

## Inaugural Editorial: Experimentation in Innovation Studies

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Scientific and human knowledge has progressed in the past few millennia much through *experimentation*. This has led to the modern scientific method of systematically observing, experimenting, and measuring of phenomena in search of explanations, hypothesizing and testing ideas. Deriving hypotheses, conjectures, models, theories and even causal explanations from the experiments have been driving modern society and technological developments for the past few hundred years.

Experimentation has been central in the scientific quest of turning natural science results into new ideas, technologies, and innovations that have fulfilled desired human needs and have extended the human horizon. Consider Galileo Galilei, Johannes Guttenberg, Louis Pasteur, Antoine Lavoisier, Michael Faraday and numerous others. They have all contributed to societal progress by introducing new innovations that have had an impact on human capabilities in extending what is achievable. Their remarkable accomplishments have rested on scientific method of building on existing knowledge but mostly on pure curiosity, experimenting or fiddling with uncommon objects and untested ideas and theories.

Without experimentation, no real innovation is possible. The *process* of innovation can be as important as its products and other results as it in many times leads to unanticipated avenues and unexpected advances in our knowledge. In this process the importance of engaging and interacting between different contributing actors with heterogeneous backgrounds is well recognized in current literature and practice. A fruitful interaction with physicists, engineers and students from adjacent fields have resulted in many marvellous scientific advancements, for example the Hubble telescope, Mars Rovers, space satellites, sequencing of the human genome or finding the Higgs-particle. As just one example of the power of the collaborative approach in science, CERN in particle physics has facilitated over 60 years of global, open, large scale experimental experiences. It has offered historical rooting for initiating experiments, some of which have resulted in high societal impact, such as the World Wide Web.

At CERN, a dedicated facility, IdeaSquare<sup>1</sup>, has been recently created for further experimentation in innovation. It brings together detector R&D projects looking ahead into new technologies potentially useful for its next-generation physics experiments and current improvements, as well as cross-disciplinary MSc-level student teams<sup>2</sup> coming from product design, business management and various fields of engineering.

The MSc-student teams are given society-driven, user-centric innovation challenges and they are physically embedded together the scientific R&D teams working on new detection and imaging concepts. Systematic data is being collected of these student projects and the results are being made public.

The purpose of the new on-line journal, *CERN IdeaSquare Journal of Experimental Innovation*, or *CIJ*, is to provide an open platform and a data depository for the socio-economic innovation research. CIJ is interested in the social dimensions of experimentation in innovation. In particular, CIJ aims at increasing our understanding of

- what, how, why, when, and where people innovate and
- what, how, why, when, and where innovations are created, adopted, used, modified, and discarded and
- how innovations are managed, directed, governed, or influenced.

The level of analysis can be a single human or on pan-national policy level. This renders the key feature of CIJ being *cross-disciplinary* in nature. CIJ seeks original, empirical, experimental research results studying innovation within any field of scientific inquiry, be it psychology, management, chemistry, physics, electronics, information technology, social studies or interdisciplinary thereof.

Moreover, CIJ is about *openness*, grounded on the scientific ideology of delivering research results to all mankind to be utilized and built upon. This ideology renders the results of published manuscripts to reach their full potential in having impact and becoming a source for future inspiration in extending our understanding of innovation. The premises of CIJ are

<sup>1</sup> [www.cern.ch/ideasquare](http://www.cern.ch/ideasquare)

<sup>2</sup> <http://www.cbi-course.com/>



built on scientific inquiry as understood in the context of natural sciences including rigorous review and contesting by the scientific community. CIJ is thus built on double-blind *peer review* process facilitating the immediate, fast, critical assessment of the results presented.

In contemporary scientific research, the amount of information, knowledge and pieces of research results is increasing at an exhausting pace. This rapid increase in amount of results leads to need for communicating results in an efficient and effective way, for others to build upon. Therefore, CIJ endeavours to deliver *concise, contemporary, focused* manuscripts reporting only the core of the results of the empirical research.

Based on all of the above, CIJ provides a scholarly outlet that differs from current journals in its scope on interdisciplinary empirical experimentation-based innovation research. CIJ builds its mission on the following Editorial Policy. All published manuscripts shall study innovation, innovativeness and experimentation regardless of the level or field of analysis (be it policy, end-user, technology solution experiment, innovativeness in organisations, groups, individuals or the like). The published manuscripts are short to-the-point styled without unnecessary elaboration. The articles also are concise focusing on delivery of core results of the empirical research. And finally, all published articles follow a pre-defined structure, traditional to the scientific reporting. All these aspects are adopted for efficient and effective delivery of the core results. Efficiency is offered for both the authors with a pre-defined frame of reporting and reviewers obtaining a clear outlay of the review task. Effectiveness in turn is achieved by authors' concentrating only on the most important and contemporary theoretical discussion and the relevant results in their manuscripts.

CIJ wants to have emphasis on experimenting and innovating new ideas, solutions, and to learn from what works and what not. We believe that a strong theoretical grounding and a solid, sound empirical design is the cornerstone in building new path-creating and path-breaking cumulative knowledge in innovation.

A kick-off colloquium is organised at CERN IdeaSquare for the initiation of the CIJ. The theme for the Colloquium is "*Experiments; Studying Innovation and Innovativeness*" and it will take place in April-May, 2016 at Geneva, Switzerland. This will be the first of such Colloquiums organized together with the Editorial Board of CIJ. In order to further increase the reach of the experimental-based approach to innovation research and also to build an international, experimentally-minded network of scholars, a dedicated PhD summer school with a similar theme will be organised on an annual basis, starting during the summer 2016.

Editors,

CERN *IdeaSquare Journal of Experimental Innovation*