Technologies and Innovations are Driving Economic Growth

In a recent study by McKinsey Global Institute, economists express that realizing the benefits of more transformative innovations takes longer time due to additional capital requirements in re-designing workflows, complementary innovation as well as skill deficits of the workforce.

After the early deployment phase of major technology innovations such as IoT, Big Data Analytics, Robotics, AI and Cloud Computing - industries will be prepared to derive 2% productivity gain every year by unleashing full potential of technological advancements and innovations that are set to transform the business processes and operations from the core. A lot also depends upon how best and how soon, the policy makers and businesses arrive on decisions for technology adoption and accept innovation as a norm to promote sustained demand growth and economic prosperity. By integrating new technologies in the workflows across industries, the economy will unleash another productivity boom, as was witnessed in the mid-1990’s. This positive outlook is making location-based technologies as significant aspect in policy discussion, business-decision and in fostering a culture of innovations in key sectors of the economy.

Sustainable innovation, modernization and better environment become core themes of discussion in infrastructure projects: Technology Adoption is the Key to Transform

While a confluence of technological advancements and innovations that are recasting legacy systems in major sectors of the world economy, construction industry by far had been least digitized. However, to meet the rising demand for smart infrastructure, host of digital technologies such as BIM, 3D printing, wireless sensors, automated and robotic equipment, drones and GIS are gradually transforming the way infrastructure, real estate and other built assets are designed, constructed, operated, managed and maintained.

With more than 200,000 people moving to urban areas every day, construction industry which already accounts for 6% GDP of the world economy; with the need for affordable housing and healthy environment volume of construction outputs will outweigh global GDP and the industry will be valued at $15.5 trillion (report finding by PWC) by 2030, while India, China and US will account for 57% of all global growth. Sustainable, resilient and future proof infrastructure is becoming a necessity to foster economic growth.

Africa - as the epic Centre of infrastructure investments

UK investing £8 billion in business & infrastructure
https://www.openaccessgovernment.org/uk-invest-africa/50385/

Eleven countries in Africa will witness average of 6% GDP in the next five years with an estimated infra need of US$ 130 bn & US$ 170 bn (by African Development Bank)

Three countries Egypt, South Africa and Morocco are still occupying top three positions in terms of investment attractiveness & infra opportunities, Ethiopia is going to witness fastest growth (8.2% in the next five yrs.) and Zimbabwe

Thailand plans massive infrastructure projects to become next big innovation hub in Asia

Under the new Eastern Economic Corridor - Thailand’s eastern region is gearing to experience infrastructure upgrades of massive scales. As part of Thailand 4.0, EEC project will have an investment of $45 billion to transform its industries from manufacturing base to high-tech innovation accelerators in robotics, aerospace and digital economy, EEC plans to build country’s first high-speed rail network to connect its three main airports, expansion of two deep sea ports with an additional commercial port to make this region more accessible. The project completion is spread over the next 10 years. EEC-i (Innovation) & EEC-d (digital park) are also an integral part of this project to make the region as Asia’s biggest innovation hub for innovations to make its industries future-ready.

https://qz.com/1393992/how-thailands-massive-infrastructure-project-will-create-asias-next-big-innovation/
Global Urban Climate Challenge draws attention & Investment in Urban Development & Smart Cities Projects

Mega investments offer opportunities for Geospatial Sector

A pilot initiative on global urban climate challenge will transfer financing for low carbon & climate resilient sustainable city infrastructure – with integration of Smart-city technologies, Innovation and Urban financing. It is joint initiative of Global Covenant of Mayors for Climate Energy representing over 9,000 cities from six continents & European Investment Bank in collaboration with global and local city networks. This initiative will strengthen technical preparation & finance by municipal & local authorities, utilities & partners – with a focus on cities in Central Asia, Latin America, European neighborhood, Africa & EU accession countries. EIB had invested more than US$ 26 bn. between 2011 - 2017 in Urban Development Projects.


The Asian Development Bank (ADB) approves financing package to provide safe, sustainable, & inclusive drinking water service to about 1.65 million people in three districts of West Bengal state, India

The total project cost is $349 million, for which ADB will provide a loan of $240 million and grant of $3 million from the Japan Fund for Poverty Reduction, financed by the Government of Japan. The West Bengal government will provide $106 million in funding. ADB will also administer a $2 million grant from the Urban Climate Change Resilience Trust Fund. This will support the state government in strengthening its smart water management system, improve flood-related early warning and response, and provide training on operation and maintenance as well as climate change and disaster resilience. The project is due for completion in June 2024.


A city with a future thinking sets an ultimate example for Storm Water Management System: many other follow

With climate change, floods and storms are becoming more frequent and sudden - causing havoc to urban infrastructure and land cover. After the 2011 rainfall that caused damages estimated to be 5-6 billion (DKK), Copenhagen adapted its infrastructure planning by investing in metro size tunnels capable to store 6.5 million cubic meters of storm water, as part of their Cloud-Burst Management program - setting an example of long terms benefits & economy in investing storm water management systems. Copenhagen has already made formal agreement with Beijing & New York to exchange best practices on climate adaptation systems. Another major investment in this system is by Dubai municipality - with its milestone project which will be ready by 2020, it will demonstrate how with right planning - both urban development goals and environment friendly, financially sustainable goals can go hand in hand.

The cities explore to address challenge of scalable and sustainable transportation infrastructure - Indispensable for future economic growth and development of smart cities

With more than 2.8 million privately owned electric vehicles in the US, China and Europe alone, transportation electrification charging infrastructure in the cities will be US$ 46 billion by 2045. To give the competitive-edge the utilities in the cities will have to revamp power grids and renewable infrastructure to seamlessly deliver data on peaks / lows of usage times and integrate well with the ancillary infrastructure such as EV chargers that will monitor and report energy use from a LAN or from cloud via web / smart phones. Transportation electrification requires holistic approach from the government, regulators, utilities and manufacturers to fully leverage benefits of green energy, sustainable & scalable utility infra for cleaner and healthy economy in the future cities.

Enormous Data and Machine Learning are beginning to fuel the transportation infrastructure of the cities - yet to unlock full potential

Data from sensors and other devices with a blend of spatial analytics and positioning technology real-time mapping for smoother and smarter inner-city travel, however there are huge untapped capabilities that are to become integral part of discussions on public mobility & logistics. By 2025, on an average people will interact with connected devices 4,800 times a day, anywhere in the world (Data Age 2025 white paper), data driven intelligent transport systems are delivering tangible value, but the mobility in the cities and the logistics require proper planning with multi-stakeholder collaborations and multi-model planning. A few cases in example are good beginning...

https://www.raconteur.net/business-innovation/data-city-transport-systems

Transport and Internet Pathways - an analogy to imagine & innovate intelligent mobility system

In the US economy alone, transportation capacity woes cost $305 billion in 2017. With growing demand for public transportation for constantly increasing urban population and growing freight demand for e-commerce, our city roads are choking with different types of traffic on a channel at the same time. On the internet networks whereas a no. of approaches that compartmentalize traffic temporarily and spatially to control congestion and render efficiency, transportation landscape includes multiple channels in the form of long-haul, but the intermediate and local transit options are still fragmented - which is to be treated like a series of interconnected channels to maneuver mobility of people, the future of transportation may structurally look like internet networks.

EU wants higher emission reduction targets

Renewable energy laboratories are hiring Geospatial expertise to combat challenges of climate change through a well-informed strategic approach

Europe witnessed one of the worst and longest summers this year, and in the face of heat waves and wild fires, caused by radical changes in the climate, it is obvious that concerns on emission reductions will echo among the leadership in such high-level forums of policy & decision makers.

However, the previously set target of 40% reduction is still not met out by the 28 members countries, so what ground will such proposal hold to revise for higher reduction limits of 45%. The new laws will require an energy efficiency and enforce renewables by setting up processes for constant innovation and technology adoption for concrete steps on climate change.


Smart Technology offers 100% renewable goal achievable

During a recent conference in Jakarta leaders discussed about how smart technology adoption is making it possible to dream 100% renewables future -

Asia which is taking the planet on a growth trajectory - is also driving transformation in the energy sector worldwide with larger global capacity additions - India & China alone account for 40%, energy sector has to evolve to be more flexible to adapt to infrastructure which supports innovation for clean energy, to drive the economies of scale.


Technology and innovations bring North Sea back to Growth

After a long downturn the north-sea saw an upsurge in the Oil and Gas sector - with a promise for stable oil prices, a drop in operating costs and a drive on innovation to maximize economic recovery. With stability - the region will open up to push for innovation and new technology adoption that is still a major challenge in an industry that is averse to risks when it comes to testing & adopting new solutions with a fear of uncertainty of its impact on production.

Geospatial Technology in transforming Agri-tech: In Africa

Agriculture transformation in Africa is a high-stake proposition – the continent that currently is home to world’s most undernourished population & lowest agriculture yields, holds prominence for massive transformation of the agriculture with the use of innovative technologies. Besides the funding, this sector never had ‘a business’ approach.

However, the times are changing with farmers turning into entrepreneurs to thrive and investments in agriculture start to pour-in for introducing the right practices & technology that can improve on-farm decision making sourced from databases across continents. Once this nascent stage of transformation is over, more funding will flow, and people will start to embrace new data driven intelligence to solve conventional problems.


African Development Bank Announced an Investment of US$ 24 billion in African Agriculture

Africa is giving the world a new narrative that will determine the future of food for the world. With an announcement of US$ 24 billion in African agriculture over the next 10 years, African Development Bank is paving the way for global partnerships and collaborations to uplift the lives of over 1 billion people in this continent.

African Development also launched its Technologies for Agriculture Transformation (TAAT) – a US$ 1 billion initiative to extend the use of farm technologies. African Green Revolution Forum - inspired by the smart agriculture technology initiatives world-over, drones, smart sensors, self-driving tractors and advanced robotics could revolutionize the way our food is produced.

Advent of 4G led to the app economy: 5G technologies will enable better connectivity, multitude of innovations from the next generation technologies: Geographic information awareness is gaining significance for critical infrastructure deployment

Telecommunication is a juncture where the future of 5G requires continuous economic leadership for regulation and capital investments for a future-proof infrastructure. The existing telecom infrastructure was designed for voice traffics and this has to transform to enable digital traffic for intelligent connectivity - so the architectural changes in the IT infra is no longer on a mainframe server but on cloud / virtual / open source software networks.

5G will enhance the capabilities of existing & emerging technologies such as Big data, IoT, Wearables & Cloud; and will unfold new innovations in every sector.

http://www.aei.org/publication/investing-in-mobile-infrastructure-will-be-key-for-the-5g-future/

Here in an interesting report on the state of the art hyperconnected systems in telecom of the future.


‘The telecommunications industry is at crossroads, and companies have a decision to make about their future, either continue to be utility providers or evolve into comprehensive digital-service suppliers.’

Indian Cabinet stamps $100-billion investment goal in e-communication till 2022

The Union cabinet in India has approved new telecom policy that aims to provide broadband services in all uncovered areas including at the grass-root governance levels with an investment of US$ 100 billion in the Digital Communication sector by 2022.

The policy objectives include providing universal broadband connectivity at 50 Mbps to every citizen, 10 Gbps connectivity to all gram panchayats by 2022, training one million manpower for building new age skills, expanding IoT ecosystem to five billion connected devices and establishing a comprehensive data protection regime for digital communications to safeguard privacy and autonomy of individuals. This move will positively impact in achieving transparent governance, automation and digitization in small-medium sectors that lack necessary connectivity for technology adoption in remote areas. This also opens opportunities for the businesses to build necessary infrastructure & integrate technology solutions in industries that still rely on legacy systems.

Read more:
A Case Study: In the 2017-18 State Budget by the Victorian Government announced $45 million for Connecting Regional Communities Program (CRCP): On-Farm IoT, Future is Data

The purpose of the CRCP is to increase digital connectivity and usability in Victoria’s regions. The CRCP includes a $12 million on-farm Internet of Things (IoT) Trial. The purpose of the IoT Trial is to assess the contribution that IoT makes to farm performance within four selected agricultural sectors - dairy, grains, sheep, and horticulture (fruits, nuts, berries). The regions of Maffra, Birchip, Serpentine and Tatura have been chosen by the Government to represent these sectors as the focus of the IoT trials, respectively.

Here are a few snapshots:

>> Case study covers

**Insights from a report by KPMG**


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Key factors that inspired this initiative

1. Consumers want that the food they eat and the clothes they wear have a digital provenance that can support claims to be affordable, safe, healthy, ethical, and sustainably produced - and that means the digital story must start on-farm.

2. Farm trials of this type to date have been focused on research stations and universities or early adopters only. Tackling on-farm implementation at scale has typically been considered too challenging because of the number required to achieve scale, the physical distances, and the individual enterprise nature of farming.

3. Government has a responsibility to address the potential market failure of an essential part of the economy through bringing together the infrastructure, skills and partner ecosystems to enable farmers to compete in a global digital marketplace.

4. Digitization drives but also demands uptake at scale to deliver the greatest return on investment. Countries that have successfully embraced IoT enabled AgTech and FoodTech require government intervention to bring together the necessary infrastructure, data sets, regulations, suppliers and incentives.
The process: Community focus group discussions were conducted to understand the demand for, and uptake of new technologies across the four trial site regions - both now and in the near future.

The Challenges that were to be addressed were:

- Digital literacy was found to be a major barrier to adoption across all regions. A general lack of awareness regarding technologies available, the knowledge required to understand the impact of technology, as well as the skills required to implement, effectively use and maintain technology.
- Focus groups highlighted the general lack of interoperability between farm datasets, which makes it particularly difficult for farmers to easily combine and overlay data from different systems in order to access optimal insights with the technology they already have.
- Connectivity is another foundational element of IoT and other on-farm digital solutions. Challenges with access to mobile and internet telecommunications infrastructure was found to exist across the four trial regions, to varying degrees.
- A key reason for a lack of IoT uptake was lack of proven return on investment (ROI). Farmers are typically unwilling to outlay on new technologies which are largely-unproven.
- To realize the full benefits of IoT, farmers need to be able to effectively collect, communicate, analyze and then be comfortable in exchanging data with others along the value chain. There is a general lack of confidence in data privacy and security amongst farmers across sectors, and this primarily attributed to a lack of industry-wide data standards, protocols and overarching regulation.

Initial learnings: The IoT market for agriculture is developing rapidly, particularly around sensors and devices, but is still immature in terms of farm IoT platforms. There is currently no holistic technology platform which exists for agriculture. This is a key cause for interoperability issues and is a barrier itself to supporting & encouraging open innovation.

Vision at Victoria: Create a local learning cohort, a sustainable supplier network, a growing user base for data infrastructure, and a momentum that can leverage and focus efforts on commercially sustainable IoT enabled outcomes and can become catalyst for a cultural and market-led transformation through accelerating use of IoT, because it tackles directly the hardest but most essential part of the food supply chain - digitization on-farm, at scale.

Brief Note: This case study is presented as it reflects issues, challenges and imperatives across the nations in adoption of technologies in the agriculture sectors - from precision to decision-based farming will drive economic growth and will have lasting social, environmental impact worldwide.