

Using technology scouting to deliver open innovation

Pointers for success

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Introduction

The need to embrace 'open innovation'¹ is becoming increasingly recognised in many organisations. The essence of open innovation is the belief that internal new product and service development can be complemented with innovations (be they IP, technologies, products or services) actively sourced from outside the enterprise. Equally it is about seeking to find external markets for internal innovations that might otherwise never find a route to market.

Delivering successful open innovation presents significant management challenges, but the prospect of new products and services tuned to the needs of the market - developed by harnessing wider networks of innovators and technology partners - offers large dividends in the long term. It is becoming increasingly clear that companies who take a 'closed' view towards innovation and new product development risk being at a major competitive disadvantage.

In an open innovation system, it follows that a market place is needed where innovations can be sourced and traded. This market place is also made to work more efficiently by brokers and agents and, of course, could not function without the immense information resource of the internet.

Technology scouting should be regarded as just one of many activities for fulfilling an open innovation strategy. It is a search and intermediation process that leads to transactions between technology sellers and buyers. Technology scouting is often the job of business developers who may themselves outsource certain tasks to consultants and technology brokers.

In this article we describe the process of technology scouting, outlining the main stages in the process and highlighting five key points to consider for a successful programme.

As a general point, technology scouting needs to follow a methodical and systematic approach, irrespective of the technology in question. There are likely to be hundreds or thousands of technology sources to identify and annotate – even in a focused search - and this requires careful collation and tracking of information for later selection.

¹ See Chesbrough, Henry (2003). Open Innovation – the new imperative for creating and profiting from technology. Harvard Business School Press.

The Key Stages

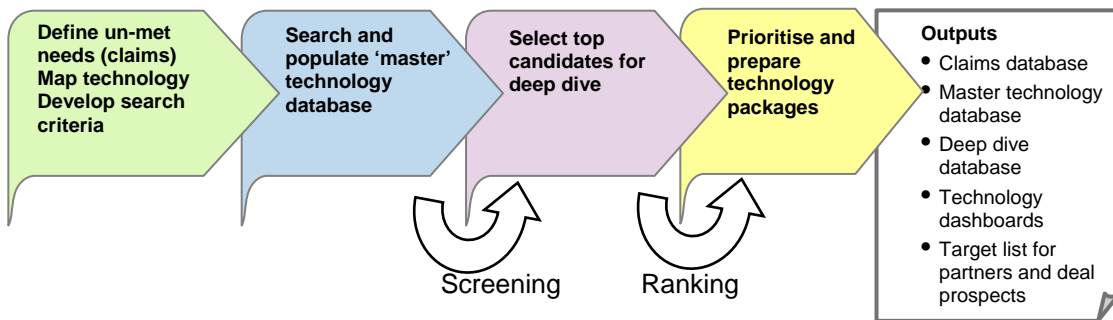


Figure 1: An overview of the Key Stages

The ‘front end’ steps for technology scouting are described here. Following these will generate a set of ‘technology packages’ of prioritized technologies that should closely meet the open innovation objectives. Beyond the technology package stage, detailed terms need to be agreed, due diligence conducted and final deal closure is required; these are ultimately what will make the transaction happen. Due to the highly specific nature of these, they are out of this article’s scope.

Planning and search criteria

Any scouting exercise must be strongly grounded in the requirements of customers and end users. This means drawing on market research and known unmet needs to establish the benefits that will be delivered by the new technology or product. If there’s a question mark over the potential demand, then additional customer insight work, ethnographic research, interviews with key opinion leaders or literature review (in the case of certain products like medical devices) may be needed to clarify these unmet needs and desired benefits.

These insights are translated into ‘claims statements’ – it is these statements that are valuable for creating the technology search targets by defining the market-led characteristics of the technology being sought from outside the business.

Here lies point number one:

Point 1: Don’t let technology scouting shape your strategy, your strategy should shape your scouting.

In our experience, there’s little benefit in embarking on a scouting exercise unless there is a clear strategic intent that ties back to a compelling business case. Although it is tempting to conduct a ‘search and see’, this is far less likely to deliver a successful result which can be brought to senior management. The rationale for conducting the technology research should rest on compelling reasons why demand might exist, a business case for translating that demand

into market share and growth opportunities and the need to go outside to find these opportunities.

The product strategy and scouting objectives shape another process critical to the start of the exercise: developing very clear search criteria. Essentially two categories of criteria are needed:

- 1 The first category acts as a coarse filter, and includes the 'must have' and 'must not have' features of the technology or product. This will allow technologies identified in the scouting to be quickly ruled-in or out without significant research or effort. These coarse filters, sometimes called screening filters, should reflect some technical and commercial fundamentals of the strategy – or specific claims - but there need not be more than 3 or 4 of them.
- 2 The second is a further set of fine filter (ranking) criteria, which specify detailed characteristics and attributes of the technology, not least cost factors, that should tie back to the business case and rationale.

Ideally there should be a set of these fine-filter criteria that reflect internal factors relevant to the business strategy (technical competencies, IP policy or strategic focus). A further set independent of the business are needed which capture market and external factors (like market growth rate, consumer needs, or competitive intensity).

In a formal technology scouting exercise these criteria are used to score the technology candidates that have passed the screen. Sometimes this is the best way of getting consensus within a team that may have very different views on the sorts of technologies that need sourcing.

Here's where point number 2 arises:

Point 2: Get marketing and technical functions to work together from the start.

Far too many technology scouting activities are 'technology driven' and over time the key market imperative can get lost. By creating a scouting team that comprises marketing and R&D personnel at the start (and others if appropriate such as business development or manufacturing), the chances are that the right technologies, with the right characteristics will get through, leading to successful execution of the strategy.

Searching and populating the master database

Armed with clear criteria and claims statements, the landscape over which your scouting exercise needs to be conducted becomes much clearer, as do the borders of terrain that you should not be exploring or wasting much time on. If the technology scouting remit is too broad, the exercise is likely to fail unless it is broken down into better defined and smaller projects, not least because each sub technology may need its own set of criteria and claims statements for the scouting to work. Hence our third point:

Point 3: Follow a structured approach using clear criteria that reflect your strategy, scope and your customers' needs.

If the activity is disjointed and lacks clarity, all efforts to find the desired technology and to ultimately close that deal will at best take far longer than anticipated (with the risk of missing better opportunities) and at worst fail to achieve any goals. A structured approach could include the following features, incorporated into a database or spreadsheet to capture the information:

- Fields that reflect the search criteria established at the start
- Links are created between claims and technology characteristics
- Details on technology performance, patents, ownership and references to key literature
- Filtering capability e.g. by using scores to pick out the best target short list, or specific groups of technologies or products

The next step is to start gathering key information. Online information – whether through proprietary databases or public domain internet – is a critical resource. By using carefully prepared key word searches of technology attributes, known products and companies as well as the scientific fundamentals, a great deal of initial information can be collated. Patent databases (like Delphion), trade magazines, and conference literature are further sources. At this stage the search is based on an initial view that the data being collected is close to the areas of interest but has not been screened in detail.

Once this database is completed, key stakeholders or functions should meet and go through the information and apply the screening criteria. The aim is to rule out perhaps as much as 80% of the technology items, such that a small number of initially attractive opportunities remain. If this exercise is being undertaken for a client by an external agency, the agency should include its reasons for ruling out entries in the database, but it is important to retain all data since there are times when opportunities that have previously been ruled out may need to be revisited.

Deep dive

Once there is agreement on a short list, detailed information is required on each technology to rank and prioritise them.

Direct contact with technology owners is required in order to obtain information that may not be in the public domain. External agencies often can't disclose their client details to technology holders. Non-disclosure agreements can be agreed between scout and target to help this process.

The questions and imperatives vary with each scouting exercise – typically in this ‘deep dive’ stage the following are key items of information needed to evaluate the technologies properly and form the ‘technology package’:

- Patents and IP situation
- Ownership situation and existing licensees
- Costs of goods including shipping and volume discounts
- Technology characteristics that make it suited for the application of interest. In the case of a food ingredient, for example this might be solubility or heat stability. For an electronic component on the other hand, this might be energy consumption or footprint.
- Other criteria specific to the scouting requirements, for example fit with certain processing or production skills of the acquirer or in-licensor.

Select and package

Selecting the best technology is often a ‘trade off’ between these types of criteria. One way to help select the best option is to use a balanced scorecard approach. This involves deciding on the weightings of the criteria first and scoring each technology on how well it meets these criteria, eg out of a 5 point scale. This makes it important that sufficient information is collected on each technology and that it is collated in a structured way.

By using a spreadsheet as that database, the scoring and selection process becomes straightforward. One thing not to ignore is combination potential. For certain technology fields like food ingredients it may turn out that the best way to achieve the end objective is to combine a number of the technologies. Combination solutions are potentially very innovative but also more difficult to identify. A rigorous check asking ‘can we combine these technologies?’ is therefore highly important at this stage.

Technology packages also include any details uncovered from interviews or from additional material supplied by technology owners. This will help in making a case for in-licensing or acquiring the technology if the decision needs to be made at board level, or where there could be some internal ‘selling’ needed to move the scouting phase forward to completion of a transaction.

Here arises our fourth consideration:

Point 4: Once suitable technologies are identified, act quickly.

Scouting should be an intensive activity with a clear focus, but with rapidly evolving technologies, each exercise has a shelf life. Typically a focused exercise lasts a few weeks, with more complex programmes taking months. The decision of when to halt an activity and to commit to go forward with a deal is therefore one of the most difficult in the open innovation game. Assuming clear strategic intent, and clear market pull signals, it is key not to draw-out the scouting process but to act quickly to capture the technologies of interest. Significant delay means you may miss the market window and, equally of

concern, your competitors are almost certainly looking for similar opportunities, which they might just gain.

Our last point is a critical one:

Point 5: *Ensure that you have the commitment from upper management and resources to conduct the detailed evaluation to complete the deal.*

We have seen several situations where despite all these efforts and compelling technology opportunities, a lack of senior management support combined with lack of resources to see through due diligence and deal closure means ultimately scouting exercises do not deliver expected results.

Conclusion

Structured technology scouting can lead to step changes in the way innovation is executed in a business, by opening the vast expanse of the open innovation market place. It is possible to trade in this market place and to source new technologies rapidly which would otherwise not be identified, or just as likely, be acquired and exploited by competitors. By following some simple steps, and sticking to basic rules to guide your process, the uncertainty and risks can be managed for a more successful outcome.

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