EMERGING TECHNOLOGIES IN BUSINESS

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A R T I C L E I N F O.	**ABSTRACT**
Keywords: emerging technologies, business, artificial intelligence, and robotics.	Growing a business often requires keeping up with new technologies. Emerging technologies are those technical innovations which represent progressive developments within a field for competitive advantage. They include artificial intelligence, robotics, Internet of things, virtual reality, big data, blockchain, and nanotechnology. These technologies are revolutionizing the world of business, how organizations function, change and evolve. They are being touted as the "next big thing" that will solve all our problems. Human beings are designing, commercializing, marketing, purchasing, and using these technologies. This paper investigates some emerging technologies for businesses including artificial intelligence, robotics, 3D printing, and blockchain.

INTRODUCTION

We dream of a future where technologies such as artificial intelligence will magically make life better for everyone. Technologies have become everyone's business. Companies that fail to keep up with new technologies risk failing entirely.

We are situated at the edge of an unparalleled technological transformation. Today, Internet has changed the lifestyle of everyone. The survival of human beings has become difficult without the Internet. In the age of the Internet, everybody is busy with electronic gadgets like mobile, laptop, computers, and other digital devices.

Many new technologies are coming in every sector and it is shaping the future of innovations. Emerging technologies (ETs) are contemporary advances and innovation in various fields of technology. They are those whose development and practical applications are still largely unrealized. They are often perceived as capable of changing the status quo. Some of these emerging technologies for businesses include following:

- ➢ Artificial Intelligence
- ➢ Robotics
- ➢ Drones
- ➢ Big data and analytics
- ➢ Internet of things (IoT)
- ➢ Digital Business
- ➢ 3D printing
- ➢ Cloud computing
- ➢ 5G networks
- ➢ Virtual and augmented reality
- ➢ Blockchain

These technologies are widely used by companies from all types of industries. They are key to unlocking market-leading performance. Emerging technology may be regarded as a component in building a new solution and it represents a growing toolbox of ways to solve problems. This implies that emerging technologies are almost indistinguishable from processes. Creativity allows you to use new emerging technologies to create new competitive advantages for your company.

The business world and its competitive landscape are constantly changing due to emerging technologies. As illustrated in Figure 1, your business model must fit for purpose to take full advantage of emerging technologies [1]. The digital era is predicted to bring tremendous value for business and societies alike.

EMERGING TECHNOLOGIES

Business leaders know they must prepare for technological upheavals in the years ahead. But keeping up new technologies is an overwhelming task. Emerging technologies have the most potential for near-term business impact. Seven emerging technologies are discussed below [2,3]:

1. *Artificial Intelligence:* AI is the branch of computer science that develops machines and software with animal-like intelligence. AI system often consists of various tools such machine learning, artificial neutral networks, and expert systems. Machine learning (ML), which is the subset of Artificial Intelligence is also rising as we are moving towards more advanced technology. Machine learning has a huge role in technologies like automatic cars, robotics, security devices, online fraud detection, accident detection, image detection, etc. Advances in machine learning demonstrate that algorithms can simultaneously benefit companies, shareholders, citizens, and the environment. Deep learning is one step ahead of AI and ML; it is used to learn big data with more accuracy and efficiency.

2. *Robotics:* This is the branch of technology that deals with the design, construction, operation, and application of robots. It deals with automated machines that can take the place of humans in dangerous environments. Automation offers employees skill-building opportunities and the ability to focus on the high-value work of providing diagnostic insights. The evolution of robotics has made it an imperative business tool for organizations of almost any size. Figure 2 shows robots being used in manufacturing [4].

3. *Internet of Things*: The number of devices that make up the IoT is rapidly increasing. Everything and anything you can think of is or will be connected to the Internet. Sensors, as cheap as 30¢, can connect any material to the Internet to provide useful insight, data, information or intelligence. IoT extends to the Internet of behavior, which is concerned with the use of data and insights to effect behavioral change. IoT is turning our homes into smart hubs with voice supported technology. For

example, if you maintain a fleet of vehicles, sensors in tires can monitor air pressure and how the vehicles are being driven. IoT is used in smart cities initially in the areas of parking utilization, traffic patterns, signage, and personalized marketing. The use of IoT in business is portrayed in Figure 3 [5].

4. *3D Printing:* 3D printing is a manufacturing technique that transforms spools of plastic filament into physical objects. It is useful for prototypes and offers significant benefits for small and medium-sized production runs. Combined with Internet technology, 3D printing would allow for digital blueprints of virtually any material product to be sent instantly to another person to be produced on the spot, making purchasing a product online almost instantaneous. Industries like automotive, aerospace, defense, consumer goods, healthcare, apparel and fashion, and construction will stand to benefit from 3D printing with reduced costs and improved lead time.

5. *Virtual Reality*: Augmented reality and virtual reality are two popular technology trends that have exploded in popularity in recent years. Virtual reality (VR) is concerned with creating a simulated environment of the physical world using computer technology, while underlined augmented reality (AR) is concerned with enhancing that environment using computer-generated components. VR technology is an excellent way for real estate agents to rise above the competition. It allows clients to see the fine architectural details of a home before they even set foot on the property. It saves time and money for both the potential buyer and the realtor. The architectural visualization function of virtual reality is also useful during home construction. The virtual reality can reflect the architecture of the future house. Figure 4 shows the use of virtual reality in business [6].

6. *Blockchain:* This is the underlying technology that underpins all crypto-assets. This technology has a lot of implications for business development. Using blockchain in real estate has become an increasingly popular choice to meet the expectations of their clients. Using cryptocurrency to buy or sell real estate gives the realtor an edge over their competitors. Experts believe blockchain has the potential to transform industries using AI since AI has the ability to create more efficient, secure, and cost-effective businesses.

7. *Cloud Computing*: Cloud computing is the on-demand availability of computer services over the Internet to offer business innovation, agility, and growth. The major motivation behind cloud computing is to enable businesses to get access to data centers and manage tasks from a remote location, the cloud or virtual space. A business can improve their efficiency, increase productivity, and save costs by moving their data to the cloud. Today, many business leaders are on the front foot to adapt to digital transformation with cloud computing strategy. Choosing to transfer your company to the cloud is a significant choice that will impact all aspects of business operations.

Some fields already using emerging technologies like artificial intelligence, robotics, and virtual reality are real estate, small business entrepreneurs, and corporations with many locations across the nation.

BENEFITS

Technology makes it easier for companies to collect and store their data, reduce manual work, and improve data accuracy. It reduces the need for personal attention and manual expertise while improving customer experience. The use emerging technologies is essential for most small businesses if they are to improve their competitiveness. Emerging technology has a decisive role to play in an organization's innovations, customer experience, and overall success. Other benefits of emerging technologies for businesses include:

➢ *Security*: Companies can utilize emerging technologies to secure their networks, protect their data, and prevent many other risks by identifying security weaknesses.

➢ *Customer Experience:* Businesses that put customers at the heart of their business are embracing new technologies for customer experience. They attract, engage, and delight their customers,

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thereby driving business growth. An enterprise's competitive edge comes from its customer experience. Thus, providing exceptional customer experiences should be one of the top priorities for any business.

CHALLENGES

Although the Internet has been around for about three decades, executives at almost all companies still struggle to figure out how to use digital technology to advance their business strategy. There is a widening gap in knowledge between those creating and using emerging technologies and those we charge with regulating them. Technology could be used by elites for <u>good</u> or <u>evil</u>. Other challenges of emerging technologies for businesses include:

➢ *Government Solutions:* G7 nations are taking steps to support the development of the next wave of technologies. The government-led approaches of governing technologies are far from fit for purpose. Madeleine K. Albright once said, "Governments are listening on 20th century technology and providing 19th century solutions." Our governance solutions are out of step with today's powerful technologies [7].

➢ *Human Security:* The human security risks are posed by satellite imagery. Technologies that literally read our minds can be used to manipulate us.

➢ *Fear:* As robotics and artificial intelligence develop, many skilled jobs may be threatened. They may ultimately allow computers to do many knowledge-based jobs that require significant education. This may result in substantial unemployment at all skill levels.

CONCLUSION

In a world of continual change, it is necessary to explore and then invest in emerging technologies to be resilient, adaptive, competitive, and relevant. Emerging technologies can be powerful tools to help companies solve business problems, scale on demand, improve resiliency and deploy technology solutions rapidly. The future of some emerging technologies is illustrated in Figure 5 [3]. Emerging technologies are changing the competitive landscape. Governments can leverage emerging technologies to drive financial inclusion and democratize economic opportunities. Businesses should seize this opportunity to commercialize ETs to improve their economic and social viability.

Emerging technologies are a big gamble for business. Investing in them can often mean failure. Not investing in them can mean falling behind, failing to be relevant to customers, losing market share, and failing to be competitive [8]. Emerging technologies are a subset of advanced technologies that are potentially significant to US national security. For more information about emerging technologies in business, one should consult the books in [9-16].

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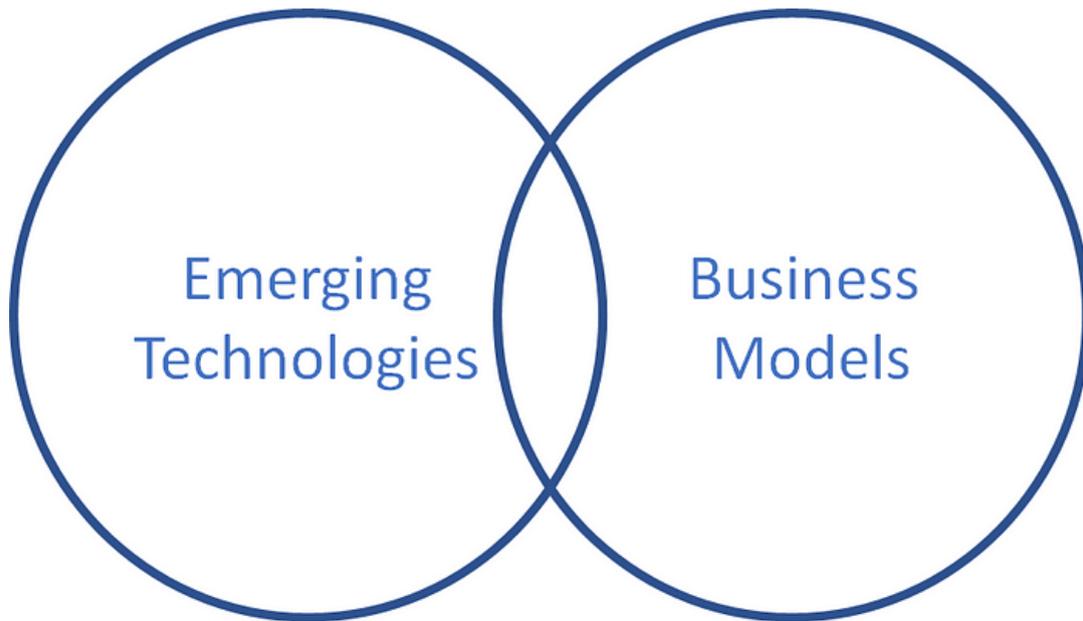
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Figure 1 your business model must fit for purpose to take full advantage of emerging technologies [1].
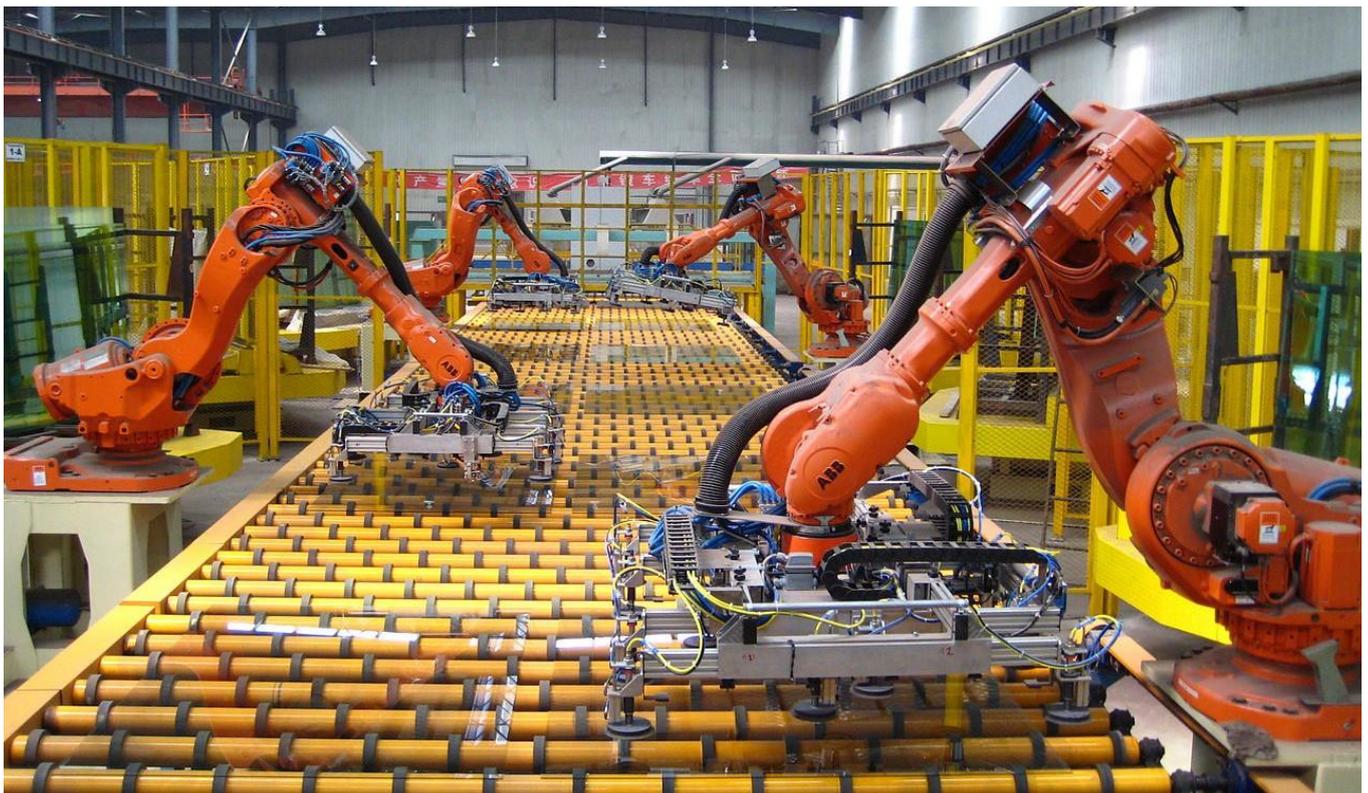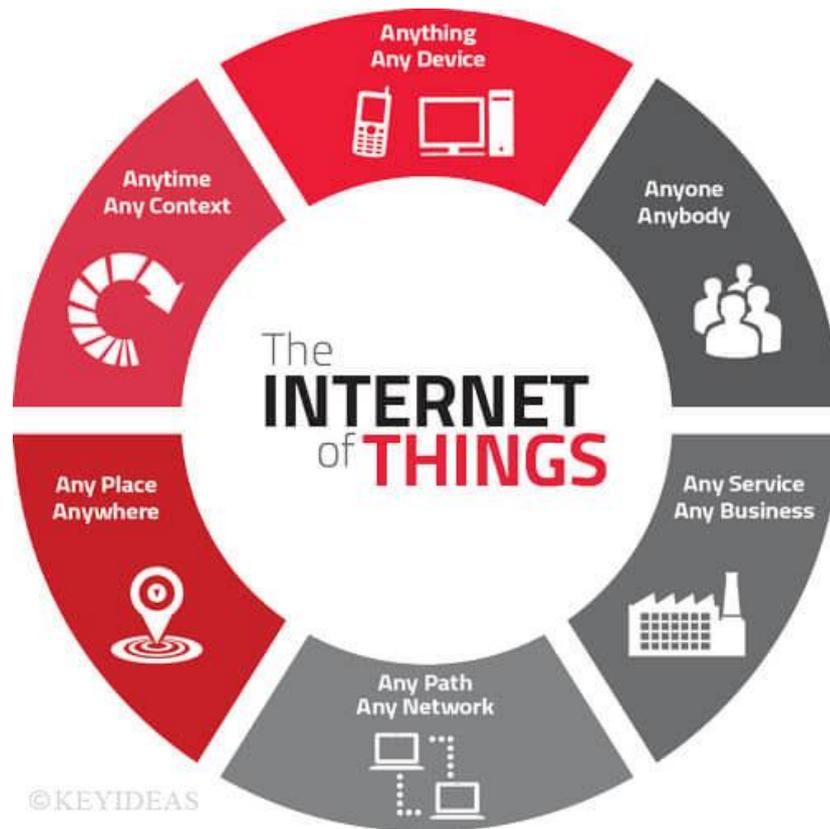

Figure 2   Robots in manufacturing [4].

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Figure 3 The use of IoT in business [5].

Figure 4   The use of virtual reality in business [6].

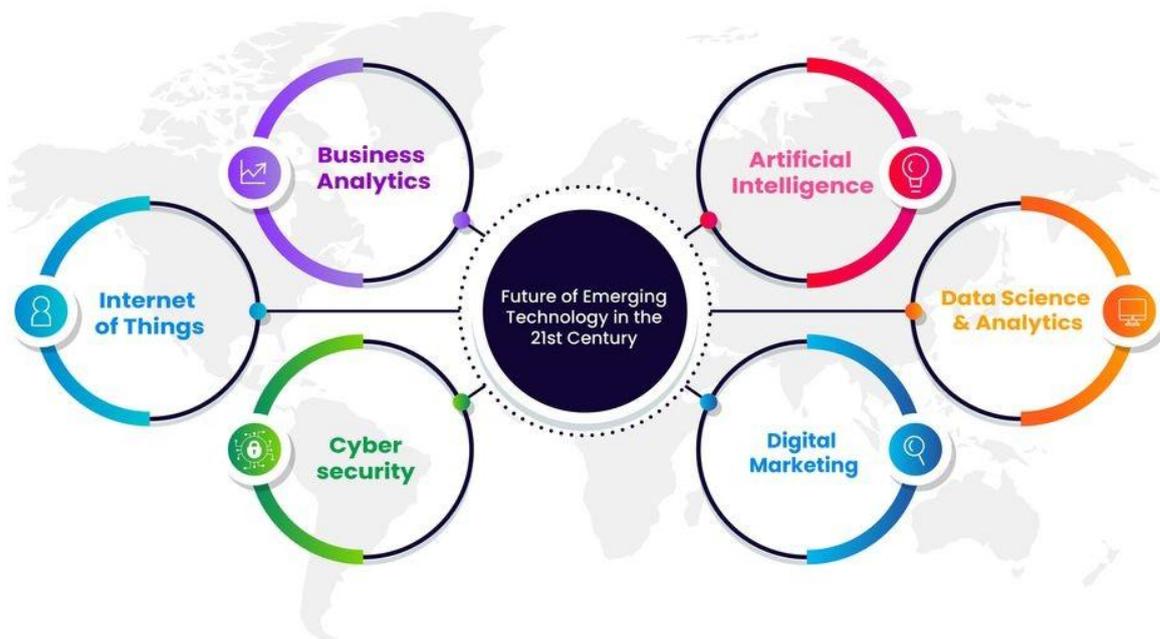Kielce: Laboratorium Wiedzy Artur Borcuch

Figure 5   The future of some emerging technologies [3].

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