

CNR-Université Laval: When bilateralism approaches Research (Example of application of the triple helix model)

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Abstract The Joint International Research Unit (JIRU) between the CNR and the Laval University (ULaval) was born in 2016 with ambitious objectives related to the development of research projects, innovation and knowledge transfer in the emerging field of the biomolecular study of the microbiome. The creation of this important partnership between CNR-ULaval has generated a new vision of international cooperation, useful to support an integrated approach that allows the development of a precompetitive Network model with an open system, involving the industrial world, the Institutions through a linear comparison (in this case Provincial and Federal), and the scientific community of the two countries. In short, Joint International Research Unit between the CNR and the Laval University is a concrete application of the Triple helix model with the difference that the players of the two countries work in a wide synergy to create a precompetitive development useful for improving the quality of the life (Dynamics across borders).

Keywords: Triple Helix, bilateral, knowledge transfer, innovation, international

Presenter: Emanuele Fiore

Type of Presentation: Case Study

1. Case geographical origin (country / region / city)

The Joint International Research Unit (JIRU) is a bilateral research unit between the Italian National Research Council (CNR) and the Université Laval of Quebec (Canada).

2. Case owner/s (name of the institution/s originating the practice, short profile)

National Research Council –Italy

The National Research Council (CNR) is the largest public research institution in Italy, the only one under the Research Ministry performing multidisciplinary activities. Founded as legal person on 18 November 1923, CNR's mission is to perform research in its own Institutes, to promote innovation and competitiveness of the national industrial system, to promote the internationalization of the national research system, to provide technologies and solutions to emerging public and private needs, to advise Government and other public bodies, and to contribute to the qualification of human resources.

In the CNR's research world, the main resource is the available knowledge which means people, with their skills, commitment and ideas. This capital comprises more than 8.000 employees, of whom more than half are researchers and technologists. Some 4.000 young researchers are engaged in postgraduate studies and research training at CNR within the organization's top-priority areas of interest. A significant contribution also comes from research associates: researchers, from Universities or private firms, who take part in CNR's research activities.

Université Laval of Quebec – Canada

Since its founding, Université Laval has been training, equipping, and guiding the decision makers who grapple with the major issues of society. Through the advancement and sharing of knowledge, its culture of excellence, and its global outlook, our academic community contributes to the development and international profile of our province. Still today, with the world at a crossroads, Université Laval plays a bigger role than ever in Québec City and on the national and international scene, both as a catalyst for change and a visionary institution where knowledge, curiosity, and innovation are part of everyday life.

A well-rounded university with 500 programs, renowned mobility and exchange programs, 5 study profiles (Sustainable Development, Entrepreneurial, International, Honours and Research Custom), 750 partnership agreements with some 500 universities in 70 countries, a library of over 6 millions documents, over 42,500 students of which 5,600 international students.

3. Problem/s the case intended to tackle (Why it is worth to be implemented? Which problems/hurdles it intends to remove?)

International cooperation in the fields of scientific research and technological innovation is a strategic component of the foreign policy of the National Research Council (CNR). The National Research Council is geared towards stimulating **cooperation** through an **integrated approach** aiming at a comparison between research systems and the development of a **pre-competitive Network model** with wide involvement of the whole community Science, and the industrial world. The theme of technology transfer and, more generally, the theme of transforming knowledge into productive value, has always been the focus of research and innovation policies. In recent years there has been a particular development of the relations between Italy and Canada in the field of technological innovation and technology transfer, determined by the intensification of scientific collaborations.

On the other hand by 2022, Québec aims to position itself among the 10 leaders of the Organization for Economic Cooperation and Development (OECD) and to do so, it needs to realize a real **scientific diplomacy**, through academic collaborations to develop joint projects and share experience and skills.

The ability to **produce knowledge** and, at the same time, to quickly transform such knowledge into an economic value, and thus to produce quickly a high quality innovation, even if with different intensity but with the same Management and direction of the institutions, research and the industrial world this model, represents the **key to economic growth** and the competitive success of a country.

4. Case track record (new practice or well routed: years of operations, origination of the idea, approved developmental steps, supporting decisions and investments, organizational commitments and activities)

Québec, the Canadian province that spends on scientific research a value equal to an OECD country (\$ 1.3 billion GDP in R&D), has planned (2017-2022) a strategic five-year investment in scientific research of \$ 580 mln.

By 2022, Québec aims to position itself among the 10 leaders of the Organization for Economic Cooperation and Development (OECD) and to do so, it needs to realize a real scientific diplomacy, through academic collaborations to develop joint projects and share experience and skills. With these premises the CNR and Université Laval, Quebec, Canada, signed in February 2016 an Agreement establishing a Joint International Research Unit (JIRU) lasting 7 years. The objective of the JIRU is to be a world reference in biomolecular chemistry, microbiome, nutrition and cardiometabolic health. The Université Laval financed the JIRU activities to be carried out in Canada with an initial contribution of 2.5 million Canadian dollars for 5 years.

The ambitious objective of JIRU is the development of research projects, innovation and knowledge transfer in the emerging field of the biomolecular study of the microbiome. The creation of this important partnership between CNR-ULAVAL has gener-

ated a new vision of international cooperation, useful to support an integrated approach that allows the development of a precompetitive Network model with an open system, involving the industrial world, the Institutions through a linear comparison (in this case Provincial and Federal), and the scientific community of the two countries. In short, Joint International Research Unit between the CNR and the Laval University is a concrete application of the Triple helix model with the difference that the players of the two countries work in a wide synergy to create a precompetitive development useful for improving the quality of the life (Dynamics across borders).

5. Case references (publications, awards, conferences and workshops presentations, etc.)

Conferences

- 1st International Conference of JIRU: Deciphering the biomolecular mechanisms of gut microbiome action on metabolism. Dietary implications, new functional foods and therapeutic drugs. May 3-5, 2017. Hotel San Francesco al Monte, Napoli
Organised by the Joint International Research Unit on:
Chemical and biomolecular microbiome research: nutritional applications and impact on metabolic health
Director: Vincenzo Di Marzo, Institute of Biomolecular Chemistry, CNR, vdimarzo@icb.cnr.it, +39-081-8675018
- 2nd International Conference of JIRU: Chemical and biomolecular microbiome research: nutritional applications and impact on metabolic health. October 4-5, 2018. Palace Royal Hotel, Quebec City, Canada. Organised by the Joint International Research Unit on: Chemical and biomolecular research microbiome and its impact on metabolic health and nutrition.
Director: Vincenzo Di Marzo, Institute of Biomolecular Chemistry, CNR, vdimarzo@icb.cnr.it, +39-081-8675018

6. Case impact Intangible (Who benefited from this practice? What has changed/improved for them as a result of the adoption of this practice?)

This model represents the key to a **country's economic growth and competitive success**. Researchers have the ability to produce knowledge and this model propose at the same time, to quickly transform such knowledge into an economic value, and therefore to quickly produce a high quality innovation, even if with different intensity but with the same direction and towards the Institutions of Research and Industrial world.

International cooperation, in the fields of scientific research and technological innovation, is a strategic component of the foreign policy of the National Research Council (CNR). The National Research Council is oriented to stimulate cooperation through an integrated approach that aims at a comparison between research systems and the development of a precompetitive Network model with wide involvement of the entire scientific community, and of the industrial world. The theme of Technology Transfer and, more generally, the theme of the transformation of knowledge into productive value, has always been at the center of research and innovation policies. In recent years there has been a particular development of relations between Italy and Canada in terms of technological innovation and technology transfer, determined by the intensification of scientific collaborations

7. Case impact Tangible (Is there a positive financial/growth / societal impact on the involved organizations, resulting from the adoption of the practice?)

The emergence of this important partnership between CNR-Ulaval has generated a new vision of international cooperation, useful to support an integrated approach that allows a linear comparison of the development of a pre-competitive Network model to Open system involving the industrial world, the institutions (in this case provincial and federal), and the **scientific community of the two countries (Dynamics across borders process)**. In short, the international mixed unit between the CNR and the University of Laval is a concrete application of the triple Helix model with the difference that the players of the two countries work in broad synergy to create a pre-competitive development useful for the improvement Quality of life as well.

8. Sustainability (Where to find resources to secure operations in the long term?)

On both Italian and Canadian side of the JIRU, two Scientific Offices (experienced Project Managers have been hired for this purpose) have been established in order to identify potential sources of financing. Furthermore they have to deal with request and proposal for scientific and industrial partnership with third parties on the basis of the guide lines adopted by the Steering Committee. They develop specific projects agreements with third parties, sources of financing or industrial partners. The Project Managers are scouting National and International financing request in order to secure long term operation.

