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Business Model Transformation 4.0:
Unleashing Growth and Innovation through Digitalization

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Abstract
Business Model Transformation 4.0, in the digital age, has revolutionized industry, offering organizations unprecedented opportunities and challenges. This article examines the profound impact of digitization on business processes, with a particular focus on how it fosters growth and innovation in business processes. Examine the transformative power of digitization, highlighting its potential values, modernize operations and assist the creation of new investments. Digital technologies such as cloud computing, big data analytics, AI, IoT, blockchain play an important role in organizational improvements and reshaping customer interactions. Real world examples and case studies show how organizations use digital though transforming their business model, providing seamless information and the ability to deliver personalized customer experiences. Consequently, strategic changes are needed to meet changing customer needs. In addition, we explore the benefits and challenges that organizations face when adopting digital in new business processes. Insights are provided into the technologies, and processes that motivate Business Transformation 4.0 success, enabling organizations to navigate the challenges of the digital landscape. Additionally, the impart of transformation to long term success explored. Embracing digitization enables organizations to transcend traditional industry boundaries, embrace platform-based models that redefine value creation and open up new avenues for growth. This article reviews the available literature existing digitization, business strategy, digital innovation and transformation, where the critical role is emphasized for digitalization in supporting and propelling business model transformation. It highlights the need for further research to deepen our understanding of this dynamic landscape and its implications for organizations in the digital age.

Keywords
Business model, Technologies, Transformation, Innovations, Fourth industrial revolution, Organization, Roles, Strategies, Implication

INTRODUCTION

Digitalization of business model is the overall framework and strategy which a company or organisation use in creating, delivering and capture value. This blueprint outlines how a business plan operates with aim of generating revenue for long term sustainability. This model acts as strategic guide and creating value to the company. This area is getting a lot of attenssion by researhers on how effective and productive it is and how it supports of sustainable goals, industry is inflowing the fourth industrial revolution (known as Industry 4.0 4IR) using capitalization digitalization changing the way a business phase in the industrial value chain (Porter et al., 2015; Iansiti et al., 2014; Cenamor et al., 2017).

Business Model Transformation 4.0 represents a paradigm shift in the digital era, enabling organizations to unlock new opportunities for growth and innovation. In today's fast-paced and interconnected world, digitization is emerging as a powerful force driving dramatic changes in business management (BM) across industries The proliferation of digital technologies, and the ubiquitous connectivity of the internet for it, changed how organizations operate, deliver value and interact with customers Examines business strategy and highlights the opportunities and challenges it presents (Isabelle et al., 2020).

The procedure of changing analog information into digital is called digitalization, this enable the storage, transmit, and process information, furthermore, there are technologies involve in digitalization such as AI, IoT, cloud computing with block chain. This technique is accessible and powerful tool enabling the flow of business.

The concept of Business Model Transformation 4.0 refers to the revolutionary changes organizations undergo in response to the digital age. It encompasses the strategic adaptation and reconfiguration of traditional business models to leverage the transformative power of digitalization. Business Model Transformation 4.0 involves harnessing emerging technologies, data-driven insights, and customer-centric approaches to drive growth, foster innovation, and create new value propositions. This concept emphasizes the need for organizations to embrace digital transformation and explore novel avenues for success in the rapidly evolving business landscape (Frank et al., 2019).

One of the key implications of digitalisation is the interference caused to traditional marketing procedures. Organizations that embrace digitization can harness its potential to rethink their value propositions, streamline operations, and create new revenue streams. Digital transformation of business model enables companies to enhance customer experience, streamline internal processes and otherwise achieve growth, the products and services (Gupta S & Gupta p 2018). Digitization has had an intense impact on consumer performance with potentials. The widespread obtainable of smartphones, the ubiquity of the Internet, and the increase of social media take consumers right to statistics, convenience, and more tailored experiences (Chaffey and Ellis-Chadwick, 2019).

Additionally, digitization has given rise to new business models that challenge traditional industry boundaries. Disruptive businesses like Uber with Airbnb have modernized travel and hospitality by leveraging digital platforms to attach service providers and customers in new ways These platform-based business models have demonstrated the power of a digital has in the decentralized communications infrastructure and unlocks new opportunities for value creation (Hagiu & Wright, 2019). Digitization of business modelhas also paved the way for data-driven decision-making. Due to the amount of digital data generated by customers, devices and processes, organizations can now gain valuable insights through advanced analytics techniques Data analytics enable businesses to understand customer preferences, optimize operations, drive predict and identify growth opportunities. The ability to effectively use data in the digital age has become an important differentiator (Brynjolfsson & McAfee, 2017).

However, in addition to the opportunities, digitization also poses challenges for businesses. The pace of technological change, combined with digital disruption, requires organizations to be agile and adaptive. Traditional services who fail to embrace digitization risk becoming obsolete or losing their competitive advantage. Digitization of business models often requires significant investments in technology infrastructure, talent acquisition, and digital capabilities, creating financial and operational challenges for some companies (Westerman, Bonnet, & McAfee, 2014).

However, digitalization educates more about the security of data, ethics and privacy consequence. When the establishment gather data and analyse it, it is noted that the secururity and privacy of the data need to be taken into deliberation. Additionally, businesses have to navigate the stringent data privacy regulations and need to maintain ethics in data collection, storage and processing (Kshetri, 2017).

In conclusion, digitization is reshaping business models and creating new opportunities for value creation. Connected digital technologies enable organizations to rethink their value propositions, enhance customer experiences and unlock growth potential. But companies must adapt to the rapidly evolving digital landscape, overcome challenges and develop strategies to make the most of it.

Problem statement and research question

Problem Statement: As business model change presents unprecedented opportunities and challenges in the 4.0 digital age, its impact on organizations needs to be deeply analyzed and understood. This study aims to shed light on the implications and processes associated with business process change 4.0 and address the following research questions:

Research Questions

1. What impart of digitalization on business growth and innovation?
2. What are the benefits and challenges that organizations face when adopting digitization in their business processes, and how can they overcome these challenges and successfully implement business model transformation 4.0?
3. What tools, technologies, and techniques underpin the success of Business Model Change 4.0, and how can organizations best use them to manage the challenges of the digital landscape?
4. What are the implications of Business Model Change 4.0 on organizational growth and long-term success, particularly in terms of transcending traditional industry boundaries, adopting a platform-based model, and redefining value?

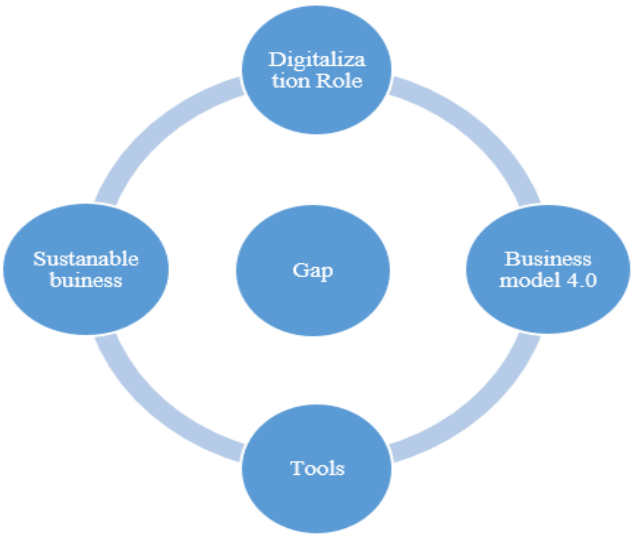

Fig. 1 The relationship and current gap (Author's representation)

OVERVIEW

A new era of business management that began with the advent of digitization, the transformation of businesses, business planning in the digital age, the relaunch of marking systems due to the rise of the internet and the broader alliance of the internet with businesses is constrained by marking rights created by digital. This unflinching state of basic instincts It also sheds light on the difficulties (Rocque, S. 2023). Digitization encompasses a wide range of technologies, comprising cloud computing, big data analytics, artificial intelligence, IoT and blockchain. This technology has changed how businesses create, process and consume information. One of the main impacts of digitization in industry processes is the shift towards data-driven decision-making. The vast amounts of digital data available today provide organizations with opportunities to deepen customer behavior, preferences, and market insights The use of data analytics enables companies to take informed decisions, improve efficiencies, with create new jobs (Laudon & Laudon, 2011). Moreover, digitization has given rise to platform-based business models. Platforms act as intermediaries, connecting different stakeholders and facilitating communication. Examples of successful platform-based business models include Uber, Airbnb, and Amazon. These strategies have disrupted traditional businesses by reimagining pricing and supply chains, empowering individuals and businesses to participate in the digital economy Meeting-based business models have been enhanced by network effects, finance increasing and on the resources used by the users (Parker, Van Alstyne, & Choudary, 2016). Another important impact of digitization is the blurring of industry boundaries. Digital technologies have enabled previously disparate industries to integrate. For example, the convergence of technology and financial services has given rise to fintech companies offering innovative financial solutions. Similarly, the convergence of healthcare and technology has led to digital health initiatives with remote diagnosis, telemedicine, and personalized healthcare This convergence has disrupted traditional business models and created opportunities for various sectors between collaboration and partnership (Chesbrough, 2017). However, the digital transformation of business modelalso presents challenges. While digital offers opportunities for growth and innovation, it requires organizations to navigate technical complexity, invest in digital capabilities, and adapt to evolving customer expectations Property policy and organizational structures can hinder the integration of new technologies with the agility needed to succeed in the digital age . Furthermore, concerns about data privacy, security, and ethical implications arise as companies collect and process large volumes of customer data (Lee, Park, & Choi, 2018).In conclusion, digitization has had a significant impact on business processes, as organizations … rethink their strategies, adopt data-driven strategies, and find new ways to make value. The convergence of digital technologies, the rise of platform-based models, and the blurring of industry boundaries are transforming traditional businesses and encouraging innovation, however, businesses must meet the challenges of technology integration, digital skills and entirely on moral considerations, fully harness the potential of digitization and create sustainable competitive advantages in the digital age.Furthermore, Literature show in (Lay et al 2009) that BM framework and typology of new business cocepts based on a set of parameters are derived from the scientific literature, with resource personnel, single or mutple customer operation with value proposition ownership/ In (Kindstrom 2010) it was discuses that key aspect of moving toward a service based BM and connection =s with service innovation, furthermore the implaction of manager was explored with a competitive strategy an internal organisation capabilities and position in the value network.

METHODS

This paper adopts the method (Webster 2002), this will allow the objective and goal of this paper to be achieved. This process framework is presented in Fig 2.

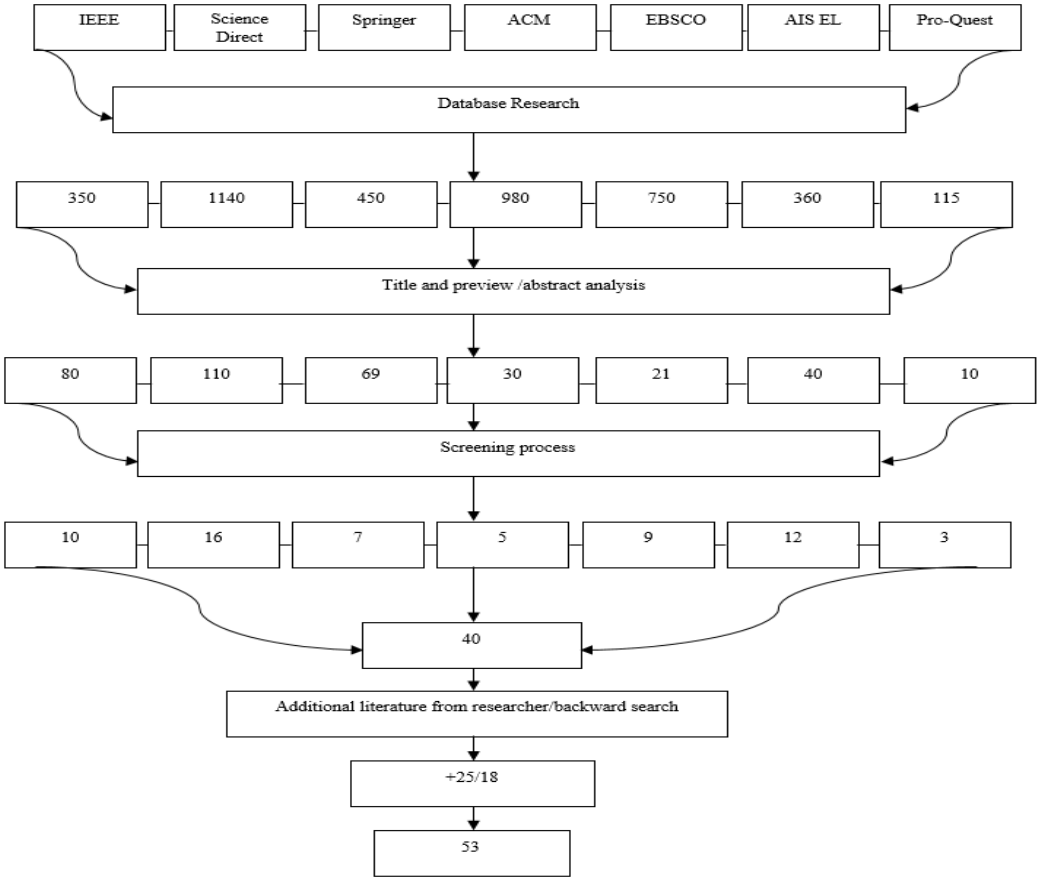

Fig. 2 Methodology process flow chat (author's presentation)

When this paper conducted search with several scientific databases, including the IEEE, Science direct, springer, ACM, EBSCO , AIS EL and Pro-Quest . The search strings used were (Webster 2002).

Database Selection: Several scientific databases, including IEEE, ScienceDirect, Springer, ACM, EBSCO, AIS EL, and ProQuest, were chosen for their comprehensive coverage of relevant literature in the field.

Search Strings: The search strings used were "Digitalization*"Business Model*" AND "Fourth Industrial revolution," "Innovation," "Sustainable," "Role*," "Direction," "Tool*," and "Method*." These strings were carefully selected to capture the key aspects and objectives of the study.

Literature Assessment: To ensure a high level of quality, only literature rated A+, A, or B based on journal assessment was considered initially relevant. This rating system helped in prioritizing articles with strong credibility and scholarly value becase this is what will give value to the projected research.

Result Analysis: The first set of results from the search were studied to manage the number of papers. The resultant lists were then arranged based on the number of citations in descending order, allowing for the identification of highly influential and significant articles.

Duplicate Removal: Duplicate articles identified within the databases were systematically eliminated to maintain data integrity and avoid repetition in the analysis.

Title and Abstract Analysis: The titles and abstracts of the remaining papers (301) were carefully analyzed to determine their relevance and suitability for full-text review. This rigorous screening process resulted in the selection of 40 articles that aligned closely with the research objectives.

Inclusion of Additional Sources: To ensure a comprehensive and rigorous investigation, exploration papers from sources not initially included were analytically examined. This approach aimed to gather insights into the use and efficiency of the proposed tools and compensate for limited investigation in the digital assessment aspect.

Final Article Selection: After thorough screening the useful selected was narrow down to 53 selected articles. This 53 articles were found during the search process, with the key messages being covered by 40 sources.

RESULTS

This study comprehensively reviews the selected papers using the important elements that will brings out the goals and objective. This paper was analysed on the updated digitalization, roles in business, the sustainability of the model and tools that drive the business model. There are established website that show practise of business model such as amazon, Airbnb, uber, LinkedIn, Netflix, Facebook etc. This paper shows the theoretical perception which is categorized according to digitalization business model componets. There are various approaches use by researchers in understanding the phenomena established on digitalization and BM. Especially, this paper identifies theroretical perception with resource based view and capability dynamic, literature , sustainability with cost economic. The theoretical framework viewpoint for digitalization and BM clearly show several methodologies use by scholars (Table 1).

With the findings in this paper, we present some significate fact of the articles published, this show a promising strong concentration in the subject area. However, it also wishes us in increasing the ambiguity of the build in other to make research effort in vain. The overview of the explicit use some related to business model, digitalization, digital innovation and digital transformation (see appendix). The review articles are strong business model research articles with definite concepts on the idea.

Table 1 Establishing theoretical perceptions

Digitalization	BM-Significance delivery	Theoretical perception	BM-Importance creation	BM-Impact delivery capture	Ref
Enabler for new pathways	System transitioned structure change	Transition theory	Radical modernization/possible pathway	Focus on practical action to financial with social structures	Gorisen et al., 2016; Sunl, 2018; Parda et al., 2015
Condensed measurement costs	Deliver outputs	Business cost theory	Inspire non-ownership agreements	Manage downside risk	Ehret and Wirtz, 2017
Hypothesizing digitalization skills -Internet of Things (IoT) strategy	Mass service customization Active instrumentation of supply chains	Resource-based view with dynamic abilities	Significance creation with customers Emerging absorptive ability	Reconfigure offers, properties and income streams	Gauthier et al., 2018; Hasselblatt et al., 2018; Kohtamäki and Helo, 2015;
Digital policy perspective	Incorporation among back-end and front-end	Platform theory	Build data module	Customization and normalization	Cenamor et al., 2017; Eloranta and Turunen, 2016
Make value from machinery	New actor's in the bionetwork	Entrepreneurship	Opportunity acknowledgement -Creativity -Disruptive business models	Create importance from tools	Ehrt with Wirtz, 2017; Krtov, 2017

In setting up the path of closing circle (see figure 3) the papers show the emergence practice like sharing economy, this make sustainable practice more possible with digital tools (Schwanholz and Leipold, 2020); although, the model have existed without digital tools. The coordination among stakeholders in sustainable business model does not in all way need mediated techniques, there is need to increase the stake holders and with their participation in innovative practice.

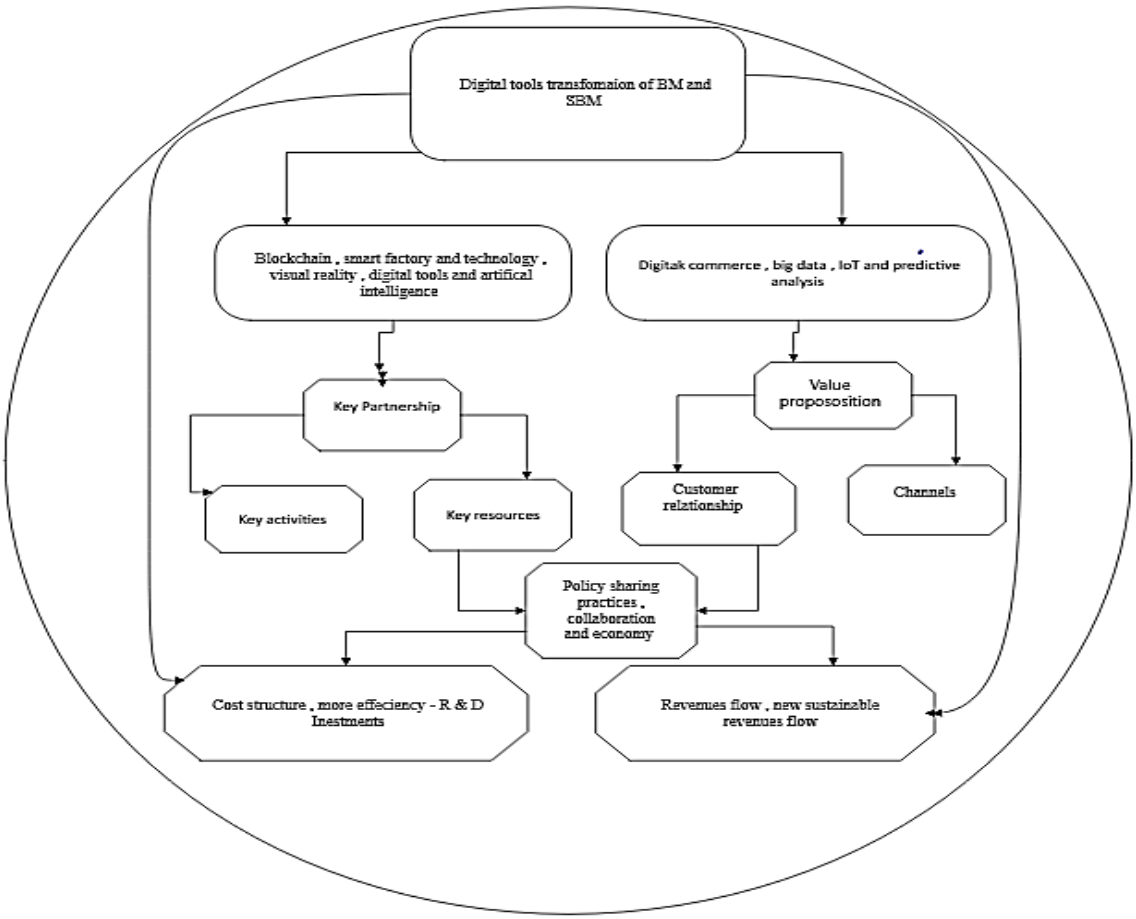

Fig. 3 Digital tools transform a conventional business model into business model closing circle

DISCUSSION

A. Problem Role of digitalization in enabling sustainable practices

Digitization plays an important role in sustainable practices in various industries. As businesses seek to reduce their environmental footprint and embrace sustainable operations, digital tools and technologies will provide essential support and solutions.

One important area is the digitization of processes and activities. By implementing digital systems, companies can streamline their operations, streamline distribution and reduce waste. For example, digital channels allow for real-time monitoring and data collection, enabling companies to identify areas of inefficiency and implement targeted improvements This data-driven approach is exhausting lower energy consumption, improve supply chain efficiency, reduce carbon. It also helps reduce carbon emissions(Lichtenthaler, U. 2021). Digitization provides transparency and traceability, which is crucial for sustainable practices. Technologies such as blockchain enable businesses to track and verify the origins, processes and environmental impact of their products. This transparency encourages responsible sourcing, ethical production, and enables consumers to make informed choices that conform to sustainability standards. (Mukhuty, S. A., & Rothwell, H. 2022). Additionally, digital tools enable collaboration and communication over long distances, reducing critical travel requirements and reducing greenhouse gas emissions. Virtual meetings, cloud-based file sharing, and project management tools facilitate effective teamwork while reducing the carbon footprint associated with traditional business practices (Parhi, S., & Sethuraman, K. 2022).The transformative power of digitalization lies in its ability to drive growth and innovation in business models. Digitalization enables organizations to reimagine their value propositions, optimize operations, and create new avenues for value creation. By leveraging emerging technologies such as cloud computing, big data analytics, artificial intelligence (AI), the Internet of Things (IoT), and blockchain, businesses can unlock new opportunities for expansion and differentiation. Digitalization empowers organizations to embrace agility, adaptability, and customer-centricity, paving the way for sustainable growth and continuous innovation in the dynamic digital landscape (Brynjolfsson, E., & McAfee, A. (2012).The combination of digital technologies into renewable energy structures is another priority. The energy consumption is optimised and monitored within is enable by smart grid and IoT, this is incorporated in business to promote clean energy and reduce fossil fuel (Balogun et al., 2022). Finally, digital management plays a key role in enabling sustainable practices through process efficiencies, increased transparency, supporting remote collaboration, and connecting renewable energy together facilitating. The adoption of digital tools enables businesses to reduce their environmental impact, drive innovation and transition towards a more sustainable future.

B. Key importance of organizational agility in adapting to the rapidly changing digital landscape

Organizational agility has emerged as a key success factor in today's fast-paced, digitally driven business environment. Rapid advances in technology, evolving customer expectations, and changing market dynamics require organizations to be agile to familiarize to the changing digital surroundings. This section highlights the critical importance of organizational agility in emphasizing navigating and succeeding in the complexities of digital transformation in the digital age (Çakmak, Z. 2023). Prompt response to market turmoil. Organizational agility allows firms to react to market turbulence quickly and effectively. New technologies, competitors and business models are rapidly emerging in the digital landscape, presenting challenges and opportunities. Agile establishments can quickly recognize market changes, assess their impact, and make the necessary adjustments to their strategies, processes, and supply chains. By being agile and adaptable, organizations can seize opportunities and mitigate risks from digital disruption (Ciampi, et al., 2022). Adjustment in adoption of technological advances:

The digital landscape is characterized by constant technological advancements. Organizational agility enables companies to embrace and use these technologies effectively. Agile organizations have the capacity to test, adopt and integrate new digital tools with platforms into their operations. The usefulness and relevance of emerging technologies such as artificial intelligence, cloud computing and automation can be quickly assessed and used to gain competitive advantage (Ravichandran, T. (2018).Customer Process, Organizational agility is closely related to a customer-focused approach. Digital transformation has shifted capabilities to customers, who have high expectations for personalized experiences and ease of communication across channels Agile organizations prioritize customer feedback, actively listen to their needs, adapt quickly to their strategies and their strategies for delivering exceptional customer experiences to increase revenue and drive increased business growth (Hoonsopon & Puriwat, 2019). Organizational agility encourages continuous improvement repetition. Change is constant in the digital environment, and organizations must constantly rethink their strategies, services and customer interactions (Highsmith, J. (2009). Agile organizations embrace a culture of testing, learning and adapting. They use data and insights to identify areas for improvement, implement changes iteratively, and measure the impact of those changes. This iterative approach allows organizations to stay ahead of the competition and continuously refine their digital strategies. Organizational agility fosters collaboration and innovation, which are essential ingredients for success in the digital age. Agile organizations break down silos, encourage collaboration, and empower employees to contribute new ideas (Burchardt, C., & Maisch, B. (2019).. A culture that fosters agility, creativity and learning from failure is created as valuable. By embracing agility, organizations can harness the collective wisdom of their employees, spur innovation, and drive digital transformation initiatives that deliver tangible business results. Finally, organizational agility is key to adapting to the rapidly changing digital landscape. Organizations can successfully navigate the complexities of digital transformation by responding to market disruptions, embracing technological advances, adopting a customer-centric approach, encouraging iterative improvement, and cooperation and the promotion of innovation.

C. Drivers and enablers of digital transformation in organizations

Digital transformation has become a main priority for organizations across industries. It leverages digital technology to drive radical change in business operations, processes and customer experiences. This section examines the key drivers and enablers that fuel the digital transformation process in organizations focusing on their role in facilitating successful digital initiatives (Pihir, I, et al.. 2018). One of the main drivers of digital transformation is the ever-evolving demands and expectations of customers. In today's digitally empowered world, consumers are looking for seamless, personalized and convenient experiences across multiple touch points. Organizations must adapt to these changing customer expectations by leveraging digital technologies to improve their products, services and communications (Purcărea, I. M. 2019). Understanding and addressing customer needs through digital transformation can increase customer satisfaction, loyalty, and ultimately business performance.Technological Advances: Rapid advances in technology are powerful drivers of digital transformation. Claude Computing, Big Data Analytics etc. News of the organizations were circulating in the business process. The nine-factor business is being able to grow Adopting and implementing these technological advances is essential for organizations looking to digitally transform their procedures and remain competitive in marketplace (Akter et al., 2022). Business Speed and Innovation: The need for agility and the demand for innovation are strong drivers of digital transformation. Establishments are identifying the need for agility and adaptableness in the rapidly altering business environment (Burchardt, C., & Maisch, B. (2019). Digital transformation allows businesses to modernize processes, reduce time to market and foster a culture of modernization. By embracing digital technologies, organizations can enhance their ability to manage market disruptions, seize new opportunities and achieve continuous improvement.

Data-Driven Decision Making: Growing data with analytics abilities have been a key driver of digital transformation. Organizations can use data insights to gain a deeper appreciative of customer behaviour, market trends, and business performance (Cuomo, et al., 2021). Data-driven decision making enables organizations to make informed, planned choices, improve programs, personalize customer experiences, and improve performance Digital transformation for establishments able to harness the power of data through progressive analytics with data-driven technologies. Competitive pressures: organizations face relentless competition in today's global marketplace. To stay updated in each establishment, there is need to be using digital transformations tools in a ways to make a difference and be competitive, Using digital technologies makes the establishment to improve significant value propositions, with the aim of delivering better customer experiences and get more business models (Rud, O. P. 2009). Digital transformation empowers organizations to disrupt traditional industry boundaries, react to emerging market trends, and position themselves as industry leaders. Finally, the digital transformation is driven with some elements such as customers demand, technological advance, data driven, competitive pressure with recognition for managing digital transformation, the roles can be position for success in a growing landscape. The use of digital techniques will make the establishment to transform operations and enhancing customers experience with the aim of driving innovation and gain competitive edge in business.
(I) Drivers for business models refer to the factors or forces that influence the design, development, and evolution of a company's business model. These drivers can vary depending on the industry, market conditions, and organizational goals. Here are some common drivers for business models (Engelken et al., 2019).

1. **Technological advancements:** Emerging technologies can create new opportunities for innovation and disruption, requiring businesses to adapt their models to leverage these advancements effectively.
2. **Customer behavior and preferences:** Changes in customer needs, expectations, and buying behavior can drive businesses to adjust their business models to better serve their target audience and stay competitive.
3. **Competitive landscape:** The actions and strategies of competitors can influence the need for businesses to differentiate their business models, innovate, or respond to market shifts.
4. **Regulatory and legal factors:** Changes in regulations, industry standards, or legal requirements can impact how businesses operate and necessitate adjustments to their business models.
5. **Economic conditions:** Economic factors such as market trends, inflation, interest rates, or global events can impact business models by influencing pricing strategies, cost structures, or market demand.
6. **Social and cultural trends:** Shifts in societal values, lifestyle choices, and cultural preferences can shape customer expectations and drive the need for businesses to align their business models with these trends.
7. **Environmental sustainability:** Growing awareness of environmental issues and sustainability practices can drive businesses to incorporate eco-friendly practices into their business models, leading to more sustainable operations and products.

D. Tools and procedures in evaluating digital business model innovation

The evaluation of digital business model innovations requires the use of appropriate tools and techniques that can measure the efficiency and sustainability of these new processes (Tesch, J. F., & Brillinger, A. S. (2019). The use of these tools provides researchers and practitioners with valuable insights into the influence, feasibility, and possible challenges of new digital business models Here we discuss the basic tools and commonly used methods for analyzing digital business models in another case of some of the. 1. Value Proposition Canvas: This tool helps analyze how the digital business model meets customer needs and creates value. It examines the alignment of customer segments, their specific concerns, and the value propositions offered by the digital business model. By mapping these elements, analysts can assess the value proposition's usefulness and appeal to meet customer requirements. 2. Business Model Canvas: The Business

Model Canvas provides a comprehensive framework for evaluating key elements of a digital business model. It analyzes various factors such as customer segments, core functions, delivery value, revenue and cost structure. Analysis of these factors enables researchers to identify strengths, weaknesses, and areas for improvement in the digital business model (Fruhwirth et al., 2020).

1. **Key Performance Indicators (KPIs):** KPIs do key role in assessing the operation and impact of digital business innovation (Hristov, I., & Chirico, A. (2019). By defining and controlling relevant metrics such as customer redemption costs, customer lifetime value, conversion rates, and sustainability metrics (e.g., environmental reduction), researchers track the success and benefits of the digital business model.
2. **Qualitative research methods:** Qualitative research methods, such as interviews, emphasis groups, and case studies, provide a deeper understanding of context and people experience associated with new digital business model (Sofaer, 2002). These approaches help to capture the nuanced perspectives, challenges and success stories of the stakeholders involved in the innovation process, resulting in a comprehensive assessment of the digital business model5. Simulation and modeling tools: Simulation and modeling tools enable researchers to model and test the various scenarios and variables associated with new digital business models. These tools can include scenario analysis, sensitivity testing, and impact analysis, helping analysts understand the possible risks associated with implementing a particular digital business model.

It is significant to select and adapt appropriate tools and techniques based on the specific research objectives and context of the proposed digital business model innovation. By using a incorporation of quantitative and qualitative techniques, researchers can gain a wide-ranging understanding of the effectiveness, sustainability, and potential growth areas of digital business innovation

E. Importance of establishing robust cybersecurity measures and privacy frameworks to protect sensitive customer data

In a digital age where organizations are increasingly reliant on data-driven technologies and online platforms, protecting sensitive customer information has become paramount Cyber threats and data breaches on the rise calls for stronger cybersecurity policies and privacy policies. This section highlights the importance of protecting customer data and outlines the main reasons why organizations should prioritize cybersecurity and privacy Protecting consumer confidence: Today, consumers entrust organizations with personal information, including financial information, contact information and personal preferences. Failure to secure this data can have serious consequences, undermining customer trust and damaging the organization's reputation (Keshk, M.et al., 2019). By implementing strong cybersecurity policies and privacy policies, organizations demonstrate their commitment to protecting customer information, and building trust and loyalty among their customers. Managing financial and legal risks: Organizations can lose huge amounts of money due to a data breach (Power, M. (2004). Costs associated with data breaches include legal penalties, legal fees, customer compensation, and costs necessary to remediate security vulnerabilities. Through a thorough cybersecurity strategy den and by proactively establishing privacy policies, organizations can mitigate these financial risks and avoid potential legal repercussions Data protection compliance: In an increasingly regulated landscape, organizations must comply with data protection laws, like as the General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA) (Hartzog, W., & Richards, N. 2020).. Establishing strong cybersecurity policies and privacy policies ensures compliance with this regulation, protecting organizations from legal sanctions and reputational damage. Preventing data breaches and cyberattacks: Cybercriminals are constantly evolving their methods to exploit vulnerabilities in digital systems. Establishments without strong cyber security procedures are vulnerable to data obstacles, ransomware attacks, phishing efforts, and other mischievous activity (Alharbi, F. S. (2020). .Take strong safety controls with firewalls, encryption, multifactor validation and intrusion detection systems comprising implementation to help prevent unlicensed access and cyber threats to sensitive customer data protected from fear Maintaining competitive advantage: Establishments that prioritize cybersecurity and confidentiality gain a competitive advantage in a digital surroundings. Consumers are more aware of data security with are more likely to involve with establishments that put their privacy first. By establishing strong cybersecurity policies and privacy policies, organizations can differentiate themselves from competitors, attract more customers, and enhance their brand image by capturing sensitive information superior (Hasan, S, 2021).. Establishing strong cybersecurity policies and privacy policies to protect sensitive customer information is critical in a connected world driven by digital technologies.By protecting customer trust , reducing financial and legal risks, ensuring compliance, preventing data breaches, and gaining competitive advantage, organizations can confidently navigate the digital landscape Investing in cybersecurity and privacy (Kaplan, et al.., 2015): Not consumers protects not only data but responsible organizational data management Strengthens commitment and builds long-term relationships with customers based on trust and security

F. Challenges and barrier in implementing digital business model

The implementation of a sustainable digital business model has a number of challenges and barriers that need to be overcome to ensure successful integration among organizations. These challenges stem from a variety of sources excluding aspects related to technology, policy with marketing (Luthra, S., & Mangla, S. K. 2018). Understanding and addressing these challenges is important for organizations aiming to adopt a sustainable digital business model. Here we discuss some of the most common challenges and obstacles faced during implementation:

1. **Technological Challenges:** Adopting a sustainable digital business model often requires the integration of advanced technologies and systems (Joshi, P. R., & Islam, S. (2018). This creates challenges associated with technical challenges, such as integrating disparate systems, ensuring interoperability, managing cybersecurity risks and organizations must invest services and expertise necessary to successfully address these technological challenges.
2. **Change management:** Implementing a sustainable digital business model often requires significant organizational change. This can lead to resistance from employees who may be unfamiliar with new technologies or resistant to change. Effective change management strategies, including communication, training and engagement of key stakeholders, are essential to overcome these barriers (By, R. T. (2005)..
3. **Data Management and Privacy:** Sustainable digital business models rely heavily on data collection and analysis. Ensuring proper data management, protection, and privacy compliance are critical challenges. Organizations must establish robust data governance frameworks, implement security measures, and comply with relevant regulations to build trust with customers and stakeholders (Broekhuizen, et al., 2021).
4. **Cultural and Mindset Shift:** Embracing sustainable digital business models requires a cultural and mindset shift within organizations. This may involve challenging traditional practices, adopting a long-term perspective, and prioritizing sustainability goals. Overcoming resistance to transformation with fostering a culture of innovation and sustainability are vital for successful carrying out (Holbeche, L. S. 2019).
5. **Market Acceptance and Education:** Sustainable digital business models may face challenges in gaining market acceptance and educating customers about the value proposition of these innovative approaches. Organizations must invest in marketing and educational efforts to create awareness, showcase the benefits, and build trust among customers, partners, and other stakeholders.
6. **Regulatory and Legal Landscape:** Compliance with existing regulations and adapting to evolving legal requirements pose significant challenges. Organizations must navigate complex regulatory frameworks related to sustainability, data privacy, and digitalization to ensure compliance while innovating and delivering value. Overcoming these challenges and barriers requires strategic planning, collaboration across departments, and a commitment to continuous learning and adaptation. Organizations must engage in proactive problem-solving, leverage external expertise if needed, and remain agile in responding to evolving challenges and opportunities (Ciambotti, et al., 2020).

G. Strategies for integrating digitalisation in suitability in business model

Integrating digitization into sustainability in the business modelrequires strategies that leverage technology to advance sustainability goals (Bleicher, Juergen, and Henriette Stanley 2017). Here are some ways to better integrate digitization and sustainability in a business process:

1. **Data-Driven Decision Making:** Use data analytics and insights to inform sustainable decision making. Collect and analyze data on consumption, supply chain operations, and environmental impact. This enables organizations to identify areas for improvement, optimize processes, and make informed decisions that align with sustainability goals (Awan, et al., 2021).
2. **Discussion forums:** Collaborative digital forums that facilitate communication and interaction with stakeholders are embraced. These forums enable collaboration with external partners within the organization, providing transparency, knowledge sharing, and joint problem solving for sustainable projects
3. **Smart resource management:** Use smart technologies such as IoT devices, sensors and automation to improve resource utilization. These include monitoring energy consumption, water consumption, waste management and the efficiency of supply chains. Real-time data and automated planning allow for more efficient distribution, reducing waste and the environment.
4. **Circular Economic Strategies:** Using digital technologies to create circular economic behaviour. This includes the implementation of product life cycle management, backlogs and recycling systems. By digitizing these processes, organizations can increase traceability, identify opportunities for recovery and reuse, and close logistics
5. **Consumer engagement:** Using digital strategies to engage consumers in sustainable practices. Use social media, online platforms and mobile applications to educate customers on sustainability initiatives, provide transparent information on products and their environmental impact, and encourage sustainable practices encourage regular presence
6. **Continuous innovation and change:** Embrace a culture of continuous innovation and change to embrace the use of digital for sustainability. Stay abreast of emerging technologies, monitor market trends, and actively seek innovative solutions to address sustainability challenges. Encourage experimentation and learning within the organization to enable new digital business models in a sustainable manner.

By using these strategies, organizations can harness the power of digital to increase sustainability in their business model (von Kutzschenbach, M., & Daub, C. H. (2020). These strategies enable organizations to improve resource efficiency, stimulate innovation, foster stakeholder collaboration, and align with sustainable development goals

H. The impart of digitalisation on customer engagement and value creation

Digitization has dramatically changed customer engagement and value making across businesses. The combination of digital technologies and platforms has changed the way businesses interact with customers, deliver value and enhance the overall customer experience (Bolton, et al., 2018) Here we explore the impact of digitization on customer engagement and value creation:

1. **Enhanced Customer Engagement:** Digitalization enables companies to interact with customers in a more interactive and personalized manner. Through social media, chatbots, email marketing, and online communities, businesses can provide real-time support, collect data, and engage meaningfully with their customers This two-way communication drives customer engagement truth strengthens relationships.
2. **Customization and personalization**: Digital technologies enable businesses to collect and analyze vast amounts of customer data. This data-driven approach enables personalized marketing, bespoke product recommendations and personalized experiences. By understanding consumer preferences and behaviors, companies can create targeted products that align with individual needs, increasing customer satisfaction and loyalty
3. **Omnichannel experience:** Digitalization has blurred the boundaries between offline and online channels, creating an omnichannel customer experience Customers can seamlessly interact with businesses across multiple touchpoints, such as websites, mobile apps, social media and in the flesh floor shops. This integrated approach provides both simplicity and robustness, enhancing the overall customer experience.
4. **Collective Value Creation:** Digitization has enabled customers to actively participate in value creation. With the review rating also user generated context with consumer opinion, this will influence buying decision that can help brand. Establishments can use the feed customer generated resources in improving product and service. This will create worth for the customers.
5. **Availability with choice:** Digitization has democratized access to information, giving consumers transparency and choice. The customer compare prices with review and by research, this will enhance market competitions and help establishment to give the vest value in return for customers. Finally, the use if digitalization has more imparts in customer engagement and value creating with increase in experiences connectivity. The efficient use of businesses digital technology creates a competitive advantage with long term relationship (Matarazzo, et al., 2021).

Business model change 4.0 has significant implications for sustainable growth and long-term success. By embracing digitization and implementing new technologies, organizations can achieve the following;

- **Sustainable Improvement:** Business Model Revolution 4.0 enables organizations to adopt more sustainable practices and reduce their environmental footprint. Through digitization, organizations can improve resource management, reduce waste and use environmentally friendly methods. This not only contributes to environmental sustainability but also meets the expectations of environmentally conscious customers and stakeholders.
- **Increased productivity:** Digitization streamlines operations, eliminates inefficiencies and increases productivity. By leveraging technologies such as automation, artificial intelligence and data analytics, organizations can streamline processes, reduce costs and improve resource allocation This increased productivity translates into profitability and success there share in the.
- **Agility and adaptability:** Business Model Change 4.0 empowers organizations to be nimble and adaptable in the face of rapidly changing market dynamics. By embracing digitization, organizations can react faster to market trends, customer demands and competitive challenges. This agility allows them to seize new opportunities, evolve their business models and stay ahead of the digital age (Mihardjo et al. 2019)

The adoption of digitalization in business model innovation brings forth a range of potential benefits and challenges. On the benefits side, digitalization allows organizations to tap into new revenue streams, enhance operational efficiency, and improve customer experiences through personalized offerings and seamless interactions. It enables access to vast amounts of data for better decision-making and fosters collaboration and connectivity among stakeholders. However, challenges arise as organizations navigate the complexities of digital transformation. These include the need for significant investments in technology infrastructure, ensuring data security and privacy, addressing workforce skill gaps, and managing organizational change. Striking a balance between innovation and risk management becomes crucial in harnessing the full potential of digitalization in business model innovation (Aagaard A 2019).

CONCLUSION

In conclusion, business model revolution 4.0 has emerged as a transformative force in the digital age, reshaping industries, and offering unparalleled opportunities for organisations. This article examines the profound impact of digitalization on business processes, emphasizing its role in growth and innovation. Examples and case studies showed how digitization enables organizations to reinvent their value proposition, improve efficiency and deliver personalized customer experiences but embracing digitization also presents challenges, such as the need to they make strategic changes, technology investments, data security concerns Prevention and Business Model Change By using the tools, technologies and processes of 4.0, organizations can take on a digital landscape challenges and open up new avenues for development. The implications of this shift for long-term success and sustainability are discussed, highlighting the potential for organizations to embrace platform-based models that transcend traditional boundaries. Further research is needed to deepen our understanding of the role of digital in supporting and driving business model change.

DECLARATION OF CONFLICT

Authors declare no conflicts of interest.

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Appendix

Overview of literature with key concepts

S/N	Digital business model	Types	Digital Innovation	Business model	Digital transformation	Digitalisation	References
1		Theoretical		X	X	X	Kotarba (2018)
2	X	Experimental	X				Li 2020
3		Experimental		X		X	Standing with mattson 2018
4		Theoretical		X	X	X	Monribito 2014
5		Theoretical		X			Kohamaki et al 2019
6		Experimental		X			Koing et al 2019
7	X	Experimental			X	X	Li et al. 2017
8		Experimental		X			Kuk and jamesen 2013
9	X	Theoretical		X	X	X	Parida et al. 2019
10	X	Experimental		X		X	Rachinger et al 2018
11	X	Theoretical	X	X			Sahut et al 2020
12		Theoretical		X	X	X	Schallmo et al 2017
13	X	Experimental		X	X		Paibola and Gerbauer 2020
14	X	Experimental		X	X		Pateli and giaglish 2005
15	X	Experimental		X	X	X	Priyono et al 2020
16		Theoretical					Kraus et al 2019a
17		Experimental			X		Laudien and pesch 2019
18	X	Theoretical		X	X	X	Loebbek and piece 2015
19	X	Theoretical					Manfm pefia et al 2018
20	X	Experimental		X	X		Mihardjo 2019
23		Theoretical		X	X	X	Morkunas 2019
24	X	Theoretical		X		X	Remane 2017
25		Theoretical		X			Kohi and melvile 2019
26	X	Theoretical	X	X	X	X	Katsamas and paviov 2020
27	X	Theoretical	X	X			Joseph 2018
28		Experimental	X	X		X	Hobbach 2016
29		Experimental	X	X		X	Ghezzi and cavallo 2020
30	X	Experimental		X		X	Gauthier 2018
31	X	Theoretical	X	X		X	Fishman 2014
32		Theoretical		X			El sawy and perrra 2013
33		Theoretical		X		X	Ehret and Wirts 2017
34	X	Experimental	X	X	X	X	Dellerman 2017
35		Experimental	X	X			Cristofaro 2020
36	X	Experimental	X	X		X	Cheah and wang 2017
37		Experimental			X		Cavalcate 2014
38	X	Experimental	X	X		X	Bouwman 2019
39		Experimental	X	X	X	X	Bourea 2019
40	X	Theoretical	X	X			Bounken 2019
41		Theoretical	X	X		X	Bleincher and Stanley 2019
42	X	Theoretical	X		X		Blaschke 2016
43	X	Theoretical		X	X	X	Bican and Brm 2020
44		Theoretical		X			Berman 2016
45		Theoretical	X		X	X	Berman 2012
46		Experimental		X		X	Aversa 2020
47	X	Theoretical	X	X		X	Aahard 2019
48		Theoretical	X	X			Trabuchi and buganza 2019
49		Experimental		X			Teece and Linde 2017

50	X	Theoretical		X		X	Veit el all 2014
51	X	Theoretical		X	X		Venkatesh 2019
52		Experimental		X	X	X	Vial 2019
53	X	Theoretical	X	X	X	X	Waener and wager 2019
54	X	Experimental	X	X			Weill and woener 2013
55	X	Theoretical		X			Weill and woener 2015
56		Experimental		X			Wirth et 2010
57		Theoretical		X			Xu and Kovimko 2019
58		Experimental		X			Zott and AMIT 2017