How to Maximise Returns from University Research

Experiences with university research range from the exceptional through to disappointing. Why is it that some organisations are able to obtain ground-breaking outcomes from engaging with universities whereas other organisations struggle?

The key to overcoming the struggle lies in the 'how' - HOW organisations establish their relationships and HOW they manage the R&D process. Below are five vital considerations to help you address the 'how' in your existing or future R&D collaborations.

1. Why use University Researchers?

Universities have transformed themselves into world class research organisations with personnel and facilities that respond to the ever expanding needs of industry. Increasingly, leading academics either come from industry or transition between industry and universities through industry placements and part-time arrangements.

A university researcher is likely to:

- come from industry or regularly collaborates with industry to define future problems;
- manage a team of researchers who are focussed on cutting-edge technologies and techniques;
- travel the world networking and presenting at technically focussed conferences;
- have a number of patents for technologies that are transforming industry; and
- be a world class expert in their field.

Globally, it is acknowledged that university research is contributing to and supporting company innovation processes and that there are strategic advantages for organisations to engage with universities. Companies around the world are recognising the value of having an ongoing relationship with universities, particularly to capture the latest trends and opportunities across a range of industry sectors and to enhance in-house expertise through consulting and R&D activities that solve technical problems, reduce risk and enhance company operations.

2. Choosing the Researcher

After managers decide that they need research to solve a technical problem or to verify the potential of new technology, there is generally a pause around 'who to approach'. In the majority of cases, managers talk about which universities that they went to, and in many cases local universities are preferred as it is easy to visit the researchers and see their facilities.

Industry leaders, however, focus on the research team rather than the institution. This requires them to treat engagement of academic researchers the same way that they would engage other service providers:

- identify leading researchers or research teams (look further afield than just locally).
- determine if the skills of the team align with organisational requirements.
- find out how happy their previous customers have been with the research outcomes.

Key to the engagement process is to ensure that the researchers have the expertise and time to undertake the scope of work, and that their approach aligns with yours.

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3. Developing the Scope

In most cases, you will have a feel for the scope of the activity; but generally, if you have chosen the right researcher (or research team), they will be able to provide additional insights that could de-risk the activity and improve on outcomes.

However, one of the traps is that 'research is uncertain'. While this is true by its very definition, in most cases the reason that you are engaging a research team is to get an outcome. As such, it is important that the scope takes into account the uncertainty, and that go/no-go points are built into the scope so that the uncertainty can be managed effectively.

Other important components of the scope include communications, reporting, and management of the project. When preparing a scope of work the focus is understandably on the technical aspects. But the management aspects can spell the difference between an exceptional outcome and a disappointing outcome.

4. Managing the Projects

We are constantly amazed at how many companies treat R&D projects like consultancies – with dire results.

With a consultancy you define the scope and engage the consulting group to deliver an outcome. You might have progress reports to check on how things are going but at the end of the day you are relying on the professionalism of the consulting firm.

With research, however, the uncertainty surrounding the activity means that decisions on which direction to take constantly need to be made. For example, if a device is being developed there are multiple ways that the components could be incorporated, different materials, thicknesses, etc. While the scope might seem fairly straightforward, there are going to be times when the research team needs to either change the materials or the research methodology because they have hit a road block.

This is not to say that the researchers are not professional – far from it – the key issue is that if you are interested in getting the best research outcome you need to be there when decisions are being made. Hoping that the research team can read your mind is a recipe for disaster.

The management and communication arrangements are dependent on how well the lead researcher knows your organisation. If the researcher has undertaken multiple projects for the organisation and understands the business model and overall strategy, then a more hands-off management style may work.

If the lead researcher does not have an in-depth understanding of your organisation, its customers, its suppliers etc., then a more hands-on management style is required.

This does not imply that the researchers need to provide weekly or fortnightly reports. The focus of the research team should be on the research – and not preparing numerous detailed reports. Rather, a communication framework of meetings or phone calls needs to be established so that organisation managers can advise the research team on their commercial requirements and preferences as key decisions are being made during R&D implementation.

5. Improving Outcomes

One of the simplest ways to improve R&D outcomes is to be part of the process. Expecting university researchers to deliver commercial outcomes when they are not aware of the organisation's overall strategy and business model is unrealistic.

Similarly, organisations need to be realistic in terms of what an external research team can deliver. NASA and the US Department of Defence developed a technology readiness level concept as part of the space program. The focus was on how new technologies can be proven and incorporated into a final commercial product. Since then, there has been discussion around the investment readiness of new technologies and alignment with business models.

The Impact Innovation Group has taken these two concepts to develop a combined technology and investment readiness level as our way of assessing how technologies can progress from the research stage (particularly from university research) to commercial products.

The key thing to remember is that within the Technology Readiness Level, university research generally takes a new technology to level 4 or 5. This does not infer that the research team can't be involved in taking a technology through to level 9, but the standard practice is to get a technology to the prototype stage.

The trap for organisations engaging with universities is to expect the university researchers to have a technology at level 9 as well as to take into account market customer requirements, manufacturing and distribution requirements, and revenue and cost model requirements.

This webinar recording on YouTube talks more about this tool.
https://www.youtube.com/watch?v=gPbZciURYEM

Tips and Tricks

So in summary, here are some tips and tricks to successfully establishing external R&D and 'winning' at it:

- Don't assume that your local university has the research team best suited for your project.
- Interview researchers to make sure that you are comfortable with how they have approached similar projects.
- If necessary, get references from previous clients of the research team.
- Establish a scope of work that not only takes into account technical requirements but also the management and communication requirements.
- Manage the project to maximise outcomes - don't assume that the researcher can make decisions on their own.
- Be realistic about what a university research team can deliver in isolation from the rest of the organisation.

About Us

The Impact Innovation Group is a specialist innovation management and technology commercialisation company providing consultancy services to companies, NGOs, government agencies and research organisations. The business focuses on four key areas:

- Innovation Management and Systems: Our expert team of advisors and consultants have a proven track record in successfully assisting organisations, and innovation teams within those organisations, in reaching their innovation goals, be it product, process or culture.
- Technology Commercialisation: The company has established a range of unique commercialisation management and engagement methodologies that are geared towards effective risk management and maximising the potential for successful technology commercialisation.
- Technology Scouting and Acquisition: We have a unique network of major Australian universities and research organisations. This provides our clients with not only technologies that are 'advertised' but also access to early stage research outcomes and collaboration opportunities.
- Early Stage Executive and Advisory: We bring a track record of business and leadership experience and are regularly engaged by founders and investors in start-up companies to provide the management rigour and focus on technology commercialisation.

For more information please visit www.impactinnovationgroup.com or contact us at info@impactinnovationgroup.com.