Delivering Long-Term Building Performance: A User-Centred Approach.

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Introduction

- The delivery of ‘sustainable built environments’ largely (but not exclusively) focused on near-term regulated energy;
- As regulated energy reduces, unregulated energy becomes proportionately more important, this has performance implications;
- Occupant behaviour can have a significant impact on building performance and in turn buildings can have a significant impact on occupants health, wellbeing and productivity;
- Climate change is likely to have further building performance impacts;
- Need for consideration of long term performance in order to deliver sustainable built environments.

Long-Term Building Performance

Building performance is:

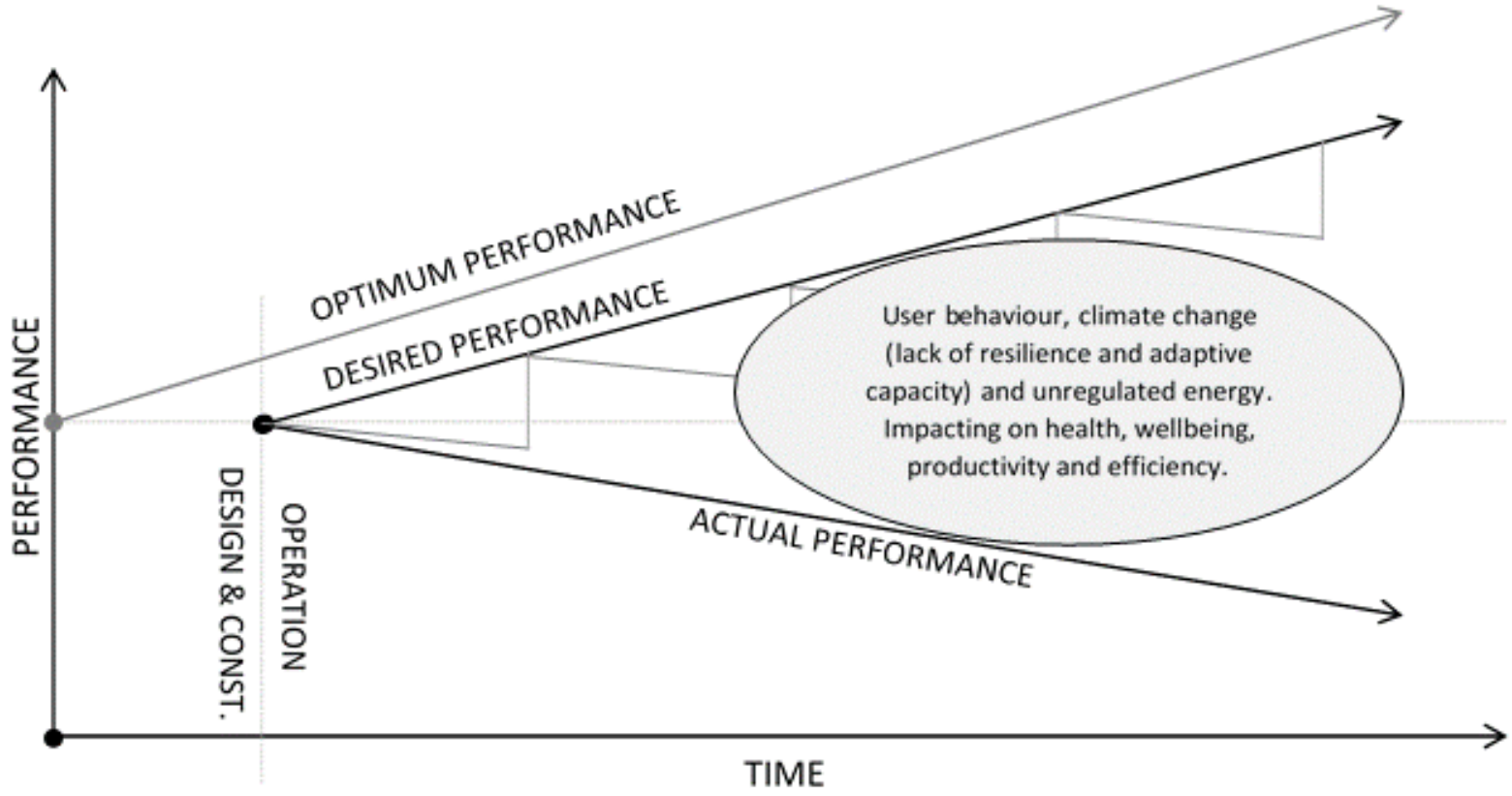
"the way that a building supports occupiers' differing aims and needs including driving quality and value, meeting sustainability objectives and providing environments that meet the needs of users, resulting in efficient and effective workplaces"

British Council for Offices (2015)

- Sustainability in the built environment largely focused on environmental impacts – but holistic sustainability difficult to deliver;
- Buildings are 'long-lived' and must be both resilient and adaptive in order to deliver long-term performance;
- Issues associated with the impacts of climate change and occupant behavior could contribute to the building performance gap over time.

The Challenge

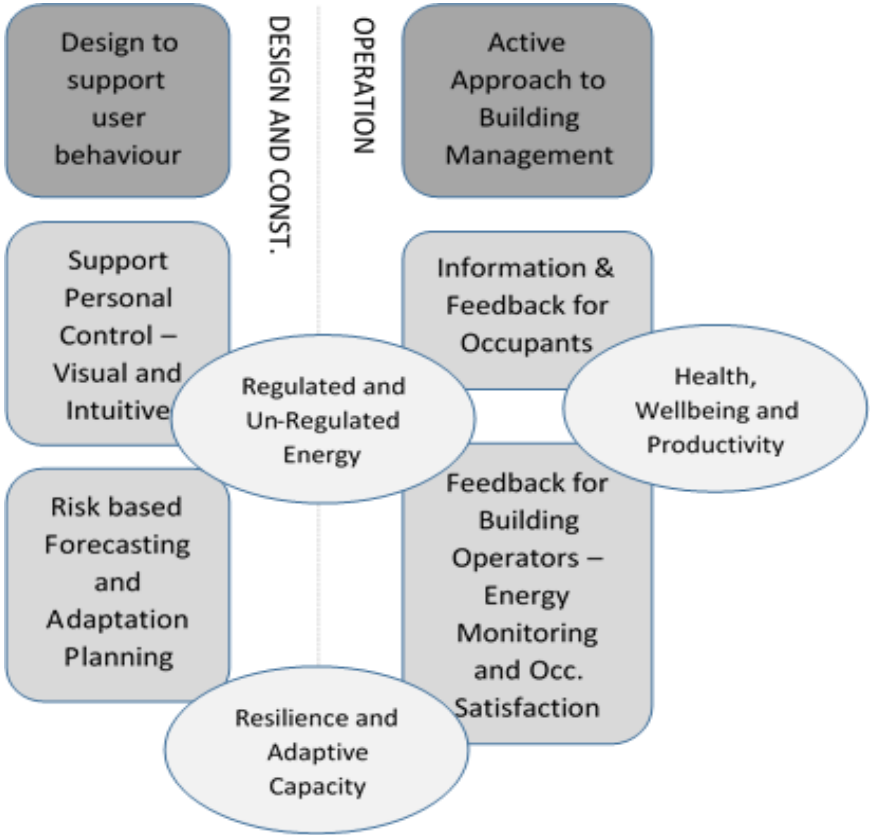
Issues noted present challenges in both building design (and construction) and operation



Long Term Building Performance Gap (Adapted from Jones et al., 2015)

Delivering Long-Term Performance

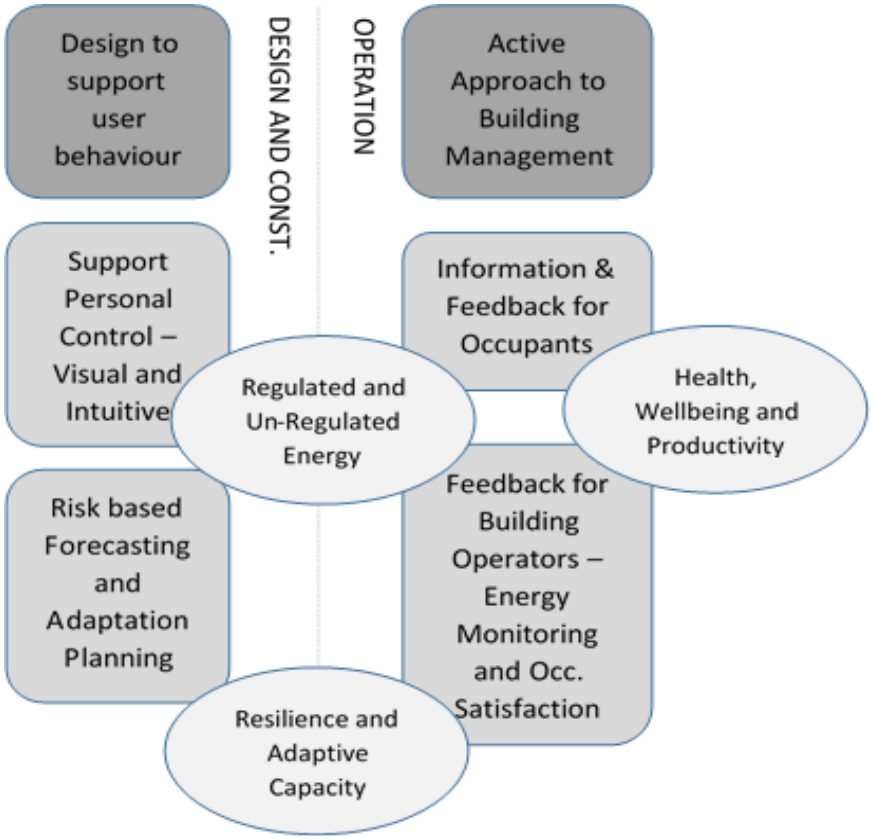
- Need for user centred design;
- Buildings less sensitive to occupant behavior while delivering high levels of personal control?;
- Opportunity to deliver higher user satisfaction (and productivity) while reducing energy use;
- Consider the potential impacts of climate change in a risk based framework.



Model of Building Performance

Delivering Long-Term Performance

- Need for an active approach to building management;
- Support the organization and the user;
- Occupant behaviour change campaigns for energy efficiency and user satisfaction and wellbeing;
- Continuous feedback using education and goal setting;
- Increased availability of performance metrics.



Model of Building Performance

Conclusion

- Need to consider the long lived nature of the built environment, must consider building performance beyond regulated energy;
- Impacts of occupant behaviour and climate change become important as does the proportional importance of un-regulated energy;
- Need for a user centred approach to building design and active approach to building management in order to deliver long term building performance;
- Building designs supportive of ‘preferred’ occupant behaviour;
- Continuous feedback loop during building operation to reinforce desired operational practices;
- Implications for designers, operators and regulations.

Thank You

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