
Advancing Digital Entrepreneurship: Exploring New Business Models and Research Opportunities

¹Dr. Biplab Kumar Biswal, ²Jyotisankar Mishra, ³Dr. R.V.Palanivel, ⁴Dr. Vijay Uprikar, ⁵Hrushikesh Landage, ⁶Dr Ravindra A. Kayande,

¹ Professor & Dean- Faculty of Management Studies Sri Sri University,
Cuttack, Odisha, India,
bkbiswal@gmail.com,
ORCID: 0009-0000-1986-9927

²Assistant Professor,
School of Social, Financial and Human Sciences, KIIT University, Bhubaneswar, Odisha, India,
jyotisankarmishra@outlook.in,
ORCID: 0000-0002-1818-7227

³Professor, Faculty of Economics and Business Administration, Berlin School of Business and Innovation,
Germany,
drpalanivelrv@gmail.com, ORCID: 0000-0002-0395-9060

⁴Assistant Professor, Datta Meghe Institute of Management Studies, Nagpur, Maharashtra, India,
vijay@dmims.edu.in, ORCID: 0000-0003-2546-8307

⁵Management Student, Datta Meghe Institute of Management Studies, Nagpur, Maharashtra, India,
hrushikeshlandage@gmail.com

⁶Associate Professor School of Ports, Terminal Management, Logistics & Supply Chain Management,
Symbiosis Skills and Professional University, Pune, Maharashtra, India,
ravi.kayande@gmail.com

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Abstract

Many industries have been transformed by digital entrepreneurship, including marketplaces, social media, e-commerce and software-as-a-service. The purpose of this study is to discuss the broad landscape of digital entrepreneurship, relating to the transformation brought about by digital technological change and the appearing new business models within this. Digital entrepreneurship characterizes the range of innovation and competitiveness within it, which is represented through a number of dynamic and diverse actors, at both individual and business levels. The study showed that such growth and strategic adjustment in these sectors were part of a broader analysis of how the COVID-19 pandemic had affected e-commerce and online marketplaces. It deals with subscription-based and freemium/premium business models because of their ability to be sources of stable revenue and long-term relationships with customers; it also outlines how AI can be integrated into the business model for better operational efficiency, decision-making, and customer service. The study finally examines the potential of blockchain in general as a means toward catalyzing a disruptive effect on current business transactions through cryptocurrency and its role in automating transactions, enhancing recordkeeping, and reducing fraud. This paper explores current trends, challenges, and future directions related to digital entrepreneurship and business model innovation through an overall analysis and

future directions in digital entrepreneurship and business model innovation through this comprehensive analysis.

Keywords—Entrepreneurship, Digital Platforms, Business models, technologies, block chain, crypto currencies.

Introduction

A number of industries have been transformed as a result of digital entrepreneurship. Examples include digital marketplaces, social media, e-commerce, and software-as-a-service. The digital economy has grown significantly since the industrial revolution, with companies like Google, Facebook, Amazon, Alibaba, Dropbox, Uber, and AirBNB now being major business giants [1]. Self-employment on a digital platform while utilizing IT and digital media resources for entrepreneurial endeavors is known as "digital entrepreneurship." It happens when a service, product, or essential component of a company is digitalized. This goes beyond typical entrepreneurship by incorporating a broad and ever-changing group of people, each with their own goals, abilities, and objectives. With digital entrepreneurship, the traditional, established participants give way to a more dynamic group of people [2]. The inherent uncertainty in entrepreneurial processes and outcomes, as well as the strategies for managing it, have changed as a result of new digital technology. This has brought up significant issues about digital entrepreneurship and the convergence of digital technologies and entrepreneurship [3].

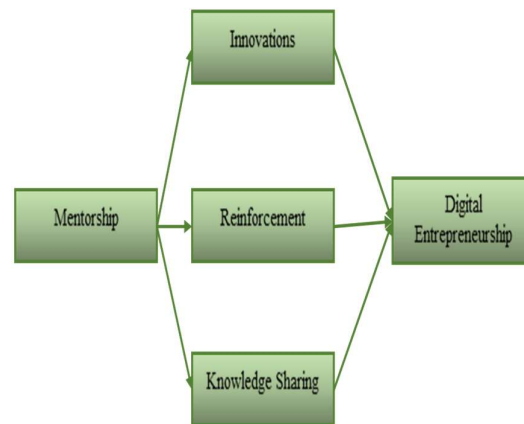


Fig. 1 Digital entrepreneurship

Digital technologies have made a big difference in the entrepreneurial scene by making it possible for new companies to use cutting-edge technology into their daily operations as shown in Fig. 1. These technologies include breakthroughs in Internet-enabled services, infrastructure, tools, platforms, and digital goods. They have opened up new channels for entrepreneurial endeavours by utilizing teamwork and group intelligence. On the other hand, not much is said about how these technologies are changing the regulatory landscape in addition to the entrepreneurial process. There is a dearth of research on ecosystems, and most studies on digital innovation and entrepreneurship concentrate on corporate and organization-level study [4].

II. E-COMMERCE AND ONLINE MARKETPLACES

Electronic trade and e-marketplaces have become increasingly important because to the Covid-19 pandemic; in 2020 and 2021, sales of these platforms increased by 19% and 22%, respectively. These online markets serve as digital middlemen, facilitating the trade of products, services, and information. Business to Consumer (B2C), Business to Business (B2B), and Consumer to Consumer (C2C) are the three main categories. The epidemic has brought to light the significance of e-marketplaces as vital consumer tools that promote domestic growth, facilitate commerce internationally, and raise economies' competitiveness [5]. A decline in the relative traffic of individual stores has been caused by the e-commerce slowdown causing stores to become more competitive with one another. Platforms frequently employ onsite promotion as a tactic to raise demand, however as more merchants enter the market, the expense and efficacy of this method have gone up. Increasing advertising spending, taking up a larger portion of coupons, participating in cooperative marketing,

modifying traffic pricing in accordance with sales conversion rates, and allocating advertising space in accordance with shop demand are some ways to solve this problem [6]. With government backing and the help of tech-savvy expatriates, Dubai's e-commerce sector is expanding quickly. Open innovation is fostered by government support of technology collaboration and engagement. Case studies demonstrate the viability of creative e-commerce tactics, with organic growth serving as the model of choice. Entrepreneurs are adopting environmentally friendly online shopping experiences like Evakind, Ethikal, Goshopia, and The Green Ecostore, and Dubai's FTZ Dubai CommerCity supports new start-ups [7]. In interactive commerce, online commerce has supplanted catalog mail order as the predominant mode of distant commerce. It gains from client centricity and the platform economy's network effects, which ought to constitute the cornerstone of any online retailer's business plan as depicted in Fig.2. Employees are given a framework for daily decision-making by the company's unwavering client orientation and the management's passion and credibility, which are fundamental to business operations [8].

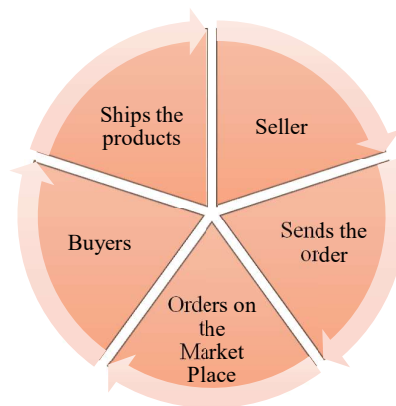


Fig.2 Managing work partnerships on Commerce marketplaces

One of the most well-known types of e-commerce is seen in marketplaces. Because of their inventive and cutting-edge technological makeup, new ICT—like big data, cloud computing, and machine learning—have been integrated, supporting sustainable growth. ICT's effect on sustainability in e-commerce, however, varies depending on the point of view. The ways in which marketplaces report on their advancements toward sustainable objectives differ. Some make use of the well-recognized UN Sustainable Development Goals as their primary objectives, while others create their own metrics and systems to assess sustainability accomplishments. As a result, it is difficult to compare marketplace reports directly [9]. A supply chain innovation in marketing, the consumer-to-manufacturer (C2M) model uses digital connections to link producers and end users. It enhances the flow and gathering of information throughout the supply chain. Alibaba and JD.com, the two biggest e-commerce sites in China, have introduced C2M on a trial basis by releasing apps like Special Offers to produce C2M goods. JD.com has gathered customer preferences for personalized items by collaborating with manufacturers across multiple industries. Companies that manufacture electronics, like as Lenovo, Konka, HP, and Dell, have also teamed up with JD.com to use C2M to create customized products. The approach can be used globally, with the provision of customized items via the internet being a common mode [10].

III. SUBSCRIPTION-BASED AND FREEMIUM/PREMIUM MODELS

This is the impact of the development of business models on the digital platform: agile and scalable solutions for any business and consumer. In the subscription-based models, customers pay a recurrent fee for any product or service; in return, companies are granted a dependable flow of money and an opportunity to forge long-lasting relations with their customers. Freemium and premium models offer basic services for free while advanced features or enhanced experiences are charged. This can help a firm acquire a large user base from the outset and then go ahead to monetize using premium upgrades as depicted in Fig. 3. In both cases, the models offer ongoing value at digital platforms, thereby adapting to the requirements of consumers to foster lasting growth in the digital economy. Online businesses such as social networking, cloud-based storage, games, and digital content services frequently employ the freemium business model. Users can purchase a premium edition for additional features, but it offers a basic or degraded version for free. In order to draw in a sizable user base and turn them into premium customers, the service provider relies heavily on premium subscription revenue. This makes two categories, basic users and premium users, with distinct expectations for their user experiences [11].

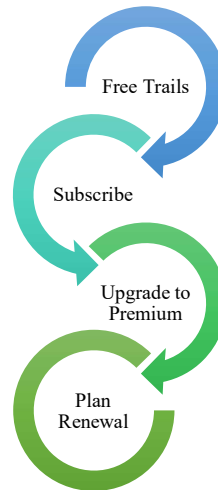


Fig. 3 Freemium Models That Make More Users

In 2009, there has been an increase in the number of Open Government Data initiatives with the goals of economic benefit, efficiency, and openness. But self-funding organizations have real challenges when it comes to putting open data principles into practice. Revenue loss as a result of public data might impact the frequency and caliber of data updates, sometimes resulting in the reversal of policy. In addition to offering helpful recommendations for putting open data policies into practice while guaranteeing long-term sustainability, the study in [12] investigates the financial effects of open data policies on the business models of self-funding agencies.

IV. BUSINESS MODELS INCORPORATING ARTIFICIAL INTELLIGENCE

The business model is changing as a result of the quick development of sensing, persuading, and virtual business models (BM) that are operated by machines on their own. Because of this change, companies now need to develop their capabilities and run BMs in new kinds of Business Model Ecosystems (BMES), which integrate physical, digital, and virtual BMES [13]. This will create new opportunities for multi-business models, but it will also force companies to rethink how they run and develop their numerous BMs. The game of BMI between people, humans and machines, and machines to machines will alter as a result of the emergence of machine-to-human and machine-to-machine communication [14]. Resource productivity is increasing as a result of the circular economy's conversion of linear business models into circular ones. But because they now need to secure more cash in rented out products, product companies face financial issues as a result of this move. The study in [15] investigates alternate funding options and the function of financial actors in circular business ecosystems. It presents artificial intelligence (AI) modeling for financial risk assessment and shows how it may be used to forecast the residual value of old goods.

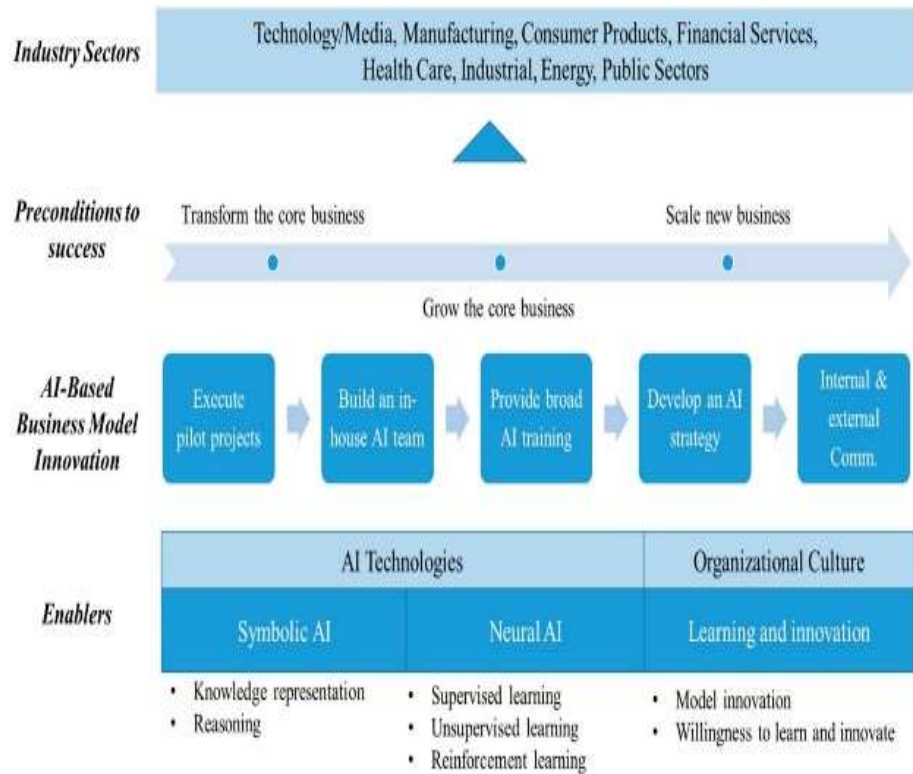


Fig. 4 Example of implementing an artificial intelligence-based business model [16].

Businesses like Amazon, Uber, Tesla, Google, Alibaba, and UPS are using AI to create cutting-edge business models, which is transforming business operations. This game-changing technology creates new business models and strengthens competitive advantages. Studies examining the direct influence of developing technology on the invention of business models are, nevertheless, lacking. With a focus on artificial intelligence (AI), [16] attempts to present a comprehensive understanding of how businesses generate value and carry out essential tasks, viewing a business model as an activity system or collection of interconnected activities. By improving fraud detection and automating activities, artificial intelligence (AI) and machine learning are transforming the finance industry. AI and machine learning are extensively employed across a range of businesses, with 80% of banks aware of its potential. Machine learning makes precise predictions and results possible, whereas artificial intelligence (AI) include machine vision, natural language processing, and expert systems. Financial institutions will be able to streamline operations, enhance client satisfaction, and provide round-the-clock services thanks to the adoption of these technologies, which will also raise consumer acceptability and change regulatory frameworks [17]. Credit risk monitoring, market risk prediction, and client onboarding are just a few of the industries that AI and machine learning are changing. These technologies improve decision-making, operational flexibility, and the capacity to change products and services. The real influence, though, comes from the cooperation of sentient computers and people. To fully benefit from AI and ML, businesses need to reevaluate their procedures and ensure accurate, safe, and effective operations. Growth is being fueled by AI-powered intelligent automation, which is revolutionizing customer relationships through platforms like chatbots and fetch robotics. Artificial intelligence (AI) enhanced human talents and gave workers new tools to increase their natural intelligence, complementing labor [18]. Table 1 presents the full representation of evolving business models, depicting the impacts of emerging technologies.

TABLE I. TECHNOLOGY IMPACTS AND EVOLVING BUSINESS MODELS

Feature	Description	Impact/Challenges	Examples/Applications
Sensing BMs	Business models utilizing sensors for autonomous operations.	Requires integration with physical, digital, and virtual BMES.	Smart homes, IoT devices
Persuading BMs	Business models that leverage persuasive technologies to influence user behavior.	Ethical considerations and user consent issues.	Social media targeted advertising

Virtual BMs	Business models operating in virtual environments, often powered by AI.	Need for robust digital infrastructure and cybersecurity measures.	Virtual marketplaces, online gaming
Machine-to-Human Communication	Interaction between machines and humans to perform business tasks.	Alters traditional business operations and requires new interaction protocols.	Virtual assistants, chatbots
Machine-to-Machine Communication	Autonomous communication between machines to execute business processes.	Enhances efficiency but requires interoperability standards.	Automated supply chains, industrial automation
Circular Economy	Business models focusing on recycling and reusing materials to create a closed-loop system.	Financial challenges due to increased need for investment in rented out products.	Recycling programs, refurbished electronics
AI in Business Models	Integration of AI to innovate and optimize business operations.	Significant transformation in business operations and competitive strategies.	AI-driven logistics, predictive maintenance
AI and ML in Finance	Use of AI and machine learning for tasks such as fraud detection and market prediction.	Requires reevaluation of processes for accuracy and efficiency.	Credit risk monitoring, algorithmic trading
AI-Powered Intelligent Automation	Automation of tasks and customer interactions using AI technologies.	Improves efficiency but may require workforce reskilling.	Chatbots, robotic process automation
AI-Enhanced Human Capabilities	AI tools complementing human intelligence and enhancing productivity.	Balancing between AI assistance and human oversight.	Decision support systems, AI-driven analytics

It shows features such as censoring BMs, persuading BMs, virtual BMs, machine-to-human communication, and machine-to-machine communication. Operational features are captured for each attribute, operational challenges, and relevant applications in real-life scenarios such as smart homes, social media platforms, online marketplaces or virtual markets, virtual assistants, and supply chains that are automated. This includes the focus of the circular economy on recycling and reusing materials, integrating AI into business models, and using AI and ML in finance for fraud detection and market prediction. Further, this paper will discuss intelligent automation powered by AI and capabilities powered by AI in humans with regard to efficiency and productivity improvements.

V. BLOCKCHAIN AND CRYPTOCURRENCIES

Blockchain technology is changing business models and interactions in a way that is upending a number of industries. Blockchain is being used by entrepreneurs to address issues and change existing businesses. However, a suitable reorganization of business models is necessary to fully utilize disruptive technology. Businesses that possess strategic intelligence blend innovative technology with a business plan that optimizes its capabilities. Businesses may maximize blockchain technology's potential and open up new chances for value creation in their particular industries by having a thorough understanding of the creative business models that have embraced the technology [19]. There is a lack of research on how blockchain technology affects nonfinancial services organizations' business strategies and value creation. Additionally, there is still uncertainty about distributed ledger technologies, such as blockchain (with definite article) vs blockchain (no article) [20]. IT experts and business users are becoming more interested in blockchain technology, a distributed and decentralized database, as a possible alternative to conventional business methods. Blockchain was formerly connected to cryptocurrency, but it may also be used to improve internal operations and communication in businesses. But to really reap its benefits, corporate processes must understand it appropriately [21]. The decentralized design of blockchain is revolutionizing the use of cryptocurrencies by providing safe, reliable, and independent ecosystems for more efficient use of resources, infrastructure, and legacy technologies [22]. Blockchain has applications across various business aspects, as illustrated in the Fig. 5.

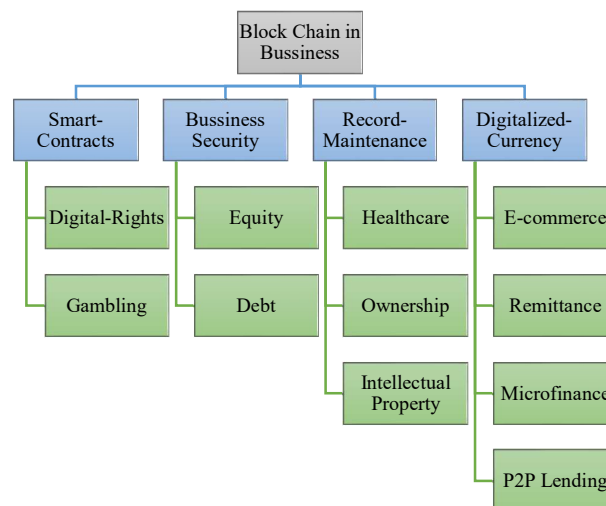


Fig. 5 Incorporating blockchain into business

Blockchain technology preserves, verifies, and executes smart contracts, thus making automatic transactions possible for car and apartment rentals, ride-sharing, and online shopping without human interference. In the securities sector, Blockchain enables the issuance of overstock cryptocurrency bonds with the approval of regulatory bodies and helps Nasdaq in a myriad of services related to keeping equity ownership records, reducing settlement times, and eliminating paper certificates. Blockchain simplifies record keeping by making the processes less cumbersome and time-consuming, offering transparency that will help detect counterfeit goods, offering virtual warranty wallet abilities to both buyers and sellers to completely revolutionize supply chain processes in whole [23]. Digital currency, initiated via bitcoin, reduced the fraud of currencies to almost zero. Its acceptance came when overstock.com started taking it. Initially scoffed at, the bitcoin began to gain more respect. Whereas the current usage is low, its demand is bound to surge with increasing financial crises and the proliferation of bitcoin.

VI. CONCLUSION

Faster-than-ever digital technological progress underpins the emergence of new business models that enable the creation of value and growth opportunities in entrepreneurship. Digital entrepreneurship relies on the availability of IT and digital media, which have helped companies to access global markets, make operations more efficient, and try out new models for customer engagement. The COVID-19 pandemic further accelerated the adoption of e-commerce and online

marketplaces, underpinning their critical place in modern economies. Subscription-based models and freemium/premium models have been successfully rolled out to establish seamless revenue streams alongside cementing customer loyalty. AI infusion into processes remembers transforming industries on all fronts of efficiency, decision-making, and the automation of tasks that are routine by nature. On the other hand, blockchain technology and digital cryptocurrencies are fast maturing to offer promising solutions toward secure, transparent, and faster transactional and record-keeping uses. Given fast-paced evolving digital entrepreneurship, it is incumbent on business enterprises to adapt to these advancing technologies, both to remain competitive and to foster innovation. The paper thus raises the need for further research into the interplay between digital technologies and entrepreneurship, particularly in relation to how new business models can be appropriately realized and sustained in times of rapid change in the digital economy.

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