CSTI Science Technology Innovation Policy

Building Long Term Strategic University-Industry Partnerships

LESSONS AND EFFECTIVE PRACTICES FROM UK AND US EXPERIENCES

EXECUTIVE SUMMARY | TOMAS COATES ULRICHSEN

A workshop was held in Cambridge UK in March 2014 to identify ways of strengthening the ability of universities and industrial partners to develop mutually beneficial and effective strategic partnerships. This is becoming a critical issue for universities and companies alike. The event drew upon the collective and comparative experiences of senior thought leaders and practitioners from leading UK & US universities, large research intensive multinational companies and UK & US government agencies. Expert panel presentations and smaller facilitated breakout group sessions focused on key issues at different stages of the partnership journey with the goal of identifying key lessons and effective practices.

This document presents the key lessons and effective practices identified by the delegates within the following themes:

- Exploring the value proposition and potential downsides;
- Initiating strategic partnerships;
- Nurturing and managing them;
- Building resilience to deal with disruption and change;
- Roles for government R&D funding agencies;
- Key challenges and opportunities moving forward

The workshop focused on those higher value partnerships which:

- Are for the longer term;
- Transcend any one project and individual;
- Involve investments by all sides in developing deeper, and more strategic relationships;
- Involve commitments and buy-in by senior strategy leaders of the partner organisations;
- Exhibit some degree of selectivity on the part of the company and the university;
- Through strategic commitment, aim to achieve greater returns on partners' investments

THE RISE OF STRATEGIC UNIVERSITY-INDUSTRY PARTNERSHIPS

Strategic partnerships are becoming an increasingly important part of the university-industry landscape. Evidence of the rise and significance of such partnerships over the past decade emerged strongly throughout the workshop.

Many large research-intensive companies, in particular, have been consolidating their investments in universities, to focus on developing a core set of strategic, longer term partnerships with a selective group of universities. Despite their continuing scientific leadership, the UK and US are facing intensifying global competition for these types of investments, with growing opportunities for valuable strategic partnerships in key emerging nations such as China, India and Brazil.

In response to these key trends, universities in the UK and US have been experimenting in their approaches to developing and nurturing effective strategic partnerships, and learning from these experiences.

It is therefore critical to reflect on, and learn from, the collective experiences to ensure the necessary capabilities, processes and resources are in place to remain competitive for these types of larger scale and higher value investments in the future.

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EXPLORING THE VALUE PROPOSITION

Central to the decision to form a strategic partnership is the value proposition: What can these types of university-industry partnerships deliver compared with other forms of interaction? The workshop identified a range of types of added value to both the industrial and university partners, as well as a number of potential downsides.

Value for the industrial partner:

- Address longer term, larger and riskier innovation challenges
- Provide stability for next generation technology research activity
- Access complementary capabilities and resources and make it easier to identify expertise in wider university
- Develop critical mass around innovation challenges
- Collaborate further down the innovation pipeline
- Through mutual learning, develop more effective ways to transfer and absorb outputs
- Invest in, and commit to, dedicated infrastructure, specialist equipment and proprietary resources
- Achieve greater financial leverage on R&D investments
- Reduce transaction costs of repeated and multiple projects with the same university
- Reduce search costs for talent and knowledge in academia
- Facilitate access to national and regional innovation systems new to the company

Value proposition for the university:

- Diversification of funding for university activities
- Identify and work on stimulating industrial challenges requiring advances in fundamental understanding
- Develop pathways to impact for research and greater understanding of industrial innovation needs
- Access cutting-edge facilities and equipment, proprietary data and valuable resources in industry
- Development of researcher capabilities
- Enrich student experience and recruitment opportunities
- Provide a focal point to develop and coordinate critical mass resources to address major innovation challenges

"It gives us an opportunity to open up new areas and answer much bigger questions than we could do on a project-by-project basis... and bring in resources that would be hard to justify otherwise"

- Senior university manager

Some possible downsides and trade-offs:

- Potential for selecting the wrong partner
- Overreliance of the company on few partners can lead to vulnerability to change, loss of agility, missed opportunities
- Overreliance of the university on few major partnerships can leave them financially vulnerable
- Potential for long term lock-in – high switching costs
- Challenges killing projects may lead to slow responsiveness of partnerships to commercial needs
- Loss of key individuals can change the value proposition
- Potential for locking out other companies
- Risk of leakage of knowledge and information to competitors

INITIATING

Strategic partnerships have many origins, with many successful ones emerging through pre-existing individual-level relationships. Initiating a strategic partnership can be challenging, time consuming and require specific capabilities to support the process. Developing mutual value, win-win partnerships lies at the heart of success.

"It is absolutely key that you get a clear articulation of the goals at the outset. And inside the company, you have got to get that sponsored and bought-in across multiple divisions with different objectives and timescales"

- Company executive

Key lessons:

- Commitment and buy-in from both sides at appropriately senior levels, as well as from academic and industrial researchers, is critical
- Neither university nor industry partners are monoliths with a single voice and motivation. This creates challenges for securing institutional buy-in and commitment
- Focusing on co-creation, alignment of objectives and expectations, and the development of mutual value is important
- Care should be taken to understand each others' various needs, capabilities, constraints and contexts
- Greater understanding is required when partnerships should or should not become strategic
- Inflexible approaches towards IP can stall progress. Greater understanding is needed about when IP becomes an issue.
- Financial commitment from all sides is important to ensure alignment of interests and wider institutional buy-in
- Too much money too quickly can create problems; the scale and sequencing of funding is important

Effective practices:

- Develop a clear articulation of the value proposition, recognising differing objectives of internal stakeholders
- Adopt more nuanced approaches to IP as well as flexibility in contracting on both sides to get around tricky issues
- Strong 'boundary spanning' roles can be important for facilitating the development and refinement of the value proposition, navigating internal politics and securing internal buy-in
- Think carefully about implementation and milestones to avoid overpromising and under-delivering
- Strategic partnership portfolio mapping can help reveal where the new partnership will add value, areas for potential collaboration and minimise duplication
- Get the hard stuff on the table first in negotiations, including any 'walk aways'
- Get to the first project quickly, particularly if wider framework development takes time to put in place
- Develop clear internal criteria for deciding when partnerships should or should not become strategic.

NURTURING & MANAGING

Successful strategic partnerships need to be proactively managed and nurtured on both sides. These larger scale partnerships – involving multiple projects and individuals from different parts of both organisations –require greater coordination than more transactional, project-based interactions and generate greater institution-level reputational risks.

Key lessons:

- Strategic partnerships need dedicated leadership and management. They also benefit from strong professional support structures on both sides with well networked 'boundary spanners' playing an important nurturing role
- Building trust is critical, as it allows partners to be open about critical problems and engage fully. Trust takes time to build, needs careful nurturing, and can be quickly destroyed.
- Reputations matter and preventing bad experiences is critical with both universities and companies having long institutional memories and 'blacklists'
- Frequent interactions, openness and strong communication are key to working effectively across the interface and developing trust. These factors are amplified if partners are not co-located
- Transferring outputs into the wider organisation is a major challenge. Willingness to learn from experience and experiment with new pathways is important
- People exchange can strengthen the absorption process; researcher capabilities to work across the interface; and the mutual understanding of needs, capabilities, constraints and contexts.

Effective practices:

- Establish dedicated management teams with joint decision making from both partners
- Create strong linkages back into each organisation through well networked 'boundary spanners'
- Establish connections and advocates at multiple levels of the organisations with clear lines of communication
- Ensure open, honest and transparent communication and develop frequent, open interactions between researchers to build trust and effective working practices across the interface
- Relationship building skills are increasingly important at all levels
- Reflect on effective transfer pathways back into each organisation focusing on mutual learning about what does and does not work. Be willing to adapt and experiment where necessary
- Explore new approaches for enhancing the mobility of individuals across the interface

"It is really important that there trust between the institutions, between the researchers, between the contract groups... based on success of research so that we can point to a track record"

- Company executive

BUILDING RESILIENCE

Strategic partnerships will change over their lifetime. Changes – some disruptive – can arise in many areas including: partnership leadership; technology/innovation needs; internal or external policies; reorganisations; company leadership and strategy; and financial circumstances. Building resilience to disruptions and change is an important part of developing a successful partnership.

Key lessons:

- Many changes can be anticipated and should be carefully planned for.
- Partnerships need some degree of flexibility built into them and need to be able to adapt and evolve to survive
- Continuous learning and adaptation is critical as conditions change, particularly in the first few years of the partnership when partners may not fully understand how best to realise value; operate across the interface; and absorb the outputs
- Open, honest and frequent communication, and dense networks of connections at different partner levels help to build resilience, encourage organisational learning, and secure ongoing buy-in
- Sometimes partnerships have to end... Amicable, controlled termination should be ensured to minimise disruption to each others' organisation and people's careers, and protect wider institutional reputations

"We couldn't deliver them bite-sized innovation; they didn't know how to receive it. So we had to learn how to bundle ideas into technology packages"

- University leader

Effective practices:

- A clear vision, strategy and operational plan can provide an important touchstone for reference when dealing with disruptions and change
- Plan for changes that can be anticipated and do it early. Co-developed 'playbooks' can be useful here
- Partnership 'roadmapping' and/or scenario planning can help identify key sources of change and processes for dealing with them. Periodic strategy exercises can also help refresh the vision and direction
- Ensure contracts provide flexibility to adapt and encourage dialogue in the face of disruptions, rather than conflict and escalation
- Strengthen resilience by building dense networks of relationships between partners at multiple levels
- Build an institutional memory that captures how disruptions and changes were managed in the past, and ensures continuity following the departure of key individuals
- 'Boundary spanners' can play a critical role in helping to navigate the turbulent period and manage transitions
- Hold regular reviews that reflect on strategic directions and what has and has not worked, as well as performance. Be willing to make mid-course corrections as necessary
- When things go wrong, focus on understanding why, avoiding the blame game: learn, adapt, and move on

ROLES FOR GOVERNMENT

Government agencies can play a number of important roles in the development of strategic university-industry partnerships, not least by creating a fertile environment for them to emerge and develop. They also play an important role providing resources to help universities develop institution-level capabilities and competencies to respond and engage.

Government agencies and programmes have the potential to:

- Support, where appropriate, growth in the scale and depth of the university-industry interface to seed the relationships that may become strategic in the future
- Provide universities with the underpinning resources to develop the necessary capabilities and competencies to respond to, and support emerging strategic partnerships
- Provide a brokerage role to help identify expertise and centres of excellence within the research base
- Create challenge-driven, leveraged funding opportunities for projects or joint infrastructure. These can allow partners to increase the leverage of each others' investments
- Influence system-wide incentives to encourage academic behaviour conducive to engaging with industry
- Reduce the complexity of funding programmes and think more strategically about how funding programmes integrate as technologies develop
- Explore the potential for developing PhD programmes that enable greater working across the interface; encourage greater mobility of individuals; and strengthen student capabilities for addressing industrial research challenges
- Ensure alignment and coordination of the multiplicity of programmes at different spatial levels (local, national and international) to ensure supportive environment for strategic partnership development.

MOVING FORWARD

The workshop identified a number of questions surrounding key challenges and opportunities warranting further exploration:

- How does the value proposition evolve as partnerships mature and for different types of companies? How can the challenges associated with securing ongoing buy-in be overcome, particularly following a major disruptive event?
- What novel mechanisms are being developed to strengthen the absorptive capability and capacity of partners?
- What more can be done to encourage the mobility of individuals across the interface?
- How can companies best organise their global strategic partnership portfolios to maximise their overall value to their organisation? What are the key challenges to achieving this? What capabilities and resources do universities require internally to facilitate global partnerships with other universities in a company's portfolio? What government-level impediments need to be removed?
- How can strategic partnerships between universities and large companies be leveraged to support the innovation challenges of the wider value network of the company?

CSTI Research on the Functions and Value of the Public Research Base in the Innovation System

Tomas Coates Ulrichsen (tc267@cam.ac.uk) leads a programme of research to better understand how the public research base, in particular research universities, supports technological emergence, industrial transformation, and national economic growth. Current projects include: the value and dynamics of strategic university-industry partnerships; the emergence of universities as knowledge hubs in innovation systems; and the influence of universities in R&D location decisions of multinational companies.

For further information: http://tinyurl.com/klsphzh

Workshop organised by:

CSTI Science Technolo Innovatic Policy

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PraxisUnico. Impact through innovation

UIDP University-Industry Demonstration Partnership

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FOR FURTHER INFORMATION OR TO ENGAGE WITH THE RESEARCH

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ABOUT CSTI

CSTI, led by Dr Eoin O'Sullivan (eo252@cam.ac.uk), carries out applied research exploring what makes national innovation systems effective at translating new science and engineering ideas into novel technologies and emerging industries. Key research themes include: economic value capture from industrial innovation systems; innovation system regulations and standards; technological emergence; manufacturing systems; and the public research base and innovation development

www.ifm.eng.cam.ac.uk/research/csti