

Transom

INSIGHT & IMPLEMENTATION

How Top Companies Are Driving Energy Efficiencies To The Bottom Line

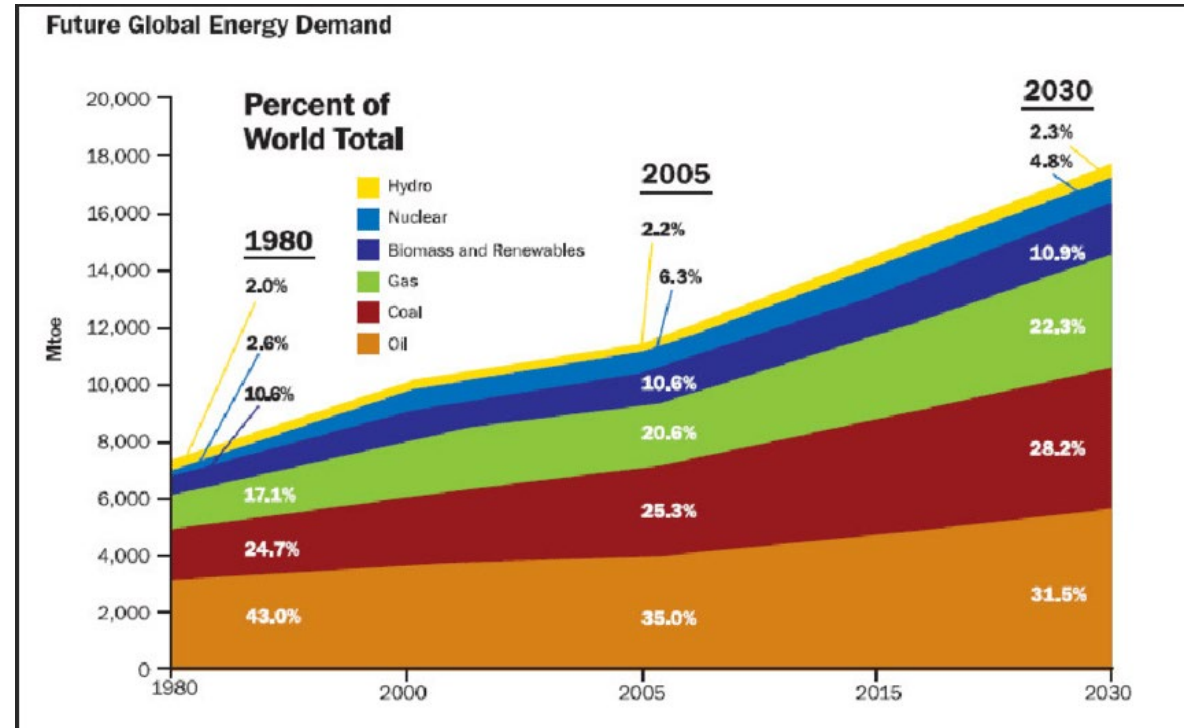
Monitoring and Controlling Automation
Technologies to Improve Operations, Optimize
Costs and Reduce Environmental Impact

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What are some challenges today?

- Growing worldwide demand for energy
- Higher prices
- Scarcity
- Environmental impact associated with conventional sources



Building Management Systems (BMS)

What is a BMS System?

It is a centralized system, designed to monitor and control all the automation technologies involved in the daily operation of a building (or group of buildings). These technologies include:

- ✓ Access Control (RFID Tags, Turnstiles, CCTV, Intrusion Detection Portals, etc.)
- ✓ HVAC Equipment (Cooling Towers, Supply/Extraction Fans, etc.)
- ✓ Water supply systems (Potable, Waste, Process, Gray, etc.)
- ✓ Air supply Systems (Compressed, Vent, etc.)
- ✓ Safety Systems (Fire Detection/Alarm, Fire Protection, etc.)
- ✓ Lighting Control Systems (Production line lighting, exterior, indoors, etc.)
- ✓ Energy Systems (Electrical supply, quality, analytics)
- ✓ Sustainable Systems (Solar, Eolic, Geothermal, etc.)

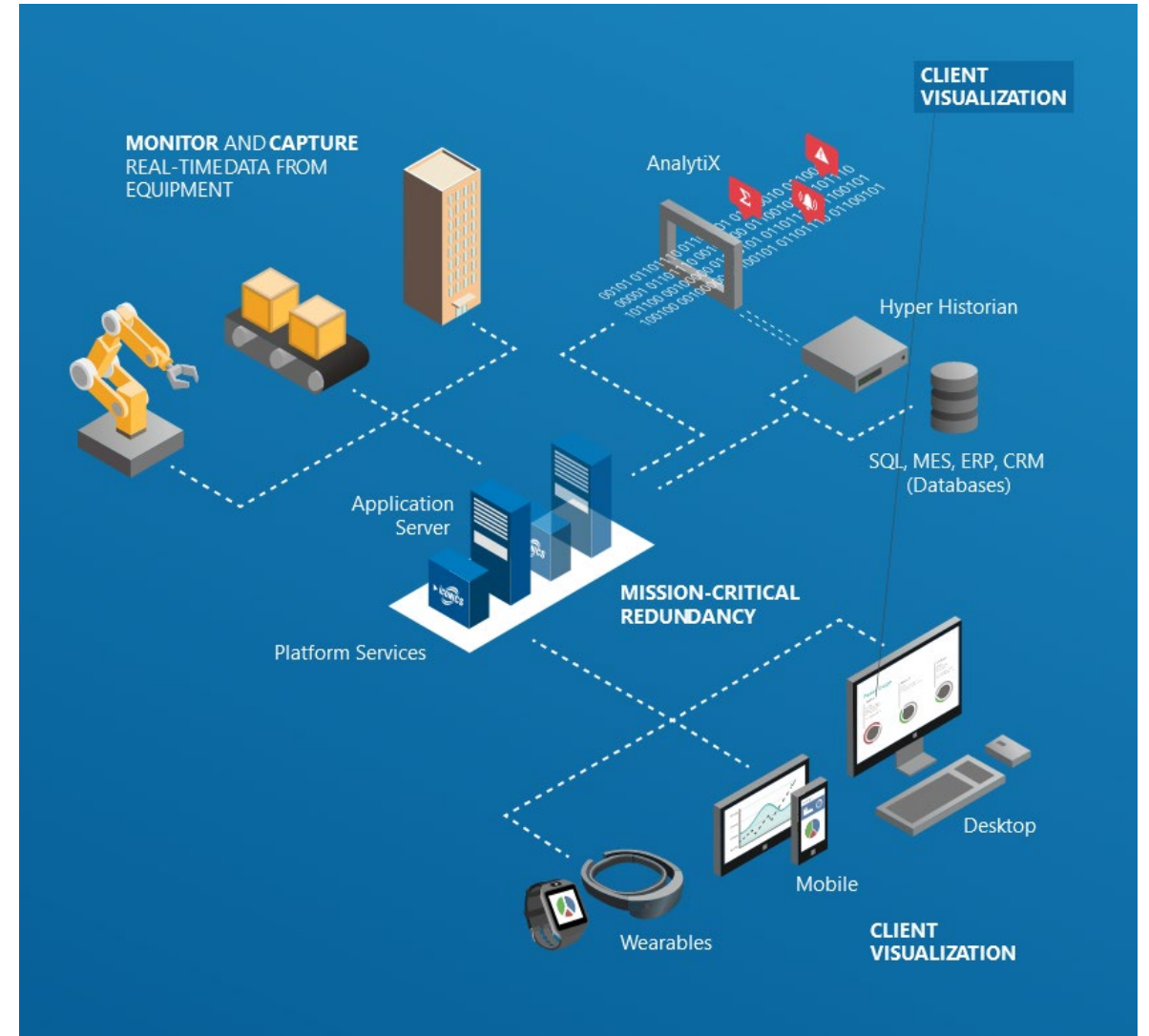


Building Management Systems (BMS)

How does a BMS System work?

All BMS systems feature a Main Computer that contains the SCADA (Supervisory Control And Data Acquisition) system, based on a software solution that connects via an Industrial Network, to all the Distributed Network Locations using Industrial Gateway equipment, and Instrumentation.

The system logs all the data generated by the equipment connected, then process it to create real time information regarding the current status of all the monitored systems.

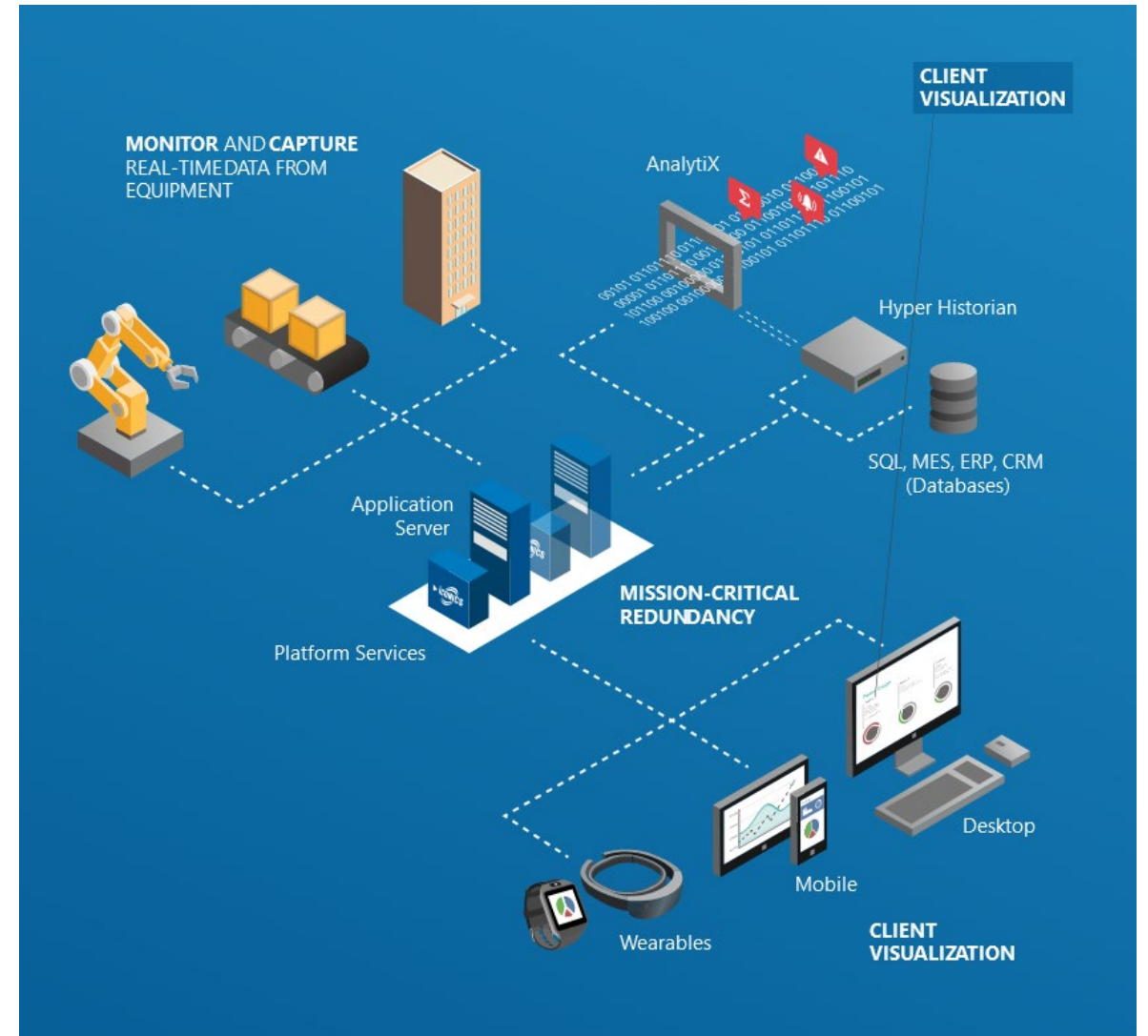


Building Management Systems (BMS)

What is the biggest benefit on a BMS system?

Beyond the immediate purpose of control and monitoring all the building technologies, the true power of a BMS system, is the possibility to optimize each and every one of the resources utilized in the facility, opening the opportunity to generate significant savings and reducing the Environmental Impact of the Facility, in a Local and Global context.

- ✓ Increased production yields
- ✓ Increased profitability
- ✓ Savings in energy expenditure
- ✓ Waste reduction
- ✓ Equipment standardization
- ✓ More reliable operational continuity



Supervisory Control & Data Acquisition (SCADA)



How does the SCADA Work?

SCADA Systems process logged data to create Dashboards and Reports that can help support the Decision-Making process, involved with the resource management operations in the facility.

One of our most important clients on the BMS area, is the BMW Plant in San Luis Potosí, México.

The BMW Case

BMW Global is not only committed to be a Premium Provider of Vehicles, but also to be the most sustainable one as well.

The SLP Plant features one of the most sophisticated BMS systems of the group, and Transom is part of that effort and success, by working hand-in-hand with them on a daily basis, as well as on specific projects aimed at the optimization of the resources used.

They are committed to reduce their Emissions (CO₂), Energy (MWh) and Water (m³) Consumption per Vehicle, increase their sustainability, and maintain profitability at the same time.

**BMW
GROUP**



CW 4
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KEY SUSTAINABILITY INDICATORS

In 2019 the production of a vehicle required on average only half the resources and CO2 as in 2006

5-year overview

| | 2014 | 2015 | 2016 | 2017 | 2018 | Change to previous year in % |
|---|---------|---------|---------|------------------|-----------|------------------------------|
| BUSINESS ACTIVITIES | | | | | | |
| Revenues (in € million) ¹ | 80,401 | 92,175 | 94,163 | 98,282 | 97,480 | -0.8 |
| Profit before tax (in € million) ¹ | 8,707 | 9,224 | 9,665 | 10,675 | 9,815 | -8.1 |
| Sales volume automobiles (in thousand units) | 2,118.0 | 2,247.5 | 2,367.6 | 2,463.5 | 2,490.7 | 1.1 |
| PRODUCTS AND SERVICES | | | | | | |
| CO ₂ emissions of BMW Group Automobiles ² (EU-28) (in g/km) | 130 | 127 | 124 | 128 ³ | 128 | 0.0 |
| Sales of electric and electrified vehicles (number) | 17,805 | 32,474 | 62,264 | 103,080 | 142,617 | 38.4 |
| DriveNow and ReachNow users (number) ⁴ | 395,000 | 579,000 | 853,000 | 1,108,000 | 1,279,000 | 15.3 |
| PRODUCTION AND VALUE CREATION | | | | | | |
| Energy consumption per vehicle produced (in MWh /vehicle) | 2.25 | 2.19 | 2.21 | 2.17 | 2.12 | -2.3 |
| Water consumption per vehicle produced (in m ³ /vehicle) | 2.18 | 2.24 | 2.25 | 2.22 | 2.39 | 7.7 |
| Process waste water per vehicle produced (in m ³ /vehicle) | 0.47 | 0.45 | 0.42 | 0.40 | 0.45 | 12.5 |
| CO ₂ emissions per vehicle produced (in t/vehicle) | 0.66 | 0.57 | 0.54 | 0.41 | 0.40 | -2.4 |
| Waste for disposal per vehicle produced (in kg/vehicle) | 4.93 | 4.00 | 3.51 | 3.86 | 4.27 | 10.6 |
| Volatile organic compounds (VOC) per vehicle produced (in kg/vehicle) | 1.29 | 1.22 | 1.14 | 1.03 | 0.93 | -9.7 |
| Share of renewable energy purchased from third parties (in %) ⁵ | 51 | 58 | 63 | 81 | 79 | -2.5 |
| Share of production-relevant purchasing volume in the CDP Supply Chain Programme (in %) | 45 | 53 | 69 | 77 | 75 | -2.6 |

Key Transom Interventions at BMW SLP Plant

- Maintenance and support of the BMW Building Management System for all the SLP Campus.

- Installation, integration, monitoring and control of
 - ✓ Access Control (RFID Tags, Turnstiles, CCTV, Intrusion Detection Portals)
 - ✓ HVAC Equipment (Cooling Towers, Supply/Extraction Fans)
 - ✓ Water supply systems (Potable, Waste, Process, Gray)
 - ✓ Air supply Systems (Compressed, Vent)
 - ✓ Safety Systems (Fire Detection/Alarm, Fire Protection)
 - ✓ Lighting Control Systems (Production line lighting, exterior, indoors)
 - ✓ Energy Systems (Electrical supply, quality, analytics)
 - ✓ Environmental (Humidity, temperature, dew point)

Our Clients





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