The business case for sustainable buildings and the link with indoor climate and productivity

Paul Appleby

Sustainability Consultant

World Green Building Council

Monetising Sustainability

Introduction to the WGBC project: **Health, wellbeing and productivity in office buildings**

- Background
- Productivity potential
- Objectives
- Framework
- Features
- Metrics
- Next steps and deliverables

Background

THE CASE BUSINESS FOR GREEN BUILDING

WORLD GREEN BUILDING COUNCIL

SKANSKA

GROSVENOR

إستدامة estidama

PRP

'... staff salaries and expenditures make up the bulk of operational expenses associated with occupying an office building. Indeed, over 85%

of total workplace costs are spent on salaries and benefits, compared to less than 10% on rent and less than 1% on energy.'

Costs and benefits of air conditioning and extended operation time
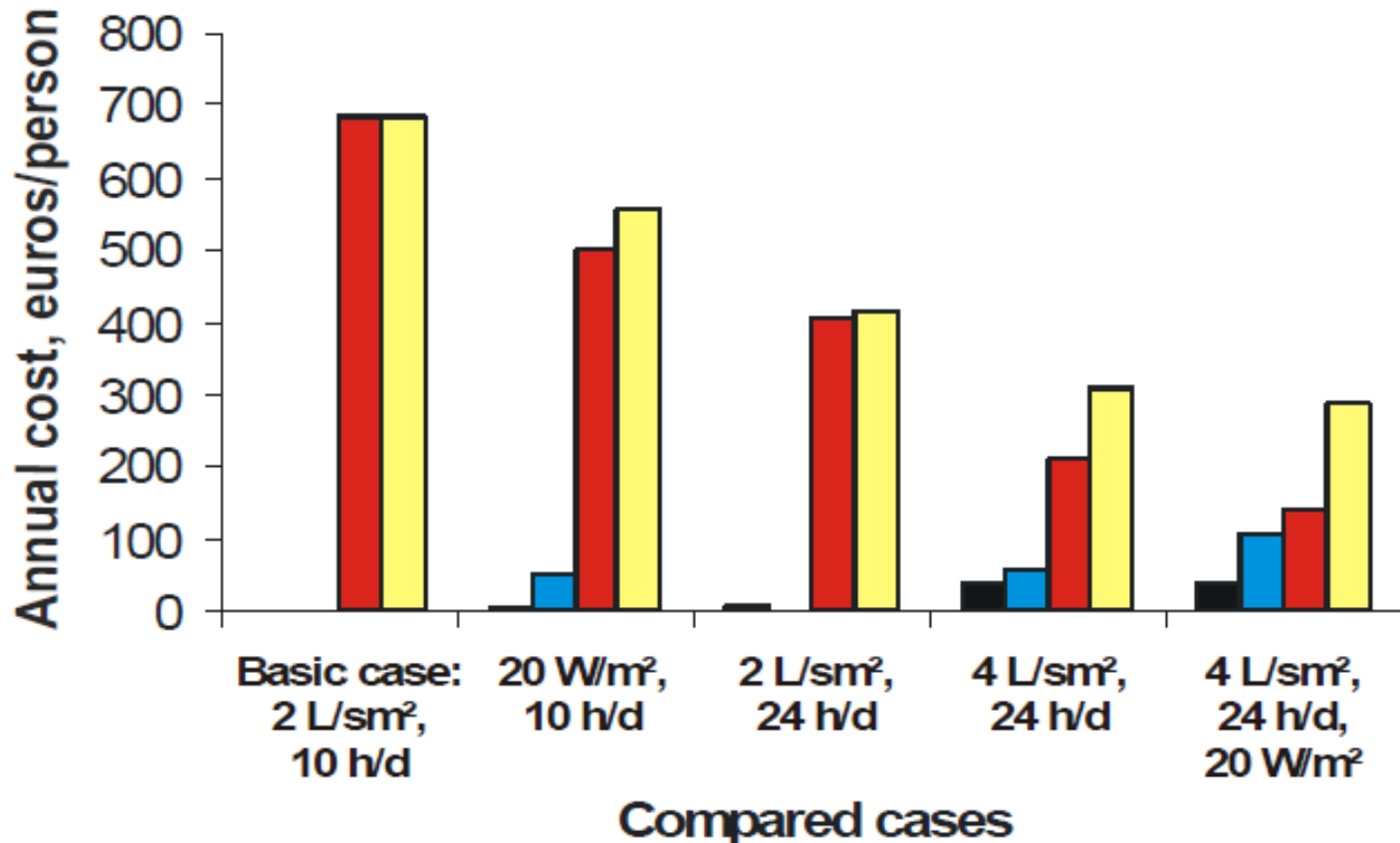
HOWEVER…

"…there is still some way to go before this kind of evidence informs investment decisions."

Objectives of WGBC project

PROJECT OBJECTIVE #1:

Provide guidance and best practice information on features that enhance health and productivity

PROJECT OBJECTIVE #2:

Propose common metrics for health, wellbeing and productivity

PROJECT OBJECTIVE #3:

Scope an online global hub of resources on metrics and measurement

Framework

'Sharing best practice': considerations

Benefits for the individual

Benefits for the organisation

Links to energy and resource use – positive or negative

Geographic, climatic, cultural considerations

'User interface' requirements

Case studies

Building performance indicators

Practicability/ ease of remedial measures

Innovation needs

Features

Ambient Conditions

Lighting & Daylight

- **Quantity**
- **Glare**
- **Quality**
- **Controls**

Indoor Air Quality

- **Pollutants**
- **Odour and Irritation**
- **Ventilation rates**
- **Moisture content**
- **Controls**

Thermal Environment

- **Indoor air temperature**
- **Mean radiant temperature**
- **Air velocity**
- **Relative humidity**
- **Controls**

Acoustics

- **Background noise**
- **Vibration**
- **Privacy and interference**
- **Controls**

PRODUCTIVITY POTENTIAL

Spatial Features

Design Character
- Ceilings
- Finishes
- Colour & texture
- Design language
- Points of interest

Physical Arrangement & Furniture
- Views out
- Task based spaces
- Density
- Breakout spaces

Environmental Psychology
- Personal control
- Territory/privacy
- Biophilia effect
- Age, gender, cultural norms
- Contour bias

Building Design
- Active design
- Entrance/reception
- Windows and view quality

Amenities and Location

Amenities Access
- Healthcare
- Recreation facilities
- Retail/services
- Entertainment
- Childcare
- Housing

Transport
- Proximity to public transport
- Access to cycle paths
- Cycle storage & facilities
- Group transport
- Travel time from home

Quality of Public Realm
- Secure by design
- Design quality
- Landscape quality
- Access to recycling

Connectivity to Nature
- Views
- Physical access
- Green amenity spaces

Equity, Economy, Community
- Disabled access
- Mixed use neighbourhood
- Connection with local community

Local & Sustainable Food & Beverage
- Health food local
- Edible landscape
- Clean fresh water

Metrics

Metrics under consideration

Physical Measures

- Headaches
- Eyestrain
- Depression/ stress
- SBS/ SAD
- Etc.

Perceived Measures

- Perceived health
- Perceived productivity
- Perceived well-being
- Organisational climate

Productivity (or proxy)

- Time off work
- Revenue per employee
- Deadlines met
- Cognitive performance
- Medical costs

External Measures

- Customer satisfaction
- Customer waiting times
- Brand image
- Cost/ level of complaints

Assessing the metrics

Health, Well-being, or Productivity

Individual or organisation level

Applicability across range of business types

Ease of measurement

Ease of relation to building features

Consistency of measure

Causal agent

What tools are on the market

Reference to research/ case study

HWP cost to organisation

Cost to conduct research

Manifestation timescale
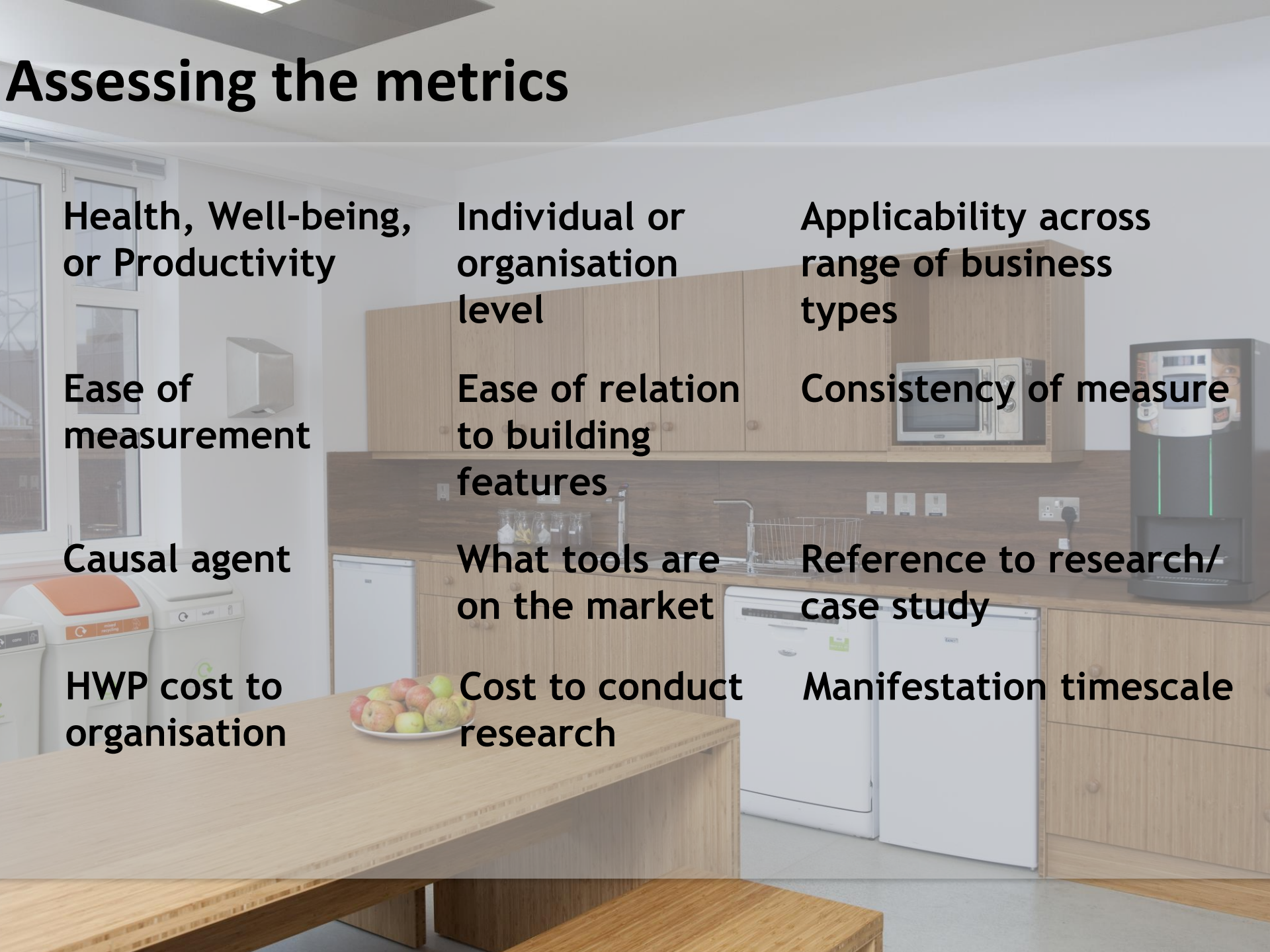
Next steps and deliverables

Next steps

- Global consultation across GBC networks
- Piloting metrics 'on the ground'

Deliverables

- Report and initial resources released Q4 2014
- Establish updateable on-line global resource hub

Developers, landlords, investors, building owners and occupiers should not be asking: 'how much will green building cost my business?' but 'how much will <u>not</u> investing in green building cost my business?'

Introduction to WGBC Report:

The Business Case for Green Building