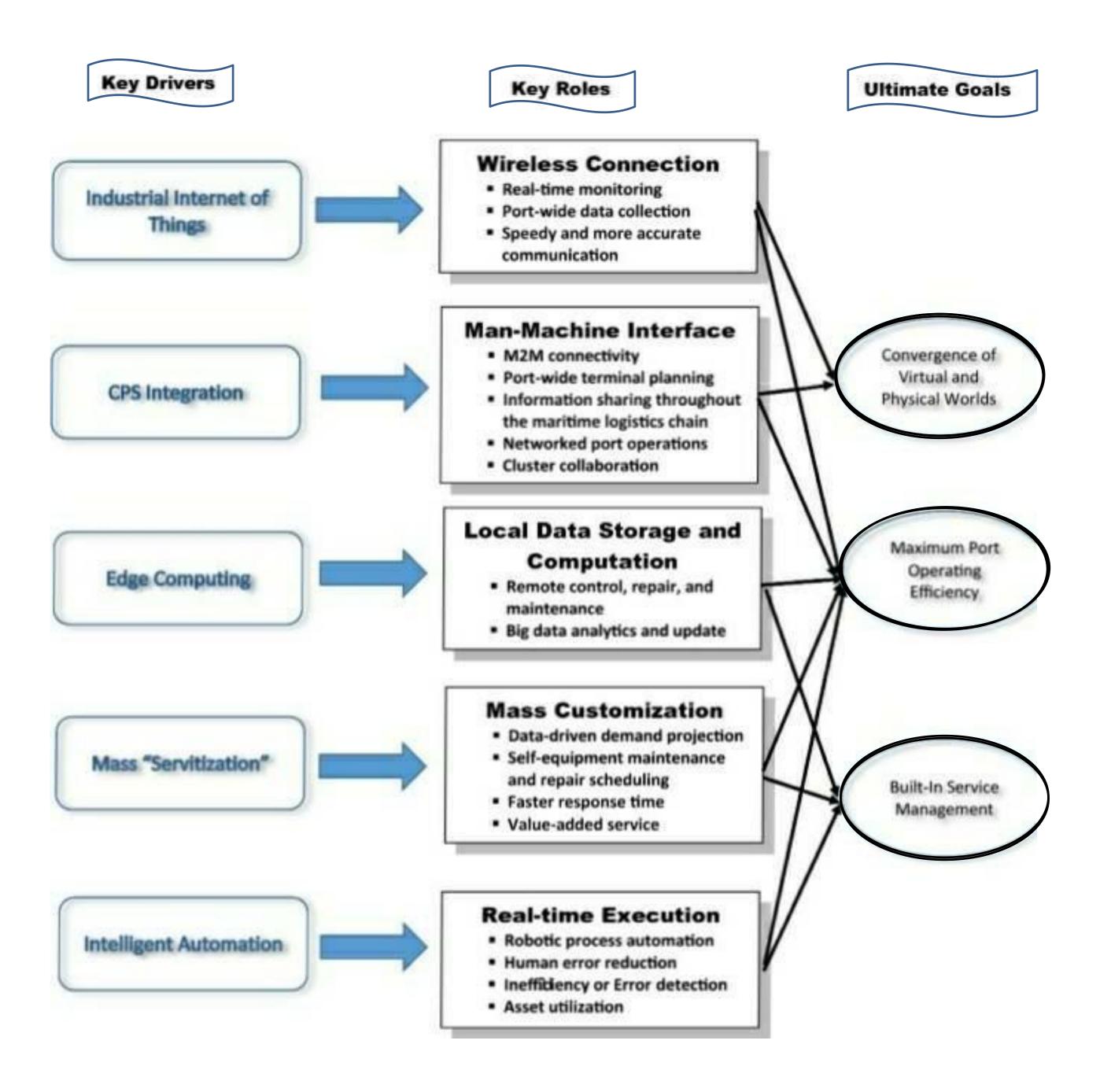Project Title : Traffic and Capacity Analytics for Major Ports
Project Design Phase II : Technology Architecture
Team ID : PNT2022TMID18520



**Key Drivers**

- Industrial Internet of Things
- CPS Integration
- Edge Computing
- Mass "Servitization"
- Intelligent Automation

**Key Roles**

**Wireless Connection**
- Real-time monitoring
- Port-wide data collection
- Speedy and more accurate communication

**Man-Machine Interface**
- M2M connectivity
- Port-wide terminal planning
- Information sharing throughout the maritime logistics chain
- Networked port operations
- Cluster collaboration

**Local Data Storage and Computation**
- Remote control, repair, and maintenance
- Big data analytics and update

**Mass Customization**
- Data-driven demand projection
- Self-equipment maintenance and repair scheduling
- Faster response time
- Value-added service

**Real-time Execution**
- Robotic process automation
- Human error reduction
- Inefficiency or Error detection
- Asset utilization

**Ultimate Goals**

- Convergence of Virtual and Physical Worlds
- Maximum Port Operating Efficiency
- Built-In Service Management

**Port Infrastructures & Stakeholders**

Road
Rail
Bridge
Terminal
Parking
Container
Warehouse
Port Authorities
Shipping Companies

**Enabling Technologies**

Sensors
RFID
IoT
Fog Computing
Cloud Computing
Big Data Technologies

**Smart Port Services**

Port Monitoring
Infrastructure Management
Real-time Navigation
Energy Management
Data Analysis & Predictions
Emergency, Rescue & Security operations

**Smart Port Goals**

Economic Development
Energy-awareness
Efficient Logistics Operations