

## BUSINESS ADOPTION ON ENTERPRISE GIS - ALIGNING TO AN OPTIMIZED ROADMAP

### Abstract

The technology and platform industries are witnessing the increasing need of their client in adopting the comprehensive strategy to address their end-to-end operational needs. The conventional method of having spatial maintenance system is now transforming as an integrated system within the organization, such that user's adoption is increasing towards the simplification, optimization and automation of the inventory network services. A finding by Mr. Geoff Zeiss states that this can improve productivity by up to 60-70 % by integrating graphical design, enforcement of engineering standards, and integration with enterprise systems.

Thus, industries that work on the maintenance of physical inventory have started working on the program to bring out a consolidated enterprise GIS system that involves full digitalization of inventory systems. Read on more to understand how the current trend of the enterprise or integrated GIS has been embraced by all the utilities and telecom companies across the globe.



## Comprehensive utility - the current challenges

The asset landscape is changing. The enterprise customers – suppliers, providers, and users expect a better process harmony through people, process, and technology. Every stakeholder expects to have more options and good resilience in the enterprise system. Moreover, every industry owner understands that the proprietary solution is becoming obsolete with respect to one function per business. On top of it, legacy or single database and formats of the current mapping systems, are also restrict the company's ability to expand their growth and to address their production benefits.

There are still some organizations where

the current GIS related applications are driven by a specific business group and can be utilized only by the functional team, as data model or business function are built only for this purpose. Some of these applications are supported by specialized business led IT team, and on a few by the specific department need that require them. None of the existing applications provide an interconnected model to be used across the engineering departments and operational systems. The department level approach does not effectively leverage resources, and instead increases the total cost of ownership.

Overall consolidation and rationalization of the GIS systems comprising OSS/BSS

for one of the telecom firms took some years, as existing GIS related applications were built on independent model for use specific across the engineering departments and Operational systems. Hence, there are two major challenges with the current enterprise strategies that conflicted the organization's ability to meet business objectives are:

1. Disparate data sources that lead to the challenges of interoperability and increased cost in the skills, licensing, and infrastructure, and
2. Department specific platform landscape that leads to the inconsistency resulting in the increased need of maintenance and training



- Not designed to support the additional data format requirements of modern decision-support applications
- Knowledge Management & skills issues due to change in location platform



- High maintenance costs due to disparate data sources
- Technology platform support and cost issues as platform vendors gives non Interoperability for GIS data
- Non-harmonized Process



- Inflexible architectures , non enterprise hamper business processes evolution and performance
- Legacy systems don't integrate, inhibiting product evolution and time-to-market of new products/service

Call to action for "Legacy Modernization" – Enterprise Transformation

These challenges coupled with limited technological awareness result in the critical issues such as redundant efforts

of ineffective resource management, higher costs of ownership, and higher investments. This was obvious when

utility organizations made evident in their business plan to prove the approach for EGIS.





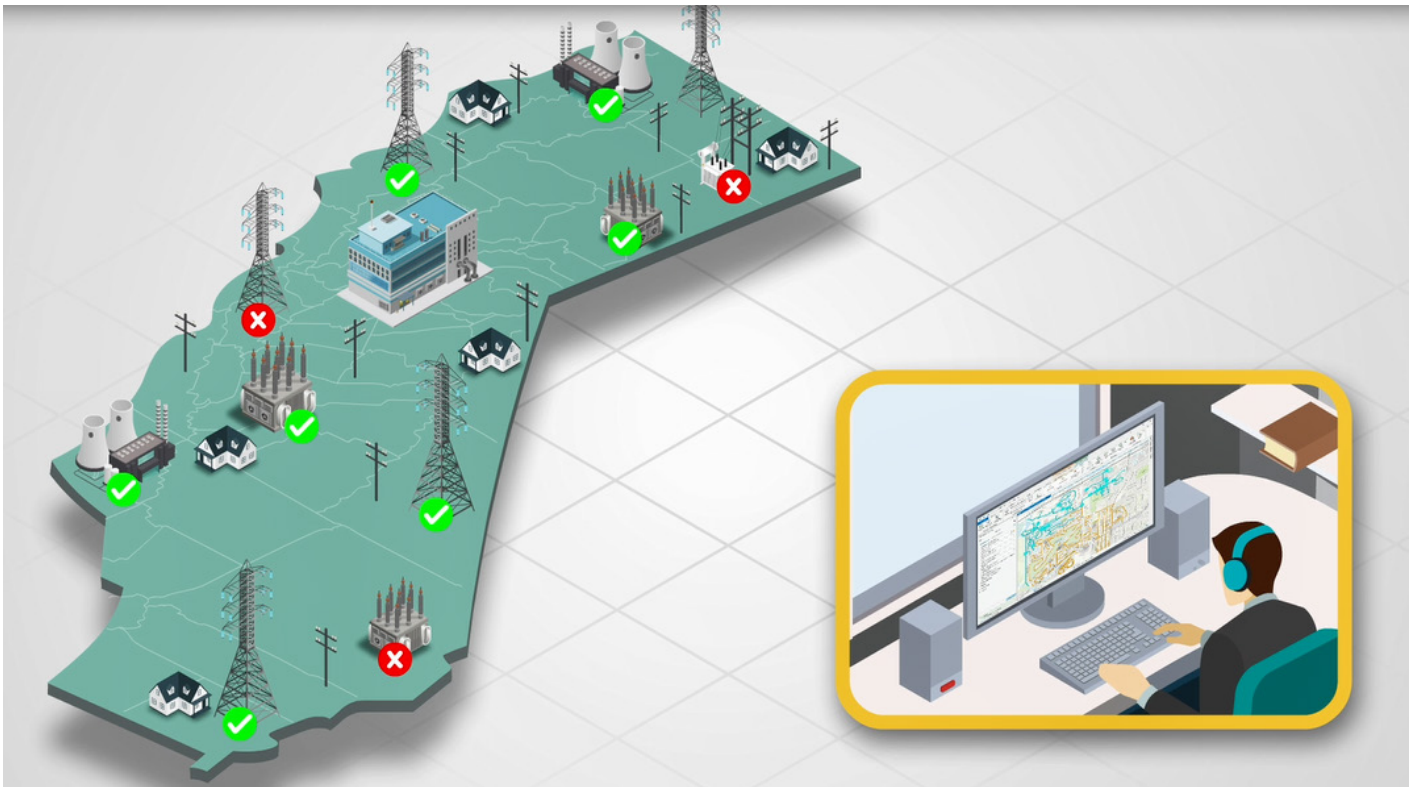
## Business transformation and adoption to 'One GIS'

Organizations within the organization are transitioning their independent mapping platform to a dedicated Enterprise GIS system which requires a single, uniform data model of all utility distribution system. Enterprise GIS is fast becoming the standard technology for large utilities. In fact, the advancements in utility side assets and IT system provide powerful tools and platforms to expand to newer things, bring innovation, and bring more resiliency. Due

to the technology modernization, user awareness and abundant resources with respect to skills and licensing, the industry is moving to the Comprehensive GIS.

However, the enterprise GIS requires its own efforts. Corporates are upgrading from a mapping system that includes department specific GIS applications linked to a single dynamic Enterprise GIS, which is available across the company. Though

they have been able to extend the life of the existing mapping system, it is become extremely resource intensive and limiting to achieve the company's goals. Most utilities in the US have implemented a state-of-the-art Enterprise GIS. Other major utilities have had it for at least five years, and many for 10 years – and their technical and product demonstration are extremely compelling.





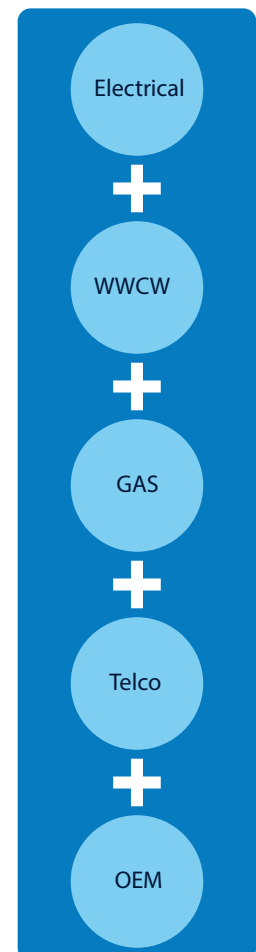
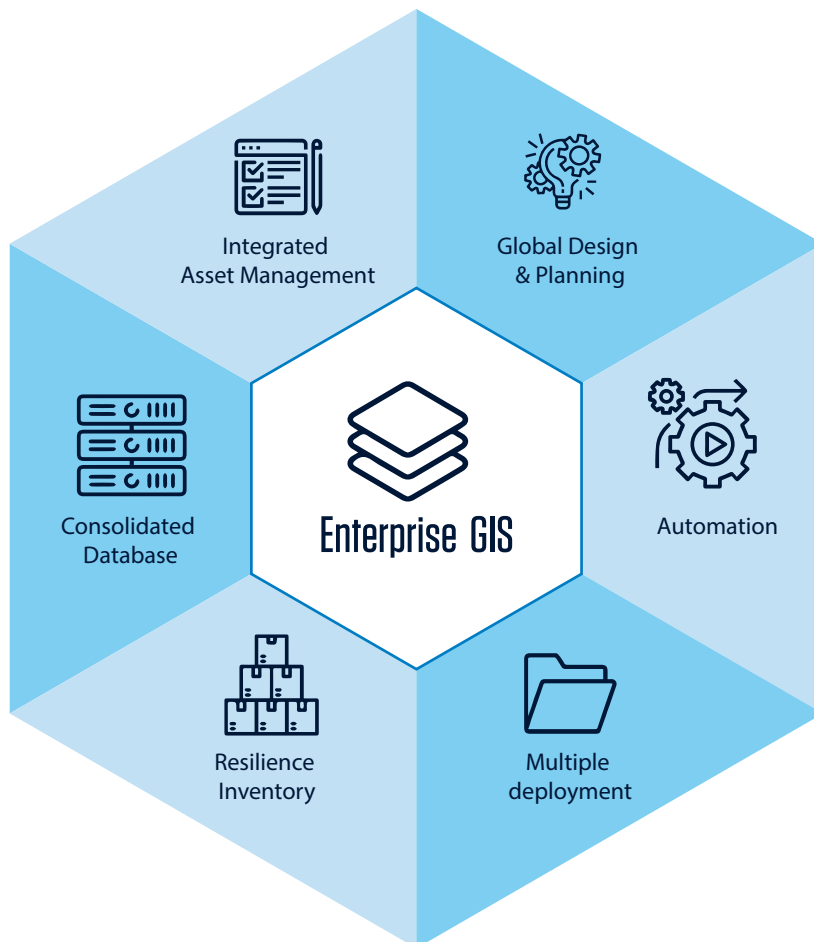
## Being valuable to the utility chain

An Enterprise GIS can catalogue and record the specific location and operating characteristics of all grid connected assets, regardless of company owned or third-party distributed resources. The information would then enable the

company to develop a single, up-to-date model of its electric, gas, and steam distribution system.

An Enterprise GIS is necessary to unlock the benefits to have a customer focused, clean

energy future. It will provide precise and meaningful business intelligence solutions for an effective asset and resource management, and also for delivering safe and reliable services to the customers.



Once implemented, the Consolidated GIS could be the cornerstone for the industry's grid modernization and customer experience. Any new infrastructure would have real-time data to feed into the GIS, which can be used for other GIS systems. It will also allow companies to provide models that reflect data from IT distribution or network assets and other energy systems. With these models, companies can develop more efficient plans and design, and better operate the grid and other peripheral systems. In short, Enterprise GIS could touch on all aspects of the company's operations.

It also helps enhance business drivers for an enterprise:

- Allows the company's abilities to efficiently share facility location information and better collaborate with the external stakeholders. More importantly, it extends company's ability to leverage the multitude of geospatial data services published by the public and private agencies
- The consolidated mapping system brings in together different map platforms and common solution to get the assets for better reconciliation and resilience with respect to networks – also known as GET Maps – a consolidation of gas, electrical and telecom utilities
- Good amount of automation can be introduced in the new GIS system that can bring down the redundant process coming from the multiple systems, and also eliminate data discrepancies between the respective systems
- As above, the Enterprise system can be first step to eliminate redundant data entries, maintenance and host central geo-database, and offers potential savings through efficiency gains and reduction in support costs

An enterprise system can be enabled to host additional capacity to update, producing specialized maps and more desired and tailored functionalities. In

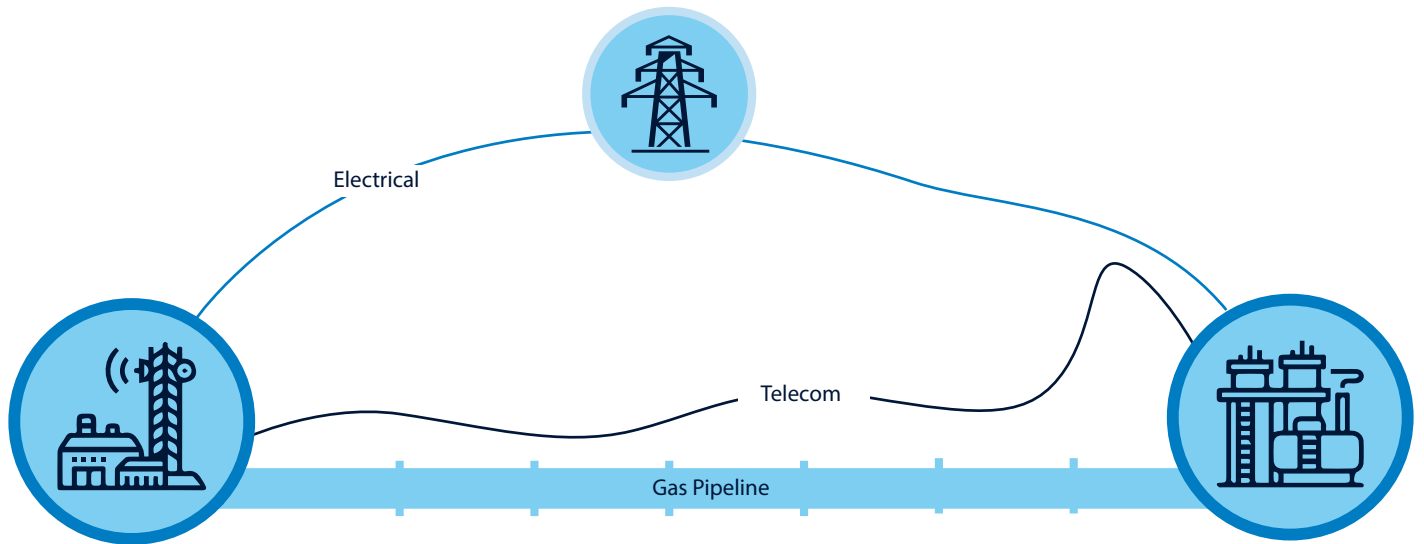
fact, this can be resilient in the event of catastrophic hardware failure or software malfunction. The new mapping system can reduce the recovery time without impacting critical business operations, so that there is no risk of any impact to the underlying operating systems.

One such Enterprise GIS application was needed for a particular network expansion scenario to achieve a global design - simplification, standardization and automation. This company was expanding its service capabilities by providing high-speed broadband and IP Voice based services over an advanced IP based network through FTTN/FTTP, so the planners could create hypothetical designs to install the necessary equipment at the right places and enhance their services to all subscriber locations. And for a large Energy firm in the Middle East, an integrated and centralized GIS system was constructed to consolidate and collaborate different datasets – fiber, gas system, towers, communication node to build the robust FOC system that achieves the maximum backhaul capability by utilizing redundant (multiprotocol Label Switching) MPLS network from the service providers.

Some of the potential benefits envisaged and achieved were as follows:

- Significantly reduced redundancy of data across the system
- Improved accuracy and integrity of geographic information
- Digitalization of graphical inventory plans for efficient use and data sharing
- Spatial Data integration to be used in decision making processes across the whole organization
- Data acquisition costs reduction and data quality maintenance across the organization
- Time and robustness to think about the network of tomorrow
- Relevant information availability for the network engineers at a single place combined in graphical layers





## Key takeaways

Agility and adaptability are the key concerns for business, especially in the utility organization on how the competitive markets today are driven by many factors that are quite different from what they were a few decades back - faster time-to-market, globalization, multiple channels, customer retention etc. This strongly pushes every organization to adopt quickly and realize the modernization impact, i.e to move from a legacy and obsolete system to an enterprise system. Every organization has the potential to achieve complete self-organizing, network optimization, and simplification of the networks. It is imperative that adoption of the enterprise

and global graphic system by the utility or telco organization provides the efficient outcome, fulfilling numerous benefits.

- Cost efficiency to design, engineer, plan, construct, and maintain to support and service the high quality networks - central geospatial data repository and visualization of the network infrastructure
- Distributed system integration for an integrated monitoring and control, and integrated automation to control differing flows and plan for the standby capacity to supplement intermittent generation
- Efficient cost management across network investment programs and production plants
- Inventory and operational data stores for all kind of network resources, infrastructure repairs and other data
- Continuous optimization of maintenance services and their associated costs
- Support across department alignment for the efficiency actions (escalation forum)



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Dr. Pradeep leads the GIS data practice in Infosys BPM. He has close to 21 years of experience in the field of GIS, telecom OSS/BSS, mobility and telematics domain, and is involved in the consulting, solution architecture, program/project management, portfolio management for Indian and overseas clients (US/ Middle-East). In Infosys BPM, he is responsible for leading the GTM strategy, presales, consulting, COE accountabilities - creating/owning business modeling/framework and contribution to all lines of GIS business/new wins.

Pradeep holds a Doctorate Degree in Disaster Management (landslides prediction) using GIS/remote sensing and has done his post-graduation in Applied Geology.

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