Future Cities Made Real - Efficient, Liveable, Sustainable.

James Anderson, VP Smart Cities

Team Florida, January 2013
Schneider Electric – the global specialist in energy management

22.4 billion € sales (last twelve months)

39% of sales in new economies (last twelve months)

137 000+ people in 100+ countries

4–5% of sales devoted to R&D

Balanced geographies – FY 2011 sales

Diversified end markets – FY 2011 sales
The Global Energy challenge...

Cities today...

- Earth’s surface: 2%
- World population: 50%
- Global energy consumption: 75%
- Global CO₂ emissions: 80%

...and by 2050

- World population: 70%
- Years to double the urban capacity: 40

...will take place in Cities

Years to double the urban capacity developed over the past 4000 years
As cities grow, so do their challenges…

Scarcity of resources
Aging and overloaded infrastructure
Traffic congestion
Environmental targets & pollution
Crimes

Reduce costs & manage debt
Attract global investment, jobs, talent

…of long term sustainability!
Cities need to become smarter
Urban efficiency delivers liveability and sustainability

- Increasing competitiveness
- Delivering clean, connected growth
- Improving attractiveness for residents, citizens and visitors
- Becoming a better place to live, work and play
- Improving the efficiency of the city’s underlying urban infrastructures
- Improving public services: schools, safety, transportation…
- Creating jobs

Cities need to become smarter for...
5 steps to ‘smart’

1. Set the vision: an efficient + liveable + sustainable city.

2. Combine hardware + software solutions to improve the efficiency of urban operating systems.

3. Bring in integration to improve overall city efficiency (operation & information).

4. Add innovation to make a holistic sustainable future a reality.

5. Drive collaboration between best-in-class global and local players across the whole Smart City value-chain.
6 areas of infrastructure...

- **Smart Energy**
  - Smart Grid Automation & Flexible Distribution
  - Smart Metering Management & Demand Response
  - Renewables Integration & Micro Grid
  - Real-Time Smart Grid Software Suite
  - Gas Distribution Management

- **Smart Mobility**
  - EV Charging Infrastructure & Supervision Services
  - Traffic Management
  - Tolling & Congestion Charging
  - Integrated Mobility
    - Public Transit
    - Traveler Information

- **Smart Water**
  - Distribution Management & Leak Detection
  - Power, Control & Security Systems integration
  - Stormwater management and Urban Flooding

- **Smart Public Services**
  - Public Safety
    - Video Surveillance
    - Emergency management
  - Digital City Services
    - eGovernment
    - Education
    - Healthcare
    - Tourism
  - Street Lighting management

- **Smart Buildings & Homes**
  - High-performance Buildings*
    - Energy Efficiency & Security solutions
    - Energy Services
  - Efficient Homes
    - Home Energy management
  - Connection to the Smart Grid

- **Smart Connections**
  - Power, Security, Building, IT, & Process Management Systems integrated Architecture
  - Integrated Mobility Management Platform
  - Security Systems & Management
  - Energy & Environment Management Information System
  - Weather Intelligence

* Hospitals, industrial facilities, datacenters and commercial buildings
Mobility Challenges - By the Numbers

34 hours of delay per commuter per year
(14 hours more than 1982)

$100 billion cost of delay per year
($750 per commuter and growing; by 2015 will be $133B total and $900 per commuter)

40% of total delay outside of “typical rush hours”
(making it harder to avoid congestion)

Source: 2011 Urban Mobility Report, Texas Transportation Institute

By 2050, cities will be home to an astounding 70 per cent of our population, necessitating more urban infrastructure.
Smarter Mobility Solutions

Key Benefits

**Better City Management**
Better management of multi-modal transit network and increased resiliency to disruptions

**Increased Sustainability**
Reduction of traffic congestion, increased public transit use & lower emissions

**Improved City Services**
Better transit information and facilitation of easier travel across modes of transport

Solution Categories

- Traffic Management
- Electric Vehicle Charging Infrastructure
- Tolling & Pay-As-You-Drive
- Traveler Information
- Transit Management
Multi-Agency Collaboration

> Smarter Cities; Smarter Communities; Smarter States
> Mobility management is inherently multi-agency
> Collaboration is better than centralized control
> Areas of Responsibility – fixed & dynamic
> Work Flow Management for optimal group decision making & response
Proactive Mobility Management

Operational Strategies based on Regional Goals & Policies

- Arterial Management
- Expressway Management
- Public Transport Priority Management
- Predictive Analytics
- Traveler Information Dissemination
- Managed Lanes: HOV HOT ATM
- Weather Forecasts & Air Quality Alerts

Performance Monitoring for Optimal Results
Business Intelligence – Dashboards

> Real-time status & trend data – visible to all
> Can only manage what you can measure
> Continuous improvement in key performance indicators (KPIs)
> Optimal use of limited resources
Integrated Corridor Management

• The integrated management of freeway, arterial, transit, and parking systems within a corridor

• Management of the corridor as a system, rather than the more traditional approach of managing individual assets
US 75 Corridor Networks

- Freeway with continuous Frontage Roads
- Managed HOV lanes
- Dallas North Tollway
- 167 Miles of Arterials
- DART Bus Network
- DART Light Rail
- 900 Signals
- Multiple TMCs
- Regional ATIS
ICM Strategies

● Advanced Traveler Information (all scenarios)
  ▪ Better pre-trip, en-route, and multi-modal information

● Route Diversion Strategy (minor incident)
  ▪ Diverts traffic to parallel frontage roads

● Route Diversion Strategy (major incident)
  ▪ Diverts traffic to frontage road and strategic arterials

● Mode Diversion Strategy (major incident)
  ▪ Diverts travelers to DART Red Line

● Combined Route and Mode Diversion Strategy
  ▪ Diverts travelers to frontage roads, strategic arterials, and DART Red Line
ICM Applications

- Responsive Traffic Signal System
- Arterial Street Monitoring System
- Third Party Data
- Transit Signal Priority
- Parking Management
- Real-Time Transit Vehicle Information
- Freeway & HOV Systems
- Weather
- SmartNET
- Decision Support System
- 511
Smart Cities is not a concept – it is about urban efficiency, and it is happening today.
Make the most of your energy™