

BUSINESS ACUITIES JULY 2024

INTERNATIONAL BUSINESS



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WORLD BANK

The World Bank is an international development organization owned by 187 countries. Its role is to reduce poverty by lending money to the governments of its poorer members to improve their economies and to improve the standard of living of their people.

The Bank is also one of the world's largest research centres in development. It has specialized departments that use this knowledge to advise countries in areas like health, education, nutrition, finance, justice, law and the environment.

Another part of the Bank, the **World Bank Institute**, offers training to government and other officials in the world through local research and teaching institutions.



It was established along with the [International Monetary Fund](#) at the 1944 [Bretton Woods Conference](#). After a slow start, its first loan was to France in 1947. In the 1970s, it focused on loans to developing world countries, shifting away from that mission in the 1980s. For the last 30 years, it has included NGOs and environmental groups in its loan portfolio. Its loan strategy is influenced by the United Nations' [Sustainable Development Goals](#), as well as environmental and social safeguards.

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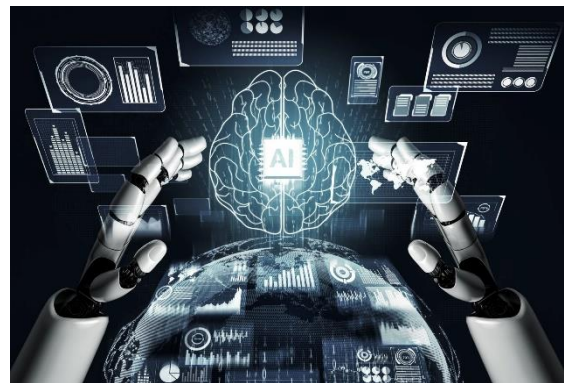
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MODERN TECHNOLOGY



Technology is constantly evolving, and the advancements made in recent years have changed the very definition of the way we live our lives. From new technologies like virtual and augmented reality to the computing power that allows for machine learning and artificial intelligence, the world has seen incredible progress in the last few decades. As more companies step foot into the world of modern technology, current practices are being challenged, and new ways of doing business are emerging.

One area where modern technology has had a significant impact is data science. With the ability to analyse vast amounts of information, any company can make more informed decisions and gain a competitive edge. Information technology has also revolutionized the way we work, allowing us to connect with others across the world and access information from anywhere with an internet connection.

Mobile phones have become an indispensable part of modern life, providing convenience and connectivity at our fingertips. From making calls to accessing the internet, mobile phones have evolved significantly since their bulky beginnings in the 1990s.

Today, mobile phones are sleek, powerful devices that offer a wide range of features beyond just communication. With advancements in technology, mobile phones have transformed into multifunctional gadgets that serve as cameras, music players, gaming consoles, and personal assistants. The impact of mobile phones on society is undeniable, shaping how we communicate, work, and interact with the world around us.

Virtual reality technology has revolutionized the world of entertainment, education, and even healthcare. This immersive technology allows users to experience virtual environments as if they were real, opening up new possibilities for training simulations, virtual tours, and interactive experiences. Virtual reality headsets transport users to a completely different world, creating a sense of presence and engagement that is unparalleled. From exploring virtual museums to undergoing virtual medical procedures, the applications of virtual reality are vast and continue to expand as technology advances.

Blockchain technology has revolutionized the digital landscape by providing secure and decentralized storage solutions. This technology allows for immutable data records, enhancing security and transparency across various industries. Blockchain technology is not limited to cryptocurrencies like Bitcoin; it has the potential to transform data storage, access, and analysis methods. The blockchain technology trend is expected to advance further in the coming years, offering innovative solutions that prioritize data security and accessibility.



Technology today is evolving at a rapid pace, enabling faster change and progress, causing an acceleration of the rate of change. However, it is not only technology trends and emerging technologies that are evolving, a lot more has changed, making IT professionals realize that their role will not stay the same in the contactless world tomorrow. And an IT professional in 2024 will constantly be learning, unlearning, and relearning (out of necessity, if not desire).

What does this mean for you in the context of the highest paying jobs in India? It means staying current with emerging technologies and latest technology trends. And it means keeping your eyes on the future to know which skills you'll need to know to secure a safe job tomorrow and even learn how to get there. Here are the top 24 emerging technology trends you should watch for and make an attempt at in 2024, and possibly secure one of the highest paying tech jobs that will be created by these new technology trends. Starting the list of new tech trends with the talk of the town, gen-AI!

1. AI-Generated Content

Artificial intelligence can generate high-quality, creative content, including text, images, videos, and music. This technology uses algorithms like GPT (Generative Pre-trained Transformer) and DALL-E to understand and produce content that resonates

with human preferences. The vast applications range from generating articles, creating educational materials, and developing marketing campaigns to composing music and producing realistic visuals. This speeds up content creation and reduces costs, and democratizes access to creative tools, enabling small businesses and individuals to create content at scale.

2. Quantum Computing

Quantum computers leverage the properties of quantum mechanics to process information exponentially faster than classical computers for specific tasks. This year, we're seeing quantum computing being applied in areas such as cryptography, where it can potentially crack currently considered secure codes, and in drug discovery, speeding up the process by accurately simulating molecular structures. The technology is still nascent but poised to revolutionize industries by solving complex problems intractable for traditional computers.

3. 5G Expansion

The fifth generation of mobile networks, 5G, promises significantly faster data download and upload speeds, wider coverage, and more stable connections. The expansion of 5G is facilitating transformative technologies like IoT, augmented reality, and autonomous vehicles by providing the high-speed, low-latency connections they require. This technology is crucial for enabling real-time communications and processing large amounts of data with minimal delay, thereby supporting a new wave of technological innovation.

4. Virtual Reality (VR) 2.0

Enhanced VR technologies are offering more immersive and realistic experiences. With improvements in display resolutions, motion tracking, and interactive elements, VR is becoming increasingly prevalent in gaming, training, and therapeutic contexts. New VR systems are also becoming more user-friendly, with lighter headsets and longer battery life, which could lead to broader consumer adoption and integration into daily life.

5. Augmented Reality (AR) in Retail

AR technology is transforming the retail industry by allowing consumers to visualize products in a real-world context through their devices. This trend is evident in applications that let users try on clothes virtually or see how furniture would look in their homes before purchasing. These interactive experiences enhance customer satisfaction, increase sales, and reduce return rates.

6. Internet of Things (IoT) in Smart Cities

IoT technology in smart cities involves the integration of various sensors and devices that collect data to manage assets, resources, and services efficiently. This includes monitoring traffic and public transport to reduce congestion, using smart grids to optimize energy use, and implementing connected systems for public safety and emergency services. As cities continue to grow, IoT helps manage complexities and improve the living conditions of residents.

7. Biotechnology in Agriculture

Advances in biotechnology are revolutionizing agriculture by enabling the development of crops with enhanced traits, such as increased resistance to pests and diseases, better nutritional profiles, and higher yields. Techniques like CRISPR gene editing are used to create crops that can withstand environmental stresses such as drought and salinity, which is crucial in adapting to climate change and securing food supply.

8. Autonomous Vehicles

Autonomous vehicles use AI, sensors, and machine learning to navigate and operate without human intervention. While fully autonomous cars are still under development, there's significant progress in integrating levels of autonomy into public transportation and freight logistics, which could reduce accidents, improve traffic management, and decrease emissions.

9. Blockchain Beyond Crypto

Initially developed for Bitcoin, blockchain technology is finding new applications beyond cryptocurrency. Industries are adopting blockchain for its ability to provide transparency, enhance security, and reduce fraud. Uses include tracking the provenance of goods in supply chains, providing tamper-proof voting systems, and managing secure medical records.

10. Edge Computing

Edge computing involves processing data near the source of data generation rather than relying on a central data center. This is particularly important for applications requiring real-time processing and decision-making without the latency that cloud computing can entail. Applications include autonomous vehicles, industrial IoT, and local data processing in remote locations.

11. Personalized Medicine

Personalized medicine tailors medical treatment to individual characteristics of each patient. This approach uses genetic, environmental, and lifestyle factors to diagnose and treat diseases precisely. Advances in genomics and biotechnology have enabled doctors to select treatments that maximize effectiveness and minimize side effects. Personalized medicine is particularly transformative in oncology, where specific therapies can target genetic mutations in cancer cells, leading to better patient outcomes.

12. Neuromorphic Computing

Neuromorphic computing involves designing computer chips that mimic the human brain's neural structures and processing methods. These chips process information in ways that are fundamentally different from traditional computers, leading to more efficient handling of tasks like pattern recognition and sensory data processing. This technology can produce substantial energy efficiency and computational power improvements, particularly in applications requiring real-time learning and adaptation.

13. Green Energy Technologies

Innovations in green energy technologies focus on enhancing the efficiency and reducing the costs of renewable energy sources such as solar, wind, and bioenergy. Advances include new photovoltaic cell designs, wind turbines operating at lower wind speeds, and biofuels from non-food biomass. These technologies are crucial for reducing the global carbon footprint and achieving sustainability goals.

14. Wearable Health Monitors

Advanced wearable devices now continuously monitor various health metrics like heart rate, blood pressure, and even blood sugar levels. These devices connect to smartphones and use AI to analyze data, providing users with insights into their health and early warnings about potential health issues. This trend is driving a shift towards preventive healthcare and personalized health insights.

15. Extended Reality (XR) for Training

Extended reality (XR) encompasses virtual reality (VR), augmented reality (AR), and mixed reality (MR), providing immersive training experiences. Industries like healthcare, aviation, and manufacturing use XR for risk-free, hands-on training simulations replicating real-life scenarios. This technology improves learning outcomes, enhances engagement, and reduces training costs.

16. Voice-Activated Technology

Voice-activated technology has become more sophisticated, with devices now able to understand and process natural human speech more accurately. This technology is widely used in smart speakers, home automation, and customer service bots. It enhances accessibility, convenience, and interaction with technology through hands-free commands and is increasingly integrated into vehicles and public spaces.

17. Space Tourism

Commercial space travel is making significant strides with companies like SpaceX and Blue Origin. These developments aim to make space travel accessible for more than just astronauts. Current offerings range from short suborbital flights providing a few minutes of weightlessness to plans for orbital flights. Space tourism opens new avenues for adventure and pushes the envelope in aerospace technology and research.

18. Synthetic Media

Synthetic media refers to content that is entirely generated by AI, including deepfakes, virtual influencers, and automated video content. This technology raises critical ethical questions and offers extensive entertainment, education, and media production possibilities. It allows for creating increasingly indistinguishable content from that produced by humans.

19. Advanced Robotics

Robotics technology has evolved to create machines that can perform complex tasks

autonomously or with minimal human oversight. These robots are employed in various sectors, including manufacturing, where they perform precision tasks, healthcare as surgical assistants, and homes as personal aids. AI and machine learning advances are making robots even more capable and adaptable.

20. AI in Cybersecurity

AI is critical in enhancing cybersecurity by automating complex processes for detecting and responding to threats. AI systems can analyze vast amounts of data for abnormal patterns, predict potential threats, and implement real-time defenses. This trend is crucial in addressing cyber attacks' increasing sophistication and frequency.

21. Digital Twins

Digital twins are virtual replicas of physical devices for simulation, monitoring, and maintenance. They are extensively used in manufacturing, automotive, and urban planning to optimize operations and predict potential issues. Digital twins enable companies to test impacts and changes in a virtual space, reducing real-world testing costs and time.

22. Sustainable Tech

This trend focuses on developing technology in an environmentally and socially responsible manner. It includes innovations in the lifecycle management of tech products, from design to disposal. The aim is to reduce electronic waste, improve energy efficiency, and use environmentally friendly materials.

23. Telemedicine

Telemedicine allows patients to consult with doctors via digital platforms, reducing the need for physical visits. Providing continued medical care during situations like the COVID-19 pandemic has become vital. Telemedicine is expanding to include more services and is becoming a regular mode of healthcare delivery.



24. Nano-Technology

Nanotechnology involves manipulating matter at the atomic and molecular levels, enhancing or creating materials and devices with novel properties. Applications are vast, including more effective drug delivery systems, enhanced materials for better product performance, and innovations in electronics like smaller, more powerful chips.



DIGITAL CURRENCY

Digital money is any means of payment that exists in a purely electronic form. Digital money is not



physically tangible, like a dollar bill or a coin. It is accounted for and transferred using online systems.

Digital money generally represents fiat currencies, such as dollars or euros. It is exchanged using computers, smartphones, cards, and online cryptocurrency exchanges. In some cases, it can be converted into physical cash using an ATM.

Digital money is similar in concept and use to its cash counterpart in that it can be a unit of account and a medium for daily transactions it is treated the same as cash. For example, the dollars in your bank account are digital banks no longer store physical cash for clients. When you make a cash deposit to a bank, it adds numbers to your account and reissues those bills to other customers. If you make a cash withdrawal, the bank converts your digital dollars to cash, subtracts the amount from your account, and gives you physical bills.

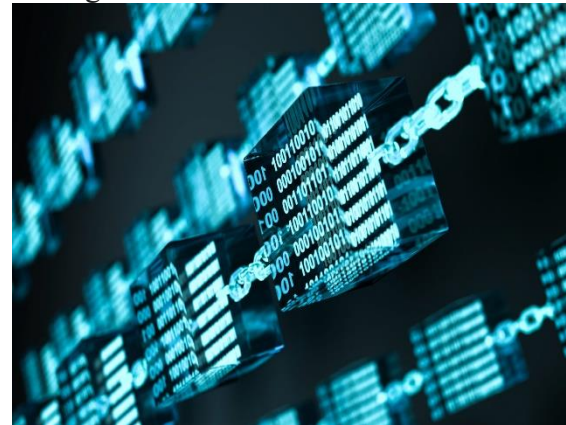
This makes financial transactions much faster and cheaper, especially concerning cross-border payments and remittances. Given these advantages, digital money has become a priority for several governments around the world.

For example, the central bank of Sweden, a country that has been researching a cashless society, has released several exploratory papers since 2017 that explore the benefits and drawbacks of introducing digital money into its economy. China released the digital renminbi (e-CNY), the digital equivalent of its national currency, and began using it to pay government employees; the Bahamian sand dollar was introduced in 2020.

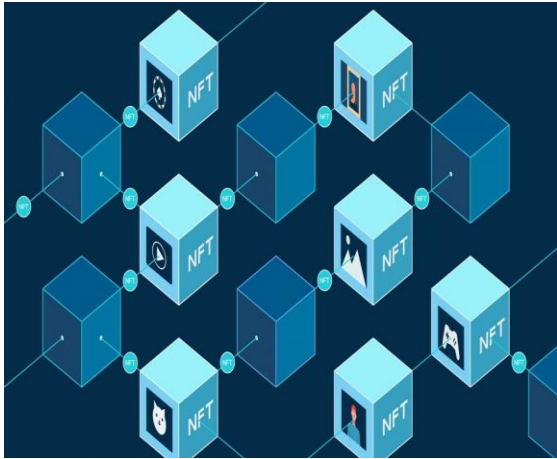
BLOCK CHAIN

Block chain is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network.

An *asset* can be tangible (a house, car, cash, land) or intangible (intellectual property, patents, copyrights, branding). Virtually anything of value can be tracked and traded on a block chain network, reducing risk and cutting costs for all involved.



Business runs on information. The faster information is received and the more accurate it is, the better. Block chain is ideal for delivering that information because it provides immediate, shared, and observable information that is stored on an immutable ledger that only permitted network members can access. A block chain network can track orders, payments, accounts, production and much more. And because members share a single view of the truth, you can see all details of a transaction end to end, giving you greater confidence, and new efficiencies and opportunities.



What needs to change: Operations often waste effort on duplicate record keeping and third-party validations. Record-keeping systems can be vulnerable to fraud and cyberattacks. Limited transparency can slow data verification. And with the arrival of Iota, transaction volumes have exploded. All of this slows business, drains the bottom line, and means that we need a better way. Enter block chain.

G20 SUBMITT

The Group of Twenty (G20), a collection of twenty of the world's largest economies formed in 1999, was conceived as a bloc that would bring together the most important industrialized and developing economies to discuss international economic and financial stability. Its annual summit, a gathering of G20 leaders that debuted in 2008, has evolved into a major forum for discussing economics as well as other

The G20 is a forum comprising nineteen countries with some of the world's largest economies, as well as the European Union (EU) and, as of 2023, the African Union (AU). The countries are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexi

pressing global issues. Bilateral meetings on the summit's side lines have occasionally led to major international agreements. And while one of the group's most impressive achievements was its robust response to the 2008 financial crisis, its cohesion has since frayed, and analysts have criticized its lacklustre response to the COVID-19 pandemic.

Under President Donald Trump, the United States clashed with the rest of the group on trade, climate, and migration policy. President Joe Biden promised a return to multilateral cooperation, achieving a new global agreement on corporate taxation, but tensions have continued to grow as high- and low-income countries have increasingly diverged on major issues such as climate change, economic development, and the ongoing fallout from the war in Ukraine. At



the 2023 summit in New Delhi, India aimed to bolster its leadership bona fides by welcoming the African Union as the group's newest member.



co, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom

(UK), and the United States. Spain is invited as a permanent guest.

EMERGING MARKET MULTINATIONALS



The rising international prominence of multinationals from emerging economies (EMNCs) over the past couple of decades is both a consequence and a cause of a period of globalization characterized by increased economic openness and growing economic power of emerging markets. Expansion of EMNCs is driven by a search for new markets, efficiencies, innovation and sources of inputs and, in some cases, by less tangible elements of national prestige and government policy. This expansion has also generated significant and continuing research interest on EMNCs. Predominantly, however, this research focuses on two aspects of global expansion of such companies: motivations behind the internationalization and variations in the processes of internationalization. Although increasing in importance, research on innovation by and from EMNCs, and knowledge flows that EMNCs initiate and orchestrate, has so far remained an afterthought. This is rather surprising given the role that innovation and learning has played throughout human history. Foreign knowhow and technology has been pivotal in the formation of competitiveness not only in individual firms but also for entire nations. In medieval Europe, artisans

routinely travelled abroad to work on construction projects to acquire tacit and explicit knowledge related to their trade. In the wake of the Meiji Restoration, the Japanese sent their brightest students overseas to acquire the most advanced technologies and organization methods so that they could invigorate the rebuilding of the Japanese nation upon their return. In the early 20th century, Danios, Danish world-leading supplier of technologies in refrigeration, air conditioning and heating, built early technological capabilities by reverse engineering products from US manufacturers that could not be traded at the time due to customs barriers and import bans. More recently, Greely acquired Volvo not only to access advanced capabilities in technology and marketing they could not easily build internally but also to attain an active long-term presence in a vibrant auto technology cluster abroad. Efforts to regulate and sometimes inhibit the flows of international knowledge and skills have an equally long history. Medieval European guilds carefully regulated production and trade in various industries, including skill formation and which inventions and procedures could be introduced. During the British industrial revolution, for half a century skilled artisans were prohibited from leaving the country and the export of important machinery and parts was forbidden, especially for textile production (Andreas, 2014). All trade with Japan during the Shogun ate

the Nagasaki harbour, and foreigners and even shipwrecked Japanese sailors were risking their lives to set foot in Japan. Today, modern IPR systems create markets allowing for the intricate governing of commercial exchange of knowledge. Emerging economy firms increasingly venture abroad in search of knowledge and technology for building competitive advantage (Makino, Lau & Yen, 2002; Mathews, 2006; Luo & Tung, 2007; Gammeltoft, 2008; Rugman, 2009). While market seeking remains the dominant motive for foreign direct investment from emerging economies, strategic

asset-seeking investments are becoming a larger and more important component of these flows. This tendency is fueled by several contemporary trends: globalization has brought about more liquid markets for strategic assets; an increasing number of EMNCs possess the capabilities necessary to establish and manage knowledge-intensive activities abroad; and emerging economy governments have become much more accommodating and even supportive of such flows. In most cases, technology-seeking FDI is motivated by attractive assets abroad, which can be bundled with firms' complementary assets or with country-specific advantages (CSAs) at home to bring about new competitive capabilities. Occasionally, though, adverse institutional, technological or infrastructural conditions domestically motivate companies to compensate for domestic weaknesses through internationalization in cases where this is a more productive or less costly option than trying to build the deficient assets internally. The International Journal of Technology Management has been an important outlet for innovation and knowledge research set in emerging markets. This special issue brings together several articles that offer fresh insights on the topics. In the rest of this article we first expand on why research on innovation and knowledge in EMNCs is important for understanding their behavior and for strengthening existing theories. Before summarizing the articles selected for this issue we outline a research agenda for the future.

NATIONAL DEVELOPMENT REGIMES AND FIRM CAPABILITIES EMERGING MARKET

multinationals are a highly diverse group of companies and the literature has amply pointed out that generalizations should be made with great care. Emerging economies and the institutional systems out of which

these companies grow also exhibit an immense variety between as well as within themselves. Various typologies have been suggested for reducing the complexity of the overall group of EMNCs, the most prevalent of which is probably the one proposed by Ramamurti (2009), which distinguishes between natural resource integrators, local optimizers, low-cost partners, global consolidators, and global first movers. Among these five types, even though it represents a small minority in the total population of EMNCs, it is the fifth and last type that represents the most severe challenge to international business theory. International knowledge flows and innovation can be important to all these five types of firms, however, as they may seek to capitalize on international assets to bolster their firm-specific advantages (FSAs) to compete in domestic and foreign markets. Comparing EMNCs to developed market multinationals (DMNCs) is complicated by several factors (Ramamurti, 2012): EMNCs internationalizing today are doing so in an era of intense 4 globalization vastly different from the era when now mature DMNCs internationalized. EMNCs as a group have a particular industry composition with a relatively large representation of mature, low-tech and resource-intensive industries. Finally, comparing EMNCs to DMNCs often involves comparing firms at a relatively early stage of their evolution to much more mature and established companies. In other words, when time period, industry composition and stage of evolution are taken into account much of the EMNC variety vis-à-vis DMNCs is explained away. Yet, not all variety is explained away. Emerging economies are high-growth, low-income countries with relatively weak institutions and weak economic structures overall, which are undergoing rapid transition, usually for the better. Growing out of economic systems with these characteristics tends to lend EMNCs, perceived in a broad ideal typical sweep, with certain characteristics that often set them apart from comparable DMNCs. These are characteristics such as a

high prevalence of business groups and state-owned enterprises, a high degree of diversification and vertical integration, a resilience to and ability to navigate adverse institutional environments, organizational flexibility, cost efficiency, a relatively high reliance on country-specific advantages, strengths in frugal innovation, relative weaknesses in managing internal and external stakeholders, a high reliance on networks and other informal institutions, and aggressive internationalization processes, which progress fast and with high commitment modes. Technology and knowledge do not flow freely into firms but require deliberate, costly and time-consuming activities to acquire. It is well established that tacit, sticky and locally embedded knowledge in particular requires considerable investment in strong absorptive capabilities at firm, industry and national level to facilitate effective flows. Historically, while the significance of foreign sources of technology has always been recognized by emerging economy governments, orthodoxies of national development strategies have varied in terms of how to engage with them (Gammeltoft & Kokko, 2013). During the 1960s and 1970s, import substitution regimes placed curbs on international flows and focused on building up self-reliant local systems, predominantly accessing technology through arms-length modes such as imports of machinery and intermediate goods. In the 1980s and 1990s, orthodoxy converged towards export-oriented models and more open and active systems for foreign technology acquisition, whether it was more based on arms-length modes (Japan, South Korea) or FDI (Taiwan, Singapore). Today, firms' strategic asset-seeking investments have reached a scale and character, particularly of course in the case of China but also other emerging economies, where it can reasonably be perceived as a distinct and relatively new component in the portfolio of industrial and technological upgrading strategies. The previous modes share in common that activities associated with learning from foreign technology predominantly took place

within the domestic institutional system, with the various institutional, technological and managerial home-country advantages available there. Technology acquisition through outward foreign direct investment (OFDI) adds additional layers of complexity: the EMNC requires the capabilities to enter a foreign market, be it greenfield or acquisition, operate a subsidiary in an institutional system potentially very alien to its home system, and then orchestrate bi-directional transfers of assets between headquarters and subsidiary and, for more mature 'meta-national' EMNCs, between individual subsidiaries (Gammeltoft, Filatotchev, & Hobdari, 2012). Accessing and transferring technology from abroad through this modality requires a different and more complex capability set than absorbing technology within the home institutional system.