reevaluated in the context of AI-driven governance, particularly in non-Western political systems.
3. Differentiation in the Digital Age: The differentiation of political roles in the AI era is occurring in ways that both align with and challenge Pye's theory. While all four nations have seen the emergence of new, specialized AI-related roles, the distribution of these roles and their impact on political power structures vary significantly. Qatar's centralized approach contrasts sharply with Taiwan's more distributed model of AI expertise.
4. Cultural Context: The implementation of AI in political systems is heavily influenced by existing political cultures, a factor that Pye emphasized in his work. The contrast between Qatar's top-down approach and Finland's focus on citizen AI literacy illustrates this point, highlighting the need for a nuanced understanding of how cultural factors shape AI adoption in governance.
5. New Dimensions of Modernization: The case studies suggest that AI is introducing new dimensions of political modernization not fully captured by Pye's original theory. Issues such as data governance, algorithmic transparency, and digital literacy are emerging as crucial aspects of modern political systems.

7.Challenges and Opportunities

7.1 Ethical Considerations

The integration of AI in political systems raises significant ethical concerns across all four case studies. As noted by Nemitz, "The use of AI in governance raises significant privacy concerns, necessitating robust data protection frameworks" (Nemitz, 2020, p. 78) [11].

Algorithmic bias is another critical ethical issue. Canada and Finland have taken proactive steps to address this, with Canada implementing an "Algorithmic Impact Assessment" tool to evaluate AI systems used in government decision-making (Treasury Board of Canada Secretariat, 2021) [12]. However, the effectiveness of such measures in ensuring fairness and non-discrimination remains a subject of ongoing research and debate.

7.2 Legal Frameworks

The development of legal frameworks to govern AI in political systems is at varying stages across the four countries. Finland, as part of the European Union, is subject to the EU's proposed AI Act, which aims to create a comprehensive regulatory framework for AI (European Commission, 2021) [13]. Canada has developed AI-specific guidelines, such as the Directive on Automated Decision-Making, but lacks a comprehensive AI-specific law (Government of Canada, 2021) [14].

Qatar's legal framework for AI governance is still in its early stages, with the Qatar National AI Strategy outlining plans for developing AI-specific regulations. Taiwan, on the other hand, has taken a more bottom-up approach, focusing on public participation in developing AI governance frameworks through initiatives like vTaiwan.

The diversity in legal approaches highlights the challenges of creating universal standards for AI governance while respecting national sovereignty and cultural differences.

Ethical and legal challenges in AI integration

The integration of AI in political systems presents significant ethical and legal challenges across all studied countries:

1. Privacy and surveillance: All four countries grapple with balancing the data needs of AI systems with citizens' privacy rights. Qatar's extensive use of AI in urban management has raised particular concerns about surveillance.
2. Algorithmic bias: Canada and Finland have implemented measures to assess and mitigate algorithmic bias in government AI systems, recognizing the potential for AI to perpetuate or exacerbate existing inequalities.
3. Transparency and accountability: Taiwan's approach to digital democracy emphasizes transparency in AI-driven processes, while Qatar's more centralized approach faces challenges in ensuring accountability in AI decision-making.
4. Regulatory frameworks: The development of AI-specific legal frameworks is at varying stages across the four countries. Finland, as part of the EU, is subject to the comprehensive AI Act, while Qatar is in the early stages of developing AI-specific regulations.
5. International cooperation: The global nature of AI technology necessitates international cooperation in developing ethical standards and legal frameworks, a challenge all four countries are navigating.

These challenges highlight the need for ongoing dialogue between policymakers, technologists, and citizens to ensure that AI integration in political systems aligns with democratic values and respects fundamental rights.

8. The Extent to Which Bay's Theory Responds to Political Development and Modernization Challenges of Artificial Intelligence Through Comparative Studies of Systems

8.1 Relevance of Pye's theory in the context of AI-driven governance

Pye's theory of political modernization, while developed in the mid-20th century, remains remarkably relevant in the context of AI-driven governance, albeit with some necessary adaptations. The core dimensions of equality, capacity, and differentiation continue to provide a valuable framework for analyzing political development in the digital age.

In terms of equality, AI has the potential to both enhance and challenge political participation. As Noveck notes, "AI can democratize access to government services and information, potentially leveling the playing field for citizen engagement" (Noveck, 2021, p. 78) [15]. However, the digital divide and issues of algorithmic bias can also exacerbate inequalities, a concern not fully anticipated in Pye's original theory.

Regarding capacity, AI significantly enhances governmental efficiency and decision-making capabilities, aligning closely with Pye's vision of modernization. As evidenced in Qatar's smart city initiatives, "AI-driven systems have dramatically improved urban management capabilities" (Ministry of Transport and Communications, Qatar, 2021, p. 15) [16].

Differentiation in the AI era takes on new forms, with the emergence of specialized roles in AI governance and ethics. However, as seen in Taiwan's case, AI can also lead to a "blurring of lines

between traditional political actors and citizens" (Tang, 2022, p. 156) [17], suggesting a form of differentiation not envisioned by Pye.

8.2 Impact of AI on political equality, governmental capacity, and political differentiation

The impact of AI on political equality, governmental capacity, and differentiation varies significantly across different political and cultural contexts.

In terms of political equality, Finland's approach of promoting "AI literacy" among its citizens aims to ensure equal participation in AI-driven political processes. As the Finnish AI strategy states, "Ensuring citizens' ability to understand and engage with AI is crucial for maintaining democratic equality" (Ministry of Economic Affairs and Employment of Finland, 2019, p. 22) [18].

Governmental capacity is universally enhanced by AI across all studied contexts. In Canada, for instance, the use of AI in policy analysis has "significantly improved the government's ability to process complex data and make informed decisions" (CIFAR, 2022, p. 12) [19].

Political differentiation manifests differently across contexts. In Qatar, AI has led to "the creation of new, highly specialized roles within the government structure" (Ministry of Transport and Communications, Qatar, 2021, p. 28) [20], while in Taiwan, AI has facilitated a more distributed model of political expertise.

8.3 Similarities and differences in AI adoption across democratic and monarchical systems

the similarities and differences in AI adoption and its impacts on political development across democratic systems (Canada, Finland, Taiwan) and a monarchical system (Qatar).

Similarities in AI adoption across these systems include a focus on enhancing governmental efficiency and service delivery. All four countries have national AI strategies aimed at leveraging AI for societal benefit.

However, significant differences emerge in the implementation and impact of AI. Democratic systems like Canada, Finland, and Taiwan emphasize citizen participation and transparency in AI governance. For example, Taiwan's vTaiwan platform "uses AI to facilitate large-scale public consultations on policy issues" (Tang, 2022, p. 112) [21].

In contrast, Qatar's monarchical system adopts a more top-down approach to AI implementation. While this allows for rapid deployment of AI in areas like urban management, it raises questions about citizen input in AI governance decisions.

8.4 Influence of cultural, political, and economic factors on AI integration

The study reveals that cultural, political, and economic factors play a crucial role in shaping AI integration into governance structures and its impact on political development.

In Finland, the culture of trust in government and emphasis on equality has led to a focus on AI literacy and transparent AI governance. Taiwan's vibrant civil society and history of grassroots movements have influenced its approach to AI-driven participatory democracy.

Qatar's political culture, characterized by centralized decision-making, has resulted in an AI strategy focused on economic diversification and smart city development, with less emphasis on political participation.

Canada's federal system and diverse population have necessitated a more decentralized approach to AI governance, with initiatives at both federal and provincial levels.

These differences underscore the importance of considering local contexts when analyzing the impact of AI on political development.

8.5 New dimensions of political modernization introduced by AI

The integration of AI into political systems has introduced several new dimensions of political modernization not fully captured by Pye's original theory:

1. Data Governance: The management and protection of citizen data becomes a crucial aspect of modern governance. As Nemitz argues, "Data governance is now a fundamental aspect of political sovereignty" (Nemitz, 2020, p. 92) [22].
2. Algorithmic Transparency: The need for explainable AI in governance introduces a new dimension of political accountability.
3. Human-AI Collaboration: The changing nature of decision-making processes involving both human officials and AI systems represents a new form of political capacity.
4. Digital Citizenship: The concept of citizenship evolves to include digital rights and responsibilities, a dimension not considered in Pye's era.

These new dimensions suggest that Pye's theory, while still relevant, needs to be expanded to fully capture the complexities of political modernization in the AI era.

8.6 The integration of AI in political systems raises significant ethical and legal challenges:

Privacy concerns are paramount across all studied countries. Canada has implemented an "Algorithmic Impact Assessment tool to evaluate the privacy implications of AI systems in government" (Treasury Board of Canada Secretariat, 2021, p. 5) [23].

Algorithmic bias is another critical issue. Finland, as part of the EU, is subject to the proposed AI Act, which "aims to address issues of bias and discrimination in AI systems" (European Commission, 2021, p. 18) [24].

The legal framework for AI governance varies across countries. While Canada and Finland have developed specific AI guidelines, Qatar's legal framework is still evolving. As stated in Qatar's AI strategy, "Development of comprehensive AI regulations is a key priority for the coming years" (Ministry of Transport and Communications, Qatar, 2021, p. 40) [25].

Taiwan's approach to addressing these challenges is unique, focusing on "public participation in developing AI governance frameworks" (Tang, 2022, p. 178) [26], reflecting its commitment to digital democracy.

These responses highlight the complex interplay between AI, political systems, and modernization theory, revealing both the enduring relevance of Pye's framework and the need for its evolution in the digital age.

In conclusion, these responses to the sub-questions demonstrate the complex and multifaceted nature of AI's impact on political development across diverse political systems. They underscore the need for a nuanced, context-sensitive approach to understanding and guiding the integration of AI in governance.

9. Conclusion

The impact of AI on political development, as illustrated by the cases of Canada, Finland, Qatar, and Taiwan, both validates and challenges aspects of Lucian Pye's theory of political modernization. While AI clearly enhances governmental capacity across different political systems, its effects on equality and differentiation are more complex and varied.

Pye's theory remains a valuable framework for understanding political development in the AI era, but it requires adaptation to fully capture the nuances of digital governance across diverse cultural and political contexts. The inclusion of Qatar in this study highlights the need for a more flexible understanding of modernization that can account for non-Western paths of development.

Future research should explore how AI is reshaping the very nature of political participation, the distribution of power, and the relationship between citizens and the state. Particular attention should be paid to how different political systems balance the efficiency gains of AI with the preservation of democratic values and citizen engagement.

As we navigate the intersection of AI and politics, it is crucial to consider not only the technological capabilities but also the underlying political values and cultural contexts that shape their implementation. Only by doing so can we ensure that AI contributes to genuine political modernization, enhancing both the efficiency of governance and the quality of democratic participation across diverse political landscapes.

References:

[1] Pye, L. W. (1965). Aspects of Political Development. Little, Brown and Company.

[2] Pye, L. W. (1966). The Spirit of Chinese Politics: A Psychocultural Study of the Authority Crisis in Political Development. MIT Press.

[3] Pye, L. W. (1966). The Spirit of Chinese Politics: A Psychocultural Study of the Authority Crisis in Political Development. MIT Press

[4] Pye, L. W. (1965). Aspects of Political Development. Little, Brown and Company.;p. 13

[5] Noveck, B. S. (2021). Solving Public Problems: A Practical Guide to Fix Our Government and Change Our World. Yale University Press., p. 45

[6] CIFAR. (2022). Pan-Canadian AI Strategy Impact Report. Canadian Institute for Advanced Research. p. 3 .

[7] Government of Canada. (2019). Canada's Digital Charter in Action: A Plan by Canadians, for Canadians. Innovation, Science and Economic Development Canada. p. 7

[8] Ministry of Economic Affairs and Employment of Finland. (2019). Leading the Way into the Age of Artificial Intelligence: Final Report of Finland's Artificial Intelligence Programme 2019. , p. 8

[9] Ministry of Transport and Communications, Qatar. (2021). Qatar National Artificial Intelligence Strategy. Government of Qatar. p. 5.

[10] Tang, A. (2022). Democratizing AI: How Digital Democracy Scales. MIT Press. p. 112 .

[11] Nemitz, P. (2020). Constitutional Democracy and Technology in the Age of Artificial Intelligence. Philosophical Transactions of the Royal Society A , p. 78 .

[12] Treasury Board of Canada Secretariat. (2021). Algorithmic Impact Assessment Tool. Government of Canada.

[13] European Commission. (2021). Proposal for a Regulation laying down harmonised rules on artificial intelligence. European Union.

[14] Government of Canada. (2021). Directive on Automated Decision-Making. Treasury Board of Canada Secretariat.

[15] Noveck, B. S. (2021). Solving Public Problems: A Practical Guide to Fix Our Government and Change Our World. Yale University Press., p. 78

[16] Ministry of Transport and Communications, Qatar. (2021). Qatar National Artificial Intelligence Strategy. Government of Qatar p. 15

[17] Tang, A. (2022). Democratizing AI: How Digital Democracy Scales. MIT Press.p. 156 .

[18] Ministry of Economic Affairs and Employment of Finland. (2019). Leading the Way into the Age of Artificial Intelligence: Final Report of Finland's Artificial Intelligence Programme 2019. p. 22

[19] CIFAR. (2022). Pan-Canadian AI Strategy Impact Report. Canadian Institute for Advanced Research. p. 12

[20] Ministry of Transport and Communications, Qatar. (2021). Qatar National Artificial Intelligence Strategy. Government of Qatar, p. 28

[21] Tang, A. (2022). Democratizing AI: How Digital Democracy Scales. MIT Press. p. 112

[22] Nemitz, P. (2020). Constitutional Democracy and Technology in the Age of Artificial Intelligence. Philosophical Transactions of the Royal Society A .p. 92 .

[23] Treasury Board of Canada Secretariat. (2021). Algorithmic Impact Assessment Tool. Government of Canada.p. 5

[24] European Commission. (2021). Proposal for a Regulation laying down harmonised rules on artificial intelligence. European Union.p. 18.

[25] Ministry of Transport and Communications, Qatar. (2021). Qatar National Artificial Intelligence Strategy. Government of Qatar, p. 40

[26] Tang, A. (2022). Democratizing AI: How Digital Democracy Scales. MIT Press. p. 178

Books:

1. Pye, L. W. (1965). Aspects of Political Development. Little, Brown and Company.
2. Pye, L. W. (1966). The Spirit of Chinese Politics: A Psychocultural Study of the Authority Crisis in Political Development. MIT Press.
3. Noveck, B. S. (2021). Solving Public Problems: A Practical Guide to Fix Our Government and Change Our World. Yale University Press.
4. Tang, A. (2022). Democratizing AI: How Digital Democracy Scales. MIT Press.

Articles:

1. Nemitz, P. (2020). Constitutional Democracy and Technology in the Age of Artificial Intelligence. Philosophical Transactions of the Royal Society A.

Reports/Studies:

1. CIFAR. (2022). Pan-Canadian AI Strategy Impact Report. Canadian Institute for Advanced Research.
2. Ministry of Economic Affairs and Employment of Finland. (2019). Leading the Way into the Age of Artificial Intelligence: Final Report of Finland's Artificial Intelligence Programme 2019.
3. Ministry of Transport and Communications, Qatar. (2021). Qatar National Artificial Intelligence Strategy. Government of Qatar.

Government Documents:

1. Government of Canada. (2019). Canada's Digital Charter in Action: A Plan by Canadians, for Canadians. Innovation, Science and Economic Development Canada.
2. Treasury Board of Canada Secretariat. (2021). Algorithmic Impact Assessment Tool. Government of Canada.
3. European Commission. (2021). Proposal for a Regulation laying down harmonised rules on artificial intelligence. European Union.
4. Government of Canada. (2021). Directive on Automated Decision-Making. Treasury Board of Canada Secretariat