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### Introduction

#### The Project

This project leveraged the unique networks of Sustainable Ventures and the UK Green Building Council (UKGBC) to understand how start-ups and corporates can better collaborate with the aim of facilitating innovation to reduce the climate impact of the Built Environment Sector.

#### Objectives

- 1. To identify innovation needs and corresponding barriers to open innovation;
- 2. To identify and assess innovation tools to overcome these barriers;
- 3. To develop an open innovation model for the built environment sector

#### Background

40% of UK carbon emissions are attributable to the built environment which requires significant innovation to reduce its impact. Our initial research, in scoping for this project and previous high-level workshops, identified a number of barriers to significant innovation being adopted. The research led us to the conclusion that the built environment sector is currently inward focused and insular and that open innovation, which remains niche in the sector, would enable greater progress.

We have taken the definition of open innovation as stated in Open Innovation: The new imperative for creating and profiting from technology (Chesbrough, H. 2003):

"The use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively."



# Methodology

## 00

Background Research

The project team conducted background research to identify core research themes, perform a company landscape analysis and produce a detailed methodology.

### 01

Workshops Round 1

Both stakeholder groups (innovators and built environment corporates) participated in facilitated workshops to understand the needs and barriers to achieve open innovation.

## 02

Interviews

#### Interviews were undertaken with both groups focused on the existing relationships between the two types of stakeholder, their success and failures, processes and current tools for engagement. These were carried out alongside desktop research to establish trends and causation.

### 03 Desktop

Further desktop research was carried out so the scope of the intervention could be defined and an initial draft could be

Research

developed.

#### Workshops Round 2

04

The findings of the research and the initial draft of the model were presented to the stakeholders to test underlying assumptions and interpretation of needs and barriers.

# 05

#### Analysis and Framework Development

Combining the workshop outputs, desktop research and interviews, as well as further anecdotal evidence from further stakeholders, an intervention was developed in the form of a framework that addresses the key barriers to open innovation.

### **Research Findings** Needs

During the research a broad range of topics were discussed with recurring themes including transparency, communication, funding, and resourcing. The words to the right are the summary of the key needs required by innovators and corporates to enable open innovation.

From the innovator perspective the most prevalent needs were: transparency and access (23% of all mentioned needs), commitment and time (18%), and information and data (17%).

From the corporate perspective the most prevalent needs were: culture change (24%), transparency and access (12%) and networks (11%).

The findings showed the needs of both innovators and corporates were predominantly within the power of corporates to change. **Business Model Shift** A need for new business models to meet commercial demands

Commitment & Time A need for more time from the other party with respect to understanding how the innovation fits

Cultural Change A need for a new culture / mindset – particularly with respect to looking outwards for innovation

Funding A need for more financial resources e.g. to trial innovations / mitigate risk

Information & Data A need for more information from corporates about their challenges

**Internal Communication** A need for improved communication within the business

Networks A need for access to networks of corporates (challenge holders) or SMEs (innovation providers)

**Regulation and Policy** A need for new regulation or regulation changes

Skills/Expertise A need for skills e.g. corporates might need innovation/venturing skills, start-ups might need technical expertise

Structural Change New business structures particularly in corporates e.g. an innovation team

Transparency & Access A need for more transparency with respect to processes and relevant people

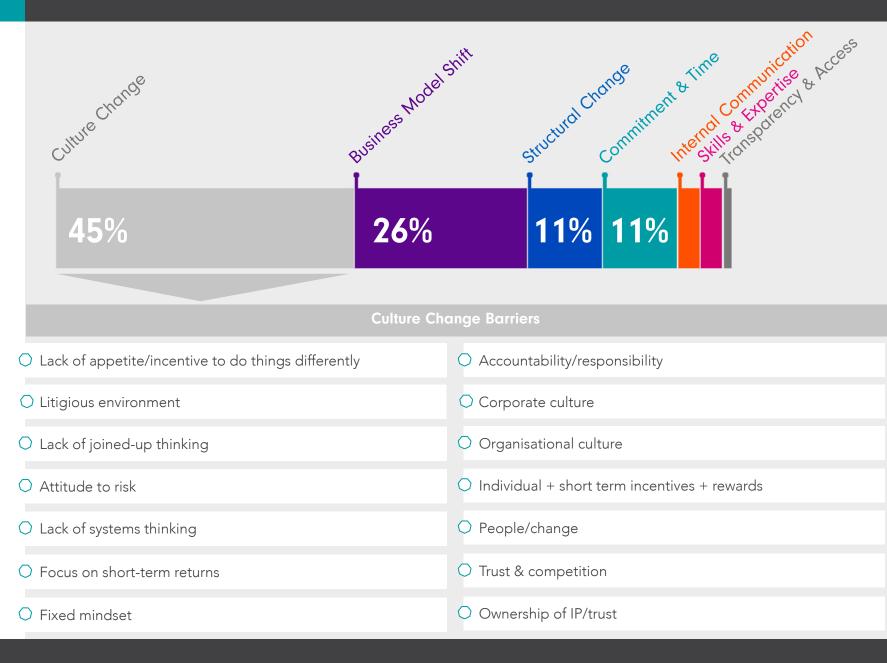
### **Research Findings** Barriers

A barrier is any blockage or scenario that prevents a need from being met.

Culture and human resources is the overarching theme for the corporate sector. Most barriers can be boiled down to an individual's perception of open innovation, or lack of understanding of what they can do.

The most revealing element was that most barriers from both corporates' and innovators' perspectives were resolvable by changes made within the corporate organisation.

All the barriers were mapped against the identified innovation needs shown in the bar chart. 45% of all barriers identified were related to corporate culture. The list on the right shows the barriers that come under this category.



### **Open Innovation Levels Framework** Development

As an overview, the Open Innovation Levels Framework:

The success of the Framework is dependent on the following criteria:

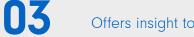
- Addresses the most prevalent needs of corporates and innovators
- Empowers corporates and the individuals within them to embark on a journey of open innovation
- Informs both innovators and corporates of the tools and mechanisms available to support them on this journey

The predominant aim of the Framework is to provide a step-by-step guide on how corporates can engage in open innovation and reach an open solution.

The Framework has been designed to specifically address the innovation needs and barriers identified during the workshops. Enables initial indication of a corporate organisation's readiness to engage in open innovation



Provides high-level guidance for corporate organisations on how to embark on the process of engaging innovators in an open way at a project/challenge level



Offers insight to innovators into the process corporates must go through



01

Signposts some tools and resources to assist in creating a successful programme of open innovation

### **Open Innovation Levels Framework** Structure

### **01** Challenge Definition

These levels focus purely on the establishment of a challenge/problem, actively discouraging users from engaging in solutions before having a challenge that is sufficiently developed.

### 02 Scoping

These levels focus primarily on the internal processes within the corporate before formally engaging innovators. This includes activities such as assessing risk, obtaining senior leadership support, defining budget and systems mapping. 03 Engagement

These levels are concerned with formal engagement of innovators before work begins, including establishment of common purpose, expectations and scope of the work.

### 04 Collaboration

This level is to ensure the ongoing success of the relationship through the sharing of information, discussing lessons learned and communicating with stakeholders outside of the project.

### **Open Innovation Levels Framework** Structure

#### **Phases & Levels**

There are 4 key phases (shown above) which can be broken down into 8 levels with associated actions which, if enacted properly, will lead to an open solution. They can be used to provide step-by-step guidance, or as a checklist to gauge the readiness of an organisation.

The Levels are inspired by and reference the <u>TRL (Technology Readiness Levels</u>), as created by NASA.

#### **Corporates & Innovators**

The Framework provides guidance on what corporates need to focus on internally, and also what they need to be able to offer innovators. It is designed to be accessible to any employee within the organisation. From the innovator's perspective, the focus is on making their engagements as efficient as possible, and at the right time. It is designed to inform innovators about corporate processes and challenges based on information garnered during our research.

#### **References and Engagement Tools**

The tools signposted do two things – they aid the user in undertaking the guidance and point to useful tools available to support the innovator/corporate at each stage.

#### **Further Development Potential**

We hope that UKGBC members and other organisations in the built environment find this Framework useful in pursuing innovative solutions to environmental and social impact challenges.

If you use the Framework please do let us know and provide us with feedback.

	Challenge	Definition	Scoping			Engagement		Collaboration
Phase summary	Identify the problem that needs to be solved and clearly articulate it		Validate the challenge and establish the level of risk associated with inaction; gain commitment and buy- in internally; and map the system of actors and information flows			Formally engage with innovators to establish purpose, expectations and scope		Establish a sustained working relationship with all stakeholders involved, including feedback loops
Level	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
	Challenge identification	Challenge definition	Systems mapping	Internal validation	Organisational buy-in	Early engagement	Agreement of terms	Collaboration
Summary	Identify the problem that needs to be solved	Articulate the problem as clearly as possible, with evidence and precedents	Establish the level of risk associated with not tackling this problem vs the business opportunity of solving it, and identify the availability of internal and external resources required to take it on	Gain commitment from senior leadership and other colleagues relevant to the challenge to engage in a programme of open innovation	Identify actors in this space, both innovators with potential solutions and corporate competitors to establish feasibility	Engage potential collaborators in early discussions to identify common purpose	Ensure that both sides of the relationship are clear of expectations and scope of the project before formalising the relationship	Establish a healthy working relationship with stakeholders in the project - ensuring enough resource is available to manage the relationship to enable the programme to reach a successful conclusion
Corporate Guidance	The challenge should help improve the environmental and/ or social impact of the corporate. Undertake a challenge identification workshop unless a challenge has been previously identified. See the <u>UKGBC Sustainable</u> <u>Innovation Manual</u> for further guidance and templates.	Perform detailed research into the challenge - Who feels it? How have others tackled it? To do this, skill up internal innovation champions and encourage challenge owners to attend events in this space and develop a network around the topic (NB This will take time!). Establish whether the challenge can be addressed through your organisations pre-existing approved suppliers. Use <u>UKGBC's Challenge</u> <u>Definition Template</u> to articulate the challenge in a way others not familiar with it can understand.	Establish, as an organisation, what level of risk you're prepared to take on, and pre-qualify any relationship based upon this. Consider the <u>TRL model</u> to evaluate risk levels - at what level are you able to engage an innovator? Are you in it for the long game and prepared to help them shape their model to best fit your requirements (TRL1-3) or do you require something to be market ready and proven (TRL 9)? Ensure that the challenge is big enough to warrant a resolution - calculate the risk associated with not addressing the issue vs the business opportunity associated with its resolution. Publicise the challenge (e.g. via website) to engage other actors in the system ("passive scouting").	Achieve senior level buy-in through compelling and clear explanation of the challenge, the risk associated with inaction, and the business opportunity in engaging an innovator. Identify an individual who will "own" the challenge and be responsible for its resolution and make this publicly available as a point of contact. This doesn't need to be someone with all the answers or decision-making capacity, but someone who will be able to find the person who does.	Create a map of the system in which your organisation operates in relation to this challenge. Identify inflows and outflows of knowledge and money to understand the challenge clearly - identify every element that could affect its resolution and begin to communicate the feasibility. Sometimes it's logical to develop the solution in house, but be realistic about the expertise within your business and the availability of those outside it. Begin "active scouting" and reaching out to innovators to start to build relationships.	Work with potential partners to build a common purpose. This comes before establishment of a more formal terms of engagement letter, and serves as an opportunity for individuals involved to get to know each other. Establish a level of transparency so that both parties have all their cards on the table as to their intention for the relationship - this builds both trust and reduces the risk of issues down the line. To the extent possible, share necessary data and information with innovators.	Clearly map the scope and timeline of the programme in collaboration with partners. Clearly set expectations of the relationship and formalise any mutual benefits - What can you provide to further the innovator's model? What additional support do you require above and beyond their traditional offer? Share alike - under open innovation principles, we understand that if one wins, we all win. Don't preclude the innovator from forging relationships with other clients and use this relationship as an opportunity to further both parties agendas - if they take learnings from others to improve their offering, both will benefit. Above all bear in mind that early stage organisations are caught in a chicken and egg scenario where they can't demonstrate success without being engaged - they may be willing to engage in trials, but it shouldn't be expected as the terms of doing business.	Once the partnership is up and running, take care to maintain the relationship. Value the outsider's perspective, and don't simply view innovators as suppliers. Create the feedback loops that allow them access to the performance data they require to refine and evolve their offering. Put in place or leverage processes that enable lessons learned to be rolled out through the organisation to prevent reinventing the wheel for each challenge you face. Embark on a media campaign to profile the relationship and its outputs. Business priorities change, and while some can be foreseen and built into the tender process, some are unavoidable. Know when to end the relationship, and be transparent and honest about the process.
Innovator Guidance	Recognise when approaching that a corporate may not even be aware that there is a challenge and may be reticent to admit one. Take them along on the journey to recognise how things could be.	Your model may seem like the perfect solution based on previous engagement with similar organisations, but bare in mind the variance from business to business that may not make it a straight fit. Help the corporate understand their challenge - you have an external view, and previous experience in the area - what works? Why? Fully research and understand corporate business model and how you fit in.	Large corporates are complex systems with detailed and, by their nature, risk-averse processes. A seeming lack of engagement is likely to be a result of navigating this complexity more than anything else. Consider how you can reduce the risk of the corporate taking on an innovator - e.g. offering a share of savings.	There is unlikely to be any single individual who is able to give a quick go/no-go decision. Build a relationship with the person who owns the challenge, and they will feel empowered to find the colleagues best placed to help.	Bring your experience to the table, but appreciate that your model may be one of many in the same space. Now is not the time to set out how you're better, but why you're different - what flows of knowledge do you leverage that your competitors don't? Help corporates build the evidence base they need to make the internal business case - this can be using your own experience or competitor research you've performed.	A common purpose is imperative to build trust - what is the shared vision you have that will enable you to have a fruitful relationship well into the future? Set out the roadmap for your model's growth and highlight where the corporate can derive benefit and where you may need support Ensure you have the data from the client you require to make it clear how valuable your collaboration can be.	Corporates will be looking for guarantees to mitigate risk - ensure that you are as transparent as possible and can make commitments you are certain you can honour. Corporates may be more willing to share this risk than take it all	Do ask for the performance data that will help you refine your model, but also consider what you can offer their business - do you have contacts that can address other challenges their organisation faces? Ask for support and build case studies of success - corporates will appreciate the positive press.
References	Challenge identification workshop guide	Challenge definition template	Technology Readiness Levels (TRL) Pre-qualification questionnaire template	<u>Guy Kawasaki pitch deck</u>	Systems mapping guidance	NDAs	Support tools Press releases	Support tools
Engagement tools	Challenge Definition Workshops		Hackathons Prizes			Letters of support, Grant partnerships Access to facilities, Mentoring		Trials, Incubation NDAs, Investment

# Participating organisations

#### Organisations involved in the research include:

ARUP Biohm CBRE Chips Board Cundall globalHOM GS8 HS2 Innovation Gateway JLL

Mitsubishi Overbury PropelAir QFlow Savortex SOM Sustainability Cloud U-Earth

LightFi

Liquid Re

Landsec

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