Strategies for Smart Building Realisation

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Agenda

- Introduction & context
- Prelude to the paper
- Importance of strategic concepts
- Thematic strategies
- Constraints and opportunities
- Wider implications
- Conclusions
Arup
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Drivers of Change

Economy
more for less,
knowledge working
improving commercial advantage
innovation

Environment
global warming
resource efficiency
social conscience

Technology
advancing technologies
integration within business
integration with construction
What do developers & agents want?

How “responsive” and “smart” does a building have to be to satisfy the demands of users and technology?

Buildings consume a lot of energy....What about sustainability and climate change?

...what benefits will the next generation of buildings offer its occupiers and how much will they cost?
Buildings consume 40% of worldwide energy and produce 21% of greenhouse gas emissions.

**Energy consumption**
- Buildings: 41%
- Industry (direct): 28%
- Industry (indirect): 13%
- Transport: 31%

**Mix of CO₂ emissions**
- Buildings (direct): 8%
- Buildings (indirect): 13%
- Industry (direct): 22%
- Industry (indirect): 11%
- Agriculture and Waste: 18%
- Transport: 14%
- Forestry: 14%

Prelude to the paper

- What is ‘Smart’ – can we define it?
- Why bother, what’s in it for you and me?
- No consensus among stakeholders
- Difficult multidisciplinary interfaces
- Timing of smart design – too early or too late?
- Standards, best practice codes, are there any?
- Emerging maturity, co-operation, buy-in

“The apparent lack in understanding or appreciation of the value structures that frame the concepts for smart buildings has seeded the need for further debate.”
Technology convergence

Technology and the Connected Community

- Smart Buildings
- BIM, 3D Modelling
- Augmented Reality
- Cashless Smart cards
- Geo tagging
- Business
- Campus & public realm
- Transportation
- Infrastructure / security

Convergence and IP

1gIP
Voice
Data
Video

2gIP
Presence Awareness
Collaboration
Unified Comms

3gIP
Real-Time Multimedia

The 90’s

The 00’s

Wireless IP, mobility anytime-anywhere applications 2010......

Process Centric
Improving business

Device Centric
Improving infrastructure

Can we define a Smart building?

“An intelligent building provides a responsive, effective and supportive environment within which an organisation can achieve its business objectives”

Source: IB Asia
How do you spot a smart building?
Importance of strategic concepts

- ‘Smart’ in the context of business need
- Where is ‘Smart’ within FM / Ops / Logistics?
- Does ‘Smart’ have a lifespan? Should it be refreshed?
- Who invests and who benefits?
- Planning and a plan
- Commissioning a Design brief

“Achieving a common consensus across all markets for what ‘smart’ means will therefore be difficult unless of course one has a more holistic view and somewhat generic attitude to broaden the definition.”
Integrating **People > Process > Place**
Route to a ‘smart’ strategy

SMART

DRIVERS

ADAPTABILITY

INTELLIGENCE

ENTERPRISE

MATERIALS AND DESIGN

© Alex Buckman, “What is a Smart Building”, 2012

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Thematic strategies

- Thematic thinking sharpens focus
- Parallel themes help to prioritise
- Think high impact interventions
- Top level ‘Themes’
- Formulate a strategy
- Communicate and champion the strategy

Top level themes “efficiency, sustainability or rich experience”
Constraints and opportunities

- Diffused responsibilities
- Integration between systems
- Co-ordination between trades
- Managing expectations
- Construction and supply chain management
- The value story, delivering and proving it!
Conclusions

- Generic definition of ‘Smart’; understood by all
- Thematic requirements, value story, budgets, plan
- Start at pre-concept, feasibility; ‘smart’ is not the last trade within construction!
- Zero sum or positive sum justification
- Collaborative task force, joined-up operations

Thank you

feedback contributions

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