Augmented Reality for utilities – how real are the promises?

There has been a great buzz around Augmented Reality (AR) and the applicability of immersive experience - which can significantly change the way users experience physical objects in terms of visualization, interaction and engagement. As per several estimates, the market size of AR is witnessing stellar growth and is expected to reach up to US$ 200 billion in 2025.

Shifting to immersive experience can transform the way users engage with the external world. So what does AR do to achieve this? It makes real-time use of information in the form of text, graphics, video and other virtual enhancements integrated with real-world objects. It is presented using HMDs or mobile devices. AR aims to enhance users' interactions with the real physical environment, rather than separating them from it.

Over the last few years, the gaming industry has been the forerunner in terms of experimenting with and applying AR. The Pokémon Go game is a great example of how users can interact with this technology, bringing AR into the mainstream. Another good example from sports is the Superbowl match this year. The spectators were presented with an opportunity to use an AR mobile app to play, compete and have fun, during the breaks and commercials.

Now the question is - how can a conventional industry such as utilities benefit from AR?

Applying AR for utilities

Today's utilities are grappling with unprecedented challenges in terms of market disruptions caused by external factors, such as proliferation of distributed generation, changing consumer expectations and behaviors and regulatory changes, as well as internal factors such as constant pressure to reduce opex and improve efficiencies. Digital technology disruptions have created many possibilities to convert some of these challenges into opportunities. While the utilities industry has been relatively slow in looking at AR, the future does look promising.

Key business use cases for utilities

Several diverse use cases emerge across the utilities process value chain. The key to success is to reimagine the business process and augment the intelligence which can deliver business value.

Assessment and restoration during storms/outages

In an era where utilities are trying to modernize the aged infrastructure built over a number of years, assessment and restoration of storms and outages continues to remain a big challenge. During storms and emergency situations, there are a number of utilities who still have cumbersome processes where field crews continue to work with multiple handoffs of information, often with handwritten notes on damaged poles, transformers and more.

AR allows hands-free data recording using natural voice commands to detail the damage including data, pictures, videos, etc. through the use of an AR headset, thereby significantly improving the productivity of the worker while also accelerating the pace of restoration. This fundamentally changes the way users inspect assets, compare with earlier conditions, look for the right spare parts, capture the accurate location with geospatial attributes and communicate with the logistics team to get the right material onsite for repair activities.

Visual inspection of vegetation

Utilities are required to control and remove vegetation on their transmission and distribution lines. Several methods are deployed to control and remove vegetation in a safe and environmentally conscious manner in order to avoid interruptions or outages in service. It is a proven practice to collect and monitor the vegetation clearance on the field using mobile apps and integrated geospatial information. Using heads-up devices, the field technician can access the historical information on the go as well as collect data hands-free, through the voice-based interface. The technicians can take smarter decisions on the field resulting in improved operational efficiency and productivity.

Construction or new connection of underground gas pipeline

While replacing an underground gas pipeline or providing a new connection, it is critical to accurately locate assets and perform tasks like excavation and other maintenance activities safely. Using AR, the information about the underground pipeline and the connected assets can be shown using a 3D model with accurate GPS locations. Field technicians can identify an asset visually through rendering (shape and color of the asset), look up last repair or replacement history and get the necessary insights, avoiding any hurdles or rework, and thereby improving the job quality.

Seeking expert help or collaboration with other crew members during maintenance onsite

Field technicians may face situations where there are complex or unknown issues at a site which restrict their ability to complete the job without guidance from experts. Other scenarios may also necessitate collaboration on the field between various members in order to resolve the issue. Leveraging AR, the technician on site can leverage audio/video chat to connect with a remote expert to get the necessary guidance or collaborate with other technicians to overcome any issue which requires interaction and communication to complete the job, without losing time. Apart from the above use cases, AR can significantly help in training novice technicians and help utilities overcome the challenge of an ageing and retiring workforce. AR devices have also come a long way and now meet the intrinsic site requirements related to safety and environment - a critical need for utilities. There could be many more use cases and applications which can benefit from leveraging AR. Digital adoption in utilities has accelerated over the last few years. AR provides diverse and versatile technology options and is here to stay.

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Jignesh leads the domain and digital consulting practice for Utilities focusing on Generation, Transmission & Distribution and Retail Utilities, and is responsible for North America. He has over 20 years of global experience working with organizations in India, Europe, Australia, New Zealand and North America. He is passionate about helping clients with business process reimagination powered by industry-leading technologies to drive business outcomes.

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