

Role of Emergent Technologies in Entrepreneurial Firms

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Abstract

New technologies are one of the most obvious parts of the emotional change of culture in developing or developed countries. These emergent technologies offer enormous opportunities for the entrepreneurial firms interested in searching for a competing lead in business as well as pose challenges to the firms. The emergent technologies can go a long way in helping the organisations to tap the newly emerging markets with high potential. The present study aims at identifying the role of emergent technologies in influencing the survival and expansion of the business. The study has compiled the reviews of various scholars on the usage of the latest technologies by the firms to achieve a competitive edge. This is a descriptive study and makes use of the secondary data. The findings of the study suggest that technologies, such as AI, robotics and drones, 3D Printing, serverless computing, block chain and so forth have been most important technologies for the firms, as they have completely changed their traditional way of organisation functioning. These technologies enable effective and efficient decision-making and promote the growth and development of the firms. The study makes a value addition to the existing literature on the role of emergent and futuristic technologies in enabling the entrepreneurial firms to pave their way towards sustainable growth in the competitive business environment through ingenious business solutions.

Keywords

Emergent technologies, entrepreneurial firms, challenges, competitive, decision-making

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Introduction

Organisations have been able to expand their business and generate new business models through the adoption of agile new technologies; these technologies enable the organisations to develop unique ways for value creation through constant innovation strategies (Zott & Amit, 2007). New technologies are one of the most obvious parts of the emotional change of culture in developing or developed countries. Furthermore advancements in technology are an apparent part of an economy which gives off an impression of being in progress towards the end of the 20th century, including everyday life, relations at work place and other features of an organisation. Emerging technologies enable the organisations to maintain a steady supply of innovative products and services; these technologies also play a significant role in influencing the market structure and business of the organisation (Sainio, 2004).

The spread of the internet and of portable technology has significantly changed the way individuals access data, how they pick the services they use and how they approach technological changes. The entirety of all this has prompted a sensational change in plans of action in businesses (Roblek et al., 2013). Social media platforms are significant for entrepreneurs as well as new companies. It empowers interfacing with general public and customers through different channels and modes of conversation; it also helps the internal discussion, decision-making and organisational development (Baptista et al., 2017; Kraus et al., 2019; Li et al., 2017; Shen et al., 2018). Bange et al. (2019) in their study found that online social media platforms make the stretch for brand building and development of faithfulness towards brand. Through new idea sharing, publication of model updates, getting admirable responses, the business visionaries can further influence the hierarchical information and can contribute towards enhancement of value creation through generation of the products (Hidayanti et al., 2018; Kane, 2017).

The development of game-changing technologies is evening the odds in various industries. Espousal of these technologies is on the ascent, offering awareness to advance scholars in different businesses to rethink what's conceivable. Latest techniques like machine learning, artificial intelligence (AI) and robotic process automation are ready to introduce another method of working together, due to which long established business practices will find difficult to exist. Development in natural language processing and sentiments will alter the service industry. This will happen soon as the Internet of Things (IoT) turns into a norm in each industry (Lampikoski et al., 2014).

Nowadays digital transformation is far reaching and unavoidable in most ventures and organisations. It leads to a rise in global view of digital business. This is driven by the improvements expected, implantation into huge assemblage of people adding to create imaginative innovation-based arrangements. The technological advancements as an outcome of innovation offer more clarity about the nature and distinguishing features of digital entrepreneurship ecosystem.

Emerging Technologies in Business

Internet of Things (IoT)

IoT can be defined as a connection of various interconnected machines, devices or items that are given unique identifiers and they have capacity to transfer data from one system/machine to other system/machines without creating the need for any type of human interference. IoT furnishes information to the organisations about the working of their frameworks. It conveys in-depth knowledge ranging from the presentation of machines to logistic operations and supply chain. IoT offers a number of benefits in almost every field, some might be specific to industry and some are general such as monitoring of overall business processes, improvement in customer experience, enhancement of productivity of employees, integration and adoption of business models, better decision-making and generation of more revenue (Schwab, 2016).

Artificial Intelligence (AI)

AI has changed the working pattern in organisations; it has affected the pattern of client cooperation with organisation through bots and wise sites; these tools are effectively coordinated into day to day work. AI is expected to impact every industry from retail to healthcare, hospitality to finance by improving the security of data, speed and accuracy of decision-making as well as employee output and training. With an investment in AI, the company can avail benefit of reduction in cost.

5G System

5G system will enable the expansion of capacity for moving, controlling and breaking down of information. It is also expected that the system will drive the development of many advanced applications for handling various issues of business. This will also lead to business empowerment by facilitating complex operations. 5G will also enable to enhance the speed of the business through productive and early mover preferences.

Serverless Computing

Serverless processing permits associations to make robotised IT conditions. These robotised IT conditions offer various benefits like reduction in day-to-day operations and allows the organisations to utilise resources for enhancing additional capacities including additional worth. Serverless computing is a new innovation along with robotics, replacing automation as well as processing (Rayome, 2019).

Block Chain

Today, a huge number of business associations are making use of blockchain innovation ranging from bookkeeping and administrative consistence to other activities. The administration of unmistakable, immaterial and complex resources has become simpler and proficient with the assistance of blockchain innovation. Resources, for example, land can be tokenised, isolated and appropriated with negligible security concerns and the board costs, which is frequently worried about liquidity and venture size. Usage of block chain in managing finances additionally helps in encouraging instalments and dealing with the progression of cash effortlessly. There are numerous other creative methods of utilising blockchain by enterprises to smooth out development. With appropriated record innovation, approved members can get to a similar data simultaneously safely and effectively (Attaran & Gunasekaran, 2020). Application of block chain technology in supply chain management can enable the company to track and simplify the complex and geographically widespread supply chain. Real-time tracking of the operations and elimination of any kinks in the supply chain has become possible due to digitisation of different components in the supply chain.

Robotics and Drones

Automations can accomplish more than convey merchandise. One close term used for drones is inside the domain of stock administration. Automations are being tried for their value inside distribution centres. Imagine utilising drones to fly all through the stockroom and sweep the scanner tags of the available stock. Drones can confirm stock in a small amount of the time as compared to a group of individuals. While these stock control drones are flying around ensuring 100% stock exactness, self-sufficient trucks will pull up to the stacking docks while the self-sufficient forklifts empty them. Human distribution centre workers may be consigned to galleries. Robotics and drones replacing humans is not completely new. Technology has been replacing humans since long time and this always helped entrepreneurs to boast their growth and minimise costs (Marion, 2019).

3D Printing

3D printing is truly incredible as it changes spools of plastic fibre or plate of tar into physical items. NASA keeps up a 3D printer on the International Space Station and space explorers can fabricate custom apparatuses without flying them into space. 3D printing has been embraced by understudies, business visionaries, specialists and monstrous industrial facilities. Since 3D printing considers the change of an advanced plan into a substantial item, a wide exhibit of employments has been found (Gewirtz, 2019).

Big Data

It is a well-proven fact that big data plays a significant role in the success of business. However, only 29% of businesses have been able to tap the potential of

big data by conversion of analytics in to action. Big data can be extremely important in devising new offerings of an already existing or new brand apart from offering benefit of achieving the maximum potential of marketing activities. Organisations can gain insight into customer preferences through analytics and thereby offer their products for gaining maximum advantage and optimising their market share. Genetic testing companies like 23andMe, MapMyGenome and Ancestry are an outcome of the big data revolution (ForbesIndia, n.d.). These corporations have analysed scores of data for giving their customers a deeper understanding of their heritage and health.

Metaverse

The advent of the metaverse and its acceptance as a popular term has offered businesses with a plethora of new prospects for technological and business model innovation. While definitions differ, the metaverse has been characterised as ‘a massively scaled and interoperable network of real-time rendered 3D virtual worlds that can be experienced synchronously and persistently by an effectively infinite number of users’ (Ball, 2021). Analysing the socio-economic impacts of virtual worlds has become more important (Wang et al., 2022), as the concept has been publicly embraced not only by big tech companies like Meta, Microsoft and Tencent, but also by smaller companies and start-ups (Rizvanovi et al., 2023).

Business Application of New Technologies

According to a growing body of scholarship (Davidsson, 2003, 2016), entrepreneurship is the process by which new economic activities and organisations emerge. Digital entrepreneurship refers to a new trend in entrepreneurship that has emerged as a result of the adoption of digital technologies. Digital entrepreneurship is predicted to play an increasingly crucial economic and societal role in terms of driving innovation, job creation and economic growth. Politicians are beginning to recognise the relevance of digital technologies for entrepreneurship, for example, to encourage entrepreneurship in general and the use of digital technologies for such endeavours in particular within.

AI is used by e-commerce platforms to make personalised suggestions, optimise supply chains and provide Chabot-driven customer care. India’s smart cities plan incorporates AI for traffic control, energy optimisation and public safety, promoting sustainable urban growth. In education, AI provides personalised learning experiences and assessments that meet the various needs of students.

E-commerce platform uses AI for personalised suggestion.

Overall, AI and robotics play critical roles in increasing productivity, creativity and societal well-being across a wide range of commercial sectors in India.

The Role of New Technologies in the Spread of New Businesses

Technology paves the way for development. Application of new technology in business is the need of the hour. Business is becoming more tech savvy with the

passage of time. Innovation largely affects business tasks. Regardless of the size of the organisation, technology can bring myriad benefits that will assist the business for expanding and developing the products as per the client's requirement. The fundamental part of technology in business is to drive development and improve tasks. Without technology, organisations would in all likelihood neglect to achieve their targets (Westerman et al., 2014). The digital economy has offered ascend to various innovative business models. Present day advancements in information technology have fostered conduction of numerous businesses at a remarkable scale without any hindrance of location or distances.

Technological improvements have dramatically impacted India's startup scene, encouraging creativity, scalability and market disruption. The availability of cutting-edge technologies has reduced entry barriers for entrepreneurs, allowing the formation of startups in a variety of industries. Cloud computing, for example, has provided low-cost infrastructure solutions, allowing businesses to scale operations without making large upfront investments.

Advancements in digital payment systems and blockchain technology have opened the way for innovative financial solutions and inclusive banking services, transforming the way transactions take place in the fintech sector. Machine learning and data analytics provide entrepreneurs with useful information for strategic decision-making, consumer profiling and personalised offerings, hence increasing competitiveness.

Remote cooperation is also made easier by technological solutions, allowing startups to form internationally distributed teams and access talent pools that are not limited by geography. Mobile technology has played a critical role, particularly in the healthtech and edtech sectors, by democratising access to healthcare and education via innovative apps and platforms.

Furthermore, the rise of AI-powered automation has simplified processes, lowered costs and increased efficiency for startups. In India, where different issues coexist with vast opportunity, technological improvements serve as a catalyst, allowing companies to address local needs with scalable and sustainable solutions. Overall, technology is critical to the development and growth of Indian businesses, promoting a vibrant entrepreneurial ecosystem.

The Role of New Technologies in Entrepreneurial Decision-making Process

The momentum of technological development has brought about important changes in people's life and work. It is affecting all disciplines, economies and businesses, maybe none more than production, and how, what, why and where people produce and deliver products and services. Traditional production methods have been replaced for a wider outreach that has never been thought of before—beginning from data origin, item composition, production and finally reaching the customer. Revolutionary changes have been brought about in terms of economy, return and reuse. Accomplishments in key regions are changing the destiny of formation, including robotics, the IoT, energy storage, biotechnology, self-governing vehicles, AI, nanotechnology, materials science, 3D printing and

quantum computing. In any case, precise facts on the worth and hazards that technology can make for organisations and nations is not broadly diffused. Business leaders, the general population, government pioneers would profit by simply gaining an insight in to availability and adoption of existing technology, and their combine effect on individual industry, firms, enterprises and the society. Policymakers and companies will understand the difference between excessive cases or exposure and reality, and will be able to settle on sound business investments and policy decisions (Kearney, 2017).

The Role of New Technologies on the Growth and Development of Entrepreneurial Firms

Shifting of research and capability of scientific establishments towards introduction of innovative products and services is the main characteristic of technology-enabled entrepreneurship. This change offers exceptional advantages to the purchasers along with economic development by guaranteeing powerful and synergistic relations where science meets economy, technology entrepreneurship centres around actualising creative solutions, also guaranteeing their market achievement, just as on utilising their applications and disseminating their belongings in the business environment (Bhardwaj, 2019). Constant innovation is one of the major contributing factor progression and adequacy expansion of existing business. It likewise permits present day organisations to construct a changeless upper hand, generally through such beneficial outcomes as (Cassiman et al., 2010; Rosenbusch et al., 2011) increasing quality and viability, restricting expenses, expanding client reliability, internationalisation of tasks of modernising the management processes and techniques (Mukherjee, 2018).

Conclusion

World is developing day by day in terms of technology. Every year new technology comes and it directly or indirectly affects the entrepreneurial firms. Technologies, such as AI, Robotics and Drones, 3D Printing, serverless computing, block chain and others have been recognised as most significant technologies for the accomplishment of the goals of the entrepreneurial firms. These technologies have enabled the firms to change their traditional way of working, manufacturing, selling and others. Many large and reputed firms like IBM follow the strategy of heavy investment in the developing countries like China and India. These firms believe in forming new ventures with their stake in the equity. The new ventures operate successfully with the help of disruptive technology (Sarason et al., 2006; Smith & Sharif, 2007). Both large and small organisations can make use of the emergent technologies for development of competencies which go a long way in enabling the firms to gain competitive edge in the uncertain market scenario.

Finally, emergent technologies in entrepreneurial enterprises play an important role in changing India's innovation and growth landscape. As proved by pioneering

companies, incorporating innovative technologies accelerates entrepreneurial endeavours to success and sustainability.

Consider the Indian financial behemoth Paytm, which has used emerging technologies such as mobile platforms, AI and digital wallets to transform digital payments. Paytm's narrative exemplifies how technology innovation can meet local market demands while simultaneously positioning a company on a global scale, demonstrating the transformative impact of emerging technologies in the entrepreneurial arena.

Furthermore, the significance of these technologies goes beyond the realm of finance. In a variety of industries, including healthtech, edtech and agritech, Indian entrepreneurs use emerging technologies to produce unique solutions. This not only tackles the unique issues that exist in the Indian setting, but it also encourages an environment of creativity and adaptation.

In summary, the ability to absorb and use emerging technology is becoming increasingly important for the success of Indian entrepreneurial endeavours. As these companies negotiate the ever-changing business landscape, the strategic use of modern technology remains a defining feature in their pursuit of long-term innovation and market leadership.

Implication of the Study

This study is an amalgam of various emerging technologies and how they are helpful for successful operation of firms. The present study will be helpful to the start-up entrepreneurs and policymakers to develop an understanding of usage and application the nascent technology techniques and the benefits offered by them and why one should opt them in order to achieve success in the entrepreneurial pursuits.

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References

- Attaran, M., & Gunasekaran, A. (2019). *Applications of blockchain technology in business: Challenges and opportunities*. Springer Nature.
- Ball, M. (2022). *Framework for the Metaverse*. <https://www.matthewball.co/all/forward-tothemetaverseprimer>
- Bange, S., Moisander, J., & Järventie-Thesleff, R. (2019). Brand co-creation in multichannel media environments: A narrative approach. *Journal of Media Business Studies*, 1–18. <https://doi.org/10.1080/16522354.2019.1596722>

- Baptista, J., Wilson, A. D., Galliers, R. D., & Bynghall, S. (2017). Social media and the emergence of reflexivity as a new capability for open strategy. *Long Range Planning*, 50(3), 322–336.
- Bhardwaj, B. (2019). Role of knowledge management in enhancing the entrepreneurial ecosystems through corporate entrepreneurship and strategic intent in high-tech firms. *Journal of the Knowledge Economy*, 10, 1831–1859.
- Cassiman, B., Golovko, E., & Martínez-Ros, E. (2010). Innovation, exports and productivity. *International Journal of Industrial Organization*, 28(4), 372–376.
- Davidsson, P. (2003). The domain of entrepreneurship research: Some suggestions. In Katz J. A., & Shepherd D. A. (Eds), *Cognitive approaches to entrepreneurship research (Advances in entrepreneurship, firm emergence and growth)* (Vol. 6, pp. 315–372). Emerald Group Publishing Limited.
- ForbesIndia.(n.d.). *Emerging technology and its impact on business*. <https://www.forbesindia.com/article/one-ceo-club/emerging-technology-and-its-impact-on-business/53805/1>
- Gewirtz, D. (2019, May 15). *For DIY-IT | Everything you need to know about 3D printing and its impact on your business*. <https://www.zdnet.com/article/everything-you-need-to-know-about-3d-printing-and-its-impact-on-your-business/>
- Hidayanti, I., Herman, L. E., & Farida, N. (2018). Engaging customers through social media to improve industrial product development: The role of customer co-creation value. *Journal of Relationship Marketing*, 17(1), 17–28.
- Kane, G. C. (2017). The evolutionary implications of social media for organizational knowledge management. *Information and Organization*, 27(1), 37–46.
- Kearney, A. T. (2017). *White paper on technology and innovation for the future of production: Accelerating value creation* (Vol. 28). World Economic Forum. https://www3.weforum.org/docs/WEF_White_Paper_Technology_Innovation_Future_of_Production_2017.pdf
- Kraus, S., Palmer, C., Kailer, N., Kallinger, F. L., & Spitzer, J. (2019). Digital entrepreneurship: A research agenda on new business models for the twenty-first century. *International Journal of Entrepreneurial Behavior & Research*, 25(2), 353–375.
- Lampikoski, T., Westerlund, M., Rajala, R., & Möller, K. (2014). Green innovation games: Value-creation strategies for corporate sustainability. *California Management Review*, 57(1), 88–116.
- Li, L., Su, F., Zhang, W., & Mao, J. Y. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28(6), 1129–1157.
- Marion, G. (2019, March). *How drones and technology could change your business, where will supply chain take your supply chain?* <https://www.thebalancesmb.com/how-drones-and-technology-could-change-your-business-4158066>
- Mukherjee, S. (2018). Challenges to Indian micro small scale and medium enterprises in the era of globalization. *Journal of Global Entrepreneurship Research*, 8, 1–19.
- Rayome, A. D. (2019). *Innovation*. <https://www.techrepublic.com/article/top-10-emerging-technologies-of-2019/>
- Rizvanović, B., Zutshi, A., Grilo, A., & Nodehi, T. (2023). Linking the potentials of extended digital marketing impact and start-up growth: Developing a macro-dynamic framework of start-up growth drivers supported by digital marketing. *Technological Forecasting and Social Change*, 186, 122128.
- Roblek, V., Bach, M. P., Meško, M., & Bertoneclj, A. (2013). The impact of social media to value added in knowledge-based industries. *Kybernetes*, 42(4), 554–568.

- Rosenbusch, N., Brinckmann, J., & Bausch, A. (2011). Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs. *Journal of Business Venturing, 26*(4), 441–457.
- Sainio, L. M. (2004). A framework for analysing the effects of new, potentially disruptive technology on a business model case—Bluetooth. *International Journal of Electronic Business, 2*(3), 255–273.
- Sarason, Y., Dean, T., & Dillard, J. F. (2006). Entrepreneurship as the nexus of individual and opportunity: A structuration view. *Journal of Business Venturing, 21*(3), 286–305.
- Schwab, K. (2016). *The fourth industrial revolution*. Currency.
- Shen, K. N., Lindsay, V., & Xu, Y. (2018). Digital entrepreneurship. *Information Systems Journal, 28*(6), 1125–1128.
- Smith, R., & Sharif, N. (2007). Understanding and acquiring technology assets for global competition. *Technovation, 27*(11), 643–649.
- Wang, F. Y., Qin, R., Wang, X., & Hu, B. (2022). Metasocieties in metaverse: Metaeconomics and metamanagement for metaenterprises and metacities. *IEEE Transactions on Computational Social Systems, 9*(1), 2–7
- Westerman, G., Bonnet, D., & McAfee, A., (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Review Press.
- Zott, C., & Amit, R. (2007). Business model design and the performance of entrepreneurial firms. *Organization Science, 18*(2), 181–199.