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Evaluation of IT Industry and Innovation in Technology

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Abstract

Evaluating the IT industry and its technological innovation involves assessing the current state of technology development, analyzing emerging trends, measuring the impact of new solutions on various sectors, and considering factors like market penetration, technical feasibility, economic viability, and societal implications, while also looking at the pace of innovation and the ability of companies to adapt to rapidly changing technological landscapes. By conducting a comprehensive evaluation of the IT industry and its technological innovations, companies can identify opportunities to leverage new technologies, develop strategic initiatives, and stay ahead of the curve in a rapidly evolving landscape.

Keywords: IT, Innovation, Technology, Data evaluation, data security, data privacy

INTRODUCTION

Technology systems are the backbone of modern organizations, helping to make sense of the key data that fuels their operations. Just like an operational department or assembly line, these critical organizational systems need to be upgraded, serviced or replaced to optimally support your organization. As the technology landscape evolves, the pressure to quickly understand system advancements and decide whether or not to deploy them increases exponentially. If an organization is still using the same system it put in place 10 or 20 years ago, it may no longer support business objectives and organizational leaders will likely need to consider replacing it. Organizations continuously grow and change; evaluating their software ensures they can scale and adapt to future needs, including the ability to customize the software and integrate it with other systems. A software evaluation helps ensure the selected solution supports the organization's strategic objectives, whether those are improving efficiency by modernizing legacy systems, centralizing data and streamlining processes, enhancing services or scaling operations.

Evolution of IT in the last decade

Over the last decade, the IT industry has seen a significant transformation driven by the rise of cloud computing, big data, artificial intelligence (AI), and mobile technologies, leading to a massive increase in data generation, interconnected devices, and a growing emphasis on cybersecurity, with cloud services becoming the dominant infrastructure for businesses of all sizes; this shift has also resulted in a surge in demand for data analysts and specialized IT skills to manage and analyze the vast amount of data generated.[1] While the rapid rise of the mobile phone as the work phone and big data had an incredible impact on IT in the 2010s, we're on the cusp of an era of automation- AI/machine learning and data security. More pocket-sized access to servers led to a rise in Big Data, as companies made serious IT

investments this decade to protect and analyze the tremendous amounts of data generated. AI went from futuristic technology to one of the biggest tools for growth in marketing and data security around the world.

Over the past decade, "big data" has seen an exponential growth in the volume, variety, and velocity of data generated, largely driven by advancements in technology like the Internet of Things (IoT), social media, and cloud computing, leading to a significant shift in how businesses collect, store, and analyze vast datasets, requiring new tools and techniques to extract meaningful insights from this massive data influx; this has also brought increased focus on data privacy and security concerns as data generation becomes more widespread

As of 2012, about 2.5 exabytes of data are created each day, and that number is doubling every 40 months or so. More data cross the internet every second than were stored in the entire internet just 20 years ago. For many applications, the speed of data creation is even more important than the volume. Real-time or nearly real-time information makes it possible for a company to be much more agile than its competitors. Big data takes the form of messages, updates, and images posted to social networks; readings from sensors; GPS signals from cell phones, and more. Many of the most important sources of big data are relatively new. The huge amounts of information from social networks, for example, are only as old as the networks themselves; Facebook was launched in 2004, Twitter in 2006. [3]

Big Data Evaluation

The Obama administration announces the Big Data Research and Development Initiative with a $200 million commitment, citing a need to improve the ability to extract valuable insights from data and accelerate the pace of STEM (science, technology, engineering, and mathematics) growth, enhance national security and transform learning. The acronym has since become STEAM, adding an A by incorporating the arts.

2014 - For the first time, more mobile devices access the internet than desktop computers in the U.S. The rest of the world follows suit two years later, in 2016.

2016 - Ninety percent of the world's data was created in the last two years alone, and IBM reports that 2.5 quintillion bytes of data is created every day (that's 18 zeroes).

2017 - IDC forecasts big data analytics market would reach $203 billion in 2020. [4]

Cloud Data Evaluation

While initial growth may have been slow, in the last 10 years, cloud services have expanded significantly. By 2010, Amazon, Google, Microsoft, and OpenStack had all launched cloud divisions. This helped to make cloud services available to the masses. Since then, these services have taken over a large part of the tech industry and cloud transitions or migrations have become common. Due to this adoption, software-as-a-service (SaaS) offerings used by organizations doubled between 2015 and 2017. Additionally, many startups joined the market. In India alone, 55 new SaaS companies were founded in 2017. However, infrastructure-as-a-service (IaaS) has been the largest area of growth. In 2018, the IaaS market was dominated by five providers: Google, Amazon, Microsoft, Alibaba, and IBM. Industry values reflect this – starting at around $12 billion in 2010, revenues are predicted to exceed $623 billion by 2025. [5]

Data Privacy over decade

Since 2010, your personal information has been sold on the dark web, stolen by foreign nations (here's looking at you, China, Russia, Iran, and North Korea), used to swing a number of elections (ahem Russia, but also Facebook), and employed as a way to attack nuclear facilities, hospitals and entire electrical grids. [6] Data protection standards have come a long way since 1981, especially in the last couple of years with GDPR and CCPA – two regulations that extend the rights of individuals to better control and protect the use of their personal data in the evolving digital landscape. It's generally believed that GDPR and CCPA are laying the foundation for further groundbreaking regulations. Cambridge Analytica, a British political consulting firm, harvested the personal data from millions of peoples' Facebook profiles without their consent and used it for political advertising purposes. The scandal finally erupted in March 2018 when a whistle blower brought this to light and Facebook was fined £500,000 (US$663,000), which was the maximum fine allowed at the time of the breach

Data Security over the decade

For businesses in the 2010s, a cyber-attack is not a matter of "if" but "when" as every business is at risk of a cyber-attack. The decade saw some of the worst cybercrimes in the digital realm – from Target to Ashley Madison, and from Yahoo, Facebook to Bangladesh Bank cyber-heist, and Adobe hack, to name a few. Thousands of other organizations – irrespective of their size or industry sector – were also not spared from cyber threat activities of varying degree.[8] The Snowden leaks that occurred in 2013 are probably the most important cyber-security event of the decade that exposed a global surveillance network that the US and its Five Eyes partners had set up after the 9/11 attacks. Again, the Wannacry ransomware attack in 2017, for example, was carefully planned and carried out by highly organized criminal groups, with possible support from a nation state.[8]

IT Technology Evaluation

3G networks introduced a new age of calling, texting, and internet connectivity for mobile devices. 4G offered 10x faster speed than 3G networks, increasing download speeds from 1.5 Mbit/s to 15 Mbit/s. In the age of desktop computers, social media was a log of what happened in the past – a collection of experiences uploaded after the fact. As social media shift to the smartphone, however, it became an instantaneous broadcast of life experiences. And it's not just individuals using these platforms anymore, companies, news organizations, and governments leverage them to rapidly communicate information in real time. In amalgamating these different types of content, social media platforms became one-stop-shops for information, capturing users' attention and occupying significant amounts of their time. Payments, social media views, online searches, and app usage all leave an extensive digital trail, creating gigabytes of data for each user. With the emergence of artificial intelligence algorithms, these large datasets are sifted through to spot patterns and create instructions that optimize search engines, target advertisements to individuals, or offer real time directions.

Just over 20 years ago, the dotcom bubble burst, causing the stocks of many tech firms to tumble. Some companies, like Amazon, quickly recovered their value – but many others were left in ruins. In the two decades since this crash, technology has advanced in many ways. Similar trends can be seen in cellphone use. At the start of the 2000s, there were 740 million cell phone subscriptions worldwide. Two decades later, that number has surpassed 8 billion, meaning there are now more cellphones in the world than people [10]

Conclusion

Over the past 10 years, many more companies, such as Microsoft Azure and Google Cloud Platform, joined the cloud landscape to offer unique cloud services. Today, cloud computing is not only a field, it is also a development mindset. This shift creates more disruptions in its wake, advancing relatively new fields such as cloud-native development, edge computing, and serverless infrastructure. In the coming decade, we could continue to see our data sold to any high bidder in criminal worlds and commercial worlds. In criminal sectors, this means an increase in identify fraud, banking fraud, listening and monitoring people through IoT devices, and in some extreme cases, the tracking and murder of people who threaten or harm their industries. One of the most significant developments in the IT industry over the past decade has been the rise of cloud computing. Cloud-based services have revolutionized the way businesses store and access data, and have opened up new possibilities for remote working and collaboration.

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