

International Knowledge/Technology Transfer Leadership Summit

Sitges, Spain (Sept. 7-8, 2018)





February 2019

Depending on where you live in the world, the process of commercializing academic research and putting innovations to use for the public good, is called “technology transfer” and “knowledge transfer,” or sometimes knowledge exchange or university business collaboration. It is a complex field that includes intellectual property (IP) protection and licensing, corporate engagement, business creation and economic development. The objective is to support innovation and economic growth by getting ideas developed and out to the marketplace and adopted by society. If there is one certainty, it is that the field is evolving, and rapidly.

AUTM, a global association of tech transfer professionals, convened an international summit on Sept. 7-8, 2018 in Sitges, Spain to connect communities working in this field to strategically analyze the evolution of the field, and its future. To that end, 38 global thought leaders – many responsible for leading the knowledge transfer and technology transfer (K/TT) associations in the 18 countries represented - joined the two-day roundtable to discuss some of the critical issues facing the community.

“We want to challenge our own thinking on topics that influence our field,” said AUTM Chair Alison Campbell, opening the summit. “One of the pressing challenges I see globally is telling the tales of our impact, of what we do, and really importantly, helping our policy makers understand the value of what we do.”

In order to begin addressing the significant changes in the field, the Summit participants considered two main themes: defining the profession and measuring its impact on the world.

Our Evolving Profession: Who We Are

At its core, the meeting was a recognition of the changing field, which has morphed from the days when knowledge and technology transfer offices (K/TTOs) were tasked primarily with helping universities to protect inventions with patent applications and licensing out those inventions. Today the field has significantly expanded and many K/TTOs, which now include government labs and hospitals and their industrial counterparts, are responsible for business development and start-up formation, industry collaborations and partnerships. Many have a sharp focus on economic development and, for many more, their organizations recognize that the K/TTO is not a profit center but an integral part of the institution in support of research, student development, faculty retention, and the dissemination of knowledge.

As the K/TT field has expanded in scope, the view of the landscape and its future has changed. With that in mind, attendees addressed the question of how 21st century K/TT should be more holistically defined.

A profession is defined conventionally, as “a calling requiring specialized knowledge and often long and intensive academic preparation, or a paid occupation, especially one that involves prolonged training and a formal qualification.”

Summit attendees were divided about whether tech transfer has reached the milestones necessary to be yet defined as a mature profession. For example, while K/TT requires specialized knowledge - often blending science, business and the law - not all K/TT practitioners are employed by a K/TTO (they work in industry, venture capital, science parks, among others) and few in tech transfer yet have formal training for certification. There is no one defined career path for K/TT. Professionals largely take different roads to careers in K/TT, making the employee knowledge base all the richer.

The tech transfer field is largely shifting its focus from a restricted set of core competencies to the specialties that round-out the activities inside and outside academia, specialties that are coalescing to shape the profession.

K/TT professionals are no longer focused solely on the evaluation, protection and commercialization of academic research. Today you'll also find them running incubators, forming start-ups and in industry developing medicines and smart technologies. They're entrepreneurs, marketers, venture capitalists, relationship managers and legal experts. They are all part of the process that links the development of innovations from research to the public where they provide societal benefit.

“We're on the cusp of having a profession but I'm not sure we're ready to say the profession has matured.”

- Attendee

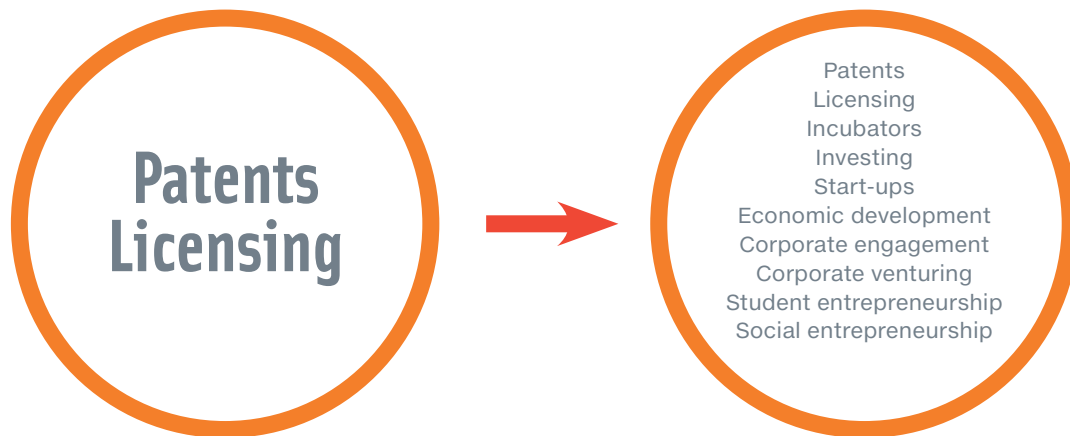


FIGURE 1 | Then and Now: The K/TT profession, once dominated by the execution of patents and licensing, is evolving in scope.

A recent **AUTM survey** of 193 universities, hospitals and other research institutions in the United States shows that academic research is fueling impressive economic gains with the formation of a record 1,080 start-up companies. According to the AUTM Annual Licensing Survey, in the five year period between 2013 and 2017, start-up creation rose a stunning 32%, from 818 to 1,080. That demand, among others, has helped fuel a demographic shift in tech transfer responsibilities.

“ We should train professionals that work for industry. And hospitals and other organizations. The profession is wider than only those working in universities.”

- Attendee

As K/TTOs have expanded in scope and skills, more institutions are embracing not just the societal benefit of the inventions being commercialized, but the **economic impact** those inventions can have, for example, on the creation of new companies and jobs. In order to stay current and competitive in the fast-moving field, that shift in scope now includes formal training, delivered through many of the K/TTO professional associations, that matches the needs of the sector. It's a move that is central to defining the profession.

K/TT offices around the globe are working to prepare their professionals for success. The view of the field is different, of course, based on the longevity of the programs.

For example, in Turkey, where K/TT is still emerging, the University-Industry Cooperation Centers Platform of Turkey (USIMP), founded in 2007, last year published a set of basic requirements to assure the knowledge, skills and capabilities of its tech transfer experts in 2018.

Meanwhile, Knowledge Commercialisation Australasia (KCA), founded in 1978, recently unveiled a comprehensive tech transfer professionals **Capability Framework**, which defines the skills, knowledge, behaviors and values required by a team taking research to market, and outlines career paths.

That Framework describes up to 200 desired capabilities for tech transfer professionals divided into seven clusters and sixteen sub-clusters, and classified by development stages: early-career, mid-career and senior level. It's KCA's hope to move away from the "what are we missing" approach and focus on "what does it take" to put research to use. "Our people are making a tangible difference to the economy, society and the environment, and require support to ensure teams are appropriately resourced with the competencies required to get the job done," reads the report.

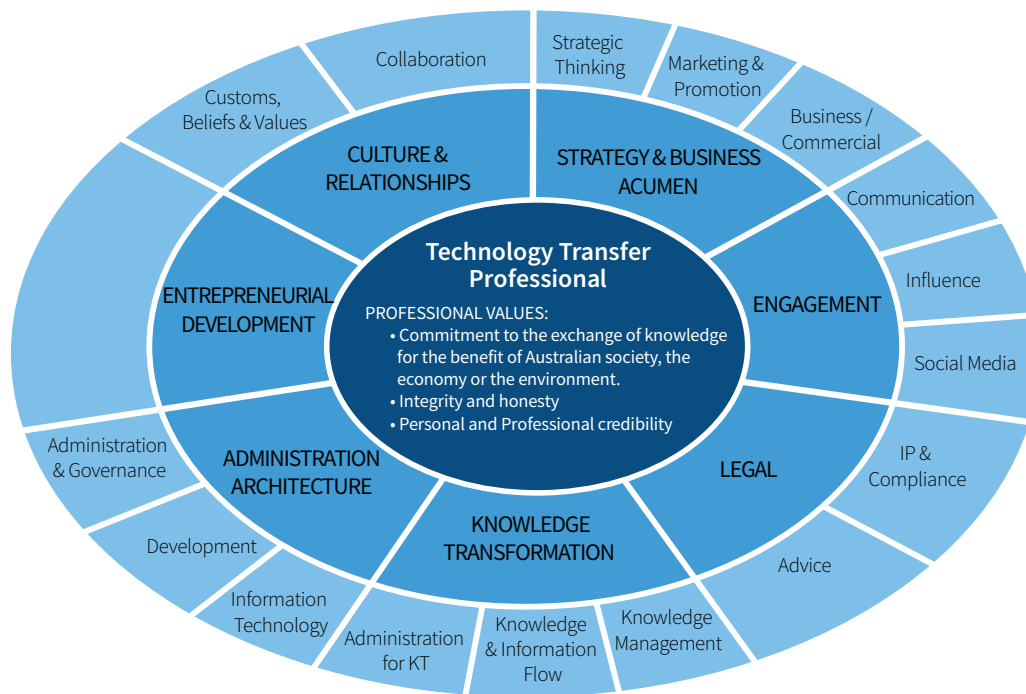


FIGURE 2 | High level view of the TTP Capability Framework illustrating at its core the TTP values and surrounded by the capability clusters and sub-clusters.

Training to meet the evolving needs in the field has been coupled with the introduction of credentials that recognize the breadth of K/TT and the different types of roles within it.

Registered Technology Transfer Professional (RTTP) is the only globally recognised professional credential to designate people with advanced knowledge and experience in K/TT. It took all the competencies proposed by all the various associations and combined them into a single common framework to assess skill. Those with RTTP certification have demonstrated the core competencies necessary to work effectively in the field, anywhere in the world, to advance innovative ideas and have sufficient experience to add significant value based on a peer reviewed track record. Those with the RTTP credential are employed most commonly in academic institutions, technology-based companies, knowledge/technology transfer intermediaries and economic development offices. Eleven of the Summit participants held RTTP accreditation.

“ We measure patents, licenses and money. Why? Because we can... When you look at how to change the things we do, you have to look at changing the things we measure. Because we don't know how to measure anything else. It always goes back to money.”

- Attendee

“ We have to make it clear, to solicit, that TT is not only a profession – but is a silent helper, a facilitator.”

- Attendee

Certified Licensing Professional (CLP) is primarily focused on the multi-disciplinary aspects of licensing. The goal of the program is to elevate the entire profession through knowledge and standards. Once certified, people renew every three years to keep the credential active, so CLP certification can be utilized as a framework for professional development in the licensing field.

Neither of these qualifications are mandatory in a sector that places emphasis on commercial experience and people who can work in an entrepreneurial environment. This does not diminish the value of these credentials. But it does raise the interesting issue of whether a flexible and responsive sector can ever be a profession, and whether the definition of a profession needs re-interpretation for K/TT.

Measuring Impact, Being Seen

Understanding the value of K/TT and of the profession were important reflection points at the Summit. Attendees said their K/TTOs were seen to embody unique skill sets and were routinely called upon on by leadership to take on diverse aspects of commercial management and to resolve problems – no matter how obtuse. In one case, even managing a dairy unit and a herd of cows on one university's research farm.

Often, panelists said, the help they provide is largely behind-the-scenes.

K/TT professionals are a little like midwives. They are essential to the process of moving something early stage out into the world. They shepherd ideas through the pain and suffering of labor, smoothing the way through proof-of-concept, marketing, licensing, funding and with luck, this will lead to the commercialization of a new idea for the public good. Happy parents, inventors, investors and industry partners will tell you that the midwife improved the outcome.

K/TT professionals also act as matchmakers, facilitating and supporting relationships that lead to beneficial and ideally long-term partnerships.

The challenge, attendees agreed, is capturing the essential impact of their work as, if they do their jobs well, they are largely silent facilitators.

Measures used to track outcomes tend to be quantitative and to focus on the direct outputs from the processes of K/TT. Traditionally, these might be in the form of inventions disclosed, patents filed, licenses executed, start-ups formed and revenue generated. In some countries, data is also collected on the number of collaborative engagements between the organization and companies. In the UK for example, the National Higher Education Business and Community Interaction Survey (HEBCIS) has been undertaken since 1999 and shows that the total

value of all university business interactions is about £4.2B. Numbers are one measure of success. But numbers, participants agreed, simply aren't enough to tell the whole story in such a complicated field. Basic metrics may not be sufficient for policymakers and academic leadership to fairly judge the success of K/TT, where the greatest rate on investment (ROI) is derived largely from the longer-term outcomes (often 20-50 years) that deliver societal and economic benefit.

Summit attendees shared their approaches to measuring these broader impacts, at local and national level. For example, the UK has a long history of reporting on a wide range of K/TT data to government, beyond the core numbers.

- Four years ago, the national **Research Excellence Framework (REF)**, which is used to assess excellence and thereby allocate core research funding across the UK, required universities to submit case studies describing the societal, economic and environmental impact from research. These were graded on a 5 point scale and counted towards 20 percent of the funding allocation. It was reported that this has had a transformative effect on University culture. A new, additional framework – the Knowledge Exchange Framework (KEF) is being introduced this year and will measure how universities undertake knowledge exchange as well as the outcomes.
- In Australia, the national engagement and impact assessment was introduced in 2018 to run in concert with the national research evaluation framework, **Excellence in Research for Australia (ERA)**.
- In Ireland, a range of different metrics and case studies from across the higher education system are published in **the national Annual Knowledge Transfer Survey (AKTS) report**.

These approaches are just a few that illustrate that the impact of K/TT is both quantitative and qualitative, and often best shown not in terms of activity or revenue, but in terms of lives improved.

Summit attendees considered a broad range of metrics – from what is currently counted to more aspirational measures. They were asked to generate a set of measurements that they felt were meaningful, however difficult to obtain. This resulted in a broad basket of measures, which is perhaps the starting point for further consideration and refinement.

“We measure stuff that's easy to measure, but it doesn't show the impact, which is impossible to measure. That puts us in a quandary.”

- Attendee

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Shown in **bold** are those metrics, both activities and impacts, that attendees agreed would generate the most understanding of the field and have the most resonance:

Activities
Number of licenses
Spider chart (weighted by amount of control: licenses vs. disclosures)
New venture creations
Invention disclosures
Engagement touches
Royalty income
Transactions (MTAs/CDAs, etc.)
Paper/citations worked on

Impacts
Happiness/satisfaction of int./ext. customers
Professionalism degree of peers (#CLP/RTTP)
Lives affected/improved
Reputation of Universities (academic/research organization, etc.)
Repeat/referral business
Local jobs created
Affecting Lives: Emotional/business impact stories
Culture change measurement
Measuring impact of individual inventions
Number of people impacted (intensity of impact)
GDP created
Growth in equity value of portfolio

“We need to explain, to look at what we do, and what we deliver, and the value of that. If we don't do that well enough locally, nationally and internationally we could run into the 'do we need you anyway?' question.”

- Attendee

Attendees agreed that a balanced, international scorecard approach to metrics would be useful, recognizing that desired outputs and impacts may differ by institution and by country. It would be helpful if metrics could be applied globally to enable comparisons, although the inherent challenge here was noted.

Continuing the Conversation

AUTM is interested in working with colleagues internationally to drive further definition of the profession, to support career pathways and to play its part in evolving a core set of measures that capture the value achieved through the work of the profession. To that end, AUTM plans to convene a follow-up Summit this year to dissect the issues that were raised in Spain.

And the conversation continues in Austin, Texas at the AUTM 2019 Annual Meeting this February, where AUTM will host several panels, bringing in people new to the discussion to further explore these issues.

Because without clarity, a clear definition of the profession and its impacts and outcomes, attendees agree there is a danger that the vital, specialized work of K/TT professionals could one day be regarded as superfluous to the process of transferring ideas from academic research to the marketplace.

Summit Attendees

Name	Title	Institution
Jacqueline Barnett, MScEng, MBA, RTTP	Senior Investment and Commercialisation Manager	University of Bristol
Alison Campbell, OBE, PhD, RTTP	Director	Knowledge Transfer Ireland
Richard Chylla, PhD, CLP, RTTP	Executive Director	Michigan State University
Fernando Conesa, PhD, RTTP	Director of Reserarch, Innovation and Transfer Office	Universitat Politecnica de Valencia
David Corkery, RTTP	Technology Transfer Operations Manager	University College Cork
Shirley Coutinho, MBA	Manager of the TTO	Pontificia Universidad Catolica-Rio
Kevin Cullen, PhD, RTTP	Vice President of Innovation and Economic Development	King Abdullah University of Science & Technology (KAUST)
Nares Damrongchai	CEO	Thailand Center of Excellence for Life Sciences
Maxine Ficarra	CEO	PraxisAuril
Sean Fielding, RTTP	Director of Innovation, Impact and Business	University of Exeter
Tom Flanagan, RTTP	Director of Enterprise & Commercialisation	University College Dublin
David L. Gulley, PhD, RTTP, CLP	Director	Puerto Rico Science, Technology and Research Trust
Angela Kukula, PhD	Director of Enterprise	The Institute of Cancer Research
Stéphanie Kuss	CEO	Association Reseau C.U.R.I.E.
William Lee, LLB, MBA	Commercial Director	University of Canterbury
Laura MacDonald, LLB, MBA	General Manager	ASTP-Proton
Juan Martinez Armesto		RedTransfer
Rohan McDougall	Director, IP Commercialisation	Curtin University of Technology
Helena Montiel	Director of the Technology and Transfer Office	University of Girona
Anita Nel	Senior Director	Stellenbosch University
Orakanoke Phanraksa	IP Policy Manager	National Science and Technology Development Agency
Martin Raditsch	CEO	Emblem Technology Transfer GmbH
Henric Rhedin, RTTP	President	Innovation, Wits Commercial Enterprise (Pty) Ltd
Ela Romanowska, RTTP	Director	Wits Enterprise
Laura Savatski, MBA, CLP, RTTP	Technology Transfer Officer	BloodCenter of Wisconsin
Marc Sedam, MBA, RTTP	Associate Vice Provost for Innovation and New Ventures	University of New Hampshire
Stephen J. Susalka, PhD, RTTP	CEO	AUTM
Michael Szarka, PhD	Director, Research Partnerships	University of Waterloo
Chalernpol Tuchinda	Vice President, Software Park Thailand	National Science and Technology Development Agency
Fazilet Vardar Sukan, RTTP, EuKTS	Director	Sabancı University SUNUM Nanotechnology Research Center
Carme Verdaguer, MBA	Managing Director	Fundació Bosch i Gimpera-Universitat de Barcelona
Alwin Wong, RTTP	Director, Institute for Entrepreneurship	The Hong Kong Polytechnic University
Takafumi Yamamoto, RTTP	President & CEO	TODAI TLO Ltd
James R. Zanewicz, JD, LLM, RTTP	Chief Business Officer	Tulane University

About AUTM

AUTM is the non-profit leader in efforts to educate, promote and inspire professionals to support the development of academic research that changes the world and drives innovation forward. Its community is comprised of more than 3,000 members who work in more than 800 universities, research centers, hospitals, businesses and government organizations around the globe.

Its members work closely with commercial partners to transform ideas into opportunities, resulting in the creation each year of thousands of products, services and start-ups, and millions of dollars in economic development. First and foremost, their work means improved lives, every day, everywhere.

AUTM advocates and supports the full spectrum of its members' work – from corporate engagement to intellectual property protection - empowering dynamic, forward-leading professional practices and advancing current and future generations of leaders in the field of technology transfer.



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