



EDITORIAL WELCOME

We would like to thank our readers for their interest and the very positive inputs for our inaugural issue of *Hélice*. Feedback indicates that *Hélice* offers a lively platform for interaction between scholars, practitioners and policy-makers.

Hélice provides an opportunity for innovation policy and practice dialogue, and for the exchange of views on research in a less formal and more cooperative and interactive environment. For this purpose we have an *open dialogue* philosophy, where we welcome feedback, comments, critiques, additions or alternative opinions, as well as reflections on any published article.

Hélice represents a forum to publicize your research to a wide and knowledgeable audience, and to rapidly disseminate research results. If you have working papers, short articles, or comments on the published articles, as well as news about ongoing or prospective projects, etc, to contribute to the THA Newsletter, we would be delighted to consider them for inclusion in future issues.

In this volume, we are pleased to present articles from (a) Martin Meyer, who provides a overview on indicators and the Triple Helix with bibliometric guidance, (b) Dessy Irawati, who reflects on academic-business-government interactions in a timely article on Indonesia, which is the 2012 Conference venue, (c) Per Erik Ellström and his colleagues, who share their experiences with the HELIX Excellence Centre at Linköping University, and (d) Guilherme Ary Plonski, whom we are happy to announce as the *Hélice* Brazilian regional correspondent, who shares his experiences at The Center for Technology Policy and Management at University of São Paulo.

This issue also includes information on new initiatives. To strengthen THA membership internationally, we established a THA Global Chapter Programme to set up regional THA Chapters for those with an interest in the Triple Helix field to meet and share ideas at a local forum. We also include details on the international THA Ambassadors Programme, where we are reaching out to appropriately qualified professionals who feel they would like to

become TH Ambassadors. If you have an interest in either initiative, the TH Association would be pleased to receive an application.

We as the Editors of *Hélice*, and TH Association, appreciate your time and interest in receiving news from us. We encourage you to share your reflections to sustain and extend the innovative dialogue that *Hélice* is initiating, and invite you to contribute to this effort.

For further information, and for publication in *Hélice*, please contact Devrim Göktepe-Hultén at devringoktepe@gmail.com, or Sheila Forbes at s.forbes@eee.strath.ac.uk.

We wish you a pleasant and enjoyable Spring and look forward to hearing from you!

Devrim Göktepe-Hultén and Sheila Forbes
April 2012

Join the Triple Helix Association (THA)

Become a member and stay informed on Triple Helix activities! All you have to do is visit : www.triplehelixassociation.org/membership, complete the on-line application form, and make your payment. You will then :

- Receive a certificate of membership.
- Attend, participate, and vote at the THA General Assembly.
- Become eligible to join THA Governing Bodies.
- Receive fast track review and priority publication of THA members' submissions to the TH Journal (to be launched soon).

Hélice - THA Newsletter

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CONTENTS

Volume 1, Issue 2, April 2012

THA Annual Conference 2012	3
An update from Bandung, Indonesia <i>Eko Agus Prasetyo, Amir Manurung</i>	
TRIPLE HELIX SCIENTIFIC NEWS	
Triple Helix Indicators - a Bibliometric Perspective	4
<i>Martin Meyer</i>	
ABG as an Indonesian Way to understand and implement the Triple Helix in ASEAN	6
<i>Dessy Irawati</i>	
Creating Knowledge for Impact - a Triple Helix Approach	8
<i>Mattias Elg, Per-Erik Ellström, Malin Tillmar</i>	
The Center for Technology Policy and Management at University São Paulo	10
<i>Guilherme Ary Plonski</i>	
TRIPLE HELIX ASSOCIATION NEWS	
THA Membership Committee News	12
Triple Helix Chapters	12
PUBLICATIONS	12
President's Corner	14
'Tic, Tac, Toe': Filling Triple Helix Gaps <i>Henry Etzkowitz</i>	

The Triple Helix Newsletter, *Hélice*, is published quarterly - January, April, July and October. Contributions, articles, news or announcements, should be sent to:

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Deadline for receiving items for inclusion
in the July 2012 issue: **8 JUNE 2012**

THA ANNUAL CONFERENCE : BANDUNG, INDONESIA : 8-10 AUGUST 2012



The Triple Helix 10th International Conference 2012 will be held in Bandung, Indonesia, from 8-10 August 2012, at the elegant Grand Royal Panghegar Hotel. The main theme of the Conference is:

Emerging Triple Helix Models for Developing Countries: from Conceptualisation to Implementation

with sub-themes:

- *Strengthening National innovation Policies in developing Countries.*
- *Building Infrastructure.*
- *Success stories in Enhancing the Relevance of the Triple Helix Model.*

Triple Helix Conferences represent high prestige international events that attract enormous attention. This year's THC will be an integral part and the crowning episode of Hakteknas - Indonesia's National Technology Awakening Day. Hakteknas is an annual event aimed at celebrating the work of Indonesian scientists on research, science and innovation; with the theme of Innovation for Country's Empowerment. The Indonesian Government, through the Ministry of Research and Technology (Ristek), will hold Hakteknas for a full week from August 4-10, 2012, where activities such as strategic industries, a technology exhibition, a carnival, a science and technology expo, workshops, and talk shows, will take place. This major event will be held all around Bandung City and the tagline of the event will be: "Bandung, Sea of Science and Technology". The last day of THC 2012 will form the finale and the pinnacle of Hakteknas, where the President of Republic of Indonesia will come to give a speech at the **closing** of the Triple Helix X International Conference.

THC X 2012 has attracted enormous interest, and by 10 February 2012, the

closing date for abstract submissions, a total 268 abstracts had been received from 38 countries all around the world. The abstracts are being reviewed and notification of acceptance will be sent out soon. Based on this input, it is expected that 150-170 papers will be presented at the Conference.

Several prominent speakers who will attend the Triple Helix International Conference X 2012 include:

- **Professor Henry Etzkowitz (Stanford University, US)**
- **Professor Gusti Muhammad Hatta (Indonesian Minister of Research and Technology)**
- **Professor Muhammad Nuh (Indonesian Minister of Education and Culture - to be confirmed)**
- **Rohit Shukla (CEO Larta Institute, US)**
- **Dr Sehat Sutardja (CEO Marvell Technologies, US)**
- **Marko Ahtisaari (VP Nokia Corporation, Finland);**
- **Dr Warsito Purno Taruno (Indonesian tomography expert who established first private R&D institution in Indonesia)**
- **Professor Johann Löhn (Steinbeis Foundation, Germany).**

Keynote representatives of Research and Technology Ministries from ASEAN countries will also be invited to speak and share their policies and experiences on innovation.

As part of the THC X 2012 program, a panel on the Brazilian Innovation System has been arranged. A Brazilian delegation consisting of government, business, and university representatives, will discuss their experiences and best practices of innovation in Brazil from the Triple Helix perspective.

Some institutions have expressed an interest in participating in the Conference, and the Organizing Committee has provided an opportunity for "satellite events" comprising a seminar or exhibition, which will be conducted back-to-back with THC. The DAAD Germany representative in Jakarta, for example, has indicated an interest in presenting such a satellite event. The Committee will provide them with space and facilities, and DAAD will organize the meeting. The benefit will be additional participants for plenary sessions. SEA-EU-NET (South East Asia - European Union Network) has also indicated an interest in a satellite event.

The THC Committee has established cooperation with the West Java Government for cultural events during the Conference, including a Welcoming Reception and a Gala Dinner, where the participants will enjoy unique and attractive traditional dance and music.

Pre-Conference excursions will be offered to THC participants consisting of visits to cultural and historical locations around Bandung, as well as favorite tourism destinations such as the Tangkuban Perahu volcano.

The Conference venue, the Grand Royal Panghegar Hotel, is located in the heart of the business district of Bandung. The hotel is conveniently within walking distance from the famous Jalan Braga, one of Bandung's and the country's most celebrated dining and entertainment areas. The Grand Royal Panghegar is a superior place for business and leisure, and has superb newly refurbished facilities, including a heated water pool, spa, jogging track, gym, and indoor tennis court.

We look forward to welcoming you to the THC X 2012 in Bandung.

Eko Agus Prasetyo
Amir Manurung
Local Organizing Committee
Triple Helix International Conference
2012
Bandung, Indonesia

TRIPLE HELIX SCIENTIFIC NEWS

Triple Helix Indicators - a bibliometric perspective

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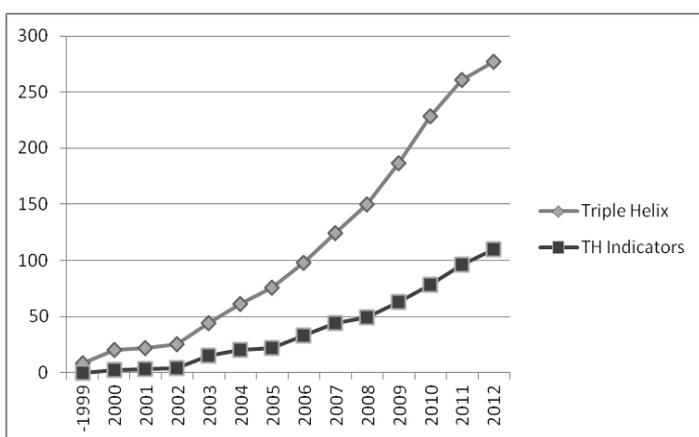
What better way to provide an overview on indicator work than with some bibliometric guidance! The literature on both the Triple Helix in general and Triple Helix indicators has grown substantially over the past ten years (Fig. 1). If one looks at the *Social Sciences Citation Index (SSCI)* alone, one can track at least 300 papers on the Triple Helix, and more than 100 of these can be related to the theme of indicators. Indicators have become a key aspect of work on university-industry-government relations. This warrants a closer look.

The first strand (A, clusters 1 and 4) of the indicators helix accounts for a bit more than a quarter of all contributions and is concerned with indicators of science-technology interaction. Cluster 1 with twenty papers contains a wealth of papers that focus on patent citations as a way to track science-technology interaction. It includes regional and technology based analyses as well as contributions that try to understand patent citations better and develop this approach further. The eight contributions in cluster four trace links between science and technology, but distinguish themselves by offering a broader and at times also comparative perspective, exploring, for instance, webometric or inventor-author analysis, often in combination with other indicators.

The second strand (B, clusters 2 and 6) is concerned with measuring information flows especially through entropy measures. Loet Leydesdorff's work features here prominently. This strand accounts for about a fifth of all indicators contributions. Cluster 6 includes the earlier, foundational contributions and theoretical discussions, whereas the smaller cluster 2 explores the structuration of science fields. Both clusters are rooted in the science communication tradition.

The next strand (C, Cluster 3, 25 contributions) is mostly concerned with capturing the entrepreneurialism in universities. The focus is on developing and applying indicators that go beyond patent counts and capture a lot of other relevant third mission activity of universities. This cluster also contains reflective work and bibliometric analyses on the Triple Helix itself, such as the contribution by Terry Shinn (2002).

These first three strands capture all the work that is dedicated to developing Triple Helix indicators. The remaining papers can be divided into two broad areas - one line of work (strand D, cluster 5) that applies some of the indicators and tools discussed in the first three strands to empirical contexts - most notably Asia on which many recent papers have focused - and a more eclectic collection of papers that deal with governance in academe and its implications for Triple Helix relations (strand E, cluster 7) as well as



Source: Thomson-Reuters, SSCI (2012). Note: first two months covered in 2012.

Figure 1: Publications on the Triple Helix and Triple Helix Indicators (accumulated counts)

Cluster analysis allows us to get an idea about the different approaches pursued in this area. We followed a bibliographic coupling approach to identify the various perspectives on indicator work. This approach tracks links between papers on the basis of references they share and thereby gives an idea how papers are related in a cognitive sense. Eight clusters were identified this way which can be roughly grouped in four main strands (see also Tab. 1):

Tab. I: Clusters of Triple Helix Indicators papers

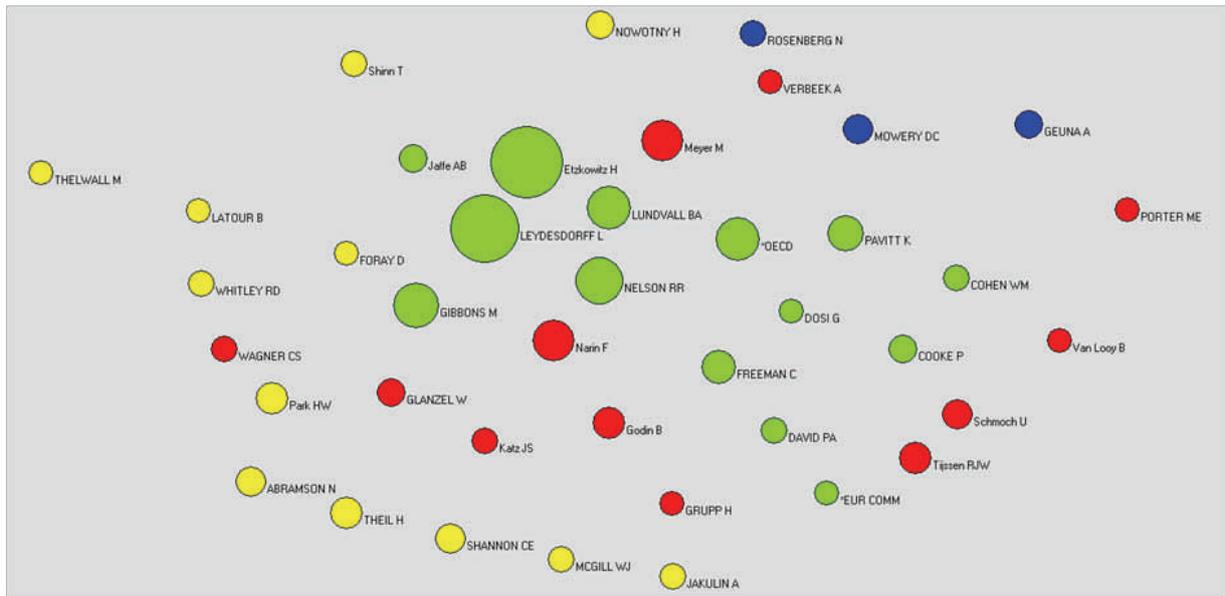
Strand	Cluster	# Papers	Topic	Highly linked papers	Highly cited papers (# citations)
A	1	20	The metrics of science-technology interaction: focus on patent citations	Acost-RP-2003-1783, Liang-Scient-2012-253, Van Looy-Scient-2007-441, Meyer-Scient-2003-321, Calla-Scient-2006-3	Meyer-Scient-2003-321 (30), Ranga-Scient-2003-301 (22), Van Looy-Scient-2003-355 (21), Acost-RP-2003-1783 (20), Verbe-Scient-2003-241 (17), Van L-Scient-2006-295(16), Calla-Scient-2006-3(12)
A	4	8	Multiple perspectives on linking science and technology	Klitk-Scient-2007-491, Stuar-J Inf Sci-2007-231, Meyer-RP-2006-1646, Meyer-ISSI 2-x-34	Heime-Scient-2003-391 (41) Meyer-RP-2006-1646 (39) Meyer-Scient-2004-443 (17)
B	6	17	Information flows in the Triple Helix: entropy-indicators and their theoretical basis	Leyde-Scient-2003-191, Leyde-ENTROP-2008-391, Leyde-RP-2006-1538, Leyde-Scient-2007-207	Leyde-Sc-2003-445(39) Leyde-Sc-2003-191(36) Leyde-JASIST-2004-991(36) Park -Scient-2005-3 (28) Leyde-RP-2006-1441 (25) Leyde-RP-2006-181 (24) Leyde-RP-2006-1538 (23) Campb-HEALTH-2004-64(14)
B	2	4	Structuration of scientific fields and the autoopoiesis of discursive knowledge	Leyde-Scient-2011-499, Lucio-J Infmtrcs-2009-261	Lucio-J Infmtrcs-2009-261(12) Lucio-JASIST-2009-2488 (2)
C	3	25	Capturing the entrepreneurialism in universities: commercialisation and patent focus	Baldi-Res Ev-2006-197, Shinn-SSS-2002-599, Ivers-Scient-2007-393, Urang-EPS-2007-1199, Eun J-RP-2006-1329, Acost-Reg St-2009-1167, Marti-JTT-2008-259	Shinn-SSS-2002-599 (70) Eun J-RP-2006-1329 (15) Marti-JTT-2008-259" (12) Langf-RP-2006-1586" (11)
D	5	23	Applying Triple Helix indicators across the world	Khan -JASIST-2011-2443, Leyde-JASIST-2009-778, Park -RP-2010-640	Leyde-JASIST-2009-778 (17) Danel-Scient-2003-205 (16) Park -RP-2010-640 (11) Glanz-Scient-2007-267 (7) Sun Y-Scient-2010-677(5)
E	7	7	Governance in academe & its implications for Triple Helix relations	Auran-RP-2010-822, Hemli-STHV-2006-173	Lepor-Res Ev-2008-33(12) Hemli-STHV-2006-173 (11)
E	8	4	Evaluation and governance of research systems	Ferna-REVIST-2009-251, van H-Innov-2009-443	Lopez-CANADI-2007-201(3) Sande-SPP-2010-689 (1)

Note: Papers are presented in abbreviated format, typically the first 5 letters of the first author, a short code for the journal, year of publication and the begin page of the article. Journal code: Scient - Scientometrics, RP - Research Policy, SPP – Science and Public Policy, JTT - Journal of Technology Transfer, J Infmtrcs – Journal of Informetrics, Reg St – Regional Studies, Res Ev – Research Evaluation

work on evaluation and governance of research systems (strand E, cluster 8).

This brief analysis illustrates how rich and diverse work on indicators can be, reflecting the open and inviting character of the Triple Helix framework. Work on TH indicators distinguishes itself by being grounded on and embedded in a rich theoretical and empirical context. TH Indicators authors make an effort to relate and integrate their work with insights from a range of perspectives on university-industry-government relations. This becomes apparent when one looks at highly co-cited authors (Fig. 2). The

core cluster is based on Leydesdorff and Etzkowitz's contributions which in turn are embedded in a wider context of contributions by evolutionary scholars and contributions on innovation systems, technological paradigms, and absorptive capacities as well as proponents of a new mode of knowledge production. Only then follows a surrounding (red) cluster of authors primarily associated with work on indicators reaching out to other work on university patenting (Mowery et al) as well as another (yellow) cluster comprising sociological work (Latour, Shinn, etc) and statistical foundations (e.g., Theil/Shannon).



Note: Circle size indicates the number of citations first authors have received; the closer authors are on the map the more often they tend to be cited together. Circle colour indicates association with a cluster.

Figure 2: Co-citation Network

This brief paper can only touch upon a few points and merely scratch the surface of this thriving area of activity. Nevertheless, it should have illustrated that there are three main strands developing quite different approaches and types of indicators, firmly embedded

in evolutionary thinking and debating new ways of knowledge production. These different approaches are applied across a wide range of countries. Particularly noteworthy is the rise of work on the Triple Helix in Asia, an area that may well continue to grow.

ABG as an Indonesian Way to understand and implement the Triple Helix in ASEAN

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ABG stands for Academic, Business, and Government, and it is understood by the Indonesian as the way to implement the Triple Helix. This notion was rooted before the term Triple Helix became popular terminology in Indonesia for studying the actor interplay in creating dynamic, conducive, and supportive business environment by having three relevant actors. However, the implementation of ABG in Indonesia has not been without its challenges, as progress has been considered relatively demanding for a large country like Indonesia. It has been a particular challenge for the East Indonesian region which is remote to Java Island, the

centre of economic, politics, and technology) due to the lack of communication and understanding among the actors involved (Irawati 2006).

In the Indonesian context, the Triple Helix or ABG has been known as a non-linear mechanism to promote sustainable economic, innovation, and science policy, along the joint partnership, in the 1990s (Irawati 2007). There have been attempts to implement this concept in order to bridge the gap between small and medium enterprises (SMEs), large enterprises (LEs), Local Authorities (LAs),

university, and government. Additionally, involving relevant governmental bodies such as BPPT (Indonesian Agency for the Assessment and Application of Technology), and relevant ministries (Indonesian Ministry of Trade, Indonesian Ministry of Science and Technology, Indonesian Ministry of Education, Indonesian Ministry of Tourism and Creative Economy, Indonesian Ministry of Small and Medium Sized Enterprises) have helped the Indonesian government to address the challenge of linking up synergy across the thirty-three provinces with over 238 million people, the world's fourth most populous country.

In view of that, more emphasis has been placed upon links with and support specifically for SMEs, so that they can perform a key role in generating employment, economic growth, and a more equitable development in Indonesia (Irawati 2011b). Furthermore, the Indonesian government has teamed up with regional universities to build strong partnerships in embracing LEs and SMEs from the various sectors (i.e. traditional sector, semi hi-tech industry, and social enterprise).

Not only building up and trying to be more sustainable, effective, and efficient in the domestic region, the Indonesian government, universities, and business practitioners have been playing a significant role in terms of knowledge production and knowledge transfer in Southeast Asia, through ASEAN (Association of Southeast Asian Nations) (Irawati 2011a).

ASEAN is expected to play a more active role in this dynamic region in terms of building up a resourceful cluster for innovation and technology, by means of having the trickle down effect from the industrial cluster, scientific park, technology park, and other channels of accumulating networks and technology from developed countries. Therefore, creating knowledge production through knowledge transfer is crucially taking place in Indonesia as well as other countries in the ASEAN region. One example is the Indonesian automotive cluster which is hoped to be the Detroit in ASEAN among other neighbouring countries rivalry (Irawati 2011a, Irawati and Rutten 2011).

The same is happening with the ABG concept in Indonesia. ASEAN perceives knowledge production through knowledge transfer as a non linear process which involves the complex interaction between numerous actors and institutions. These actors and institutions and their interconnections (global and local networks) will create a system of significant role in knowledge transfer. However, this process needs to be supported by a new kind of development policy from ASEAN governments (Irawati 2011c).

Since the global economy has become a networked economy, Indonesia and other ASEAN countries should be more proactive in providing a conducive, sustainable, and efficient opportunity for close linkages with business actors, universities/higher education, and other relevant institutions.

The next question is 'will they be able to do it?' That is a challenge for Indonesia and other ASEAN countries in implementing ABG or Triple Helix in an emerging region like Southeast Asia. The result is in progress and definitely is an on-going agenda for each Triple Helix actors in this region.

Therefore, the next Triple Helix X Conference in Bandung, will be the right hub for the ABG elements (Academics, Business, and Governments), from all over the world, but mainly for ASEAN communities. It is hoped that the event will provide a network to discuss and find commonalities, challenges, and opportunities in order to create an integrated economic community in ASEAN by 2015.

Additionally, the conference will be an international sharing and discussion forum for developed countries and emerging countries in general, in order to be more proactive in understanding and implementing the idea of Triple Helix.

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Creating Knowledge for Impact - a Triple Helix Approach

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The vision for the HELIX Excellence Centre at Linköping University (www.liu.se/helix) can be captured by the phrase *Knowledge Creation for Impact*, that is, to carry out research that contributes significantly to scientific knowledge and, at the same time, adds value to practice. In outcome terms, our vision is that HELIX will promote innovative practices in work, organisation, and regional development, developed in close collaboration with our partners as well as with authorities and other actors at the national and the transnational level.

Five Knowledge Platforms

The HELIX Centre is a vigorous multi-disciplinary environment for interactive research and innovation, where researchers from different disciplines within the fields of behavioural and social sciences, economics, health sciences, and technology, can meet and work on joint projects. It is an environment for collaboration between researchers and actors within companies, public sector organizations, and social partners.

The HELIX research program has a focus on five knowledge platforms:

1. Production and organizational development in firms and public sector organizations.
2. Learning for change and innovation in organizations.
3. Work-related health, work ability and competence.
4. New forms of organization – new ways to organize.
5. Entrepreneurship and regional development.

Ongoing projects within these clusters are in many respects interrelated, for example, in terms of common theoretical concepts such as work organization, learning, gender, innovation, and leadership. These interrelations are of course important not the least in perspective of promoting knowledge integration across the different knowledge platforms.

A Triple Helix Partnership

HELIX is organized as a partnership supported by interactive research. The partnership comprises members from companies,

public sector organizations, and labour market organizations. Through this approach, we have been able to establish HELIX as an intermediary between different interests and actors: firstly, between companies and public sector organizations; secondly, between employer and union representatives; and thirdly, between actors at the local, regional, national, and European level. The interactive research approach is not only a means for the creation of knowledge and implementation of research results among partner organizations, but the interactive research approach developed and used by HELIX researchers can also be considered as an emerging new model for university-industry collaboration.

An Interactive Research Approach

The overall model for interactive research that is used within the HELIX Centre (see Figure 1) has been developed on the basis of many years of experience by the research group in carrying out research based on different forms of action research or interactive research (e.g. Aagaard and Svensson, 2006; Svensson, Ellström and Brulin, 2007). In our view, interactive research aims to contribute *both* to practical outcomes, for example, how to handle practical issues in relation to organizational or technological change, *and* to the creation of scientifically valid knowledge (e.g. new concepts, theories, and models). In addition, however, a third task needs to be included, namely the *educative* task of enhancing the knowledge and competencies of the parties involved in the research process through processes of individual and collective learning. Indeed, it could be argued that interactive research is essentially about *joint learning* between the participants and the researchers throughout the entire research process.

In line with the interactive research approach, HELIX projects are not initiated only or primarily by researchers from an interest in scientific knowledge. On the contrary, there is a strong emphasis on joint definition of research objects and research questions in interaction between researchers and representatives of partner organizations. Thus, a comparative advantage of interactive research is its potential for combining and integrating the concerns of research, development work (innovation) and learning.

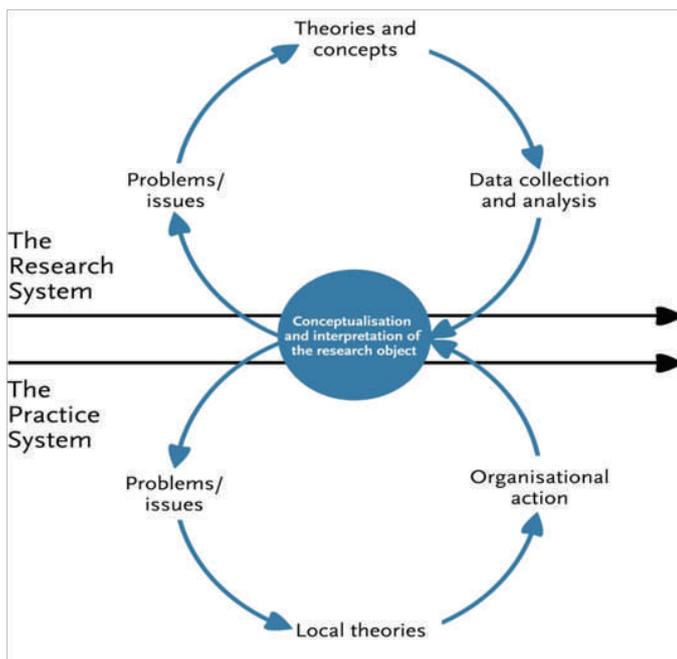


Figure 1: Interactive Research as a Two-Way Flow of Problems and Knowledge

Cross-Fertilization as an Innovation Mechanism

Partners identify issues for needs-driven research from monitoring of their internal processes, for example, through surveys or different types of indicators. Issues for needs-driven research are also identified as a result of feedback from previous research projects. Partners underline the importance of the interactions with the researchers to build up a stock of knowledge and new ideas and perspectives on specific issues. Representatives of partner organizations also underscore that it is through the force of new ideas and perspectives rather than through more formal mechanisms that research results translate into practice. The CEO of one of our partner companies emphasizes that research at its

best provides opportunities for “cross-fertilization” and for challenging established views and patterns of thinking and acting in an organization.

This type of productive “cross-fertilization” between research and practice is one of the basic ideas behind our interactive research approach. An important precondition for this to happen is that one is able to build trustful, long-term relations, and links between academia and companies or other organizations. In our case we have been able to build such links through our partnership approach in combination with the interactive research approach. In practice, this means that we meet and discuss with representatives of the partner organizations on a continuous basis during seminars, project meetings etc.

Through the development of the HELIX partnership, we have been able to establish the Centre as an *active intermediary* between different interests and actors. The role as an intermediary means, firstly, that HELIX is an attractive meeting place for its partners. Secondly, that HELIX has a mediating role (a broker role) linking, for example, companies with the university, or actors at the local, regional, national, and European level. Thirdly, it means that HELIX has over time developed into being a motor or vehicle for change and innovation in partner organizations. Thus, HELIX as an intermediary has the tripartite function of *meeting place*, *mediator* and *motor*. In this way we have been able to both create and transfer knowledge of relevance to our partner organizations, as well as to a broader range of national actors in the innovation system.

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The Center for Technology Policy and Management at University of São Paulo

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Background

University of São Paulo (USP) is a public university in the Brazilian state of São Paulo, with approximately ninety thousand enrolled students on eleven campuses. Circa 25 percent of the articles published by Brazilian researchers in high quality journals are produced at USP, the only Latin American institution among the top seventy in the "Top Universities by Reputation 2012," published by *Times Higher Education*.

The roots of the current Center of Technology Policy and Management (PGT/UPS) go back to 1981, when the National Council for Scientific and Technological Development (CNPq) requested that USP study the feasibility of establishing a Center of Study and Research in Science and Technology Policy inside the university. A center was created, hosting three groups that were at the forefront in terms of organizing and carrying out research in that field, which was still in its inception stage in Brazil. The initial center was formed by faculty members from the Departments of Management and Economics at the School of Economics, Administration and Accounting, as well as the Department of Production Engineering at the Polytechnic School.

Development

Activities in the 1990s were stimulated by the II Support Program for Scientific and Technological Development, a cooperative program of The World Bank and the Brazilian Federal Government. The main goal was to implement a graduate program capable of performing research and education activities according to international standards.

In 1991, following the publication of a resolution aimed at creating multidisciplinary research spaces, the Center submitted a proposal to the university in order to formalize its structure.

PGT/UPS maintained ties with the two founding schools, and opened itself up to researchers from other USP campuses (São Carlos and Ribeirão Preto). Researchers from other areas of the university also take an active part in the Center's activities, for

example, the School of Communications and Arts. The Energy and Nuclear Research Institute, an adjacent public institution that has a graduate track in management of technology, formalized a cooperation agreement with USP in 2009.

The Center has established itself as a multidisciplinary and interdisciplinary academic *locus*. Among comparable institutions, it is the only one that has been recognized for academic excellence by the Ministry of Science and Technology Support Program for Centers of Excellence. The Center also supports pioneering graduate programs in universities in other Latin American countries, such as *Pontificia Universidad Católica de Peru* and *Universidad Central de Ecuador*.

The scientific production accumulated by the Center during the 2007-2011 period includes 450 papers in journals (127 of them international), and 369 books or book chapters (61 of them international). About two hundred doctoral dissertations and master theses were completed under supervision of PGT/UPS researchers in regular graduate programs during this time.

In 2004, PGT/UPS conceived the electronic Management and Innovation Review (RAI), a pioneering initiative that resulted from the collective work of researchers in Applied Social Sciences that focus on innovation-oriented subjects. The Center contributed to the creation and consolidation of the Symposium on Technological Innovation Management, one of the key Brazilian forums in the field of innovation policy and management, accepting responsibility for the first twenty-four editions.

Triple Helix Activities

The Center's comprehensive research projects were supported by the São Paulo Research Foundation (FAPESP) in the 2000s. The first project studied the Innovative Behavior of the Brazilian Company, focusing on the Telecommunications industry. The second investigated the Management for the Internationalization of Brazilian Companies, then a groundbreaking subject.

During the last decade, FAPESP granted support for the Research

Program in Public Policies, in order to study the emergent phenomenon of Technology Parks in the State. The knowledge acquired through these studies led to contracts with several municipalities that were interested in support for formulating and developing their innovation ecosystems.

In recent years the Center developed projects that have important impacts: (i) a Reference Term for Actions in Innovation and Technology Access was prepared for the Brazilian System of Support for Micro and Small Enterprises (SEBRAE), an agency that has the challenge of providing knowledge to circa six million small businesses; and (ii) studies regarding innovation in the public sector were developed for the São Paulo State Secretary of Public Management, leading to a decree by the State Governor establishing a Knowledge Management and Innovation Policy for the State Public Service - a first-of-its-kind initiative in the Brazilian public sector environment.

The monthly research seminars of PGT/USP, now numbering more than one hundred, constitute a valuable space both for presenting and discussing recently completed dissertations and theses, and for establishing face-to-face dialogues on new and/or prominent issues with distinguished national and foreign researchers and research directors, public officers, and business executives.

More than one thousand senior managers from S&T institutions, government organizations, and private companies, have been trained in medium- and long-term programs. One of them was a pioneering Training Program for Managers of Industry-University Cooperation (PROTEU).

The Center had an essential role in the creation and incubation of relevant organizations in the Brazilian and international innovation environment: the Brazilian Association of Technological Research Institutions; National Association of Innovative Companies' R&D (ANPEI); Latin Ibero-American Association of Technology Management (ALTEC); and International Association for Management of Technology (IAMOT).

New Projects

PGT/USP was recently awarded two competitive grants by the Brazilian Development Bank (BNDES): (i) for a scientific in-depth study of the innovation performance of the Brazilian industry and the effectiveness of the relevant public policies, based on microdata from the four existing editions of the national Technologic Innovation Survey; and (ii) for a scientific in-depth study of the game industry in Brazil, as part of the international creative economy.

A research project supported by CNPq is currently under joint development with ANPEI, aiming at shedding light on Medium-size Innovative Firms, an unknown segment of Brazilian business.

The Center was also awarded two grants by the National Innovation Agency (FINEP), aiming at the establishment of a new model of management innovation in Medium- and Small-size companies, one focusing on the Oil and Gas Industry concentrated in ten clusters in the state of São Paulo, and the other benefiting

companies of the ICT industry in the Vale do Sapucaí cluster, in the state of Minas Gerais.

The Center will shortly begin a study of the current practices regarding planning for Technology Parks. One of the deliverables is a handbook with guidelines for both proponents and reviewers. Other smaller recent projects relate to diverse aspects of the Creative Economy.

The change in the portfolio reflects new challenges for the Center, in order to continue being at the forefront of the needs of the Brazilian and local Triple Helix.

TRIPLE HELIX ASSOCIATION MEMBERSHIP COMMITTEE NEWS

New Committee Structure

The THA Membership Committee has recently renewed its structure and currently includes the following members:

- José Manoel Carvalho de Mello, Chair, (Fluminense Federal University, Brazil)
- Marina Ranga (Stanford University, USA)
- Marli Elizabeth Ritter dos Santos (Pontifical Catholic University of Rio Grande do Sul , Brazil)
- Andrzej H Jasinski (University of Warsaw, Poland)
- Guilherme Ary Plonski (University of São Paulo, Brazil)
- Slavica Singer (J J Strossmayer University in Osijek, Croatia)
- Christiane Gebhardt (Malik Management Zentrum, Switzerland).

The new structure ensures not only a high level of academic and practice-oriented expertise, but also a balanced geographical and gender representation.

THA Chapters

During the recent months, the THA Membership Committee has actively focused on the evaluation of applications to establish THA Chapters in Russia, Turkey, and Mexico.

The committee welcomes the increasing interest for creating THA Chapters in several countries, and is happy to support and advise new Chapter proposers in preparing their applications.

We look forward to receiving your application for establishing a THA Chapter in your country! The Procedure for establishing a THA Chapter is available at:<http://www.triplehelixassociation.org/>.

THA Membership

The committee has devoted a significant part of their time to joint work with the THA Secretary General, Daniela Italia, to assist with increasing the membership numbers of the Association.

**Professor José Manoel Carvalho de Mello
Chair, Triple Helix Membership Committee
Josemello16@yahoo.com.br**

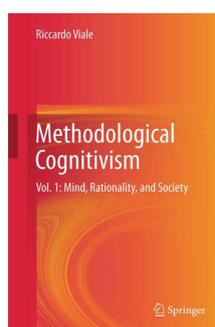
TRIPLE HELIX AMBASSADORS

In view of increasing public awareness, visibility and understanding of Triple Helix issues, and committed action in support of these issues, the Triple Helix Association (THA) established the **Triple Helix Ambassadors initiative**.

Triple Helix Ambassadors are designated by the members of the THA Executive Committee, the THA Committee Chairs, and heads of the THA Chapters.

If you are interested in becoming a Triple Helix Ambassador, please submit your application to one of the THA officers mentioned above in view of formal designation. The eligibility conditions, the terms of service for the post and application procedure for the nomination of Triple Helix Ambassadors is available at: <http://www.triplehelixassociation.org/>.

PUBLICATIONS



Methodological Cognitivism Vol. 1: Mind, Rationality, and Society

Riccardo Viale
University of Milan
Milano, Italy

ISBN: 978-3-642-24742-2
March 2012

This book deals with the cognitive foundation of the theory of social action. The social sciences are still guided by models of social action, far from the empirical reality of the psychology of action. While economics seems to have made greater progress in accepting the changes of theory of action derived from cognitive science (see, for example, the Nobel prize 2002 for economics awarded to Daniel Kahneman), sociology is still being oriented on the dualism of hermeneutics vs. structuralism, which leaves very little room for a cognitive theory of social action.

The unique features of the book are its combination of epistemology, philosophy of mind and cognitive science in order to bear up on the methodologies of social sciences and in particular the methodological individualism. Methodological cognitivism is proposed as an alternative to the holistic character of structuralism, to the intentionalist and rationalist features of methodological individualism, and to the relativistic character of hermeneutics and ethnomethodology.

Contents: Part I: Cognitive Rationality and Society.- Part II: Cognitive Economics.- Part III: Mind, Culture, and Epistemological Universals.- References.- Subject Index.
€ 99.95 | £ 90.00 |

Bibliometric Perspectives on Medical Innovation using the Medical Subject Headings (MeSH) of PubMed

Loet Leydesdorff [1], Daniele Rotolo [2], Ismael Rafols [2]
<http://arxiv.org/abs/1203.1006>

Multiple perspectives on the nonlinear processes of medical innovations can be distinguished and combined using the Medical Subject Headings (MeSH) of the Medline database. Focusing on three main branches--"diseases," "drugs and chemicals," and "techniques and equipment"--we use base maps and overlay techniques to investigate the translations and interactions and thus to gain a bibliometric perspective on the dynamics of medical innovations. To this end, we first analyze the Medline database, the MeSH index tree, and the various options for a static mapping from different perspectives and at different levels of aggregation. Following a specific innovation (RNA interference) over time, the notion of a trajectory which leaves a signature in the database is elaborated. Can the detailed index terms describing the dynamics of research be used to predict the diffusion dynamics of research results? Possibilities are specified for further integration between the Medline database, on the one hand, and the Science Citation Index and Scopus (containing citation information), on the other.

- [1] University of Amsterdam; Amsterdam School of Communication Research (ASCoR)
- [2] University of Sussex; SPRU (Science and Technology Policy Research).

Innovation as a Nonlinear Process, the Scientometric Perspective, and the Specification of an "Innovation Opportunities Explorer"

Loet Leydesdorff [1], Daniele Rotolo [2], Wouter de Nooy [1]
<http://arxiv.org/abs/1202.6235>

The process of innovation follows non-linear patterns across the domains of science, technology, and the economy. Novel bibliometric mapping techniques can be used to investigate and represent distinctive, but complementary perspectives on the innovation process (e.g., "demand" and "supply") as well as the interactions among these perspectives. The perspectives can be represented as "continents" of data related to varying extents over time. For example, the different branches of Medical Subject Headings (MeSH) in the Medline database provide sources of such perspectives (e.g., "Diseases" versus "Drugs and Chemicals"). The multiple-perspective approach enables us to reconstruct facets of the dynamics of innovation, in terms of selection mechanisms shaping localizable trajectories and/or resulting in more globalized regimes. By expanding the data with patents and scholarly publications, we demonstrate the use of this multi-perspective approach in the case of RNA Interference (RNAi). The possibility to develop an "Innovation Opportunities Explorer" is specified.

- [1] University of Amsterdam; Amsterdam School of Communication Research (ASCoR)
- [2] University of Sussex; SPRU (Science and Technology Policy Research).

The Triple Helix of University-Industry-Government Relations (January 2012)

Loet Leydesdorff
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1996760

The Triple Helix of University-Industry-Government Relations was first proposed by Etzkowitz and Leydesdorff in 1995 and further elaborated into a model for studying knowledge-based economies by Etzkowitz & Leydesdorff (2000) and Leydesdorff (2006). A series of workshops, conferences, and special issues of journals have developed under this title since 1996. In various countries, the Triple Helix concept has also been used as an operational strategy for regional development and to further the knowledge-based economy. This short review (4000 words) provides an update (in January 2012) of the further elaborations of various Triple Helix models (such as a neo-institutional versus neo-evolutionary version). The surplus of using different models is specified in terms of research strategies. Using Triple Helix indicators, one can evaluate to what extent an innovation system is nationally, regionally, or technologically integrated.

Citation Analysis using the Medline Database at the Web of Knowledge: Searching "Times Cited" with Medical Subject Headings (MeSH)

Loet Leydesdorff*, Tobias Opthof*
<http://arxiv.org/abs/1203.4725>

Citation analysis of documents retrieved from the Medline database (at the Web of Knowledge) has been possible only on a case-by-case basis. A technique is here developed for citation analysis in batch mode using both Medical Subject Headings (MeSH) at the Web of Knowledge and the Science Citation Index at the Web of Science. This freeware routine is applied to the case of "Brugada Syndrome," a specific disease and field of research (since 1992). The journals containing these publications are attributed to Web-of-Science Categories other than "Cardiac and Cardiovascular Systems", perhaps because of the possibility of genetic testing for this syndrome in the clinic. With this routine, all the instruments available for citation analysis can be used on the basis of MeSH terms.

- * University of Amsterdam; Amsterdam School of Communication Research (ASCoR)

PRESIDENT'S CORNER

'Tic, Tac, Toe' : Filling Triple Helix Gaps

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Understanding and filling gaps in collaborative arrangements is key to the advancement of Triple Helix policy and practice. The 'Tic, Tac, Toe' game of lining up three X's or O's in a row for a win provides an appropriate metaphor for filling gaps in Triple Helix partnerships and winning the innovation challenge, wherever it may be. Recent meetings in Copenhagen and Silicon Valley gave me the opportunity for some reflections on this topic that I would now like to share with you.

Copenhagen's "Suitable for Business"

I recently had the chance to see the Triple Helix in action in Copenhagen, Denmark, from various standpoints. Gaps and missing links across institutional borders were evident, but bridging them across the board, from social sciences and humanities to creative industries was high on the local and national agenda.

"Suitable for Business," a social sciences and humanities student organization in Copenhagen invited me to keynote their annual conference with a talk on "Triple Helix and its implications for the Humanities and Social Sciences", highlighting the potential of triadic partnerships in this area, usually less explored in terms of Triple Helix interactions. The former Royal Pottery works has been renovated into a conference venue at the Copenhagen Business School, with the meeting held in the old "oven." After presenting the Triple Helix framework, I referred to the significant contributions that the social sciences and humanities have made to the creation of jobs and the advancement of knowledge.

I discussed the invention of the algorithm in the Stanford music department that led to the Yamaha synthesizer, as well as the spread of survey research to such an extent that newspapers no longer feel the need to explain confidence limits, but take for granted the reader's basic knowledge of the concept. I also mentioned Robert K. Merton's focus group research technique that has become an indispensable part of advertising and political campaigns. Some years ago, the New York chapter of the Public Opinion Research Association invited Professor Merton to a special meeting to explain to him what had happened to the focus group

technique that he had originally invented to study an inter-racial housing project in New York City. Merton was amazed to learn that some sociology PhD students, who had not completed their dissertations, had taken this technique to existing companies or started their own firms to commercialize his sociological methodology invention. Professor Merton was said to have replied, "I wish I had patented it."

Humanities and social science students in Denmark are being encouraged by government policy to think of utilizing their talents in the private sector. They are expected to take skills, techniques, and ideas from the university and create their own jobs, much as an earlier generation of US students turned social sciences advances into new service industries.

In a next meeting sponsored by the DEA (Danish Business Academy) think-tank, I learned about a gap that its early twentieth century founders fixed in an innovative manner. As business people, they were dissatisfied with the University of Copenhagen's "ivory tower" stance and founded the Copenhagen Business School as an alternative form of academic institution, more engaged with society and the business sector.

I also learned about gaps in contemporary Copenhagen too. Creative industries, a signature industry for the city, encountered a significant obstacle to the development of joint innovation projects among firms because of the co-funding requirement that only large firms can usually afford. Creative industry firms, for example, in fashion, typically consisting of only a few people, seldom have the funds to participate. Even though this is an industry that government strongly wishes to encourage, the culture of requiring matching funds is so strong that an accommodation has not yet been reached. One idea that arose from the discussion was for the fashion industry's umbrella organization to play an aggregating role, bringing small firms together to participate in joint projects, with the organization providing the required match.

Silicon Valley's challenge: human resources for innovation

A few days later, back in Palo Alto, I attended a regional conference called by the Silicon Valley Leadership Council, a business-led organization founded by David Packard. This was one of a series of meetings held across California to winnow public policy alternatives to present priorities to the legislature. Several panels and brief talks were interspersed with a smart phone voting process on preset alternatives, designed to indicate concern with particular issues like immigration or education. On the education panel, George Blumenthal, Chancellor of the University of California, Santa Cruz, noted that state monies equivalent to the funding of three campuses had been removed from the University of California in recent budgets.

The argument is that the long-term economic health of the state depends upon the quality of the people trained by the state's universities. A previous era of economic success was built on this premise. However, in recent years the quick fix to the shortage of engineers has been to expand immigration to fill the positions rather than to increase local educational opportunities. A business leader commented that Silicon Valley firms were global, that they could move production, R&D, sales, etc "What we are trying to get is a reason to stay here." Ultimately, I thought that reason would be the quality of innovative ideas that are generated locally.

Presently, Silicon Valley is the leading ecosystem for growing innovative firms. Countries such as Germany have developed

programs to finance their most promising start-ups to come to Silicon Valley incubators such as Plug and Play for 'growth training.' In time these lessons are learned and taken back home, for example, by Taiwanese who have spent decades in the Valley but have been recruited to return and develop an innovation ecosystem in their homeland. Today, Silicon Valley is at the height of its power as the world's leading innovation system. Nevertheless, an iconic firm is a shadow of its former self, with rows of empty cubicles. Its head count is as high as ever but many of its engineers are now located in India.

Ultimately, the guarantor of a triple helix network of interactions is a vibrant university system. Public support for universities in California has weakened, at least temporarily. So far, the leading public campuses have not been affected by significant faculty loss, although life is more difficult for students subject to rising tuition fees. Three major campuses, the University of California, Berkeley, Stanford University, and the University of California, San Francisco, a specialized biomedical institution, are the front rank academic institutions of Silicon Valley, with a significant gap between the next level of universities. On the other hand, the Boston region, which Silicon Valley surpassed some years ago as the leading US innovation hub, is today characterized by a seamless web of leading universities, not only traditional first-rank schools, such as Harvard and MIT, but rising schools such as Boston, Tufts, Northeastern and Brandeis Universities and Boston College. Given the above trends, Boston may possibly retake the lead as the leading US innovation centre.

TRIPLE HELIX WORKING PAPERS

Plans are being developed for the public launch of the Triple Helix Working Paper Series (THWPS).

If you have a contribution that you would like to have included in the inaugural issue, please send it to James Dzisah at james.dzisah@usask.ca.
