

**From the Editor-in-Chief**

## **OPEN ACCESS PUBLISHING AS AN INCORPORATOR OF RESEARCH AND INNOVATION CYCLE**

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Even though basic research doesn't often result in immediately usable products, it plays an essential role in technological innovations, as it has formed the basis for many ground-breaking advances in product development over the decades. For instance, Maxwell's 19<sup>th</sup> century research into electricity and magnetic fields (Copeland, 2000) has resulted in a vast array of products that many of us take for granted in modern daily life. And Turing's intuitive consideration of the way mathematicians think paved the way for the development of computers (Friedel, 2002) and eventually to many digital technologies. A multitude of similar examples that demonstrate the connection between ideas emerging from basic research to product development abound.

On the other hand, it is also common that product design processes provoke new directions and developments in basic research. In the 1860s, Pasteur investigated why some local vintners' wines were spoiling and opened a new frontier on the understanding of how microbes caused disease (de Kruif, 1926/2002) and, more importantly, on the development of treatments. Practical needs also led to the invention of logarithms that have become a vital element of contemporary mathematical thinking.

This reciprocal connection between new ideas in basic research and product development can be called an innovation cycle, expressing the existent and constant interaction. New ideas in one area generate more or different ideas not just on that topic or in that area but also more widely. The expression of new needs or solutions set challenges for active thinkers, who then take the insights and potentialities from one sector of society or business to another.

The innovation cycle is an important phenomenon in modern society. Many innovations quickly find their way into practical life. In reality, however, the innovation cycle doesn't always move very fast. The Arpanet (the forerunner of today's Internet) was introduced in 1969 (Zakon, 2005), but it didn't become an essential tool for worldwide business, communication, and entertainment for another 25-30 years. Indeed, many ideas that were relevant to the development of the Internet were surfaced decades before the global system became commonplace (Zakon, 2005). Yet, once the structure became known and accepted, it

provoked a wide variety of forms of usage, products, and services. This example perhaps points to a modern reality: The faster new ideas find their routes into everyday life, the broader and deeper their impact on, for instance, social development can be.

In our knowledge society, the advancement of learning and research no longer takes place strictly at universities and research institutions. Today, numerous types of knowledge agents—business enterprises, foundations, individual inventors, and other social actors—play essential roles in knowledge creation. An impact, however, is that the scope of expanding research is perhaps changing the nature of basic research. Indeed, basic research may no longer be “basic,” but rather requires a variety of new skills and perspectives to generate the fundamental insights and creative approaches needed at the start of the innovation cycle. And, because of the “give-and-take” of the innovation cycle, strong communication is needed between the various stakeholders within the knowledge production sectors of modern society.

Open access publishing provides one important tool for the communication of research results and innovative applications within our modern society. This free access to research findings can mean that anyone—everyone—who seeks the information on contemporary thinking and testing can tap into the knowledge generated, no matter by whom or where. Independent of the size or resources of the individual, the organization, or the enterprise, a designer, a researcher, a manager, etc. may tap into some knowledge and implement it in a variety of ways. Open access publishing possesses a crucial element of the broad dissemination of knowledge, and thereby speeds up the innovation cycle. Open access publishing of research builds essential connections among—and benefits to—universities, business enterprises, and society at large.

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