ATTP's Role in Collecting and Disseminating Knowledge Transfer Metrics

First Draft

Submitted by: ATTP Metrics Committee

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1 Background

In 2019, ATTP published a comparison of country-by-country KTT metrics, comparing 6 metrics from 8 countries over the period 2004-2019, benchmarked on a comparable basis to per $100 million research expenditures.

This was the first published compilation and comparison of KTT metrics from different countries. Given the broad acceptance of the important economic development benefits of KTT, this highlighted an important vacuum in the public policy space, a space that ATTP, as the only global professional KTT organization, is uniquely well positioned to fill.

Building on this, the ATTP Council authorized creation of an International Research Commercialization Metrics Committee (IRCMC)to build on this promising beginning.

The IRCMC set itself 2 tasks:

1. Write a White Paper on best practices for conducting KTT metrics surveys; and
2. Facilitate the collection and broad availability of all KTT metrics.

This White Paper addresses the second of these tasks.

2 Available Metrics

Tech transfer took off in the U.S. in a big way after passage of the Bayh-Dole Act in 1980, and by 1993 the professional association of tech transfer professionals, AUTM, started its first annual survey collecting data for 1991 and 1992. In Europe, the British government started collecting metrics on U.K. tech transfer activity through the HEBCIS survey in 1999. Australia started collecting metrics in 2000. In the EU, Proton started collecting data from individual country surveys in 2002 and ASTP started collecting data through a survey of individual PSRIs[1] in 2004.

More and more countries now collect metrics on knowledge transfer. Table 1 shows for which countries metrics are available and for what years.

A. Summary

Eighteen on-going annual surveys collect metrics for 41 countries. Some data for one or more years is available for an additional eight countries.

These countries have a combined population of 4.4 billion, well over half the global total. All of the G-7, fourteen of the G-20 countries and four of the five BRICS countries have KTT metrics.

KTT metrics are therefore much more widespread than is generally recognized and the barriers to collecting metrics in new countries is low, as discussed in § 4 below.

Details of the metrics collected for / by each country are in Appendix B.

[1] The term PSRI is used as an abbreviation for Public Sector Research Institutions, i.e., universities, government laboratories and institutes, teaching hospitals and private, not-for-profit research institutes, which carry out basic and applied research, frequently funded by government, intergovernmental, philanthropic and corporate funding.

Table 1: Countries and Dates for Which KTT Metrics Are Available

Country	On-going starting	Specific years
Australia	2000	
Brazil	2006	
Canada	1991	
Chile		2011
China	2018	
Denmark	2000	
EU (ASTP)	2004	
EU (Proton)	2002	
France		
Germany		2019, 2021
India		2016
Ireland	2014	
Israel	2012	
Italy	2004	
Japan	2005	
Malaysia		2019, 2020
New Zealand	2017	
Norway		2003-2020
Philippines		2018, 2019
Poland		
Portugal		2009, 2010
S. Africa	2008	
S. Korea	2004	
Sri Lanka		2010, 2021
Spain	1999	
Switzerland	2005	
UK	1999	
US	AUTM: 1991 Fed Labs: 1999	

3 The Need for a Central Repository

With the exception of the ASTP Europe-wide focus, the AUTM US-Canada focus and the KCA Australia / New Zealand focus, KTT tends to be a strictly local activity, with practitioners focused inwardly on their own country. The information on global KTT metrics contained in this White Paper probably does not exist anywhere else in the world.

ATTP can fill this information gap, thereby increasing ATTP's global role.

We propose a four-step process:

A. Publish a Version of this White Paper on the ATTP Website

We will include the URL's of where individual country metrics can be found.

B. Make Available Individual Country Annual Reports

A large number of these reports are freely available on individual KTT association / government websites. Many are copyrighted, so for ATTP to make them available will require the concurrence of the generating organizations. Some organizations sell access to their annual metrics reports to non-members and ATTP will need to implement the ability to restrict and sell access.

Reports are generally published in the country's native language and our objective will be to make at least one year available in English, using Google Translate, and to ensure that key tables are correctly translated.

C. Create Databases of Individual Country Metrics

The model here is the STATT database operated by AUTM which allows the entire 32-year collection of data to be searched and downloaded.

We see the need for 3 databases:

1. A compilation of all the country-by-country metrics that exist;
2. A database which includes 10 or so of the major metrics (i.e., akin to AUTM's "Big 6"), which is a subset of the first. A key issue with this database will be the different definitions used by different surveys;
3. A compilation of individual institutional data from those surveys that publish individual institutional data.

D. Publish an Annual “Survey of the Surveys”

This final phase would build on the pioneering 2019 Report. Publishing an annual report on global trends will be an annual opportunity for ATTP to foster global recognition of its existence and its global leadership in KTT.

4 Facilitating New Surveys

Funded by WIPO, a survey tool was developed that was used in Malaysia, the Philippines and Sri Lanka. It is a robust system, flexible and scalable. It can readily be edited to add or delete questions and can accommodate a large number of respondents.

The tool was written by Rick Colman and Nick Stein, who ran the AUTM Survey from its on-line inception in 2003 until 2019.

The system is available to be adapted for countries wishing to carry out a survey for the first time and can be done so at modest cost.

5 KTT Metrics and the Global Innovation Index

A key component of our strategy is to convince WIPO to add KTT metrics to its Global Innovation Index (GII).

A. History

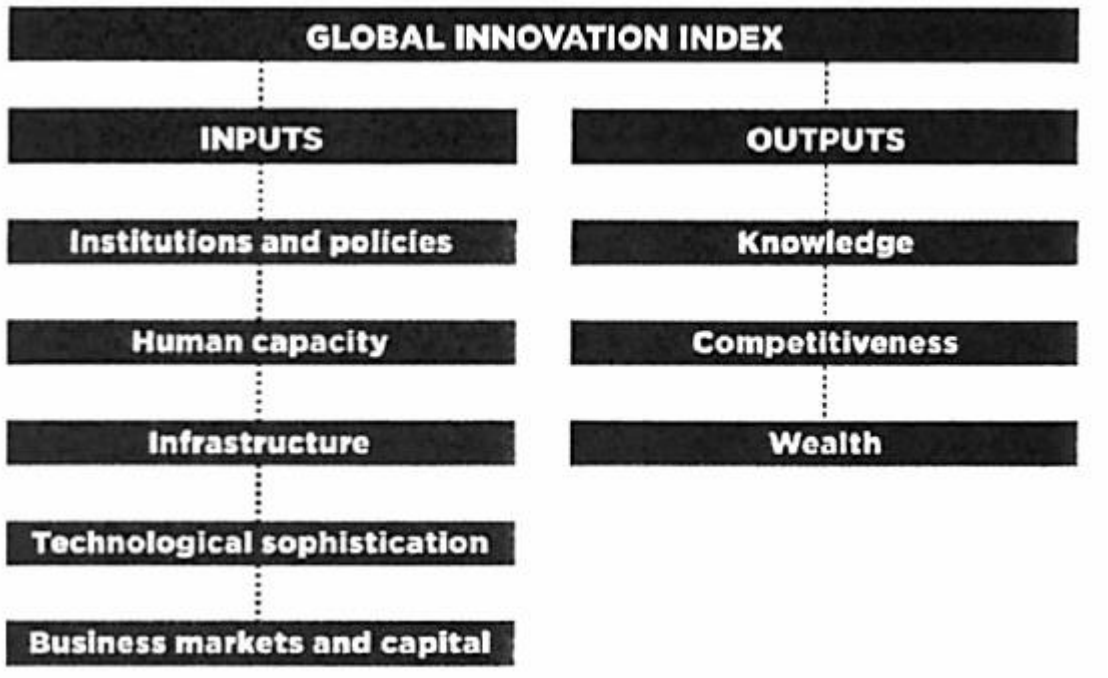
The GII was conceived of by Dr. Soumitra Dutta, currently Dean of the Saïd Business School at Oxford University, in 2007 during his tenure at INSEAD. WIPO's association with the GII started in 2011 and it began co-publishing the GII in 2012. In 2013, Cornell University joined as co-publisher, with Professor Dutta representing the GII at Cornell University and Bruno Lanvin at INSEAD. The GII is currently developed each year by the Portulans Institute, a consulting company formed by Dutta and Lanvin headquartered in Washington, DC..

The GII ranks 132 countries on their innovation ecosystems. The 132 countries have 94.1 percent of the world's population and 98.5 percent of the world's GDP in purchasing power parity current international dollars.

The Index is currently built on a dataset of indicators from international public and private sources.

B. Factors Included in the GII

The core conceptual framework of the GII is shown below. It considers both inputs and outputs.



C. The GII is Dynamic

The factors making up the GII are constantly changing as new data sources are identified and others are dropped. The initial rankings in 2007 used 86 factors. The 2008-2009 report used an additional 6 factors.

By 2022, the dataset included 81 variables, which had 18 differences from the dataset for the 2021 dataset.

D. KTT Metrics Contain Data the GII Says It Needs

The 2022 GII stated:

> A key challenge is to find metrics that capture innovation as it actually happens in the world today. **Direct official measures that quantify innovation outputs remain extremely scarce. For example, there are no official statistics on the amount of innovative activity – defined as the number of new products, processes or other innovations – for any given innovation actor, let alone for any given country.** Most measurements also struggle to appropriately capture the innovation outputs of a wider spectrum of innovation actors, such as the services sector or public sector entities. This includes innovation surveys, which have contributed greatly to the measurement of innovation activities but **fail to provide a good and reliable sense of cross-economy innovation output performance and are often not applicable to developing economies**, where innovation is often informal.
>
> *[emphasis added]*

Unlike companies, PSRIs **do** identify, measure and frequently publish individually the statistics on their raw inventions, how they are managed and what are their outcomes – they "capture innovation as it actually happens in the world today", which is what the GII says it is looking for and can't find. KTT metrics track start-up company activity resulting from their innovations, a key component of innovation ecosystems.

Emerging economies such as Chile, Malaysia, Philippines and Sri Lanka have all collected KTT metrics, proving that it is feasible to collect such metrics in emerging economies.

KTT metrics therefore provide data that the GII says in the above quotation it needs and that are not available:

- They are direct official measures that quantify the innovation outputs of one segment of a country's innovation ecosystem, its PSRIs;
- They provide a good and reliable sense of cross-economy innovation output performance of PSRIs;

- They are applicable to developing economies, where they are a formal innovation mechanism when most innovation is informal.

We will hold discussions with Professor Dutta and the key WIPO personnel to convince them of the merits and feasibility of including KTT metrics in the GII.

E. Benefits of including KTT Metrics in the GII

Rankings matter. Experience has shown that governments care deeply about their GII ranking. Inclusion of KTT metrics in the GII will result in governments starting to focus attention on a part of their innovation ecosystem that many are currently scarecely aware of and don't currently support. They will be encouraged to support their KTT ecosystems.

F. Next Steps

Great care will be necessary in determining what KTT measures to include in the GII. When a university in the Gulf region identified that one of the university ranking systems was starting to put weight on patent filings, bonuses were offered to faculty who obtained patents. The result was an explosion of U.S. issued patents, almost all of which were unlicensable.

The KTT metrics included in the GII must be meaningful, relevant to economic development and "non-gameable".

We propose a task force be created consisting of people from:

- ATTP
- WIPO
- Portulans Institute

which will review available KTT metrics and determine what measures to collect and include in the GII.

6 Access

Access is an issue that will need to be thought through very carefully.

Some organizations charge significant amounts for their surveys. For instance, AUTM charges $50 for members and $375 for non-members for the current year report. AUTM charges member organizations that did not contribute to the Survey $225 / year and non-members $525 / year to access STATT, its searchable, downloadable database of Survey responses from inception in 1991.

ASTP does not charge for the Summary Report. Governments and some professional associations make their reports and the data they contain available for free.

Those organizations that charge for access will not want participation in the ATTP project to cut off that stream of revenue. Therefore, ATTP will need to install a paywall and charge for access to the reports and metrics. Another strategy could be to not include all the data contained in a specific survey, so that people will need to return to the originating institution to access all the data.

RTTP's can be given access as a benefit of becoming an RTTP.

7 Benefits to ATTP of the Gobal Metrics Initiative

A. Global Leadership in KTT

There is no organization other than ATTP which addresses KTT globally. The nearest equivalents are regional:

- ASTP's pan-European role
- AUTM's N. American role; and
- KCA's Australasian role.

Inter-governmental organizations recognize the economic development role of KTT:

- Under Director General Tang, WIPO has added a new role for itself in the utilization of IP, in addition to its traditional role in the creation of IP.
- The World Bank has funded KTT development initiatives in several emerging economies:
    - Sri Lanka, where 13 University-Business Linkage offices were established with World Bank funding;
    - India, where a network of 7 Regional Tech Transfer Offices spanning India has been created with World Bank funding;
    - Serbia.
- UNIDO has been funding a clean tech development project in India and now wishes to build tech transfer capacity as part of the project.

Such activities require metrics to ensure funds are being well spent and are achieving the desired results. By providing one stop shopping for international KTT metrics ATTP will position itself as the natural partner for IGOs in their KTT activities.

B. Metrics Can Contribute to ATTP's Sustainability

There will be numerous opportunities to generate revenues implementing IRCMC's plans:

- Selling access to country reports and data;
- Selling services to new countries wishing to conduct a survey;
- Working with WIPO to add KTT metrics to the GII;
- Providing annual data to the GII.

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Appendix A: Members of the ATTP International Research Commercialization Metrics Committee

First	Last	email	Organization	Country
Chair				
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Appendix B: Metrics Collected for Individual Countries

A. Australia

The Australian government collected metrics through the National Research Commercialization Survey conducted by the Australian Research Council, the Commonwealth Scientific and Industrial Research Organization and the National and Medical Research Council in 2000. Starting in 2017, the Survey was replaced by the Survey of Commercialisation Outcomes from Public Research (SCOPR) survey carried out by Knowledge Commercialization Australasia (KCA). KCA has members from New Zealand as well as Australia and in 2019 SCOPR started reporting New Zealand metrics.

B. Brazil

In Brazil, Ministério Da Ciência, Tecnologia E Inovação published a study in 2010 in Portuguese.

The Brazilian Innovation and Technology Transfer Managers National Forum (FORTEC) has collected KTT metrics in Brazil since 2015. The data is also published in Portuguese.

C. Canada

From its earliest days, AUTM has had a Canadian section and Canadian institutions were included in the first AUTM Survey covering 1991 and 1992. In fact, for its first 12 or so years, the AUTM Survey was actually a North American survey, with US and Canadian data reported and analyzed together. When it was decided in 2005 to start publishing separate reports on Canada and the U.S., the fact that institutions had been assigned a category, one of which was for Canadian institutions, allowed the historic data to readily be disaggregated into U.S. and Canadian metrics and reanalyzed.

D. Chile

AUTM had a major partnership with La Corporación de Fomento de la Producción (CORFO), the Chilean Industrial development agency to develop a tech transfer ecosystem in Chile from 2012-2013. As part of this, the Chilean universities submitted their 2011 data to the AUTM Survey. The results were never published but are available.

E. China

Data was available in the 2002-3 timefraame. More recently, Chinese data have been collected by the Ministry of ___ since 2018. They are published in Chinese.

F. Denmark

Denmark changed its laws to transfer ownership of PSRI inventions from the inventing professor to his / her institution in 2000 and has collected metrics from the outset. The Danish Agency for Science Technology and Innovation has carried out the Public Research Commercialization Survey since 2000.

G. EU (ASTP, Proton), EKTIS

The Association of European Science and Technology Professionals (ASTP) has carried out a survey since 2004. From 2004 to 2008, the Survey was carried out for ASTP by the Maastricht Economic Research Institute on Innovation and Technology (MERIT). From 2009-2011, AUTM carried out the Survey for ASTP. Starting in 2012 ASTP has carried out the Survey itself.

Initially, ASTP collected data from individual institutions and Proton collated data from European country surveys, starting in 2002. Following their merger in 2014, the ASTP Survey has collected both individual and country-wide survey data.

The most recent ASTP Survey includes data from institutions in 21 countries. Prior surveys have included data from as many as 27 countries.

The EU commissioned the European Knowledge Transfer Indicator Survey ("EKTIS") in 2013. (https://knowledge-transfer-study.eu/fileadmin/kts/documents/knowledge-transfer-study_2010-2012_report.pdf) It was carried out by researchers from empirica Communication and Technology Research, Bonn the University of Maastricht (UNU-MERIT) and the University of Applied Sciences Northwestern Switzerland (FHNW) under an EU contract. It obtained KTT data for 39 EU and Associated countries for 2010 and 2011. The UTEN Survey discussed under Portugal was developed as part of this project

H. France

The Bureau d'Economie Théorique et Appliquée (BETA) worked with Reseau CURIE and collected metrics for 2005/6, 2006/7 and 2007/8. It is not clear if BETA continued issuing these reports until Reseau CURIE started issuing its own reports in 2015.

Since 2015 Reseau CURIE has collected metrics. Their reports are available in French from Reseau CURIE at https://www.curie.asso.fr/reseau-curie/valorisation/la-valorisation-en-chiffres

Reseau SATT, the umbrella organization of the 13 Sociétés d'Accélération du Transfert de Technologies (SATT), a network of regional KTTO's spanning France also has collected metrics from the SATT Network since its inception in 2012.

The two surveys do not co-ordinate their activities and so overlap in terms of the organizations they include.

İ. Germany

TransferAllianz has carried out two surveys in Germany, covering 2019 and 2023. It does not currently have plans to make the Survey an annual activity.

J. India

The Society for Technology Management in India carried out a surveys of Indian tech transfer activity in 2016. A survey for 2024 is currently underway.

K. Ireland

Knowledge Transfer Ireland (KTI), a government agency, has carried out annual surveys in Ireland since 2014.

L. Israel

The Central Bureau of Statistics in Israel started publishing its Survey of Knowledge Commercialization Companies in 2015, with data starting in 2012.

M. Italy

In Italy, Network per la Valorizzazione della Ricerca Universitaria (NetVal) was established in 2002 and has worked in association with Proton to collect metrics about KTT in Italy starting in 2004. It is published in Italian.

N. Japan

The Japan Science and Technology Agency supported university patenting and licensing for many years. After a number of changes in the laws surrounding IP and the privatization of the national universities, the universities took over these activities.

University Network for Innovation and Technology Transfer (UNITT) in Japan has been collecting metrics on KTT in Japan since 2005.

O. Malaysia

ITMA has just issued its first metrics report, with data for 2019 and 2020. It was developed with support from WIPO.

P. New Zealand

The SCOPR report from KCA has split out data for New Zealand since 2019.

Q. Norway

Norway does not currently conduct a KTT survey. Limited KTT data covering 2003-2020 was collected by a consulting company funded by a grant from Research Norway. The data were included in an article on Regional Tech Transfer offices in Norway.[2] Reports were issued in Norwegian starting in 2010.

R. OECD

In 2002, the OECD published a report titled "Turning Science into Business -- Patenting And Licensing At Public Research Organisations," available at https://doi.org/10.1787/9789264100244-en

The study noted that at the time, "Few OECD countries, however, with the exception of Australia, Canada, the United States and the United Kingdom, regularly collect data on IP activity in the public research sector."

The study collected 2001 data for 12 countries:

- Australia
- Belgium (Flanders)
- Germany
- Italy
- Japan
- Korea
- Netherlands
- Norway
- Spain
- Switzerland
- US
- Russia

[2] See "The Development of Technology Transfer in Norway—A System In Flux", R.E. Taxt, A.C. Fiksdal, L. Olsen and J. Pedersen, Journal of the Licensing Executives Society International (les Nouvelles), LVIII #1, March 2023, 285-296.

OECD's interest likely stimulated interest at the individual country level

S. Philippines

The Alliance of Techtransfer Professionals of the Philippines (AToP) carried out a survey with data covering 2018 and 2019 with support from WIPO.

T. Poland

U. Portugal

The University of Texas Austin has had a program in Portugal since 2007, named University Technology Enterprise Network (UTEN). Its annual report has limited KTT metrics.

In 2011 it published a report in English with detailed metrics for 2006 - 2010. This may have been done as part of the EU funded EKTIS study discussed above.

There do not appear to have been similar surveys since.

V. S. Africa

The National Intellectual Property Management Office (NIPMO) has published two studies of KTT metrics in South Africa. The first, titled South African National Survey of Intellectual Property and Technology Transfer at Publicly Funded Research Institutions covered 2009-2014 while the second covered 2014-2018.

The next survey is in preparation but will be carried out by the South African Research and Innovation Management Association (SARIMA).

W. S. Korea

The Korean government has been collecting KTT metrics for S. Korea since 2004. The Korean Association of University Technology Managers (KAUTM) has been using his data to issue reports on KTT in Korea.

X. Sri Lanka

Supported by WIPO, the Lanka Association of Tech Transfer Offices[3] (LATTO) collected data for 2020 and 2021. To date the data has not been published. The future of tech transfer in Sri Lanka is somewhat up in the air currently as the World Bank project that funded the creation of University Business Linkage (UBL) offices at all of the National

[3] Using "Sri Lanka" in the name of an organization requires Cabinet approval!

Universities has ended and it is not clear if the Sri Lankan government will continue funding the UBLs.

Y. Spain

RedOTRI has published metrics in Spanish since 1999 in collaboration with Conferencia de Rectores de Universidades Españolas, (CRUE) an NGO founded in 1994 by 76 universities, including 50 public and 26 private institutions.

Z. Switzerland

The first Swiss report was for 2003 and was published (in German) by the Center for Science and Technology Studies (CEST). It published a second report in 2004.

The Swiss Technology Transfer Association (swiTT) started publishing an annual survey in 2005 in English.

AA. U.K.

In the U.K. KTT metrics have been collected by the HEBCIS survey since 1999. Reporting is mandatory and the data is publicly available at the institutional level . HEBCIS has published an annual report on the data since 2001, (which covered the academic 1999-2000 year.

PraxisUnico, the UK KTT professional association (which has undergone various name changes and will soon become Knowledge Exchange UK) published its own report from 2001 – 2005.

BB. U.S.

AUTM has collected metrics for universities, teaching hospitals and not-for-profit research institutes since 1991.

The Federal Laboratories Consortium has reported on Federal Laboratory commercialization activities annually to Congress since 1999. Reports since 2007 are available at https://www.nist.gov/tpo/publications-and-reports. There was a 2 year hiatus in report issuance, but not data collection from 2003-2006 because of a reorganization of the agency responsible for generating the reports.

NIH publishes its own metrics.