New Broadband and Dynamic Infrastructures for the Internet of the Future

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Agenda

Challenges for the Future

- Intelligent Transportation
- Intelligent Utility Networks
- Advanced Water Management
- Industrial Process Management
- Intelligent Oil Field

Smarter Planet

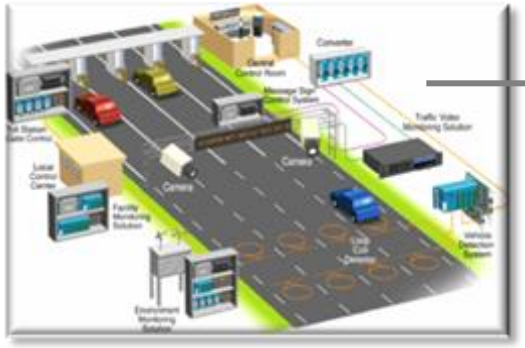
- The Rationale
- The Vision
- The Set of Capabilities

Smart Infrastructure

- Context-Aware
- Automated and Hybrid
- Secure and Protective

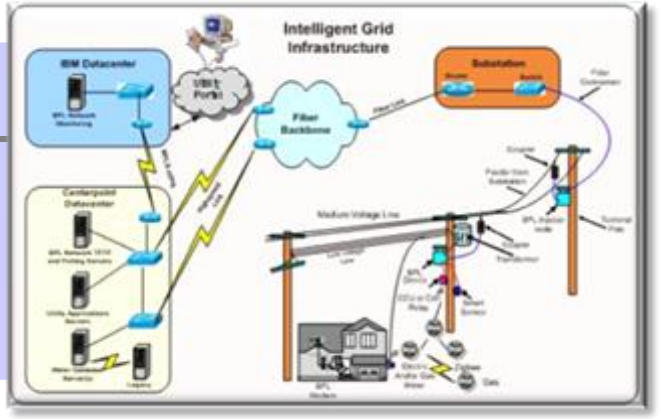
Dynamic Infrastructure Exploitation for a safe Future

Today's Problems will only be overcome by fine-grained multi-tier containment



Recovery from car accidents including major pile up

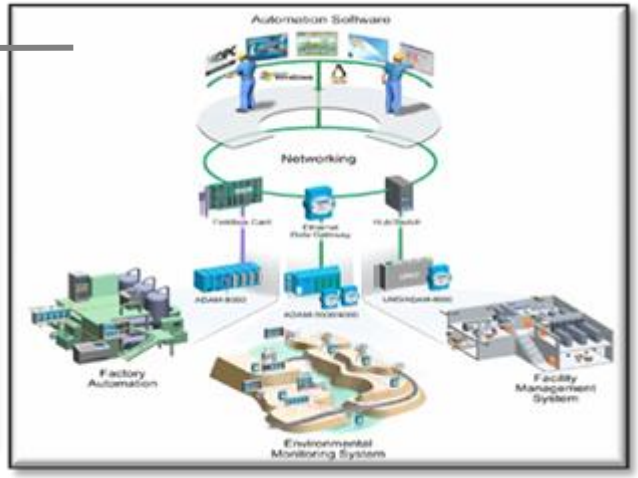
- Intelligent transportation systems
- Intelligent utility networks
- Advanced water management
- Industrial process management (refinery, chemical plant…)
- Intelligent Oil Field
- ….more



Prevention of blackout or brownout

Prevent and recover from water contamination

Prevention of disruption of oil/gas exploration & production



Robust manufacturing processes

Innovation Vision at a Glance

A SMARTER PLANET

Instrumented

Interconnected

Intelligent

Because it can.

Because it must.

Because we want it.

People

Companies,
Institutions,
Industries

Man-made Systems
e.g. Cities

Nature's Systems
e.g. Water

A Smart Planet is enabled by the Digital Ecosystem Platform

Regulation

Standardization Bodies (OASIS,OMG, NATO, EU ,..)

Enterprises (Security, Health, Telco, …)

Digital Coalition Platform

Policy layer
- Policy/regulation enforcement
- Management of international / local policies

Interoperability layer
- Ensures connectivity among stakeholders
- Defines common services
- Formalization and digitalization

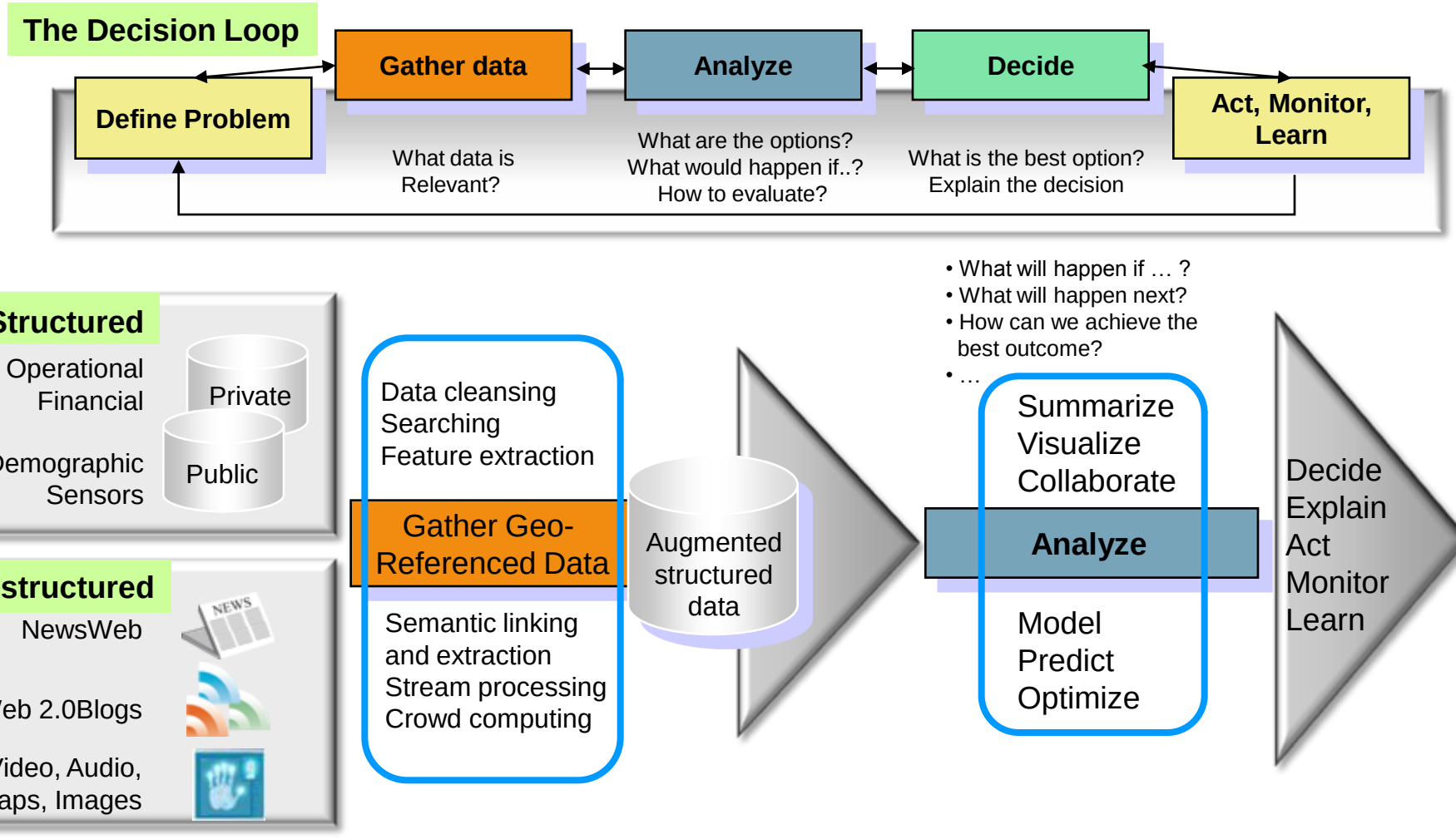
Technology layer
- Includes common set of technologies that enable effective value creation and management

Designs how to digitize and distribute required information to obtain controllability of the industry-wide ecosystem

A complex but tractable Endeavour

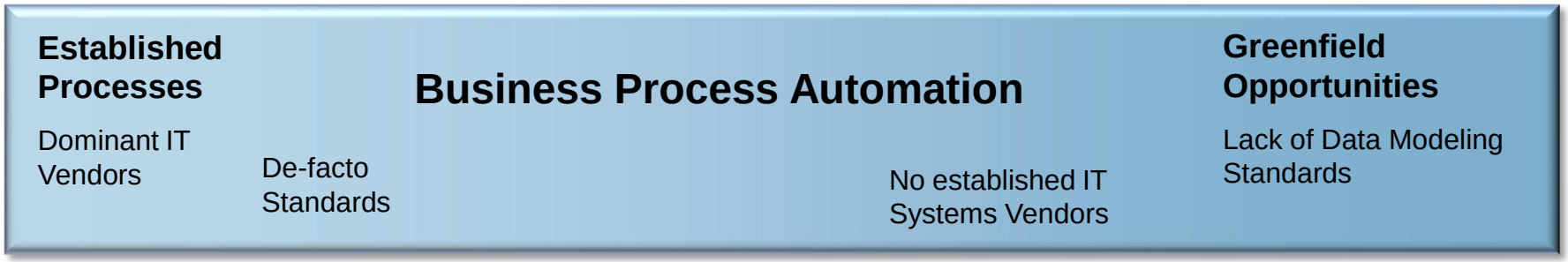
Data to Smart Decisions

The ability to pull value from massive amounts of data and respond to real-time information is becoming a crucial competitive differentiator in all markets.



Emerging Information and Process Models

The maturity of business process automation varies widely depending on the industry, the complexity of tasks and the processes.



Decision making processes are limited to those supported by existing information and process models

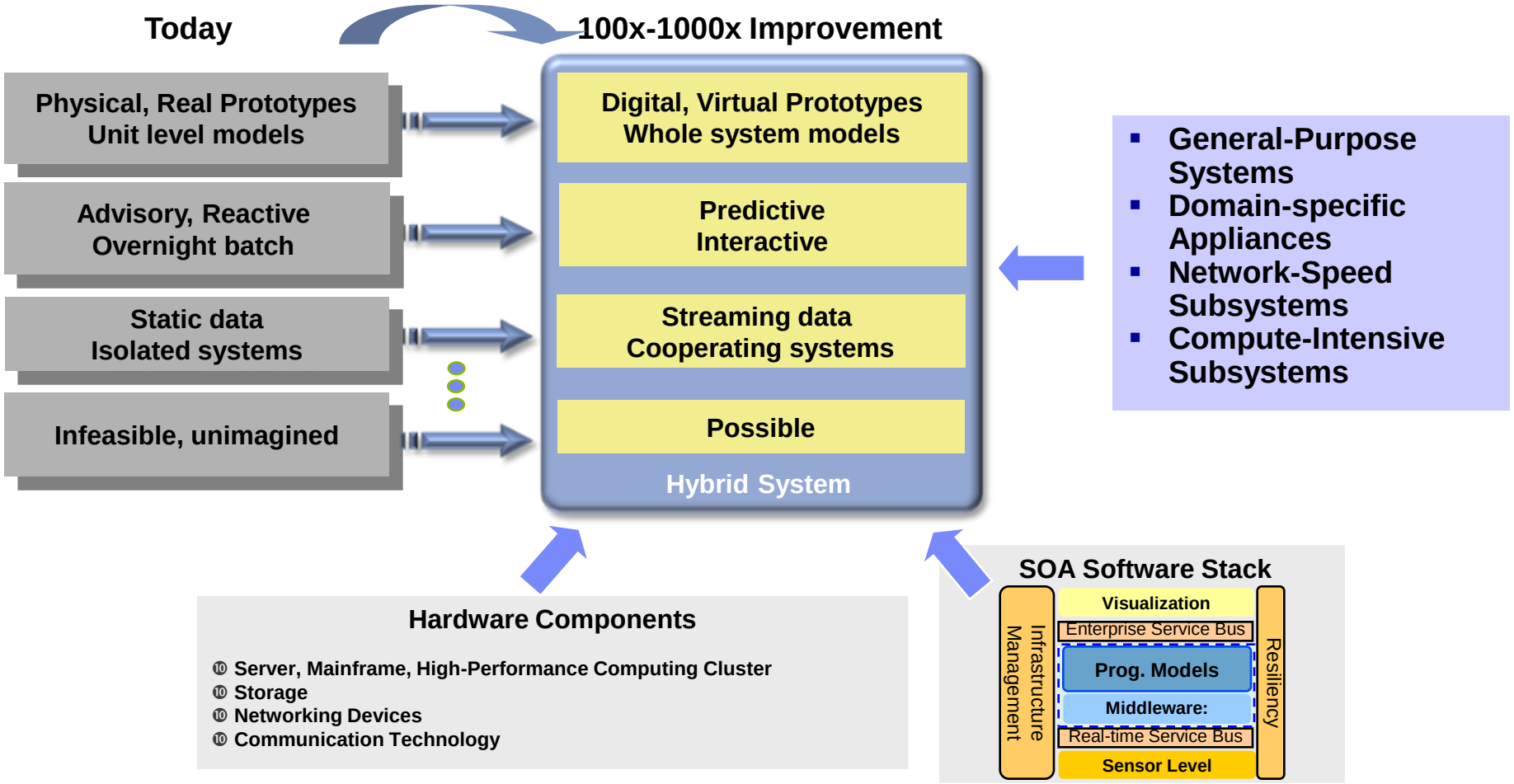
- Supply Chain Analytics
- Financial Dashboard
- Healthcare Management

Decision making processes can be one of the drivers of new information and process models

- Workforce Management
- Resource Management (Power, Water, Carbon, Communication etc.)
- Smart Buildings
- Intelligent Transport Systems

Transformational Hybrid Systems – New Capabilities

Compelling differentiation and accelerated system improvement in the internet of the future can only be achieved through a multilevel Hybrid System architecture that integrates complementary scalable subsystems optimized throughout the stack.



Services Quality – on all Levels of the Future Internet

Many Opportunities exist for Accelerated Improvement in the IT Service System. A Network of Metrics determines overall Service Quality

F. Client Value: Impact Client Business

Key Metrics: market share, growth and profitability

E. Customer Boundage: Establish a Service Experience Brand

Key Metrics: Customer Satisfaction, Loyalty, Reference-Ability

D. Solution Design

Key Metrics: Cost Accuracy, Plan Risk, Asset Reuse

C. Farm the Base: Request Service, Provision Availibility

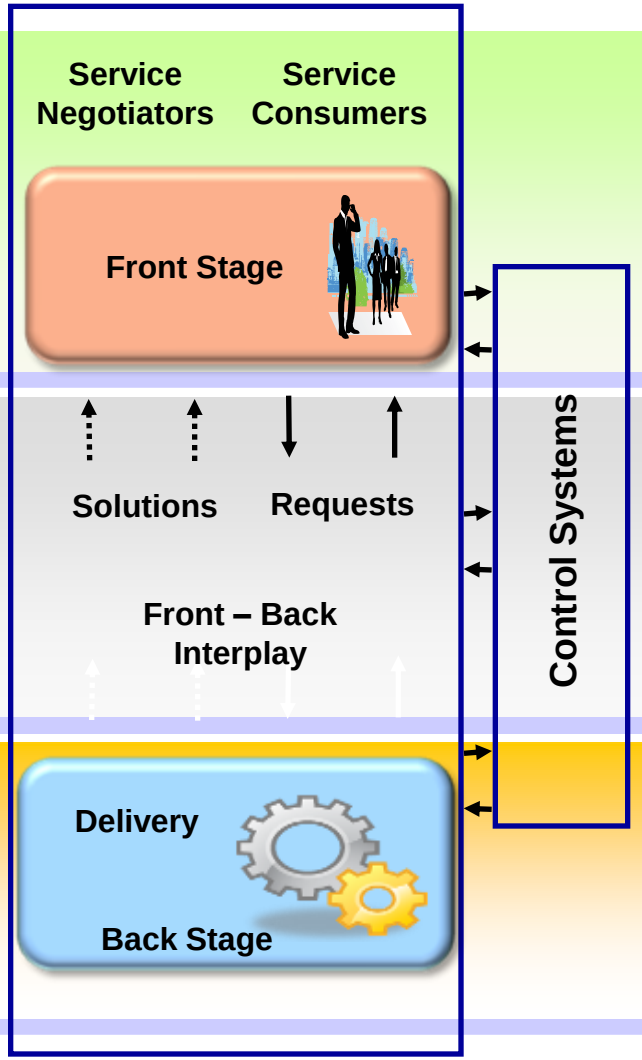
Key Metrics: Response Time, Cycle Time

IT Delivery Learning Systems

B. Preventing Repeated Incidents

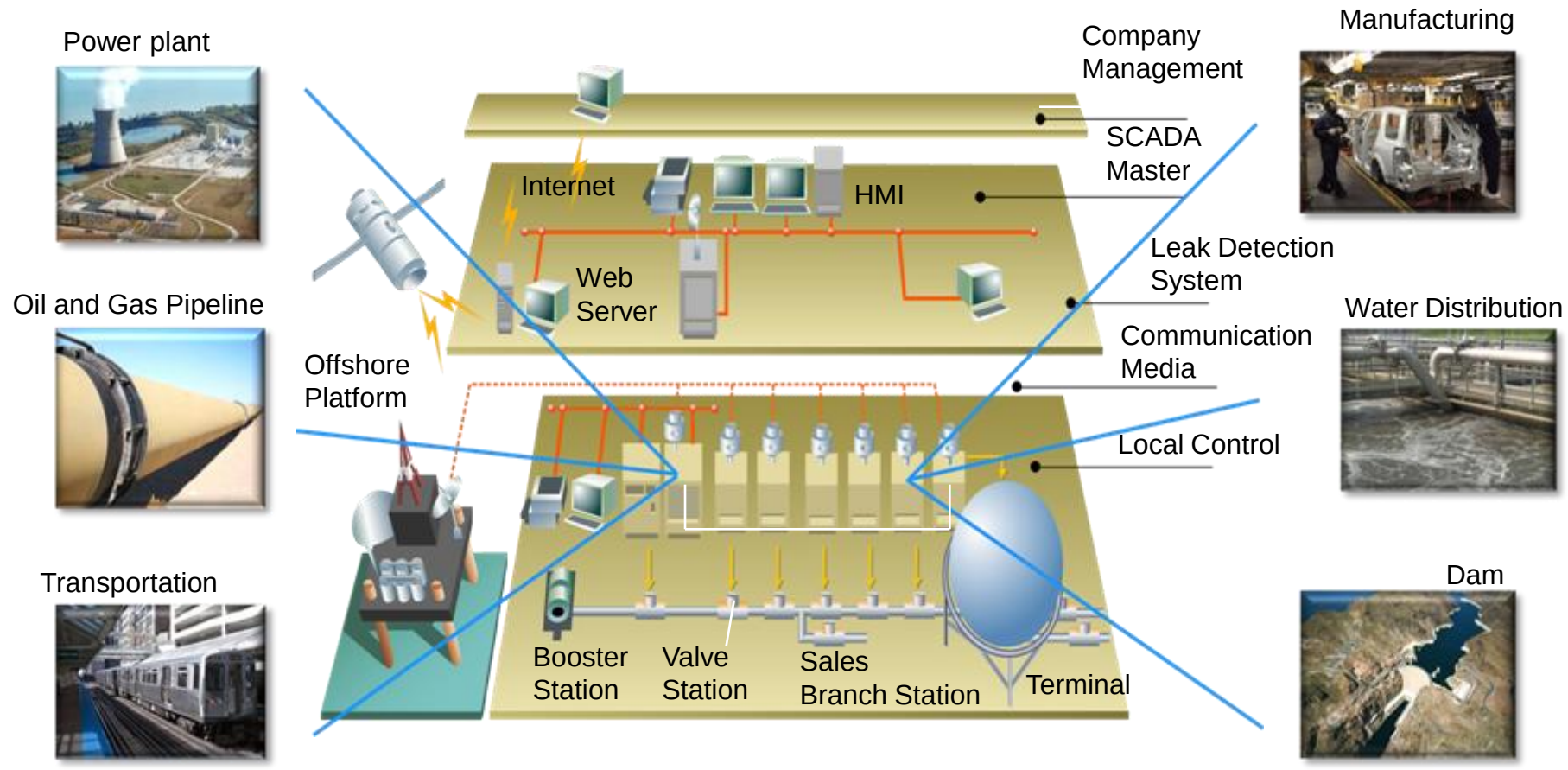
A. Enabling the Circle of Delivery Quality

Key Metrics: Service Availability, Efficiency, Performance, # Defects



Security Issues in a Value Network

Supervisory Control And Data Acquisition (SCADA) has been widely used in various critical infrastructures, providing the first example of multi-tiered containment. The Internet of the future has to be secured like such a business critical infrastructure.



The Argument

Stimulus Investments for an agile Digital Society and Economy in the twenty-first Century must leverage the Elements of modern Infrastructure.

Converging the digital, physical, natural and human Infrastructures will help to achieve smart Information Discovery and Decision Making in any Industry.

The integrated Network and virtualized Computing Power Infrastructure is the essential Foundation of any such globally-integrated Ecosystem and will become the Internet of the Future.