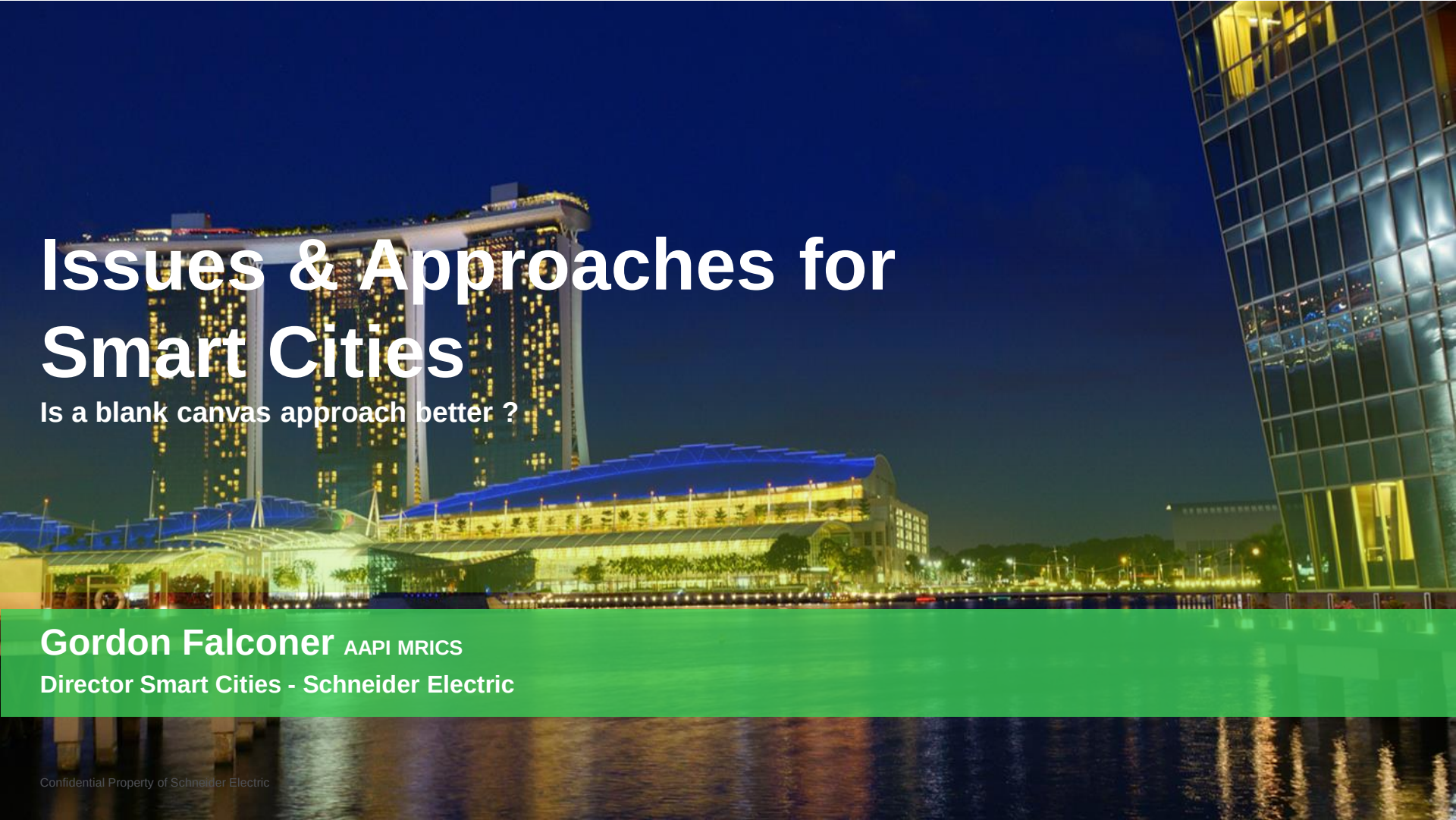




Issues & Approaches for Smart Cities

Is a blank canvas approach better ?

Gordon Falconer AAPI MRICS
Director Smart Cities - Schneider Electric

Schneider in Smart Cities

Life Is On

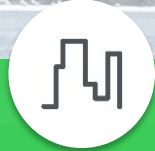
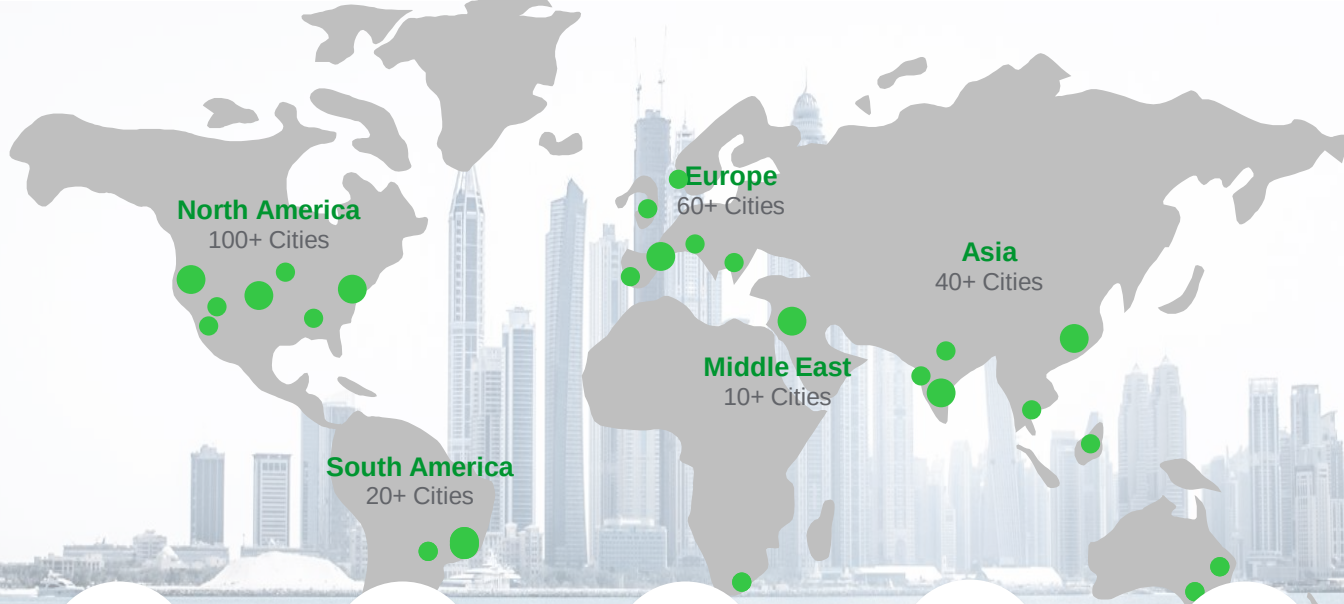




Schneider Electric has delivered more than **thousands** of successful **smart city** projects in **250+** cities worldwide

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Electric



-30%

reduced energy
consumption in
buildings



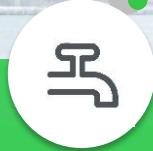
10X

more efficient
electrical
vehicle charging



-40%

energy savings
through smart
infrastructure



-15%

reduction in
water losses



-20%

reduction in
traffic delays



-62B€

potential reduced
spending on **data**
center electricity



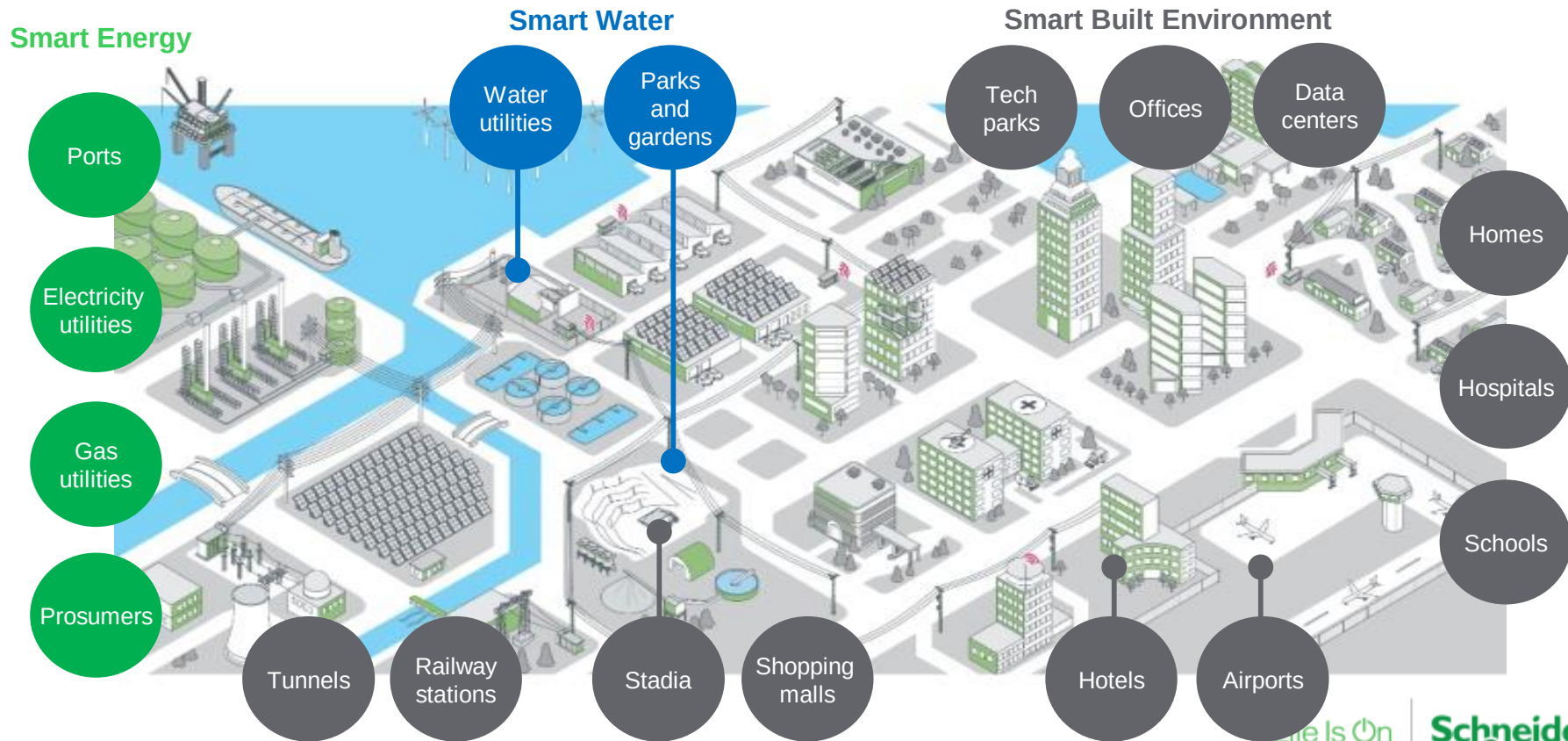
-15%

Reduction in
operations
staff hours

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Schneider Electric Smart City solutions in all areas of cities



Smart Cities

Life Is On

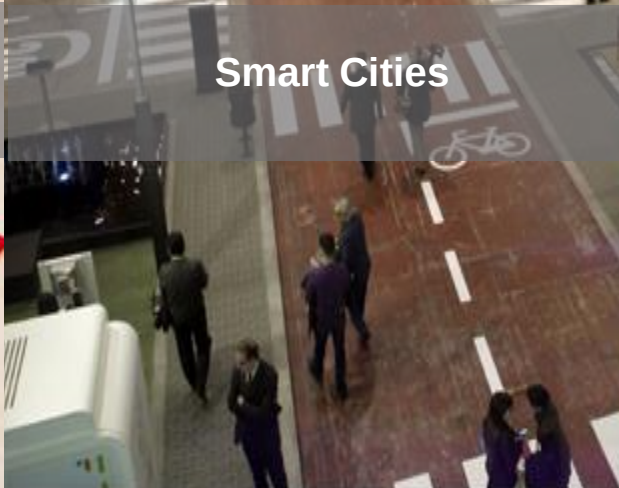




Green & Eco Cities



Smart Cities



Creative Innovative
IoT Cities





2015
Google
'smart cities'
52,200,000
results

2012
Google
'smart cities'
9,210,000
results

2011
Google
'smart cities'
375,000
results

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Electric

Topics: Innovation and R&D

GAO: Agencies having trouble implementing green building initiatives

SHARE



Email

Federal agencies are having trouble implementing the green building standards ordered by the Obama administration, says a July 23 Government Accountability Office report.

Mayor Boris challenges London businesses to slash energy use

Annual Business Energy Challenge aims to encourage firms across the capital to cut their carbon emissions



Guardian sustainable business In the shadow of the BRICs

Can India lead on green buildings, clean energy and corporate sustainability?

ARCHITECTURE

The Challenges of Greener Cities

11.12.14

A major theme throughout the presentations was the need to debunk the idea that sustainability is separate from—and an added expense in—architecture and planning.

“If [sustainability] is done properly and you consider it as an integral process, there is no additional expense for having a highly sustainable building,”

explained [Gordon Gill](#), M.Arch '93, a founding partner of Adrian Smith + Gordon Gill Architecture.

Government level – economic growth & quality of life

Growing Pains – The Challenges Of Smart City Initiatives

10th October 2016 | Category: Commercial, Companies, Industrial, News, People, Sponsored Article, Sustainability, Technology | Staff Writer



15       

By Niall Cunningham, WSP | Parsons Brinckerhoff Principal Development Management



India releases list of 98 'Smart City' candidates

Private Sector – Image, differentiation, costs

Improving infrastructure allows cities to drive their unique agenda

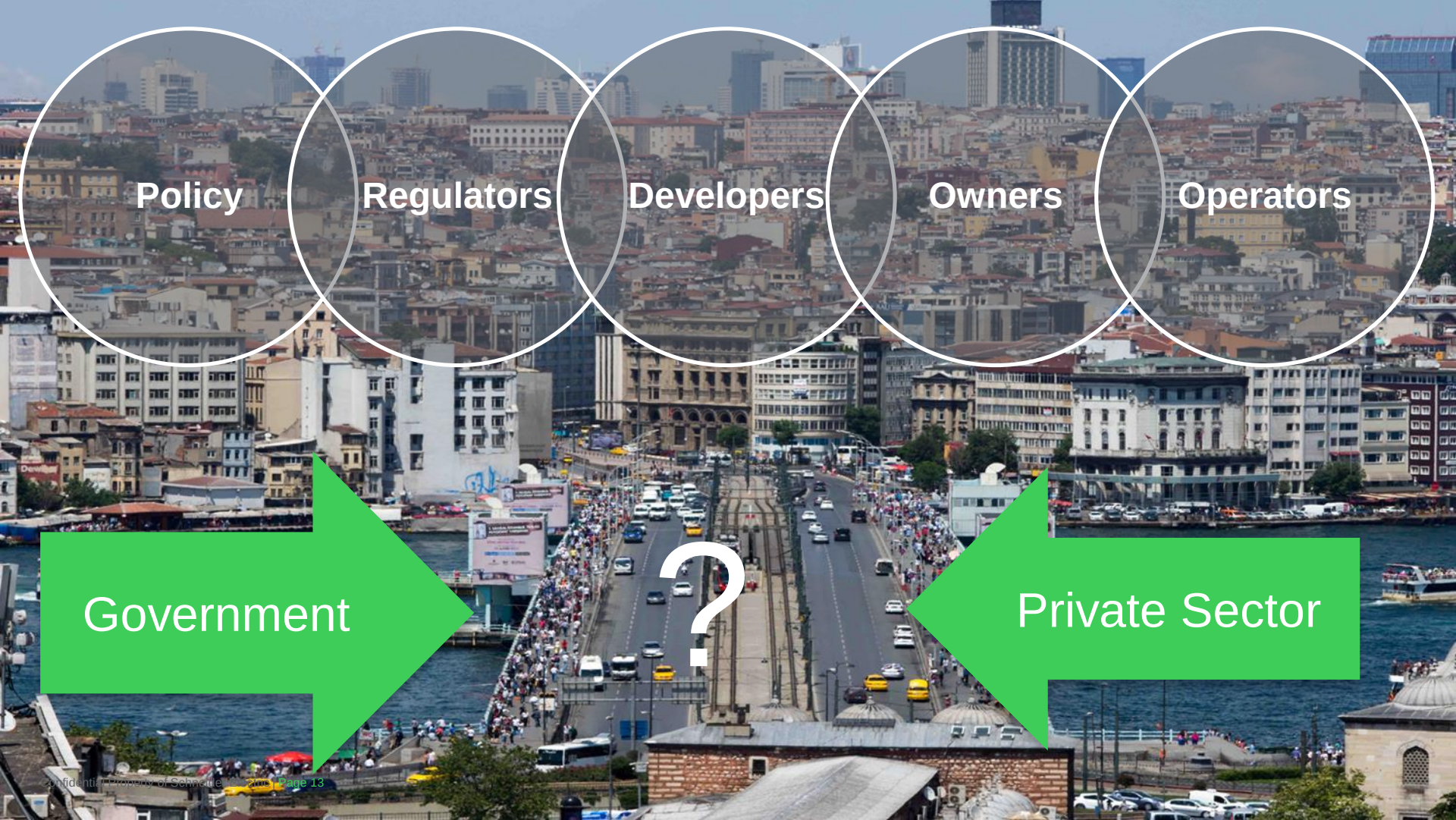


Reality



Vision





Policy

Regulators

Developers

Owners

Operators

Government

?

Private Sector

Cities are by nature very complex

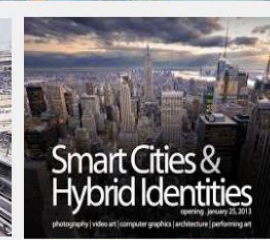


Multiple influences

Greenfield Smart Cities

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Approaches

- Design Led
- Government Led
- Aspirational
- Private Sector
- Economic Focus (FDI)
- Real Estate Focus ?



Masdar City



Building Design
Energy efficient

-56%



Energy Generation
Renewable

-24%



Transportation
Electric/Solar

-7%



Recycling
Waste to energy

-12%



Carbon offsetting
Carbon Sequestration

-1%

= Carbon Neutrality

Conventional City



Building Design
Conventional

80%



Energy Generation
Oil and Gas



Waste
Landfill

13%



Transportation
Fossil Fuel

7%

= 1,100,000 Tonnes CO₂



© 2011 Bloomberg



Greenfield city issues globally

STARTING OUT

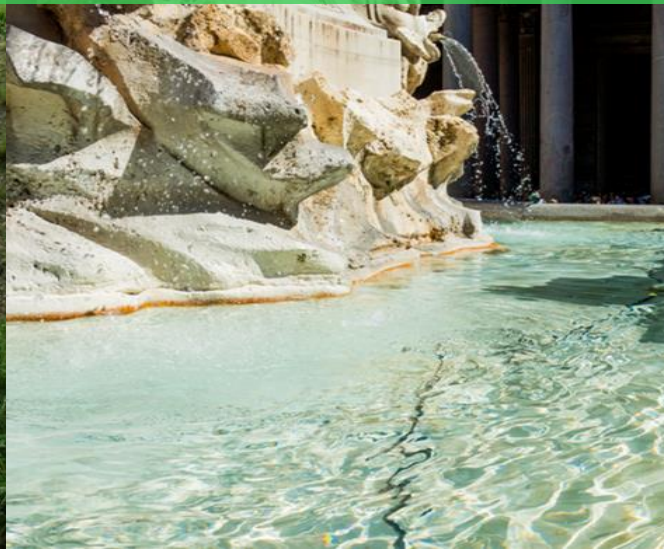
- Stakeholder alignment
- Too much design focus
- One Vision vs Many
- Too fast

DESIGN

- Infrastructure integration
- Real estate fundamentals
- Timing & Phasing
- Design integration

OPERATIONS

- Governance / Operational
- PPP / Models
- FDI over reliance
- Capabilities / Resources



Existing Smart Cities

Existing Cities approaches



- Bottom Up / Top Down
- Smaller scale
- Greenfield
- “Precinct” developments
- Government driven
- regeneration opportunities
- Single focus areas

Singapore – Smart Nation

- Smart Nation Policy
- PMO setup
- Multiple agency imitative
- IDA Smart Nation Master-plan
- Living Lab approach
- Sensor networks, smart parking, grey water recycling
- Used as an economic driver as well as quality of life



Barcelona

- Multiple initiatives
- @22 District
- SCADA networks, smart parking, electric vehicle charging, elderly care initiatives
- PPP approach
- City Protocol Society created
- Overseas delegations
- Used as an economic driver as well as quality of life





The Edge, Deloitte Amsterdam, Netherlands

BREEAM-NL “Outstanding” building features
SmartStruxure™ Solution backbone and more

Customer Challenge

- Implement a single IP backbone for all building ecosystems with the ability to track and manage data analytics
- Employees control room comfort with a third-party smartphone app

The Solution

- SmartStruxure™ solution BMS
- Power Monitoring Expert
- Electrical distribution and field devices

Customer Benefits

- Connectivity
- Sustainability
- Simplification

The Results : Life is On with...

98.36%

BREEAM-NL rating,
the highest score ever awarded



“Sustainability is about more than a great BREEAM rating. It is also about a building’s overall comfort and efficiency for its occupants, so that they can operate with ease in a productive and healthy environment.”

-Coen van Oostrom
-Founder and CEO of OVG Real Estate





<https://www.youtube.com/watch?v=4HnqI6b3ywl>



Existing Cities Challenges

- Complex policy, regulatory, financial and organizational environment
- Detailed value case not articulated
- Insertion points for technology in smart cities not clear to all
- Lack of public sector funding places over reliance on private sector to fund public infrastructure
- Limited resources, skills & capabilities
- Over focus on big data

Technology in Smart Cities

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HITACHI

ABB

Microsoft

ORACLE®

Schneider
Electric

IBM

Capgemini



accenture

TOSHIBA

SAP®

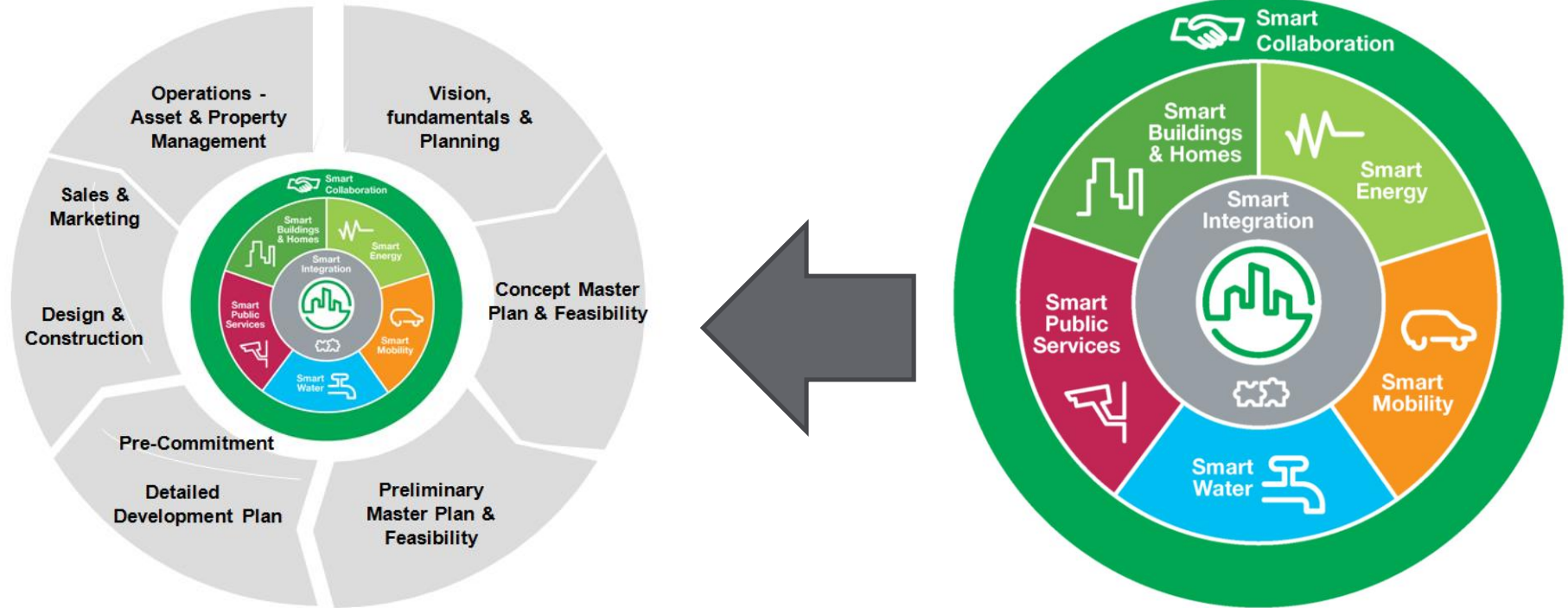
CISCO™

SIEMENS

Atos



Smart City Visions need to be integral to the City

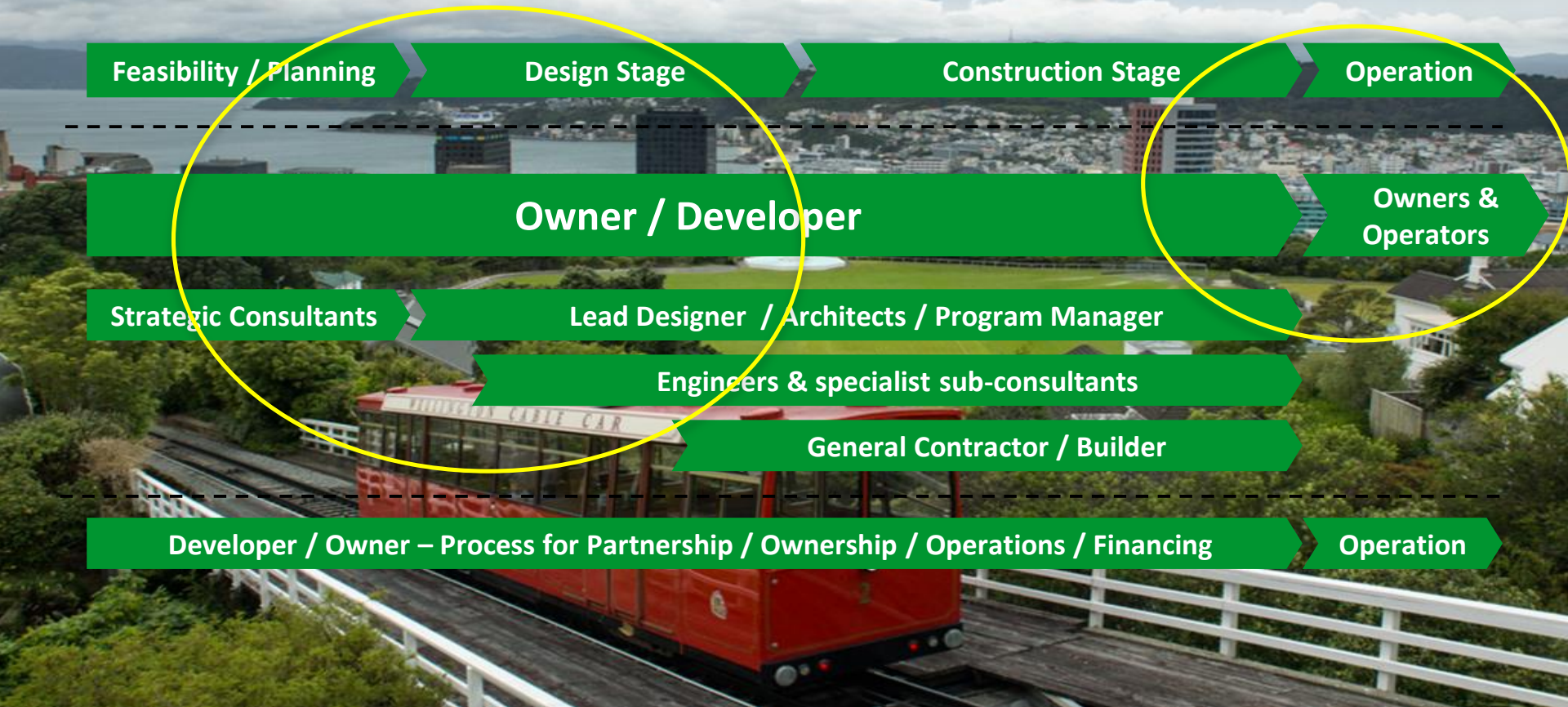


Becoming integrated is the challenge

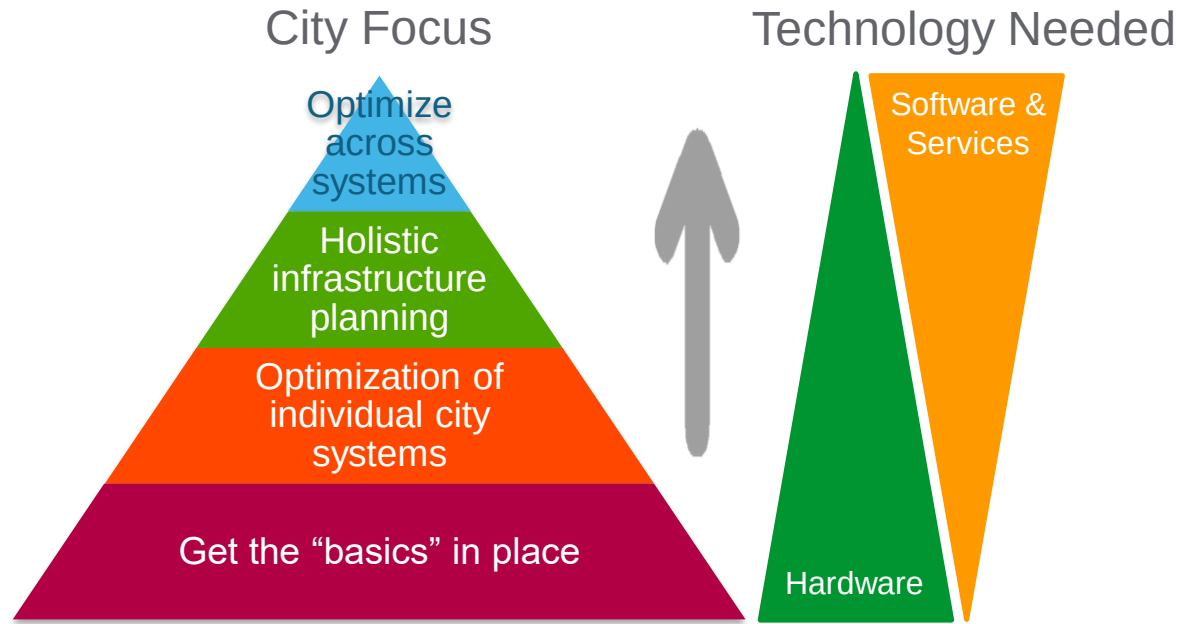
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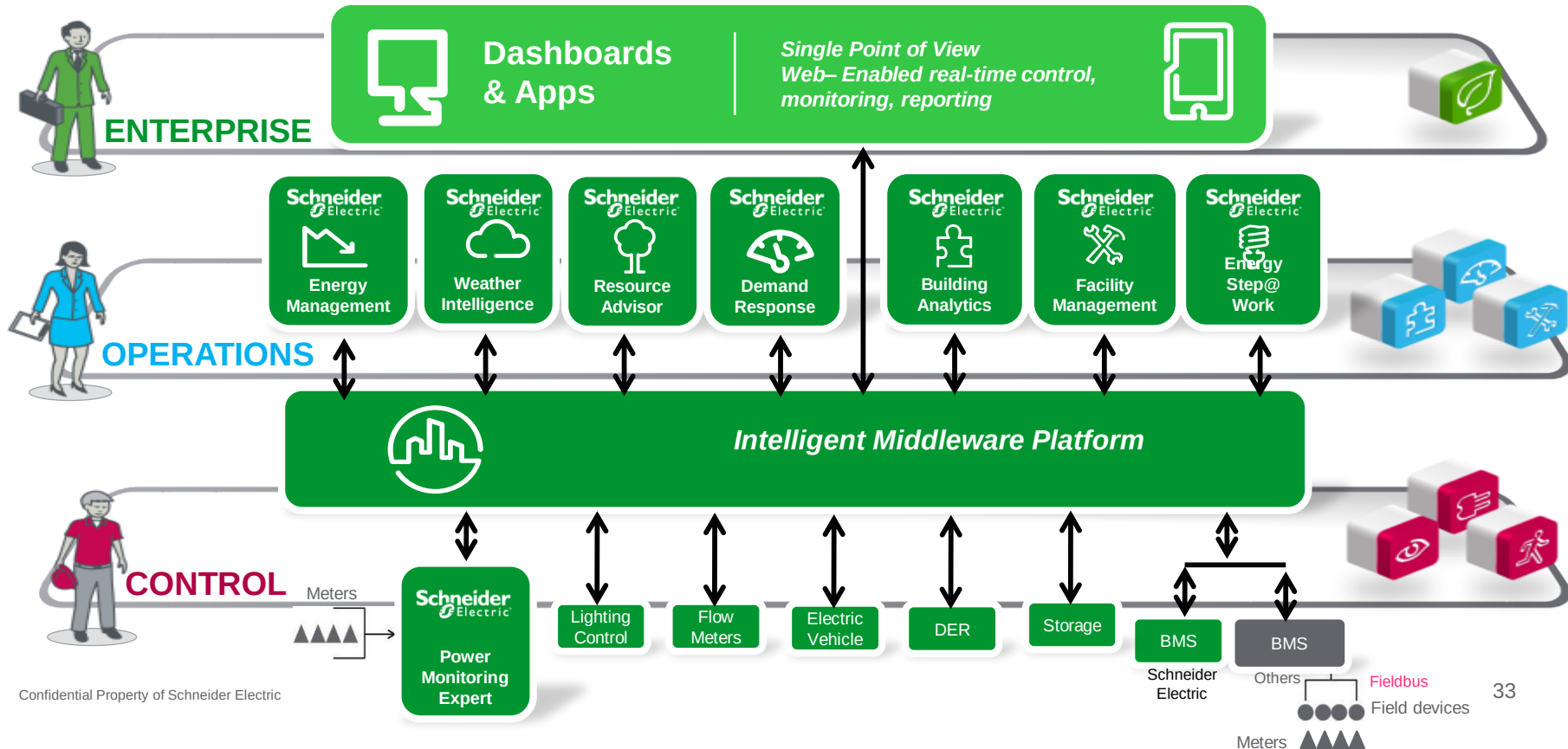
Where & When to insert smart city tech ?



As cities become “smarter” they have a greater need for solutions combining advanced software and services as well as hardware



Smart City ICT and Energy design is integral to the City



Summary

Smart Cities issues

- Smart City development is new, complex & technology role unclear
- Lack of “smart city” experience by government and private sector
- “Design led” or “vision led” too often
- Technology / solution providers do not understand development
- Developments with utilities & infrastructure adds complexity
- Fundamental real estate drivers often ignored
- Asset ownership (asset bundles), funding, delivery and operational models complex and impact design
- Over reliance on PPP models for funding



How to Move Forward

POLICIES

- Adopt an overall vision
- Future design of smart cities
- Influence developers of infrastructure

PROGRAMMES

- Integrated programmes
- Tech impact on new business models
- Integrate the silo

PROJECTS

- Well planned projects
- Integrated approach with private sector
- Clear business models



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