

Appendix 10b: Open innovation

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Open Innovation as our partner

Transforming Innovation

Open innovation has been used to solve some of the world's most complex and significant problems. By opening up the innovation process, organisations have been able to come up with radically different and highly performant solutions to problems that they were either unable to solve themselves or that were prohibitively expensive to do so.

Moreover, in many cases Open Innovation gives organisations the benefit of externalising risk by moving the innovation process outside of the organisation. No longer do organisations have to establish teams by acquiring the right people, skills and tools, only to risk the ultimate failure of the solution proposed. Open Innovation gives organisations the opportunity to have many solutions built for them with limited risk.

Open Innovation at Yorkshire Water

Achieving a state of "Transparency as Default" is central to Yorkshire Water's ambitions. As part of this agenda there is an opportunity to do more with the concept of Transparency. Rather than seeing transparency as simply "openness of data", Yorkshire Water have the potential to drive exceptional outcomes through the application of Open Innovation principles.

Yorkshire Water's largest and most complex challenges; Leakage, end-to-end customer improvements and increasing operational efficiency all have a home in the world of Open Innovation.

Figure 1: The four different types of Open Innovation that we will be utilising

The 4 different types of Open Innovation

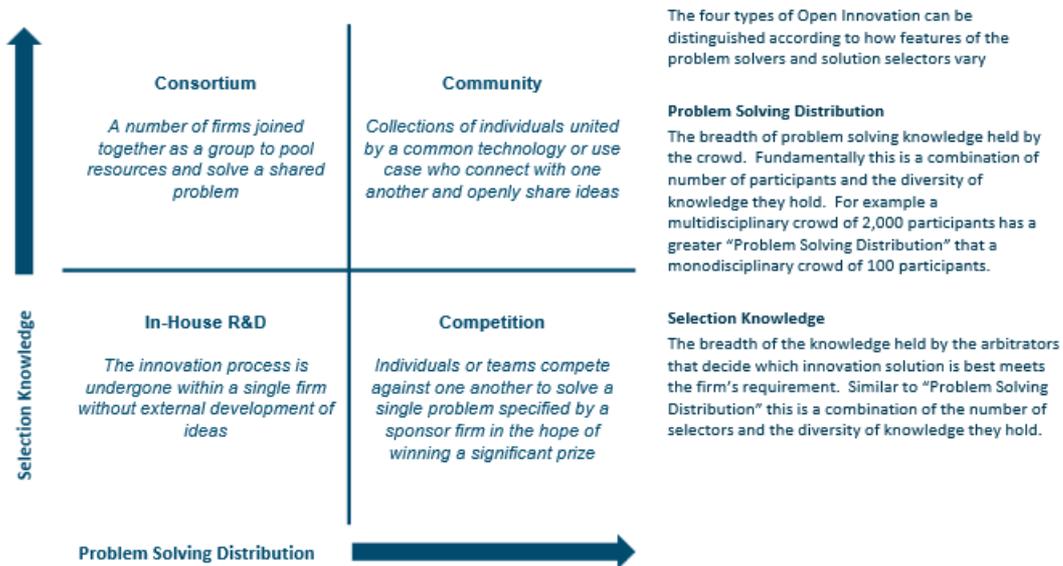
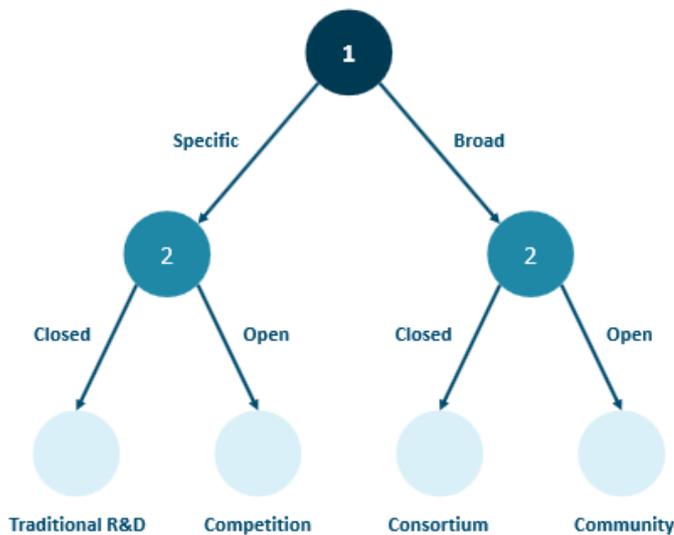


Figure 2: How we are proposing to select the optimal type of Open Innovation to solve our problems.

Selecting the optimal type of Open Innovation



1. How broad is the problem or challenge that needs to be tackled?

The breadth of the problem to be solved has a large impact on the optimal type of Open Innovation to be used. Problems that are specific and have a precise and measurable goal are suited to Competitions, or In-House R&D.

Broader or overarching challenges are more suited to either Communities or Consortiums – where the problem structuring is conducted using open innovation.

2. How open is it possible to be with the inputs and outputs?

Constraints on data privacy, customer privacy and intellectual property rights may mean that in some situations being fully open isn't possible.

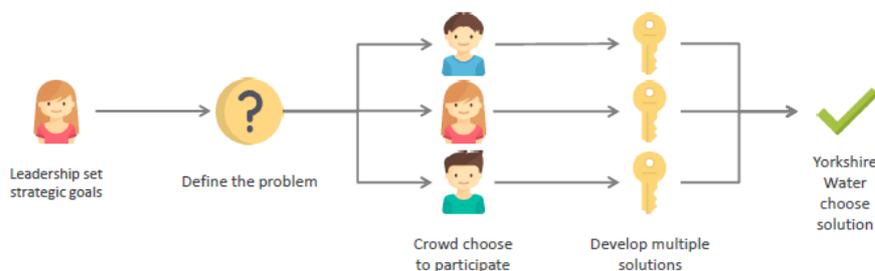
Communities and competition fully leverage the power of crowd-led innovation for problem solving. The structure of a Consortium would allow for the agreements to be put in place.

Figure 3: An example of how we would look to utilise one of the Open Innovation types.

Inspiring success stories
Competition – Improving operations in out of space

The International Space Station is powered entirely by solar energy. Each solar panel is held at the end of groups of metal rods, called longerons. When uneven numbers of rods in each longeron get hot, the structure bends and breaks so NASA were forced to conservatively position the solar panels but this in turn reduced efficiency of energy collection.

The challenge was to develop an algorithm that was able to position the International Space Station to collect as much power as possible from the sun through its solar panels. NASA offered \$30,000 in prizes and received over 2000 submissions from 459 participants – the resulting method outperformed the current tools used and was developed at a fraction of the cost that Boeing was charging them.



Features of an effective Competition

	Within a Competition	Killer performance insight	Implications for Yorkshire Water
Defining the challenge	It is the sponsors role to define the problem they wish to be solved. This is an internal process and is the completion of the top three sections of the Value Pyramid.	The challenge must be directive and specific. The problem must be defined so external solvers are able to grasp the task required and understand the evaluation criteria.	Governance – establish who defines the problem to be solved. Coordination between Data Leads, Analysts, Operators and Engineers is crucial. It is important to be meticulous when running through the top 3 layers of the Value Pyramid.
Incentivising performance	The sponsor typically offers a cash prize for winners. Most participants suggest this is significant incentive to perform. Beyond that, participants look for intrinsic benefits such as prestige, learning and competing with others.	Platforms chosen must also offer intrinsic benefits. The cash prize should be large enough (typically >£5k) but the real key is making sure the platform offers additional intrinsic benefits given the task at hand.	Procurement process must enable access to prize money. Financial incentivisation predominates motivations to perform so access to funds should be simple.
Structuring teams	Teams and individuals structure themselves. The sponsor does not have to concern themselves with deciding how teams should operate, or what working styles and norms should be adopted.	The sponsor must have minimal impact on team composition. It is important that teams are not forced to assemble with others or broken apart. This prevents culture clashes and a destruction of incentives to perform.	Sit back and relax. Allowing teams to self organise externalises the risks associated with developing innovation in house. Yorkshire Water does not have to worry about culture clashes or risk of team failure.
Coordinating the process	The hosting platform will coordinate the facilitation. The sponsor will decide on parameters such as length of time available to competitors and the platform provider will setup the process architecture around it.	The sponsor should engage in exploratory analytics beforehand. It is often wise to engage in some "first step" analytics to help the sponsor guide the hosting platform's competition parameters such as timeframe.	Make sure time frames align with service delivery targets. Work closely with the Service Delivery team to ensure time frames are adequate for competitors to solve the challenge and SD a chance to implement it before performance reviews.
Selecting the best solution	The sponsor will define the evaluation criteria. The hosting platform will set out to participants how the competition will be evaluated but these criteria must first be defined by the sponsor.	The solution criteria should be clear and easy to measure. Participants must understand how they will be evaluated in order to be incentivised to perform. Moreover, poorly defined evaluation criteria can lead to incorrect solutions.	Yorkshire Water's analytics team should create a simple ranking system. Devise a competition with a one-dimensional answer (often numerical) that lends itself to easily distinguishing a winner. This is beneficial for the Yorkshire Water's stakeholder as well as participants.

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