The Future of Building Energy Management

Next generation solutions driven by the convergence of technology and competition

The role of smart buildings in sustainable procurement

9 July 2013
Mega Trend: 
Smart is the New Green
Smart Cities
Smart Technology
Smart Infrastructure
Smart Energy
Smart Mobility
Smart Buildings
Smart Windows
Smart Clouds
Smart Materials
Smart Bandages
Smart Factory
Smart Meters

Frost & Sullivan
Energy & Environment
Top 10 Technologies and Markets to Watch for in 2020

Top 10 Markets of the Future

Source: Frost & Sullivan
The Smart Building Spectrum

1. Automation
   - Connectivity
   - Comfort
   - Energy Cost

2. Integration
   - Measurement
   - Control
   - Optimisation
   - Environmental Cost

3. Intelligence
   - Digital Infrastructure
   - Information
   - Mobility
   - Sustainability
   - Safe Cities

Source: Frost & Sullivan
Smart Concepts and the Key Enablers for Growth
Smart Technology within Buildings, Grids and Cities

1. Smart Building
   - Key Features:
     - Fully automated 'digital' buildings
     - Continuous 2-way communication
     - Micro-generation
     - Demand response
     - Smart materials
     - Fully integrated building controls
   - Growth Enablers:
     - Open architecture
     - Advanced building design
     - Software tools
     - Analysis & reporting
     - Connectivity of devices
     - Networks of ubiquitous sensors

2. Smart Grid
   - Key Features:
     - Optimised use of capacity
     - Advanced metering infrastructure
     - Integrating renewables
     - Digital intelligence
     - Remote control
     - Micro grids
     - Virtual power plants
   - Growth Enablers:
     - Smart metering
     - Drive from utilities
     - Regulation
     - Energy price signals
     - Energy storage
     - Integrated communications
     - Sensing & measurement

3. Smart City
   - Key Features:
     - Inter-connectivity between buildings and communities
     - Virtual consumers
     - Shared efficiency gains
     - Smart service delivery (safety, health, education etc.)
   - Growth Enablers:
     - Optimised use of capacity
     - Advanced metering infrastructure
     - Integrating renewables
     - Digital intelligence
     - Remote control
     - Micro grids
     - Virtual power plants

Source: Frost & Sullivan.
Energy Management: Progression Towards Smart Solutions


Evolution of Energy Management Markets


Sources: Frost & Sullivan

Emergence of Smart & Intelligent Technology


Source: Frost & Sullivan
Building Energy Management ..... Multiple Convergence

Source: Frost & Sullivan
Building Energy Management
Examples of growth in European Market Segments

Performance Contracting
- High growth market
- Customer preferred business model
- Partnerships and alliances are key trends for offering end to end solution
- FM companies see the opportunity to lead

BEMS: Revenue Forecast
Europe, 2008–2018
CAGR = 15.3%

Mid-range systems gaining momentum and the market is rapidly heading toward mainstream commercialization
Data interpretation rather than data analytics is a key priority for end users
New business models are being introduced combining BEMs with EMS

Source: Frost & Sullivan
Building Technologies: Key Areas to Get Smart

Commercial Applications:
- Fire & Safety
- Functional Equipment
- Lighting
- Emergency Lighting
- Notification & Alarm
- HVAC
- Building Management

Residential Applications:
- Metering
- Solar BIPV
- Solar Thermal
- Window Treatment
- Home Automation
- Heat Pumps

Services:
- Facilities M’ment
- Performance Contracting
- eEfficiency Consulting
- Bundled services
## Conclusions

1. **Energy will never be cheap again**

2. **Sustainable procurement is more relevant than ever – Green and smart are converging**

3. **Integration and connectivity are driving sustainability by allowing buildings to be managed by actionable data**

4. **Successful suppliers will be those that combine green performance with smart functionality**

5. **The key challenge for suppliers is to innovate with business models – Customers can drive this**

Source: Frost & Sullivan analysis.