Computer Science Question-Emerging Technologies

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Emerging Technologies

**Introduction**

Technology advancement has significantly improved the state of organizations where they can operate in a better way. According to Benbya et al. (2020), the process and benefits of digitization have led to a reshaping of the business where they have better integration and streamlined services and operations. Thus, companies have applied technology as a foundational asset that boosts their success in modern data operations. As part of the competitive advantage boost, technologies have proved adequate to the business. Failure to embrace technology has made many companies lag, and event become extinct in the market. It allows companies to operate smoothly than before. The digital infrastructure comes with complexity. Organization applies numerous technologies to ensure that they enjoy a change in their operations. For instance, the use of application systems, advanced networks, cloud options, algorithmic decision-making process and social media has improved the companies competitiveness. The paper will make an article review based on emerging technologies and consider how they affect the business. It will also consider how organizations can lower the digitization associated burdens.

**New technologies emergence**

Business adaptation to new technologies has become a crucial aspect that makes them enjoy prosperity. Change is one thing that every business needs to have progressed in the modern era. According to Benbya et al. (2020), the emergence of new technologies is instrumental to the business seeking a competitive advantage. Thus, the paper makes highlight several technologies that have emerged to change the world in different ways. It seems to take a complex social-technical systems overview.

The use of transistors is one of the leading technologies that have dominated the market significantly. Emerging technologies in the production of transistors have allowed much smaller sizes with a higher level of effectiveness. The sophisticated devices produced are now operating in the place with microprocessors in some of the devices. Hence, many tools have been installed with artificial intelligence to make them more efficient in their operations. Incorporating such technologies has boosted the tools to have an aware technology capability that makes them efficient in their work (Benbya et al., 2020). A case example includes the sprinklers connected to internet controlled weather service to monitor water amounts in a lawn.

House is now installed with intelligent controls that enable them to control the internal temperature with leading technologies. Key emerging technology includes the Google Home assist service. Its content creation is super such that the users enjoy the services. The technologies supplied worldwide are effectively supported by social media platforms that quickly air their opinions. As a result, manufacturers can gather data using the analytics systems and apply it in decision making that leads to change and advancement. Here, information systems have effectively transformed the business to another level.

In traffic, emerging technologies have also led to advancement that boosts the transport sector. The traffic sectors effectively offer a guide to the motorists on the traffic assessment (Benbya et al., 2020). Hence, it has led to the saving of lives and creating better efficiency in the area affected. Generally, the foundation of the technologies has sown a high level of complex technical systems.

Several theories exist in creating a good understanding of the complex aspects and technologies leading to such change. Typically, they make fundamental assumptions in making arguments that will foster a better and solid understanding of the issues. Change and innovation are believed to lead to great results that transform the business significantly (Nambisan et al., 2017). Modern devices are made such that they can initiate actions whenever needed. The mechanical action talking makes them an effective form of technology essential in ensuring that better processes and outcomes are achieved. The encoding mechanisms, abstract conversion and adaptive objects are technologies incorporated in many devices to make them more effective (Benbya et al., 2020). These form of digitization have enhanced the state of the business world, making it more efficient in the work. It's now arguable that business is highly dependent on digitization to achieve success in the modern competitive world. Technology complexity is also found to come with the mutual dependence aspects where the modern systems can easily communicate and interact with each other, making processes much more efficient.

**Associated outcomes and effects**

Complex systems come with numerous impacts and outcomes to the business world. The advanced devices and machines hold a higher capability in handling complex task that humans could not get when compared in terms of speed and efficiency. There is much evidence that emerging technologies are more transformation and a big plus to the organization seeking to improve their operations. The emergence had further created an association with numerous outcomes, both positive and negative (Benbya et al., 2020). Hence, the need to create strategies that will prevent, determine and investigate the impacts is necessary. It would be essential to evaluate with no impact in terms of various aspects, including level and time. The need for modern systems has led to the creation of unpredictable outcomes that arise from the patterns, features, and structures associated with the analysis given (Brusaporci, 2017). However, while technologies are effective in creating a boost to the organization, they can lead to the total ruin of the business. Here, if the security creates and threats are not considered, then there will be issues that lead to the negative aspects of the given systems. Such failure would be destructive to organizations assets, data and even reputation.

New systems emergence creates many difficulties within the systems. Associated complexity with the emerging technologies leads to limits on predictability levels on the behaviour of the systems. The issue arises from the coevolution, nonlinearity and self-management aspects associated with the system. It also leads to difficulties in assessing the same issues. Considerably, the complex systems come with an open status that leads to a high assessment difficulty regarding their boundaries. The assisted dynamics offer a high level of uncertainties that lead to difficulties in underlying the information processing paradigms. Hence, the unpredictability issue persists, leading to many unforeseen implementation costs and unidentified risks and vulnerabilities. According to McKelvey, Tanriverdi & Yoo (2016), business is challenged by change and dynamism associated with the technologies. Here, they have an issue with the changing systems requirements and availability. Hence, while technology would be essential today, it holds an unpredicted obsolete future status. Businesses have to keep looking for a more reliable technology to boost them to meet the growing requirements.

**Resolutions to reduce the burden of digitalization**

the formulation of the proper response to lower the issue requires organizations to first assess technology before proceeding with choice and implementation. The organizations need a robust digital infrastructure installation response (Majchrzak, Markus & Wareham, 2016). As a result, organizations can meet the ability to integrate the technologies hence making them more efficient. With integration, it's possible to have the existing and new systems working together to enhance the business outcomes and gains.

Mostly, some aspects employed by organizations in dealing with the associated challenges could have destructive elements. Hence, it must assess to identify the possible issues that could arise and come up with solutions. For instance, while the company may seek to employ specific technology and innovations, it needs to consider how they will affect the organization structure. Some technologies are disruptive such that they create the need to have a sweep within the human department entirely. It may lead to the lay-off of many employees while employing new experts. The impacts should be understood earlier so that if need be to have such resolution, the employees will have received an early notification. Again, building in the complex adaptive systems theory, companies might need to apply a two-sided recommender algorithm that will support taming the complexity issues.

It will be instrumental if the organization supports a complete adaptation and implementation of new and effective technologies. Creating a dynamic environment will be supported by continued training to integrate the human resources with the systems implemented. Thus, organizations need to look for solutions to deal with associated complexity rather than shying away to take advantage of it. It must sort security challenges by implementing the recommended cybersecurity plans and tools (Lewallen, 2020). Having organizational IT policies will be instrumental in safeguarding the IT resources.

**Conclusion**

The paper has explored how various emerging technologies are impacting organizations and ways to reduce the digitalization burden. Emerging technologies offer businesses a better state of options to face the underlying business challenges and operate with a competitive advantage. However, they need to understand the associated complexities and apply means to lower them to continue enjoying multiple benefits. Integrating the systems and technologies will make the business leap big from the emerging technologies and their dynamics that lead to better efficiency and lowered costs of operations.

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