

Geospatial Trends and Opportunities in the Utilities Industry

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Our World is Changing



- Climate change
- Sustainability concerns
- Reliability expectations
- Aging Infrastructure
- Aging workforce
- New technologies

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- **Climate change**
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Climate change is a fact confirmed by observations; 97% of climate scientists agree that it is likely anthropogenic

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Growing pressure on water resources;
Increasing use of fossil fuels

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Higher dependency on reliable service; outages cost US businesses \$150B/year

SAIFI, CAIDI, SAIDI

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Patchwork development
some of which dates back to
1880s;

3 times more disruptions than
1984

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Over 60% of utility employees may retire over the next 10 years;

Median age in utilities is 46 – highest across all sectors!

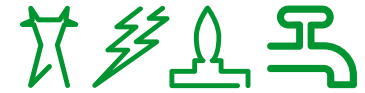
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Cheaper solar;
Pervasive digital technology

Utilities are Changing



2/3 of electrical energy is lost between the plant and the plug;

10% YoY capacity growth - mostly natural gas and renewables

Property of Schneider Electric

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- **Renewables and distributed generation**
- Operational efficiencies
- Institutional memory
- Prosumer engagement

Utilities are Changing



SCADA + DA \neq Smart Grid

IT/OT convergence

IoT

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Utilities are Changing



Automation of business processes and information flows to retain institutional experience and knowledge

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Producer + consumer =
prosumer

EV, solar, wind
Energy storage

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Geospatial Evolution

Crude
Maps



From geospatial discovery and enlightening to geospatial empowerment

Geospatial Evolution

Crude
Maps

Accurate
Maps



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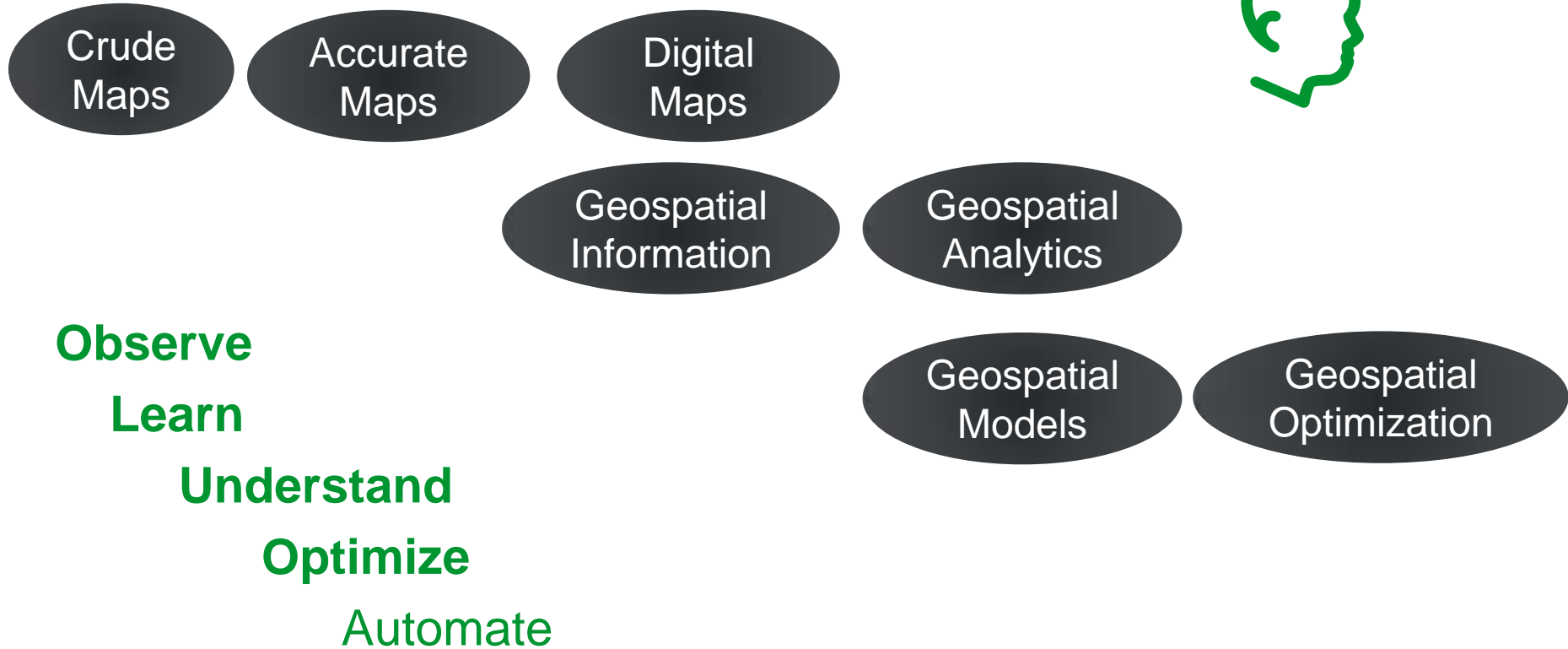
Digital
Maps

Geospatial
Information



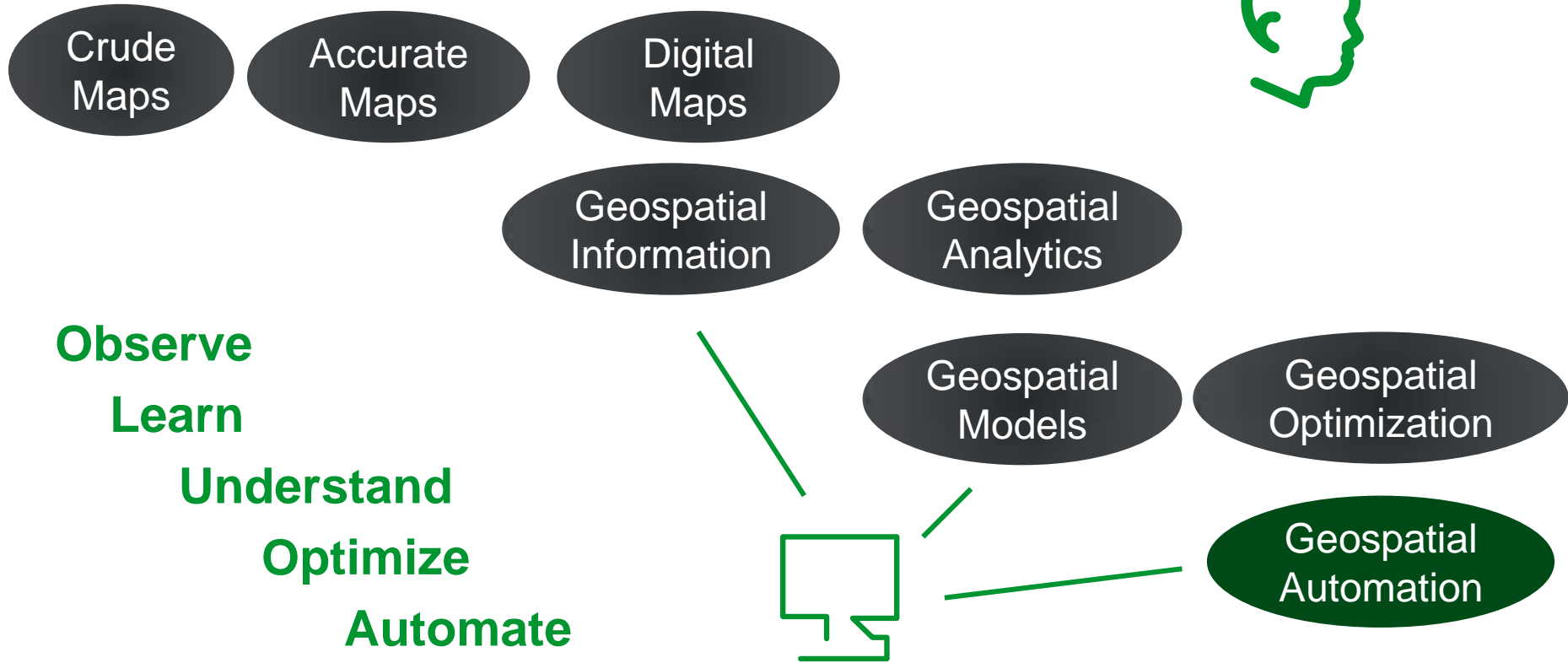
From geospatial discovery and enlightening to geospatial empowerment

Geospatial Evolution



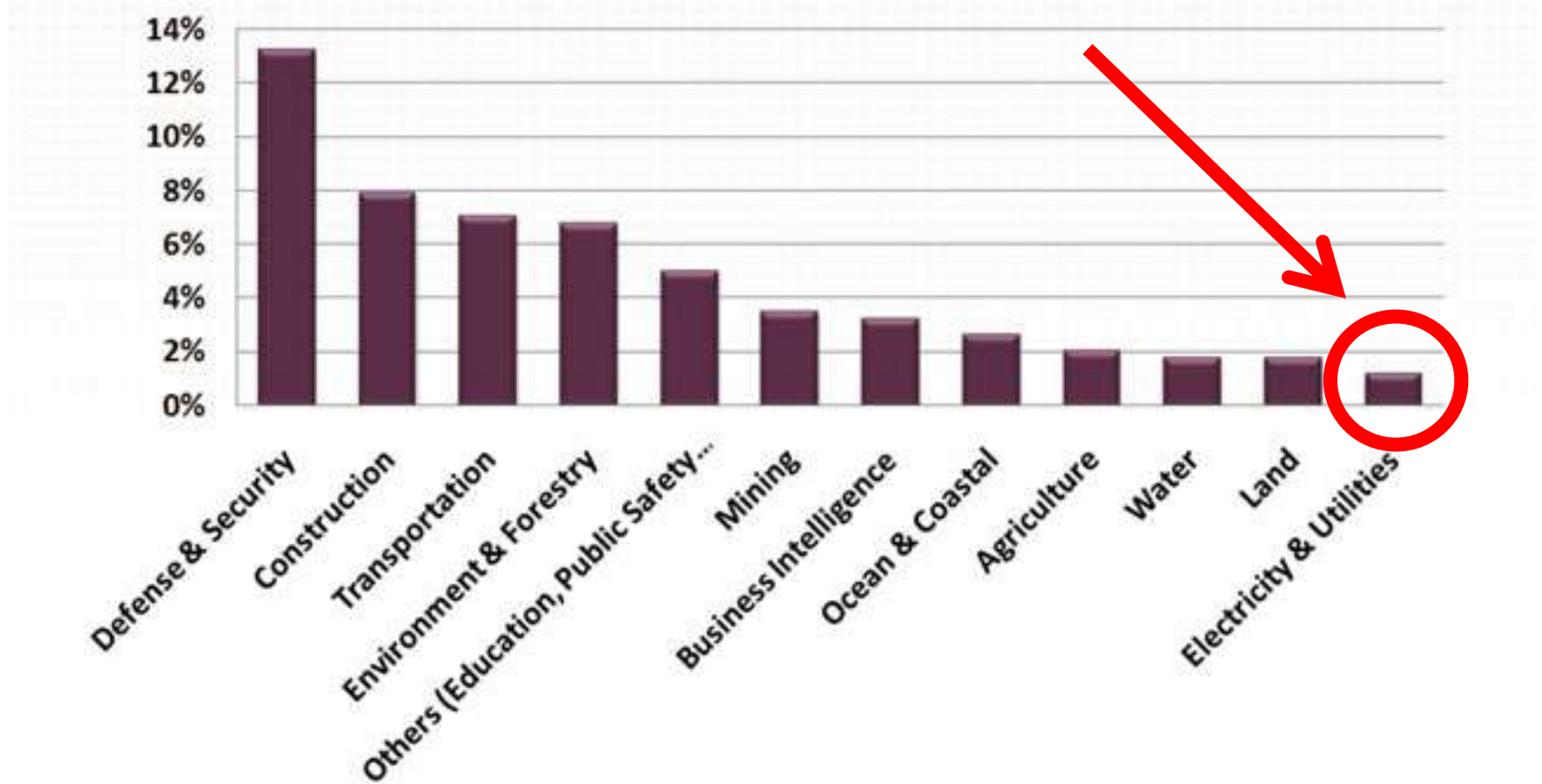
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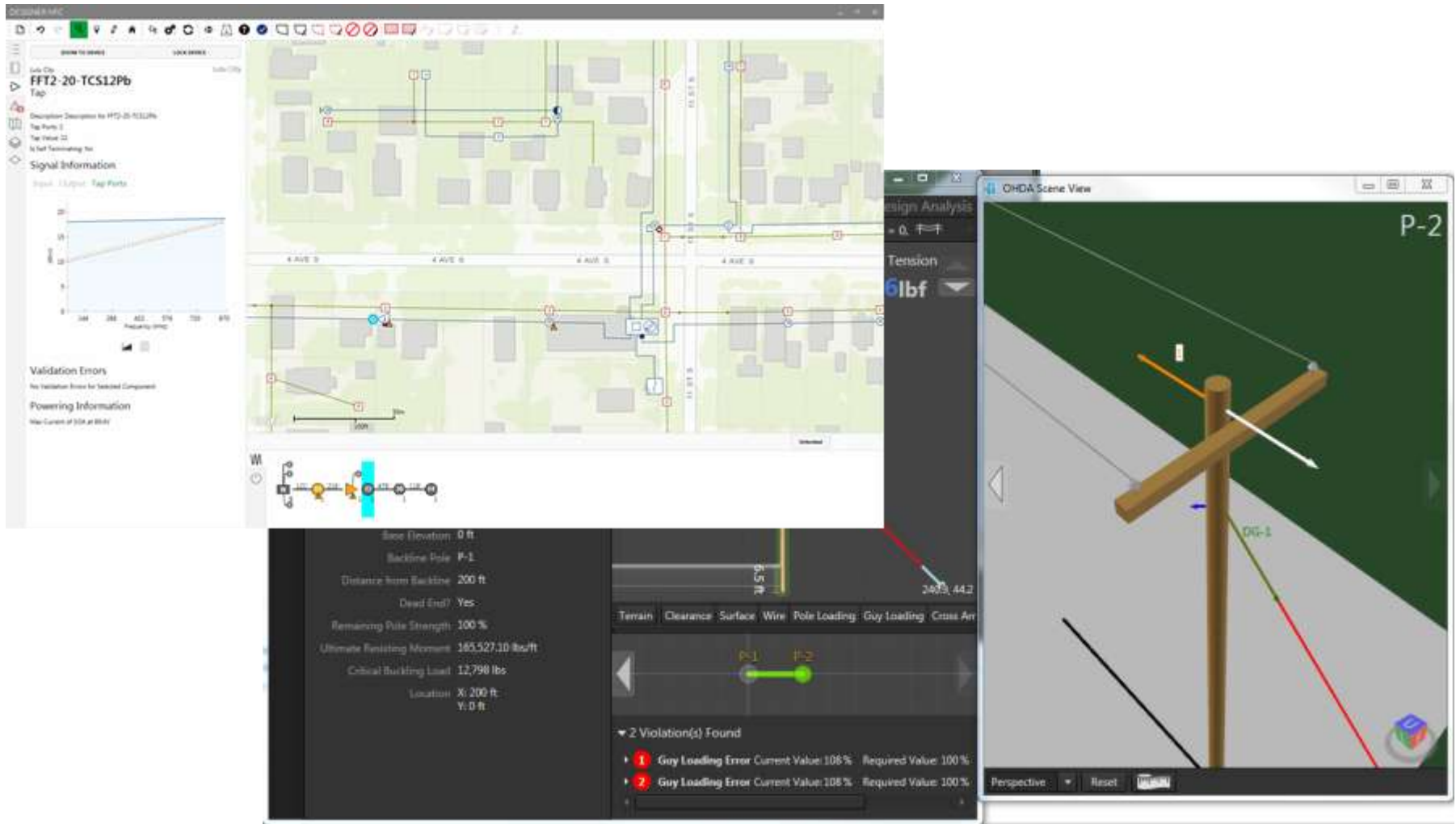
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Geo-empowering Electric Utilities



Industry wise adoption of Geospatial Technology

Geo-empowering Electric Utilities



Beyond GIS – geo-empowered design engineering

Geo-empowering Electric Utilities



- Work and information follow people
- Right information and right tools for the job
 - Design
 - Construction
 - Inspections
 - Maintenance
 - Damage assessment and restoration
- Internal and external workers
- Inside and outside of buildings
- Urban and rural

Workforce mobility

Property of Schneider Electric

Geo-empowering Electric Utilities



- Spatial information allows finding relevant data
- Enables better resource planning and asset management
- Provides increased situational awareness
- Allows to automate operations management

New sources of information

Property of Schneider Electric

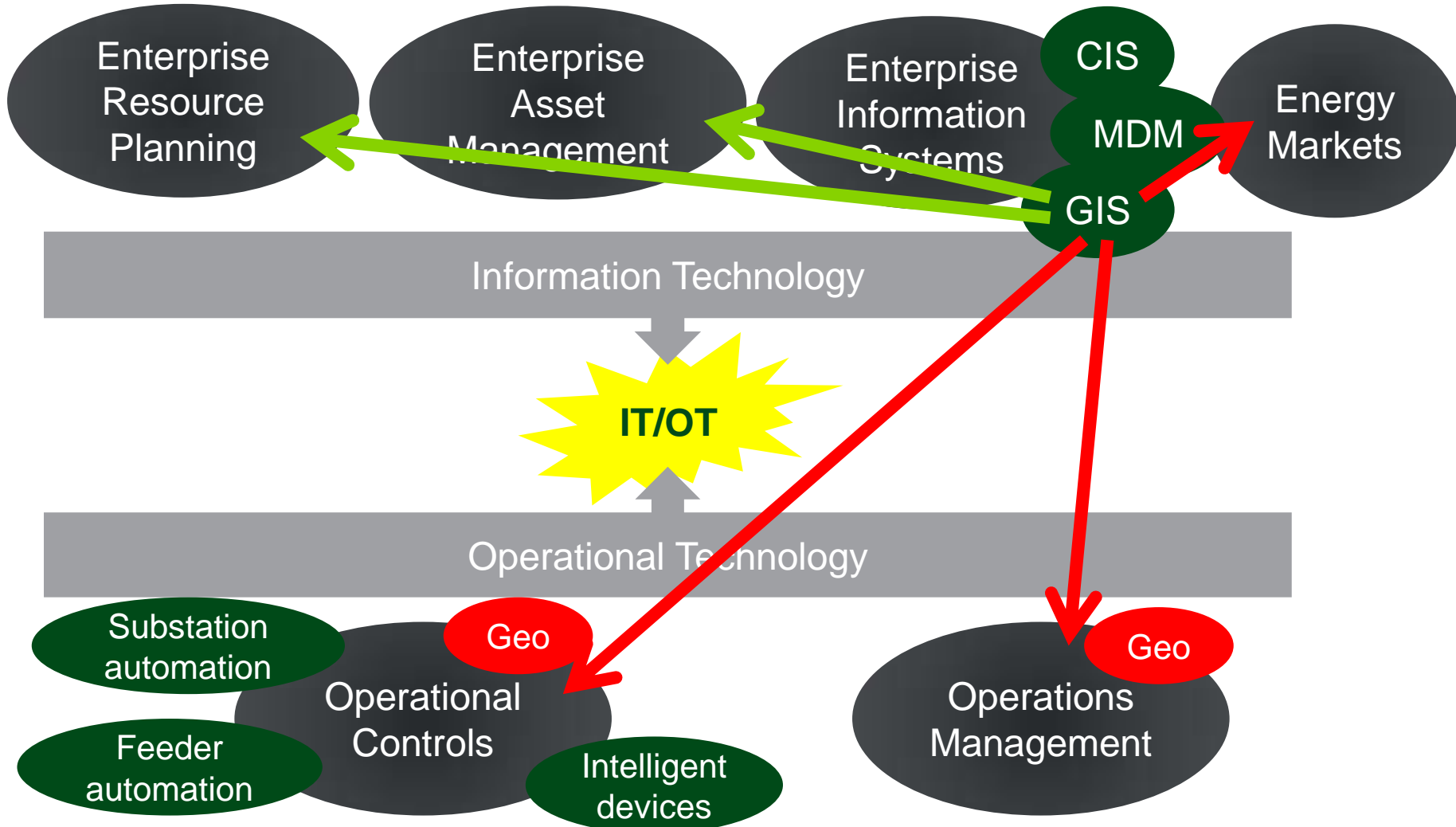
Geo-empowering Electric Utilities



- Spatial information is the key to correlating all necessary inputs

Demand response and home energy management

Geo-empowering Electric Utilities



Real time, distributed and secure; integrated part of OT platform

Geospatially Empowered Industrial Enterprise

- > Simple is pervasive
- > Internet of things and the case of TMI
- > Geospatial enterprise platform
 - > GIS application is dead, enter geo-empowered application
 - > Beyond GIS - GIS is not a solution, it is a part of the solution
 - > Uncharted territory – developing new data
 - New features to capture: buildings, structures, under/above ground
 - New tools to apply: indoor sensing, combination devices, drones
 - > Scale and security
 - > Distributed data and operations
 - > Enterprise integration
 - > Standards and interoperability
 - > Industrial hardware

Thank you!

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