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“DESIGNING GLOBALLY CONNECTED REGIONAL INNOVATION ECOSYSTEMS: OVERCOMING BARRIERS AND OPENING PATHWAYS”

Academic paper

Crawley E.F*^[3], Hegarty J^[1], Edström K^[2], Garcia Sanchez J.C^[3]

^[1]Trinity College ~ Dublin ~ Ireland, ^[2]KTH Royal Institute of Technology ~ Stockholm ~ Sweden, ^[3]MIT - Massachusetts Institute of Technology ~ Cambridge ~ United States of America

Abstract text:

When universities participate in systematic knowledge exchange, they can become more effective, powerful engines of economic development. Knowledge exchange, the multidirectional flow of people, capacities and ideas between the university and its partners, accelerates innovation in industry and enterprise, leading to tangible, and often profound, economic impact. The main contribution of this study is to identify and codify a set of patterns of behavior, illustrated with 43 case studies from across the globe, that collectively exemplify how universities can exchange knowledge more effectively.

These are based on the effective practices of leading universities that the authors have benchmarked, and the personal experiences of the authors in a number of international institution building projects, including those of MIT. The study includes technical and comprehensive research universities, old and new, large and small, and with a wide geographic spread. It is a sampling of many different university systems and cultures that share an aspiration for greater economic contribution. The authors provide pragmatic guidance that is globally applicable, but must be locally adapted by ambitious universities and their stakeholders. Effective knowledge exchange is best guided by a systematic approach. It benefits from crossing disciplinary boundaries, and from integrated activities in education, research and catalyzing innovation.

In education, the following practices prepare students to be talented graduates, acting as agents of knowledge exchange, as innovators and as citizens:

- Implementing an integrated curriculum, preparing students in disciplinary fundamentals, and essential life and professional skills
- Engaging students in active, experiential and digital learning for deeper conceptual understanding, self-efficacy and self-learning
- Expeditiously introducing emerging and cross-disciplinary thought from research into the curriculum as new disciplines or interdisciplinary programs
- Offering students courses within the curriculum in leadership, management and entrepreneurship to better prepare them for innovation

Research leads to discoveries, often revealing phenomena or truths that previously existed but were unknown or ill explained. These discoveries have the potential to impact knowledge exchange and innovation through:

- Pursuing fundamental discoveries along a spectrum, from curiosity-driven to use-inspired, that impact both scholarship and society
- Collaborating within and across disciplines in search for new high-impact cross-disciplinary discoveries and fields of thought
- Empowering large scale Centers of Research, Education and Innovation to find directly implementable solutions to the pressing societal issues

- Energizing research by engaging undergraduate and postgraduate students, preparing them as agents of knowledge exchange

In catalyzing innovation, participants produce creations. These can be synthesized objects, processes and systems that have never before existed. Increased impact on knowledge exchange occurs by:

- Maturing the technical readiness of discoveries and creations within the university, and assessing their business readiness
- Facilitating dialogue and formal agreements with partners to promote the adoption of discoveries and creations
- Engaging in the actual entrepreneurship process within the university to create new ventures and better prepare entrepreneurs

These eleven practices are enabled by supporting practices at the university and its partners which constitutes a framework for the adaptable university. These supporting practices help focus the university's resources on important tasks, and communicate more effectively, while creating a more supportive intellectual and physical ecosystem in which faculty, staff and students can flourish and contribute. These six supporting practices facilitate the effective operation of the university:

- Engaging external stakeholders to understand their needs and inform the curriculum, research and innovation agendas
- Evolving the university culture to be supportive of activities leading to economic development
- Revising the university's mission, strategy and priorities to focus investment of resources and to communicate how the university will distinguish itself including in innovation
- Updating governance procedures to strengthen the role of knowledge exchange and innovation
- Recruiting and developing faculty and staff who will strengthen knowledge exchange and engage in the innovation mission
- Ensuring that academic facilities are functionally suitable to new learning, innovation and collaborative research activities

As universities become more important to the development of regions and nations, stakeholders expect them to evaluate their impact. The main task of this evaluation is to validate the university's impact in education, research and catalyzing innovation, and in knowledge exchange. These two practices add to the adaptable framework:

- Program Evaluation: Collecting evidence that reflects the university goals, and evaluating the success of programs or units, demonstrating the contributions of the university
- Faculty Expectations and Recognition: Setting expectations and recognizing accomplishments of individuals in education, research, innovation and knowledge exchange; this will help align the actions of the faculty with the university goals

For a university to be effective in its broadened economic mission, the university's partners must take reciprocal action for alignment. Key partners are industry and enterprise, government and philanthropies. Alignment by partners ensures that the outcomes of the university actually lead to action. As part of the adaptive framework, there are three practices for partners:

- Understanding the university's needs and capabilities
- Building up the university's capacity to contribute
- Developing the partner's capacity to absorb outcomes from the university: talented graduates, research discoveries and innovation creation

Universities can re-envision and embrace knowledge exchange as an intrinsic part of the core academic activities. This re-envisioning does not require disruptive action. Change can be accomplished by building on universities' strengths, and boldly quickening the pace of the institutions' evolution. These practices build on the mission and values of the university's culture,

including collegiality, thought leadership, and the importance of evidence and piloting. It doesn't subvert tradition; it lets the university concentrate on what it does best, leaving to its partners to do what they do best.

This study lays out a systematic approach to knowledge exchange by considering an integrated and cross-disciplinary set of academic practices, each with a means of stakeholder engagement and proactive exchange of outcomes. It includes tangible resources for university leaders, policy makers and funders on how to proceed. The publication of this study couldn't be more timely. When Covid-19 retreats, the economic devastation will become clearer, leaving universities an opportunity to engage more effectively with society as engines of economic development.

Figure 1. The overlapping domains of education, research and catalyzing innovation, their main outcomes (graduates, discoveries and creations) and the eleven academic practices.

References (Harvard style):

Crawley, E; Hegarty, J; Edström, K; JCG Sanchez (2020) Universities as Engines of Economic Development: Making Knowledge Exchange Work; Switzerland, Springer Nature

