# The Challenges of Mobilising Triple Helix Stakeholders: Introduction by the Editors[[1]](#footnote-1)

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The post-industrial society and economy are emerging as complex, dynamic and fragmented entity – characterized by smart specialization and fragmentation of global production, narrow core capabilities of firms, global value chains and blurred firm boundaries of cooperation and competition. Traditional commercial activities become entangled into complex networks of public and private services, public and private innovation actors, national and international stakeholders with everchanging power and influence.

Internationalisation and coordination of supply chains across national boundaries are no longer a simple firm decision, but requires complex interactions with governments, local authorities, education providers and local business institutions. These complex multi-stakeholder arrangements are unique both as historical and commercial coalitions. Their management and orchestration are charting unique trajectories of negotiations and agreements, stretching across geographic boundaries, or policy domains, such as innovation, economic growth, regional development, industrial modernisation, or community engagement and societal impact.

The complex relationships between technologies, products and services make business decisions dependent much more on government innovation policies, university engagement and multiple layers of domestic and foreign intermediation by public and private sector actors. Building Triple Helix constellations and multi-stakeholder coalitions becomes a major risk sharing mechanism for large and small firms. Triple Helix constellations at regional level become a lead mechanism to simplify business and social interactions across knowledge and technology fields that encompass stakeholders such as service providers, users and investors, decision makers and community members.

In order to understand better how to engage with stakeholders and to activate triple helix actors, there are two challenges that need to be addressed. The first is to expand our knowledge on multiple stakeholders. The stakeholder theory is almost stuck on mapping and measuring stakeholder power and influence. On the other hand, the practice of stakeholder engagement is flourishing harnessed by networks, blogs, focus groups and action groups, intermediaries, facilitators, brokers and a variety of community level communication platforms.

This volume is aiming **to present a group of cases of successful Triple Helix engagement which demonstrate the benefits and the costs of multi-stakeholder management at regional, national and international level**. We present different sectoral and regional triple helix constellations in different country context – comparing actors, their strategic aims, and how these co-align, how they act together, and what is the tangible and intangible impact of such a triple helix mobilisation. We also present models to scale up the impact.

The cases presented in this publication were sourced from the applications for the **Triple Helix International Medal Award 2018**, A triple Helix Association Award, launched at the II International Triple Helix Summit, 10-13 November 2018 Dubai.

The award invites public or private organizations who are actively involved in Triple Helix interactions and engaged in **building successful and goal-oriented relationships among Industry-Academia-Government**, thus facilitating the transfer and exploitation of knowledge for societal and economic growth. The scope of the award is to give relevance to the “best in class”, who have developed and operationalized effective interaction models and mechanisms able to produce concrete results and impact in terms of knowledge transfer and exploitation, and that could inspire the next generation of Triple Helix Practitioners. Among the applicants are Technology transfer offices, Liaison offices, Science Parks, Techno poles, Incubators, Regional innovation agencies and pubic or semi-public innovation intermediaries, Private consulting firms and innovation actors and intermediaries involved in managing Triple Helix dynamics for knowledge generation and exploitation[[2]](#footnote-2). The winner of the award was Lombardy region, represented at the award ceremony by Mr Ermanno Boccalari, and Ms Paola Peduzzi for the case “Lombardy Region Open Innovation Platform” authored by Roberto Albonetti, Paola Peduzzi, Maurizio De Bartolo and Marina Colombo [<https://bit.ly/2Goim9M>].



In the first section of this volume we look at four cases of scaling up impact. The first case explores Powering Synergies between Innovation Policy and Regional Development frameworks. In this case Dimitri Corpakis looks at how smart specialisation as a policy framework provides this horizontal perspective on co-alignment of Research and Innovation and Cohesion (Regional development) policies. Governments across the entire territory of the European Union are increasingly looking at how to generate synergies across policy domains through co-financing, strategic integration and intelligent choices on research, technology and innovation. Research and Innovation Strategies for Smart Specialisation (RIS3) and the accompanying action and implementation plans, emerge as key enablers for an effective coordination between government, industry and academia.

The RIS3 policy framework has enabled both bottom up and top-down strategic choices that grow into investment decisions shaping the future landscape of sectoral strengths and economic growth across the Single Market. Although the instruments of policy intervention seem to be the same – investment projects – the mechanisms of shaping the strategic focus of these projects is fundamentally changed – embracing the Triple Helix constituencies through an early engagement under the Entrepreneurial Discovery Process (EDP). The case provides details of the theoretical foundations for the RIS3 policy framework – by a reference to the strategic aim for developing an interregional comparative advantage and to generate scaling up, broadening the scope and accelerating the spill-overs in knowledge production and use across the European Union member states.

The expected impact is envisaged at regional level – to stimulate local stakeholders, increasing innovation capacity, trade and jobs. The envisaged intangible impact is around enabling stakeholders, the maximisation / optimisation of the regional impact of structural and investment funds and supporting the competitive selection process across the single market. In addition, the implementation of the RIS3 policy framework has already generated new administrative capacity for exercising scrutiny, evaluation, monitoring and provision of constructive feedback across stages of the strategy design and implementation process with enhanced possibility for re-adaptation of goals and means to achieve them. Corpakis acknowledges that the Triple Helix concept represents a ‘triumph’ of policy integration through the Smart Specialisation Strategy in action – empowering universities, government and business in their open dialogue.

The second case of the National Research Council of Italy (CNR) demonstrates how bilateralism and Multilateralism can co-exist – empowered by Triple Helix actors (Fiore, Cormio and Di Marzo). The leading actor in this case is the Université Laval, who established a Joint International Research Unit (JIRU) as a Triple Helix endeavour – co-financed by the Italian government (through CNR), strategically managed by the Université Laval in Quebec, Canada, and actively working with international innovation networks in the fields of biomolecular chemistry, micro-biome, nutrition and cardiometabolic health. This case demonstrates how Bilateralism can enhance the ability of individual actors to produce knowledge and to quickly transform such knowledge into an economic value. This case demonstrates the use of a precompetitive Network model with an open system and industry participation.

Among the tangible impact is the synergy that emerged between the partnering institutions and the innovation dynamics that this created in the open innovation ecosystem that grew around the Joint International Research Unit. Among the intangible impact of this case is cited the co-alignment of foreign policy and innovation policy, and the emerging practice of international technology transfer and the transformation of knowledge into productive capacity. Among the transferability of this practice can be cited the Instrumentarium of contracts and procedures for managing international technology transfer operations.

The third case describes the successful implementation of a national initiative in Pakistan designed to boost innovation and triple helix interactions – the Invention to Innovation Summit. This is a jointly planned initiative between the government in four provinces in Pakistan, local universities and education providers and national and international firms. The case summarises the experience from 18 Innovation Summits with over 100 participating organisations. The lead institution - Institute of Research Promotion (IRP) – has adopted the Triple Helix model as a foundation principle in designing the events and organising the activities. In addition, as an off-spring of educational entrepreneurship the IRP hosts multiple initiatives – from pure academic activities (research paper series), to knowledge transfer activities (such as the Invention to Innovation Summit since 2012), commercial activities (data management and research commercialisation), and institution building for R&D.

The IRP is quasi-independent entity that is employing the Triple helix concept to promote transformation of culture embracing innovation and entrepreneurship. The international team of authors describe details of the triple helix model adopted for this initiative. First, the organiser represent a Triple helix, which constitutes of government (Pakistan Council for Science and Technology, Pakistan Science Foundation (PSF), Ministry of Science and Technology, and Government of Pakistan), a coalition of Universities (University of the Punjab and University of Management and Technology, Lahore – among others), sponsors and participants from industry. Second the activities during the two-day event encompass technology demonstrations, university-industry interactions, policy sessions, technology awards and other technology promotion activities bringing the helices together. Third, in specific sectors, such as gems and jewellery, participated in policy development sessions, demonstrating a synchronise triple helix approach to industry development.

The sequence of 18 consecutive events across the country have facilitated a simultaneous horizontal and vertical connectivity across the Triple Helices at a provincial and at national level. It has also generated mobility – described as ‘technology tourism’ – where participants from previous forums follow the event as it unfolds in new locations. The open engagement between university researchers and industry has generated a new form of a dialogue and feedback from business on future technology diffusion and upgrade opportunities.

The transferability of this initiative is achieved across all provinces in Pakistan and can easily be replicated across other developing countries. The portfolio of Summit awards has already achieved a wider national recognition, which actively promotes the Triple Helix model of engagement.

The fourth case by Kobzeva, Malakhovskaya, Pavlova and Gribov highlights the importance of the intrinsic knowledge of the Triple Helix model, enabling universities in Russia to participate in the self-assessment exercise about the role of universities in regional development. The self-assessment exercise aims to develop a workable university model with operational mechanisms how to scale up practices.

One of the key transferable outcomes from this national implementation project is the development of indicators that can measure the operational performance across different Russian regions. As a consequence, these indicators enabled the adoption of a new financing mechanism for Russian universities that includes non-budgetary sources and research funding. These were piloted with universities, highlighting the inertia in academia and the lack of proper methodology for the assessment of the third mission of the universities.

The volume contains three regional cases of Triple Helix best practice. The case on the open innovation platform in Lombardy Region contains good description of creating an open system that empowers citizen innovation bringing in the triple helix actors in a horizontal space of searching and match-making. From measuring innovation needs to measuring competences and impact – the platform serves as an open instrument – introducing actors one to another. The authors Albonetti, Peduzzi and De Bartolo describe that all three types of actors have Champions that lead the process. These Champions exhibit both committed individuals and committed institutional roles associated with resource allocation and decision-making powers. The novelty for the Triple helix constitution in Lombardy is the strong cluster on Advanced Manufacturing Systems, with the commitment of the cluster manager.

**Table 1:** Triple Helix Best Practice Cases

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| --- | --- | --- |
| CASES | WHO LEADS THE TRIPLE HELIX | OUTCOMES FROM ENGAGEMENT |
| Smart Specialization - *Corpakis* | European Commission | Synergies across policy frameworks |
| Laval University, Joint International Research Unit (JIRU) – *Fiore, Cormio, Di Marzo* | National Research Council, Italy | International technology transfer practices and instruments |
| Invention to Innovation Summit – *Ullah, Shirwani, Zohra, Todeva, Altaf* | Consortium of hosting Triple Helix actors | Branded portfolio of innovation awards, improved national innovation culture, research & technology mobility |
| University Self-Assessment for their Role in Regions – *Kobzeva, Malakhovskaya, Pavlova, Gribov* | Ministry of Science and Education of Russia | Indicators measuring universities as drives of innovation & development and ranking |
| Open Innovation in Lombardy – *Albonetti, Peduzzi, De Bartolo* | Lombardy Region General Directorate for research, Innovation, university, export & internationalization supports, Italy | Technology enabled sharing platform - containing tools for knowledge sharing; integrating a comprehensive competences repository with related innovation activities, business and innovation networks, international relationships and interests in different technical and economic topics |
| Triple Helix system for the support of the regional transformation in Tomsk Oblast, Russia - *Kobzeva, Gribov and Raevskaya* | Tomsk Oblast regional authority in the Russian Federation and creation of a special project office ‘INO Tomsk’ | A new coordination project/office - based on the Triple Helix model - for the generation of resources to accelerate regional economic growth, for the practical implementation of the cluster approach, and for the delivery of organizational support (methods, mechanisms and new practices) for the adoption and implementation of economic decisions at regional level |
| Institute of Research Promotion (IRP), Pakistan - project comparing national and international entrepreneurial scientists - *Ullah, Zohra, Mirza, ul Haq and Altaf* | Institute of Research Promotion (IRP) as an Independent knowledge transfer organization | Entrepreneurial research strengthens both the visibility of entrepreneurial scientists themselves, and the triple helix response of industry, academia and state recognition, transforming the culture of university-industry cooperation and enhancing knowledge exploitation and wealth creation |
| Harvesting Rewards from Open Innovation Collaborations – *Cochrane, Mancini* | A company AgroVegetal, established by the Andalusian Federation of Agricultural Cooperatives and with support from the Andalusian Government and the European Union | Advanced portfolio of new technologies designed in implemented within the maize supply chain with major economic and societal impact on crop production |
| Crowdsourcing for Refining a Product Concept and Raising Awareness - *Albats, Mancini* | A small startup company driving in a crowdsourcing and mobilizing stakeholders in a crowd-science project – with the support of the European Commission, Horizon 2020 and number of incubators and accelerators |  |
| Industry-research collaboration transforming public procurement assignments to a mutual knowledge exchange project | Archimede Solar Energy, a small start-up company spun out from an Italian industrial group | Startup Learning how to establish long-standing collaboration with large public research organizations and multinational companies to bring a complex solution to market |

*Source: own edition*

The main tangible impact evidenced with this case is the free collaborative work environment and the comprehensive repository of R&I competences in the region, developed for several critical regional actors, enabling free flow of information among innovators. The main intangible outcome is a technology enabled sharing platform integrating the competences repository with related activities, business and innovation networks, international relationships and interests in different technical and economic topics. This ‘one-stop-shop’ for the regional research and innovation ecosystem is seen as a milestone in the building of a culture of open innovation and university-industry collaboration.

The second territorial case describes the efforts of the Regional Government in Tomsk Oblast, Russia to develop a Triple Helix system for the support of the regional transformation into an innovation hub. Kobzeva, Gribov and Raevskaya outline an ambitious initiative of a regional authority to develop a new coordination platform for the generation of resources to accelerate regional economic growth, for the practical implementation of the cluster approach, and for the delivery of organisational support (methods, mechanisms and new practices) for the adoption and implementation of economic decisions at regional level.

The essence of this initiative is the creation of a mechanism for inter-departmental and inter-agency cooperation of federal ministries for the implementation of Triple Helix based initiatives. Among the intangible impact the authors refer to the link between the Triple helix model and the implementation of the cluster policies in the region. The transferability of this Triple Helix best practice is achieved as the model is spread to two other Russian legal entities - the Republic of Tatarstan and the Novosibirsk region. The authors identify three prerequisites that would guarantee the successful transferability: high concentration of PhD researchers, high concentration of innovative companies, and the existence of a consensus between the regional triple helix actors.

The regional case on entrepreneurial science in Pakistan describes well that the academic entrepreneurship knowledge is essential to all innovation actors, including scientists, project managers, university teaching and research staff. According to the authors Ullah, Zohra, Mirza, ul Haq and Altaf, entrepreneurial research undertaken as part of studying entrepreneurial scientists provides valuable insights for all triple helix actors and stakeholders, including donors and entrepreneurial scientists themselves – how successful entrepreneurship enhances knowledge exploitation and wealth creation.

The Institute of Research Promotion (IRP) in Lahore is a proud host for this research initiative and operates entirely on the principles of Triple Helix engagement. The IRP conducts research, seminars, symposiums, exhibitions of indigenous technologies, and acts as a broker in university-industry collaborations. Their project studying national and international entrepreneurial scientists has revealed that the diversity of cases delivered a stylised framework for the comparative analysis (PESE framework) and served to strengthen both the visibility of the scientists themselves, and the triple helix response of industry, academia and state recognition.

The three sectoral cases by Maria Mancini and colleagues identify the variety of stakeholders engaged in each technology field. The case of AgroVegetal - Harvesting Rewards from Open Innovation Collaborations refers to a collaborative project between the Andalusian Federation of Agricultural Cooperatives and their company AgroVegetal, the International Maize and Wheat Improvement Center (CIMMYT) in Mexico, and a grant by the European Union’s Horizon 2020. Other partners and stakeholders in this project included industry for quality testing, scientists on disease resistance for crops from the Spanish National Research Council (CSIC) and public universities, and companies within the supply chain for wheat varieties.

The second sectoral case on Platoscience, from Lab to Market presents a crowd-science project which runs a community of neuroscientists, engineers, developers and creative people and exploits the expertise and resources of business incubators – aiming at Refining of Product Concepts and Raising Awareness. The project has adopted crowdsourcing for its crowd-science endeavours, combining high level technical skills and knowledge with entrepreneurial spirit, in a supportive innovation ecosystem in order to bring its disruptive solutions to market.

The third sectoral case is also a case of a business-lead Triple helix, where Archimede Solar Energy has formed an Industry-Research Collaboration and has transformed its activities from Public Procurement Assignments to a Mutual Knowledge Exchange project. The most essential learning is that the SME needed a Triple Helix umbrella – to obtain financing and to deliver its value proposition.

**Activating Triple Helix Constellations – Models and Practices**

This first volume of Triple Helix Best Practices has revealed that although Government-funded institutions continue to play a dominant role shaping Triple Helix constellations, there are emergent practices where universities and private sector organisations take this leadership role. The complexity of triple helix interactions requires substantial intermediation – both in terms of financing, but also in terms of coordination (Todeva, 2013). The new model for governance of innovation and intermediation in Triple Helix interactions explains why non-governmental actors actively stir relationships between innovation actors. It is through the factors of production and the factors of innovation that knowledge actors and private sector organisations engage – to actively shape future location-driven or technology-driven coalitions. The literature on intermediation activities and practices points at five types - regulation, innovation policies, knowledge transfer channels, contract management, and relationship management - and in our first volume the assembled cases provide details for all of these. Among the most visible intermediation channels described in the cases are: strategic partnerships, events, contract research, collaborative research, collaborative platforms, coordination agencies, or specialised organisational resources supporting triple helix relationships.

The cases that focus on the triple helix in the regions provide good empirical evidence of the role of regional authorities in supporting triple helix coalitions and exercising a leadership role for value creation and value capture within the particular locations (Danson and Todeva, 2016). In addition, all cases confirm that regional triple helices need substantial inputs from the so called enablers – skills and human capital, public sector finance and private sector investment of some kind (Todeva and Danson, 2016). In terms of leadership and who should drive the Triple Helix, the cases demonstrate that all actors are capable of building coalitions and implementing collaborative strategies across the triple helix space. The stakeholder engagement for the purpose of triple helix mobilisation designs and implements innovative business models and captures skills and capabilities previously untapped (Todeva and Ketikidis, 2017b).

Finally, the tangible and intangible impact and outcomes reported in the cases, demonstrate a very rich range of value added from triple helix interactions. Among these are: Synergies across policy frameworks, International technology transfer, improved national innovation culture, research and technology mobility, co-alignment of incentives between university ranking and regional development, technology enabled sharing platform that supports business and innovation networks and international relationships, or the visibility of entrepreneurial science and technology start-up companies. All these examples of impact demonstrate effective triple helix coalitions that are able to overcome challenges such as: building regional research and innovation systems, implementation of smart specialisation strategies, diffusion of key enabling technologies, SME support, building of knowledge internationalisation partnerships, or building intra- and inter-regional cooperation networks (Todeva and Ketikidis, 2017a). The editorial team and the Triple Helix Award Committee, are looking forward to the next editions of the Triple Helix Best Practice Series.

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1. In: Triple Helix Best Practices Series [Online]; Volume I (2019) The Role of Government / Academia / Industry in Building Innovation-Based Cities and Nations. Editors: Prof. Emanuela Todeva, Prof Abdullah M. Alshamsi, Dr. Adrian Solomon; pp.4-10, Triple Helix Association, ISSN 2612-7717. [↑](#footnote-ref-1)
2. The **International selection committee** supporting the Award [<https://bit.ly/32HfkHg>] is composed of leading figures from the academia, business and investor communities as follows: Prof. Panayiotis Ketikidis, University of Sheffield, Greece; Prof. Josep Miquel Pique Huerta, La Salle Innovation Park- Ramon Llull University, Spain; Prof. Riccardo Viale, Bicocca University, Italy; Prof. Bassam Abdel-Karim Abu-Hijleh, British University in Dubai, UEA; Prof. Bilal A. Akash, American University of Ras Al Khaimah, UEA; and Prof. Geoffrey Gachino, British University in Dubai, UEA. The **selection criteria** for the Award were as follows:

   • **Relevance** of the case in relation to the Triple Helix actors and the themes of the Summit.

   • **Reach**: Number of stakeholders/actors that benefited from the practice/case.

   • Impact (intangible): What has changed/improved for actors and the wider community as a result of the adoption of the concerned practice?

   • **Impact (tangible):** What’s the financial impact on the involved organizations, resulting from the adoption of the concerned practice?

   • **Transferability**: Is the concerned practice transferable in other/different contexts or is it dependent and enabled by specific local/framework conditions?

   • **Innovativeness**: To what extent is the proposed case/solution innovative as compared to existing efforts? [↑](#footnote-ref-2)