International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

The Role of Data in Public Policies for Entrepreneurship and Innovation

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Abstract

In recent years, the use of data has proven to be a powerful tool in building public policies for entrepreneurship, offering governments a clearer view of the sector's needs, challenges, and opportunities. The analysis of large volumes of data allows for more evidence-based decision-making, focusing on critical areas such as access to credit, technological training, and the simplification of bureaucratic processes. By adopting emerging technologies like Big Data, governments can implement more effective public policies, adjusted in real-time to respond to market changes and the needs of entrepreneurs. The study of various research on open innovation, open data, and artificial intelligence reveals the importance of closer collaboration between the public and private sectors to create more efficient entrepreneurial ecosystems. Although challenges such as lack of government coordination and resistance to risk exist, emerging technologies offer promising solutions to overcome these obstacles. The integration of Big Data and artificial intelligence can improve sustainability and decision-making in sustainable entrepreneurship, transforming public policies into more powerful tools for innovation and economic development. With a data-driven approach, it is possible to create a more inclusive and dynamic environment where entrepreneurs can thrive and drive economic growth.

Keywords: Public policies, Entrepreneurship, Big Data, Open innovation, Artificial intelligence.

In recent years, the use of data has emerged as a powerful tool in the creation of effective public policies, particularly in supporting entrepreneurship. Access to and analysis of large volumes of data, combined with emerging technologies, offer a clearer and more precise view of the needs, challenges, and opportunities faced by entrepreneurs. This enables governments to make smarter, evidence-based decisions, fostering a fairer and more dynamic business environment.

Public policies focused on entrepreneurship have the potential to create significant positive impacts on micro, small, and medium-sized enterprises (MSMEs), which are essential for economic growth and job creation. By collecting and analyzing data on consumer behavior, market trends, and the specific challenges faced by entrepreneurs, it becomes possible to identify areas that require intervention or support. For instance, the use of Big Data can uncover consumption patterns and highlight market gaps that can be explored, allowing entrepreneurs to adjust their offerings according to actual demand.

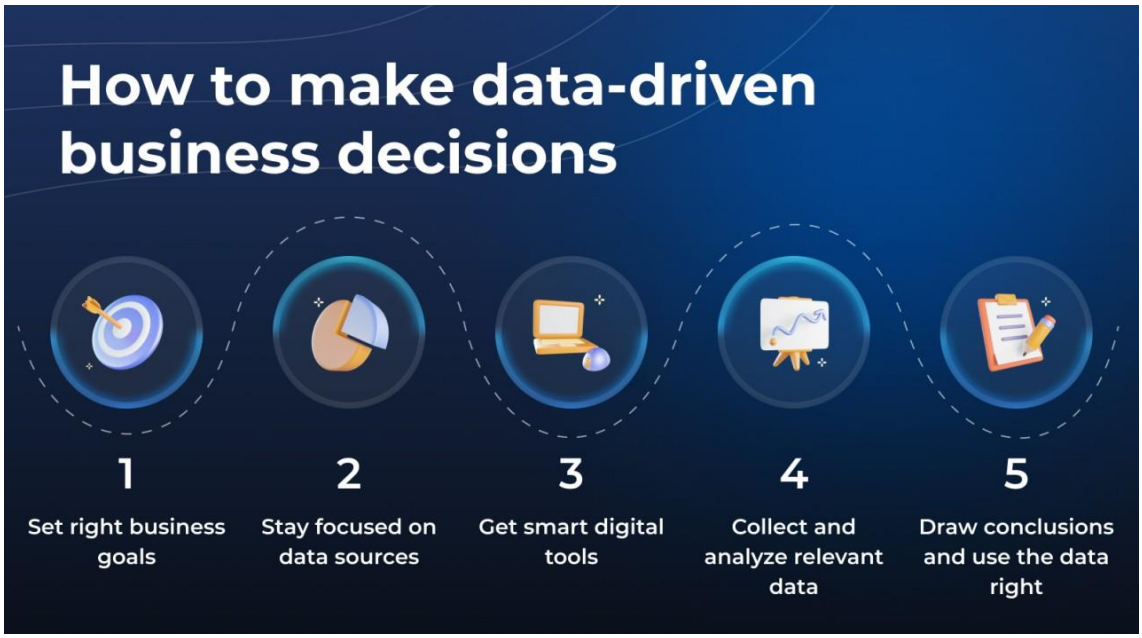

Figure 1: How to make data-driven business decisions.
Source: LinkedIn.

Additionally, data analysis can help identify common obstacles to business growth, such as difficulties in accessing credit, lack of training in new technologies, or complex tax systems. With this information, governments can implement more effective policies, such as the development of training programs, facilitation of access to credit, and simplification of bureaucratic processes, creating a more favorable environment for entrepreneurship.

Continuous monitoring of implemented policies is another important aspect. The use of real-time data allows governments to assess the impact of their actions and adjust strategies as needed, ensuring that public policies remain aligned with changes in the economic landscape and entrepreneurs' needs.

Digital transformation has played a crucial role in this process by enabling the efficient collection and processing of large-scale data. The implementation of digital data collection platforms, such as satisfaction surveys and social media monitoring, has provided valuable insights into the perception of entrepreneurship both by entrepreneurs and the general public.

To sum up, data has the power to transform how public policies are formulated and implemented, providing governments with tools to create a more inclusive business environment that fosters entrepreneurial growth. The intelligent use of this data not only enhances the efficiency of public policies but also ensures that entrepreneurs can thrive in a competitive and dynamic market. With proper support and data-driven decisions, entrepreneurship can become an even more powerful driver of innovation and economic development.

Ferraris, Santoro, and Pellicelli's study explores the role of open innovation practices in promoting innovation and entrepreneurship, particularly in the context of smart cities. The research highlights how collaboration between the public and private sectors can drive the co-design and co-development of innovative products and services that generate shared value. However, the study also reveals that public governments often face challenges in effectively engaging with businesses and other stakeholders in the ecosystem due to various obstacles, such as unclear regulations, inadequate coordination between departments, risk aversion, insufficient technological capacities, and rigid public procurement policies.

Through interviews with multiple stakeholders involved in smart city projects, the study sheds light on the challenges faced by governments in facilitating entrepreneurial and innovative ecosystems. The findings emphasize the need for public administrations to adapt their approaches to overcome these barriers and enable more effective collaborations between the public and private sectors, thus contributing to the successful development of smart cities and fostering innovation and entrepreneurship.

Barns (2016) analyzes the growing importance of investments in open data in the implementation of smart city programs by governments worldwide. Initially driven by the goals of "open government" and promoting transparency in decision-making, open data initiatives have evolved, with municipal governments now adopting them to support entrepreneurial objectives such as improving competitive positioning and attracting investments. Barns critically examines how the open data agenda shapes broader understandings of smart cities, highlighting the role of policy practices, stakeholders, and entrepreneurs in defining the opportunities and values of open data for urban governance. The study also observes a shift in the rhetoric of the open data movement, which has moved away from emphasizing openness and transparency to focusing on value creation. This shift raises important questions for urban geographers about the transforming nature of urban governance in the age of big data.

Bokhari and Myeong (2022) investigate the direct and indirect relationships between artificial intelligence (AI), social innovation (SI), and smart decision-making (SDM). Through a research design, the researchers collected cross-sectional data from South Korea and Pakistan, interviewing 460 respondents from both the public and private sectors, and analyzed the data using multiple regression in SPSS. The study revealed a significant and positive mediating effect of social innovation (SI) on the relationship between AI and SDM. While previous research has explored the factors influencing decision-making, this study contributes to the social sciences literature by highlighting the impact of a mediating factor in this process. The findings suggest that integrating social innovations into the decision-making process is crucial for local governments in the development of smart cities. By incorporating social innovations, smart decision-making can effectively share data with entrepreneurs, businesses, and industries, benefiting society and all relevant stakeholders, including social innovators.

Bickley, Macintyre, and Torgler (2024) emphasize the urgent need to transition to systems and actions that sustain ecological sustainability, proposing sustainable entrepreneurship (SE) as a potential solution to the triple bottom line challenges faced by businesses. However, the study acknowledges the limitations of SE in achieving long-term sustainability. The paper explores how advancements in Big Data (BD) and artificial intelligence (AI) can enhance decision-making in SE, providing empirical guidance throughout the entrepreneurial decision-making process. Despite its potential, the interactions between AI, BD, and SE have been underexplored in existing research. The authors suggest that while AI and BD contribute to weak sustainability, they hold great potential to achieve the ideal of strong sustainability. The article proposes two main ways in which the integration of AI and BD can support SE and outlines possible directions for future research in this area.

Hossin et al. (2023) explore the potential of Big Data Analytics (BDA) to enhance public policy systems and transform traditional governance structures into digital and smart governance. While most existing studies focus on e-government and the role of technology in improving bureaucratic operations, this research investigates the integration of BDA into the public policy cycle, from planning and design to service delivery and evaluation. Using a systematic review and meta-analysis approach (PRISMA), the authors identify essential data sources and techniques for the various stages of the policy process. The study highlights that BDA can significantly improve policy formulation in areas such as taxation, health,

education, transportation, law, economy, and social systems. Additionally, BDA is suitable for the policy implementation stages, including public oversight, regulation, and feedback. The research emphasizes that although the transformation to digital governance presents unique challenges in managing BDA and maintaining ICT infrastructure, it promises a more precise, timely, and context-driven public policy system.

Shepherd, Williams, and Patzelt (2015) present the first comprehensive review of entrepreneurial decision-making, addressing a significant gap in the literature despite the large number of studies on the topic. Entrepreneurial decision-making occurs in highly uncertain contexts, under time pressure, emotionally charged conditions, and with significant consequences, making it distinct from other areas of decision-making research. The authors categorize the existing literature into key topics, such as opportunity assessment, entrepreneurial entry, opportunity exploitation, exit decisions, heuristics, biases, characteristics of the entrepreneurial decision-maker, and the influence of the environment. They use a general decision-making framework to analyze each context, integrating studies in various of these activities. The study also outlines a comprehensive research agenda to guide future explorations in the field, offering valuable insights for academics in both management and entrepreneurship.

The use of emerging data, such as Big Data, has significantly transformed the formulation and implementation of public policies aimed at entrepreneurship, creating a more dynamic environment adapted to the needs of entrepreneurs. The ability to collect and analyze large volumes of data enables governments to make more informed and evidence-based decisions, identifying areas that require intervention, such as access to credit and tax barriers. As a result, more effective public policies are created to support the growth of micro, small, and medium-sized enterprises, which are crucial for economic development and job creation. Digital transformation has also played a crucial role by offering new tools to monitor the impact of policies in real-time and adjust them according to emerging needs, creating a continuous cycle of improvement.

Furthermore, collaboration between the public and private sectors, driven by open innovation practices and shared data, has the potential to foster more innovative and collaborative ecosystems. However, challenges such as the lack of coordination between government departments and resistance to change still limit the full impact of these initiatives. The integration of emerging technologies, such as artificial intelligence, can help overcome these obstacles by promoting smarter and more inclusive decisions. Therefore, data not only improves the efficiency of public policies but also helps create a more favorable environment for entrepreneurship, allowing entrepreneurs to thrive and contribute significantly to innovation and economic growth.

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