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PEOPLE

## Infratech could help optimise the operations of infrastructure systems

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At a time when countries across the globe are looking for economic recovery and growth after the Covid-19 disruption, infrastructure development has emerged as the most viable option. It is not the first time that the world has looked at infrastructure investment as a stimulus for recovery and growth. It is a method which has helped various countries emerge out of economic slump in the past. The government of India is laying sharp focus on infrastructure development to fuel the economic recovery and push the country towards becoming a 5 trillion dollar economy.

Infrastructure development however is not all about reaping financial benefits. It is more about uplifting the lives of people by ensuring their health, safety & wellbeing and fight environmental degradation. Infrastructure projects have huge financial, social and environmental costs involved. Almost all infrastructure projects are designed to recover their financial costs gradually during their years of operation. However, recovering social and environmental costs might be difficult and sometimes impossible. Various infrastructure projects in past had devastating effects on environment and communities. In the modern world, infrastructure planners and developers are employing technologies to ensure that project conceived by them are safe for the communities as well as the environment.

### Infratech and safety

The safety of a project during construction, operation and decades after the completion is the first consideration for the developers. Planners and developers are now employing geospatial technologies to select the project sites. These technologies help select the most suitable site for project keeping factors like landscape, local climate, surrounding communities, biodiversity etc in consideration. They also analyze historical data related to climate and landscape and develop computer models that could predict the future. The technologies like BIM can help create and stimulate 3 dimensional models to help the developers understand the functioning of the projects in real world, much before the first stone is laid. These technologies also help in predicting any future upgrade and maintenance needs of the projects to ensure their safety.

### Operational efficiency

Operational efficiency lies at the heart of the financial viability of any project. Technologies like connected construction, automation, remote sensing, GIS, GPS etc help the developers keep close eye on every stage of the construction. By ensuring all the teams working on the project and all the stake holders are on the same page, properly informed and coordinated, they speed up the projects, save costs, avoid errors and reduce wastages. They also predict the demand for manpower and raw material and optimize resource utilization.

During the operational period, automated technologies help in the smooth operation of projects. Automated toll collection, control & monitoring, access control, automated heating, cooling & ventilation are some of the many examples where technology is assisting in the operation of the projects. Digital technologies reduce the dependency on the humans, minimize human errors and provide real time feedback. AI and ML based technologies can also take corrective measures in case of any deviation from set parameters of project operation. These technologies help the project managers gain more out of less and maintain operational efficiency.

### Reducing carbon footprint and decarbonization

Infrastructure loaded with technology can play significant role in reducing the environmental degradation and to some extent, reversing it. Infrastructure projects are increasingly using green construction material to reduce the carbon footprint. Technology is playing an important role in developing new and innovative construction material for construction. Automation and IR based sensor technologies are helping the projects optimize their energy consumption. For example, cold storages are equipped with sensors which automatically slow down or stop the cooling units when desired temperature is reached. Similarly, highways are equipped with sensors which switch off street lights in absence of traffic. In real estate sector, technology is suggesting new and innovative designs for homes and office spaces to reduce the need of cooling, thus saving energy.

The use of technology in infrastructure is not a new concept. However, now the world is moving towards smart use of technology in it. Infratech is revolutionizing the way the world looks at infrastructure projects. From merely huge structures of concrete, infrastructure projects are rapidly turning into smart and efficient assets that care about the people, community and the environment.