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**INFORMATION TECHNOLOGY-EMERGING TRENDS AND TECHNOLOGY****Ms. Pranali R. Landge**

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**ABSTRACT**

Technology changes twice every year, the only way not be left behind is to respond to changes if not you will be twice behind. We are going closer and closer to the year when cars will run with water. Today we are observing revolutionary progress in Information technology that influences every sphere of life and has a global nature. The present information age is going to face much more challenges due to rapid technologies advancements which will create new trend of prospects in virtually all human pursuits. Information technology does not consist of only the hardware and software but also the management techniques used to handle and process information, their application etc. In this paper we will present, how to obtaining a broad view of emerging trends and new technologies as they relate to business can help an organization anticipate and prepare for the future. Organizations that can most effectively grasp the deep currents of technological evolution can use their knowledge to protect themselves against sudden and fatal technological obsolescence.

*Keywords: Information Technology, technological evolution.*

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**I. INTRODUCTION**

The Future of IT just how will the latest technology trends in information technology today shape the future? With the global demand for IT products and IT services continuing to rise, more and more companies and organizations around the world are already focusing on the new innovate technologies like IoT, AI and Cloud Computing to drive new growth that can help them build their own digital foundation and provide robust IT solutions for different business purposes. It's expected that the global IT industry will maintain a double-digit growth rate over the near future, while these latest technology trends in information technology are forecasted to remain major factors that lead the IT industry evolution in the next few years. Speed of technological innovation is increasing day by day. Medical knowledge is doubling every eight years and 50% of what students learn in their freshman year of college is obsolete, revised, or taken for granted by their senior year. All of today's technical knowledge will represent only 1 percent of the knowledge that will be available in 2050. The current trends in IT presently and in the future demands IT auditors to be IT knowledge, current and evolving so we have to learn, train and share

**II. WHAT IS INFORMATION TECHNOLOGY (IT)?**

Information technology (IT) refers to the usage of any computers, storage, networking and any other software and hardware devices to create, process, store, secure and exchange all forms of electronic data. It covers several layers of physical equipment (hardware), virtualization and management or automation tools, operating systems and applications (software) used to perform essential communication functions. Therefore, IT is also considered to be a subset of information and communications technology (ICT). Nearly 60 years ago, Gordon Moore, the co-founder of Intel, coined "Moore's Law," a prediction that would set the pace for the digital revolution. The law stated that computing abilities, over time, would radically increase in power while decreasing in relative cost, all at an exponential rate.

The five biggest technology companies (Apple, Alphabet, Facebook, Amazon and Microsoft) together made up a whopping 37 percent of the S&P 500's total gains in 2017. Federal investments in the digital sector could reach up to \$95 billion in the coming year. And, internationally, the public will spend up to \$3.4 trillion on digital services by 2020. Consumers and enterprises have a lot of potential to look forward to, as frontier technologies finally become

affordable enough to service the mass markets. To put it simply, tech is huge and new tech companies are all struggling for that top spot — looking to be the next Facebook, the next Google etc. The big 5 tech companies doubled Microsoft, Amazon, Apple, Alphabet, and Facebook has roughly doubled in value since 2014.

### **III. WHAT IS BIG DATA?**

What is big data and why is it important? Data is just information. Your age is a data point, as is your name, your address, even your gender. Big data is large data sets from all the little bits of data a business or a website gathers. Big Data is an ongoing evolution/revolution in how data is used, stored and processed, whereas traditional data is simpler like the type of smaller data sets you find in Excel spreadsheets. As current trends in technology constantly evolve, it's important for new tech companies to keep up as they big companies adapt fast. You can't perform as a tech company today if you can't leverage data, and new tech companies are aware of this, so they are more focused now more than ever on staying on top of the latest technology trends in information technology. The Global IT Industry Analysis The global information technology (IT) industry surpassed \$4.5 trillion in 2017, while the total spending in the global IT industry, including IT services, data center systems, enterprise software, and telecom services etc, is projected to be over \$4.7 trillion in 2018. Continued to be dominated by the top 10 IT companies in the world, the global IT industry and IT service market are expected to keep the growing momentum for IT market growth.

### **IV. LATEST IT TECHNOLOGIES & TRENDS**

According to a recent IT industry outlook from CompTIA, the development of hardware technology, cloud service, Internet of Things (IoT), Artificial intelligence (AI), Data Security etc, are some of the major factors that will shape the future of IT. The following are some Latest Information Technology and trends list we expect to take shape in 2018 and heading into the future.

#### **1. Internet of Things (IoT)**

The Internet of Things (IoT) is one of the largest and fastest growing segments in the global IT industry, reaching nearly \$700 million value in 2016 and is expected to surpass \$2 billion by 2021, registering an impressive Compound Annual Growth Rate (CAGR) of 30% over the five-year period. BI Intelligence's report on the "internet of things" notes that nearly \$6 trillion will be spent on IoT solutions in the next five years alone. Already, many of us wake up in our "smart beds" to a Bluetooth-connected alarm clock that communicates with our wifi-enabled speakers. Soon all of our devices -- microwaves, washing machines and even bird feeders -- will be connected to the web. With geospatial data from all of our devices, tech-savvy companies will be able to optimize and automate systems, eradicating inefficiencies caused by human error. Internet of Things will play a major role in business strategies Internet of Things (IoT) devices are rapidly making their way into corporate spaces. From gathering new data to the automation of infrastructure, companies are finding many benefits from adding connectivity and intelligence to physical infrastructure. According to CompTIA, adding digital capabilities to everyday components will drastically increase the scope of IT responsibilities.

#### **2. Blockchain**

Emerging hardware technologies will lead the way as software becomes the driving force of many IT solutions, open source concepts allow far more people to build applications around technologies like the blockchain, natural language processing, or context-aware computing. Hardware technologies have also become vital, as IT industry vendors are expected to increasingly use drones, robotics, and 3D printing to explore more opportunities in the global IT industry, therefore the development of hardware technologies is projected to be one of the top IT industry trends for the next couple of years. By now, you have probably heard a thing or two about the promise of blockchain and Bitcoin. At a high level, blockchain technology is a way of securely managing access and information. The core of blockchain hinges on the idea of decentralization, which essentially distributes power and risk equitably across players in a network. Blockchain startups are finding niche and clever ways to optimize industries, by replacing intermediary parties (brokers, agents, etc.) with smart contracts that automatically verify actions without compromising data security. Platforms like Gameflip and Filecoin are able to solve fundamental marketplace

challenges, worth billions of dollars, which have been terrorizing ecosystems for decades. Other companies, like SparkleCoin, are driving blockchain adoption at scale by empowering everyday consumers to purchase real-world products and services from the world's largest online retailers using cryptocurrencies.

### **3. Cloud computing**

Cloud computing will be the fastest growing information technology (IT) paradigm. More and more businesses around the world are turning to cloud computing to help support their business development demands. Cloud services allow companies to offload data management, backend development, and even design so that their talent can focus on innovation. To achieve better IT results, companies must build or reconfigure the appropriate policies and workflow for a cloud-based approach. We expect cloud computing to continue being one of the most vital future trends in information technology.

### **4. Artificial intelligence**

AI will stand out in the IT ecosystem. Artificial intelligence (AI) requires significant computer resources (which can be procured in the cloud), various algorithms allow learning (which can be baked into products or provided as a service) and contextual awareness (which can come from IoT devices or massive collections of data). By adding a layer of intelligence to the technical solutions they are building, companies can both manage a more extensive IT architecture and solve a broader range of problems.

*Artificial intelligence gets smarter and more practical:* For all of these technology trends, artificial intelligence (AI) will determine the long-term winners and losers. In the past, people were not building AI with the right goals in mind, but that will change in 2018 as companies become more information-driven and use neural networks for continuous learning and productivity.

A big support of AI deployment is IoT, because it generates so much information. Other rich areas for AI advances include employee information systems and processes, clinical health advisement systems and IT service management (managing millions of computers is untenable for humans).

Convolutional Neural Networks (CNNs), a class of artificial neural networks, will evolve and trigger an explosion of opportunities. AI will continue to redefine what is sci-fi and what is reality? AI is here to help people do better. But rest assured, AI will not be self-aware anytime soon.

With the right roadmap and these guideposts, companies can succeed on their digital transformation journeys in 2018 and beyond.

### **5. Data security**

Data security will be the top priority. One of the top trending technologies in computer science. IT services rely on digital technology to work faster; data security becomes a top priority. It's difficult to improve security efforts when technology is updating so rapidly. Many businesses have increased investments in security, but beyond the technical aspects, organizations will also begin building business processes that enhance security. In order to adapt to the rapid IT development, companies will have to shift their security mindset from technology-based defenses to proactive steps that include technology, process, and education.

### **6. Re-platforming the enterprise**

In 2018, we'll see an aggressive move to common IT platforms so companies can respond to market changes faster, be more productive and make better-informed decisions. These common platforms are rich in analytics, follow the information flow of the business and are simple enough that users can constantly change the business without writing (much) code. Moreover, they bring an operational and evergreen scale to traditionally tailored enterprise IT. These common platforms — from Amazon, Microsoft, Google and others — provide very suitable if not substantially improved replacements for what used to be custom builds. Common platforms enable companies to shift their customization efforts from infrastructure to applications and the user experience, which is where the action is. Another bonus: Moving to common platforms frees up talent and working capital for differentiated services — where differentiation comes from the information you provide *in context* to customers, partners and employees.

for new and better outcomes and experiences. Platforms will provide not only a foundation to improve processes, but also telemetry and insights. For smart adopters, we may see twofold to fivefold business acceleration.

### **7. Quantified enterprise: Stop guessing and start measuring**

In 2018 companies will harness the “data exhaust” from their digital systems to quantify the business and become even more productive. This quantification will emerge as a primary driver of digital transformation. Forced to rethink big data, companies will use advanced machine learning to make better decisions with less data. Call it: “The rise of intelligent decision making.” The best companies are over 40 percent more productive than their peers — leading to operating margins 30 to 50 percent higher. So the potential benefits are huge. When it comes to determining what affects productivity, companies will stop guessing and start measuring. They’ll start shifting from making decisions based mostly on stories and gut feelings, to making decisions based on experiments and measured results.

### **8. Businesses get stronger through cyber resilience**

In the past, companies tried to create perfect security, but today security is viewed not as binary but as a continuum. In 2018, enterprises will focus on getting their resilience as high as possible to withstand attacks and threats. That means planning and practicing for such threats, because they will happen. The common practice will be continuous evaluation and improvement of risk posture. Added to resiliency is the notion of antifragility, which means getting *stronger* when attacks happen — not just surviving the attack. You get stronger from practicing and responding. You use what you’ve learned to make yourself stronger the next time around. With the many destabilizers facing enterprises today — cyber attacks, natural disasters, vendor failures, human error, mergers and acquisitions — enterprises must work to become ever-more resilient by applying continuous improvement to productivity, differentiation and the resiliency of the business itself.

### **9. Companies grow through digital business extensions**

The digital core will provide enterprises with an information-rich, scalable foundation. In 2018, companies will grow by leveraging that information and scale, extending their digital capabilities into every facet of the organization — as well as into new markets and new businesses — through *digital business extensions*. Amazon’s journey – from online bookseller to online-everything marketplace, to cloud platform, to online- and offline-everything platform, including groceries – is not about a company being irrationally greedy and trying to put a finger in every pie. It is a story of smart digital extensions. In other words, Amazon can run some of those businesses better because of its digital capabilities. GE’s big plans for the industrial internet of things and its Predix platform can also be seen as a digital business extension. To make the right digital extensions, companies need a “strategic backflow” from digital capabilities to corporate strategy. This backflow must be embedded in strategic planning rather than based on heroic behaviors, water cooler conversations and special relationships.

### **10. Virtual reality**

Is 2018 the long-awaited year that virtual reality goes mainstream? While the technology is still evolving, and while players like Oculus and HTC continue to iterate on their consoles, things look promising for the industry as VR platforms begin to appeal to the masses. One of the biggest obstacles to virtual reality achieving true scale is the creation of enough content to attract a wide range of consumers. As the industry has learned, onboarding hard-core gamers will not be enough to sustain a long-term effort. Beyond gaming, there a number of virtual-reality startups those are building high-value-add services specifically for enterprises.

### **11. Augmented reality**

The rise of Pokémon in 2016 was just the first of many implementations of augmented reality that will make a massive impact on society. Apple and Google recently introduced both ARKit and ARCore and are driving an inflection point for the industry. As hardware and software continue to improve, we can expect to see more developers building AR applications in 2018. It’s not just startups looking to get in on the action. In fact, it is likely that many of the world’s biggest brands will invest their resources into creating augmented-reality experiences to enhance their users’ experiences both inside and outside of their stores.

## 12. Chatbots

Enterprise applications of messaging bots seem poised to have a tangible impact on the software space, as more companies invest in developing their own consumer-facing bots. Chatbots, at the most simplistic level, are front-end interfaces for companies to communicate with their customers. More advanced bots leverage artificial intelligence to provide enriching and interactive user experiences. Companies can embed these bots on their home pages, or they can rely on native platforms like Facebook and Slack for distribution. Expect to see companies across all industries, including hospitality, dining and travel; create bots for customer support, sales and marketing services.

## 13. Subscription model

The days of "pay-per-use" costing are long gone, and are likely not coming back anytime soon, as most companies are switching to recurring revenue models. Already, you can order your clothing, groceries and cleaning supplies to be delivered directly to your doorstep on a weekly or monthly basis. And the model is being applied more widely than just to physical goods: Most internet companies are operating under a "software as a service" model, where you pay a monthly fee on a recurring cycle for a service. We can expect to see startups expand their subscription businesses into more verticals, and to start specializing.

## 14. Ecommerce

Next year, may finally be the year ecommerce overtakes retail once and for all. In a report on online retail, Forrester stated that 83 percent of U.S. adults purchased something on Amazon this past year. As this number grows, and digital storefronts become a more convenient and attractive option for consumers, we can expect to see ecommerce begin to take bigger slices of the retail pie.

## 15. Automation

Artificial intelligence and machines will soon become ubiquitous in the professional world. From virtual assistants, to manual labor, to intermediary services, many jobs will likely be disrupted in the coming years. Though humans are indispensable in certain fields, there are many points of optimization that we can fully automate with embedded technology. Machine intelligence has the potential to fundamentally shift worker demand and displace millions of jobs. Where will everyone go when machines can do our work for us? This question, among others, will be important considerations getting our captivated attention in 2018.

## V. CONCLUSION

In 2018, companies will leverage team-based, distributed workplace platforms that use machine learning, intelligent automation, natural language processing and other technologies to drive productivity. In addition, expect to see a rise in creative ways to access talent, described in Unleashing Digital Talent for Fun and Profit. Talent will decide who wins and loses in the next decade.

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