

# PRODUCTIVITY IN BUILDINGS

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Presentation to Norwegian Facilities  
Management Network

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AVOID THIS É



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# ADAPTIVE OPPORTUNITY

- 1 Technical systems adjustments, for example altering the thermostat, opening the window, lowering the blind, switching the light, or ringing the manager.
- 2 Moving somewhere else, not only into the garden, the restaurant or a quiet room, but more locally perhaps moving out of (or into) the sun or draught, or sitting on a radiator; and also
- 3 Making personal adjustments: removing a jacket, putting on glasses, adopting a more open posture, or having a hot or cold drink.

The sum of such measures has now become known as adaptive opportunity: the degrees of freedom occupants have to tune the environment to themselves or themselves to the environment.

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## MANAGING A DEPENDENCY CULTURE

Modern management theories of teamwork and interaction, often reinforced by design objectives, conspire to deprive people of adaptive opportunity:

- sealed, air-conditioned buildings increase reliance upon engineering systems
- open-planning - often intended to increase flexibility and/or density and improve interaction - tends to destroy privacy and make personal control difficult.
- space-planned designs, often with linked items of furniture, make it impossible for many people to make even minor changes to their workstations or seating positions,
- it is also often difficult for individuals to make even minor adjustments in where they sit to avoid what otherwise might be minor problems such as local draughts, or glare on computer screens.

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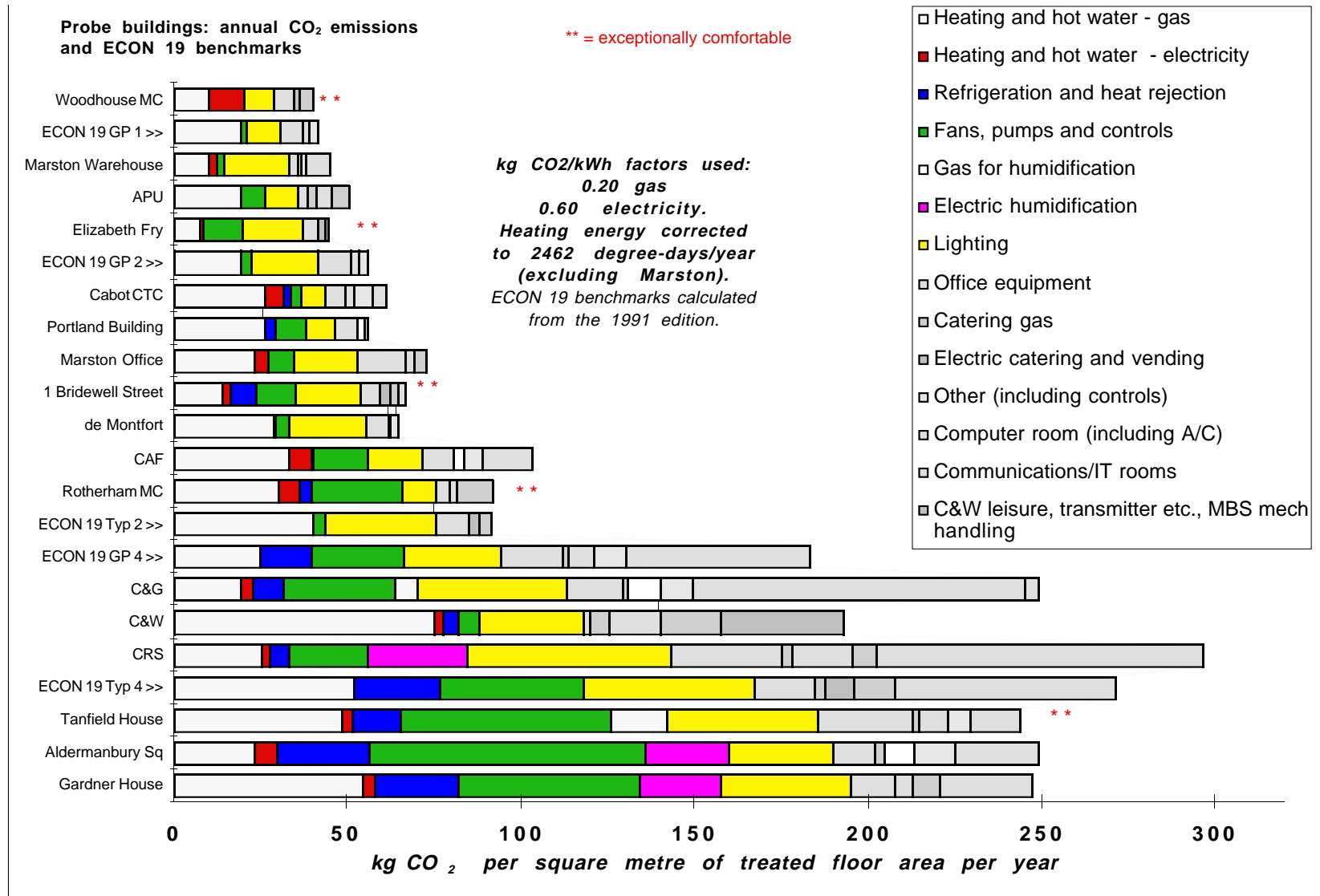
## PERCEIVED CONTROL

Good perceived control does not necessarily require a plethora of building services control devices. It can be good in both simple naturally-ventilated buildings and in sealed, air-conditioned buildings with very few things for occupants to adjust but competent, effective and responsive management.

- Perceived control becomes less important the more satisfactory the base conditions are.
- Hence one can achieve high levels of comfort with few means of control.
- However, you can't please all the people all the time, because their states, requirements and preferences vary.
- Buildings are also unlikely to have uniform environments - and if they do, people may dislike the blandness (though not necessarily by as much as the adverse effects of uncontrollable discomfort in non-uniform environments).

There is thus a real choice between a closely-specified environment with relatively low perceived control and a less-exactly controlled one which offers more adaptive opportunity.

# PROBE BUILDINGS: ANNUAL CO<sub>2</sub> EMISSIONS AND BENCHMARKS



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## É SIX MONTHS LATER



At move in, there is a rigid space plan with layouts intended to suit individuals. Storage is rudimentary and used to define corridors. This tries to imitate the previous workplace.

Six months later the layout was changed (over one weekend by staff supported by local tradesmen) to try to optimise conditions for workgroups.



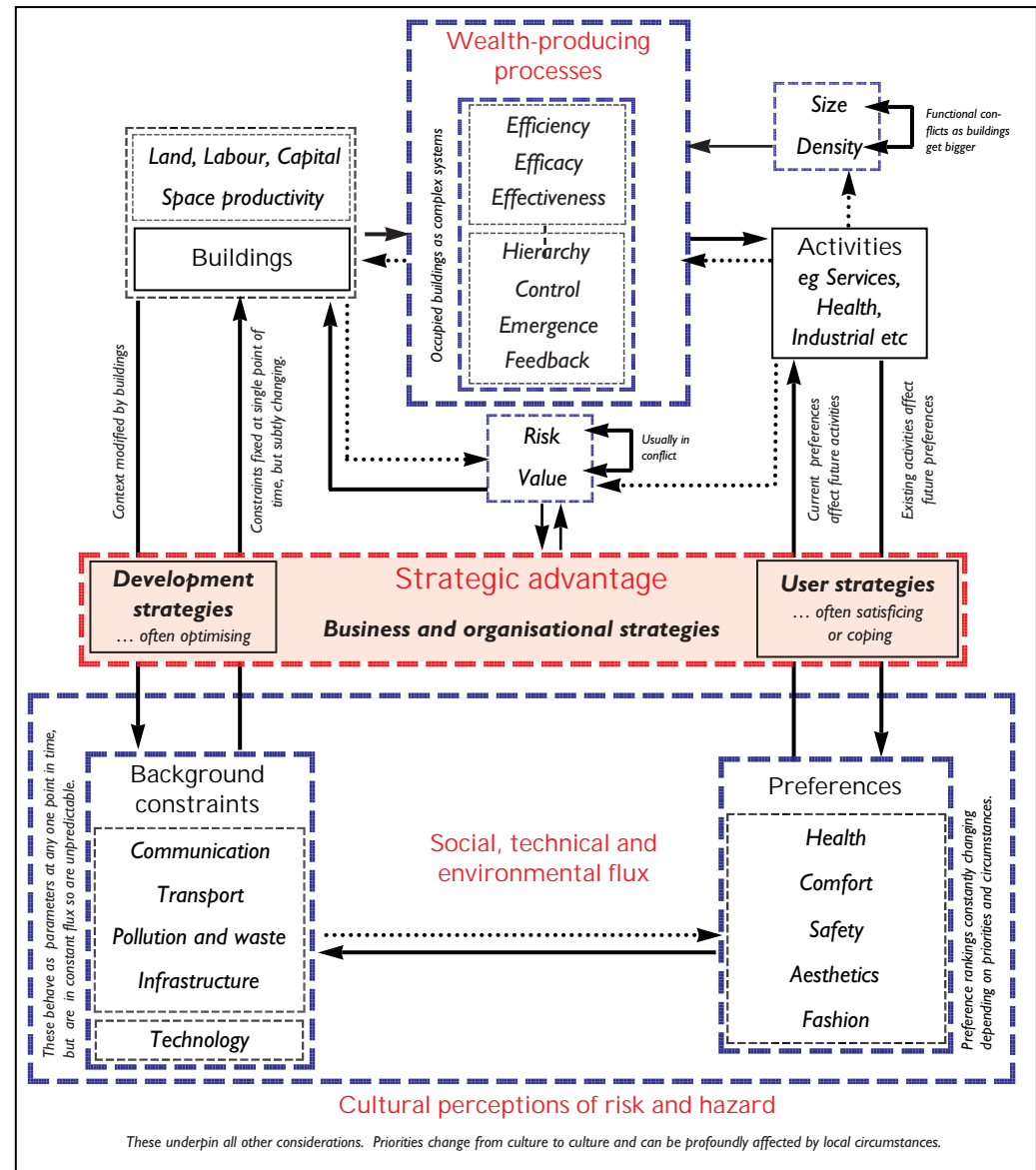
# STRATEGIC ADVANTAGE

Buildings, and the activities they accommodate, ultimately are supposed to enhance well-being. Developers, businesses and building users constantly re-evaluate their needs in light of this, and in the face of changes driven by contextual factors like the state of the economy, social evolution, fluctuating individual preferences and movements - usually gradual, but sometimes sudden - of other background locational, technical and environmental factors.

Because occupied buildings are complex systems in their own right - and there is growing uncertainty about change and its volatility - there is more demand to create a body of knowledge to help inform strategic thinking about how best to deploy resources.

There is also the important matter of ends and means. Increasingly, designers, users and investors disagree over the most important considerations, with some placing more emphasis on environmental and management matters; others on efficiency, return on investment, image and symbolism. Effectively resolving these needs in a socially responsible way is the objective here.

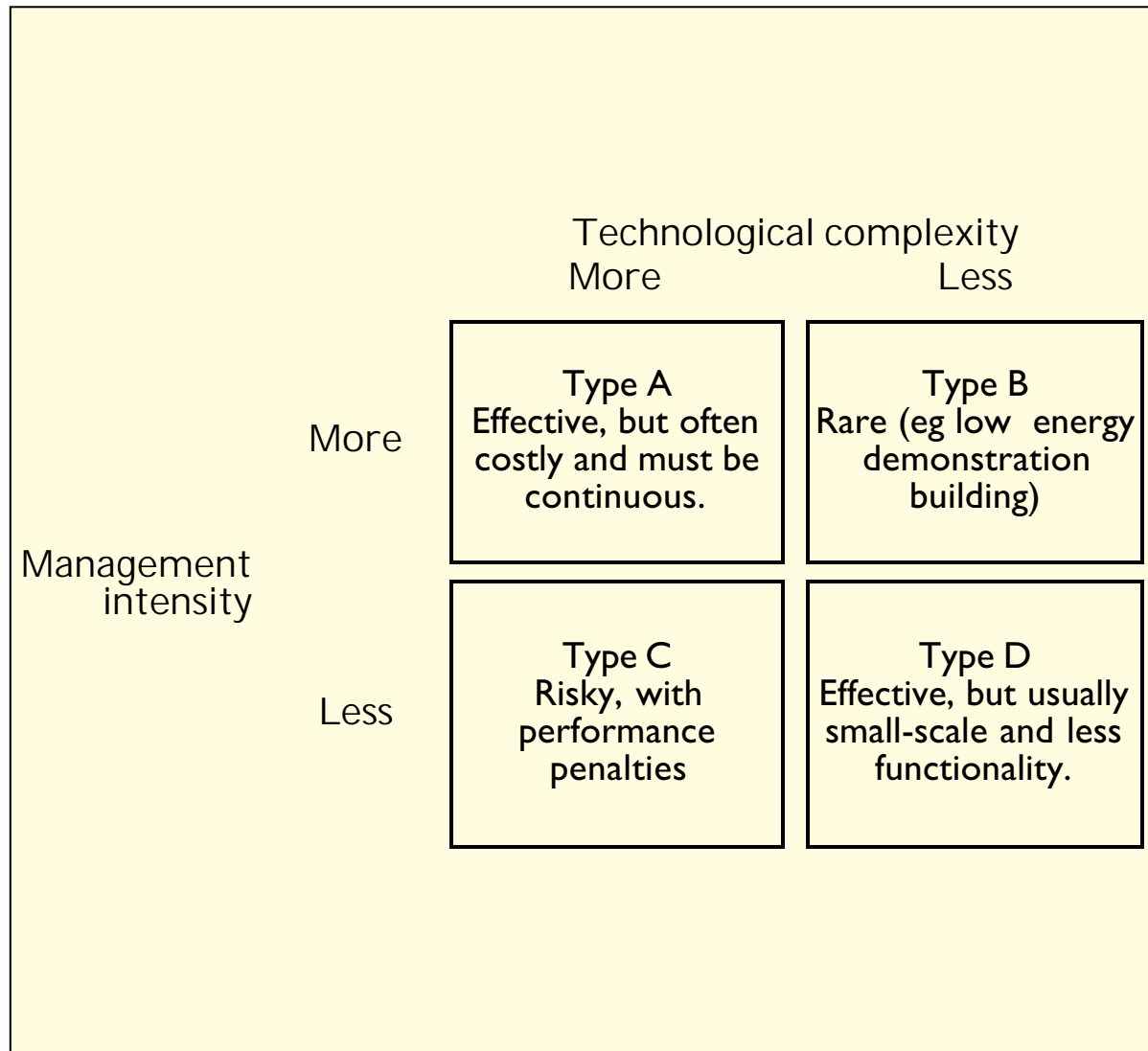
This is a conceptual “map” showing where strategic advantage considerations links with other topics in the wider field of building studies.





# SUCCESSFUL AND UNSUCCESSFUL STRATEGIES

Generally speaking, strategy types A and D can work well, given their contexts and goals, and types B and C should be avoided if possible. The riskiest is C, where relatively complex buildings are provided with fewer management resources. Often people are seduced into thinking that added technology will *reduce* management dependencies, not increase them as is almost always the case. Interdependencies between technical systems means that failures in one area carry over into others, and it is the “carry over” or consequences that require management interventions. For example, chronic ill-health amongst office occupants is often found in buildings of type C,



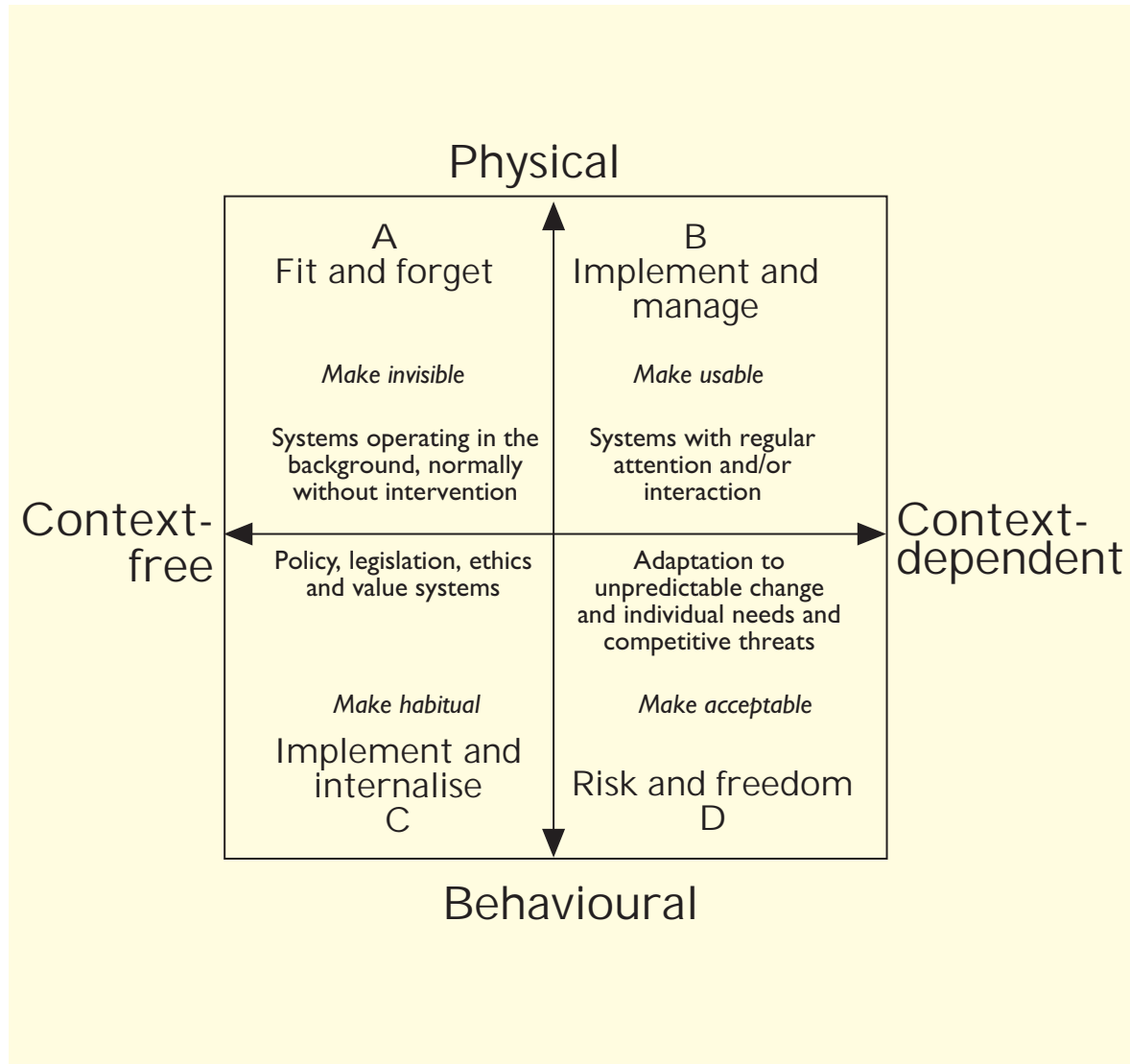
# USABLE, HABITUAL, ACCEPTABLE, INVISIBLE É

Buildings which work well have addressed each of these four quadrants somewhere in their briefing, design and management systems - formally, or informally as part of the organisational culture.

Physical and behavioural issues are treated equally (too often, undue faith is placed in technical and physical systems at the expense of human) and changing contexts are not forgotten (too often standardised “solutions” are applied irrespective of context).

Adaptability, as the bottom right quadrat shows, is also risky - but it allows freedom for innovation and change.

This implies an organisational culture which can tolerate mistakes made in well-meaning attempts to cope with change.



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## PRODUCTIVITY IS PERCEIVED TO BE BEST WITH

Productivity is perceived by occupants to be best with:

- small well-integrated groups;
- a space perceived as one's own;
- good perceived control over heating, cooling, ventilation, lighting, noise and privacy;
- fresh air, daylight and views out;
- clean, comfortable, safe and healthy conditions;
- rapid and effective response when things need to be changed or go wrong.

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## COMFORT IS ASSOCIATED WITH $\dot{E}$

Questionnaire surveys indicate that building-related comfort is positively associated with:

- Jobs in which people are not tied to one place.
- Shallow building depth, and in particular with a high proportion of window seats.
- Small workgroups.
- Low occupation densities.
- Good perceived control.
- High management responsiveness.

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# OCCUPANTS CRAVE FEEDBACK ABOUT É

Occupants crave feedback about:

- what a control device is actually supposed to do;
- whether it is working;
- whether something is happening as a result;
- if the intended effect is achieved.