Editorial – Issue 19 – October 2013

Results obtained within R&D programmes, not only in the electricity sector, have drawn the attention of companies to the value of investing in knowledge and technology in the long term. The scientific literature reports several studies conducted in order to evaluate the effectiveness of mechanisms used to carry out R&D projects, including partnerships between the productive sector and academia and research centres. According to the paper entitled "R&D Venture: proposition of a technology transfer concept for breakthrough technologies with R&D cooperation: A case study in the energy sector", authored by S Hess and R Y Siegwart, from April 2013, the partnership is a practical way to achieve technology transfer and explore its future through R&D cooperation. The article presents a case study focused on the energy sector, and recommends careful understanding of the different perspectives of the concept from industry, academia and the partnerships themselves.

Yet before continuing the exploration of the different perspectives of the technology transfer concept, it is important to remember and discuss the meaning of "technology" and "technology transfer", according to definitions found in glossaries such as FINEP and Wikipedia. The term technology refers to the organized set of knowledge used in the production and commercialization of goods and services, which is integrated not only by scientific knowledge from the natural, social and human sciences, but also by empirical knowledge that results from observations, experience, specific attitudes and oral and written tradition. The term "technology transfer" refers to the transfer of technical or scientific knowledge (eg research and scientific investigation results) in combination with production factors, being closely related to "making available to individuals, companies or governments skills, knowledge, technologies, manufacturing methods, types of manufacturing and other facilities", with the aim of ensuring that the scientific and technological development be more widely accessible to society .

Therefore, it is possible that the perspectives on the part of different players routinely foist some misinterpretation. For example, it is possible that industry or even academia tend to consider technology as a set of tooling and therefore to consider transfer technology as the provision of a finished and functional product, excluding the knowledge involved. However, both terms refer to a complex framework that starts with the acquisition of knowledge. Well, if knowledge is one of the main ingredients in this context, how can we transfer it?

The challenge for technology transfer and therefore knowledge transfer is embodied in the process of learning. In order to learn, there must be participation. The industrial sector should, when participating in an R&D project for example, actively participate in the generation of knowledge, since it directly refers to learning. In other words, the inherent concept behind many R&D programmes should be redesigned. Rather than transferring products already developed, the integration of all partners in the generation of knowledge should be promoted. However, it is clear that the corporate culture in this country, in most cases, shuns the development of R&D activities "because they do not yield practical benefits" and the academic culture, also in most cases, look away from the interaction with the productive sector in order not to contaminate with its exclusive focus on practical aspects. Both positions need to be revised. The concepts of development agencies should also be reviewed with the aim of promoting the generation of technology, or, as stated above, the generation of knowledge that can, in turn, create greater value.

So, back to the point made by the authors mentioned in the first paragraph, the transfer of technology through R&D partnerships and cooperation is a much more profound issue than what has been perceived by society. It does not have to do with just establishing a mechanism for the flow of the knowledge generated in academia onto the achievement of the desired product by the company, but rather with an interaction in which both knowledge, scientific and practical, interact as a way of creating technology and hence competitive differential and excellence.

This issue features five papers. The first presents an economic model that addresses the optimization of the daily schedule of operation of cascade hydropower plants in order to support decision making, dealing with the uncertainty related to the flows and reducing the amount of water poured. The second paper discusses the challenges of the electricity sector in relation to its R&D programme towards innovation, attempting to explicit parameters to improve the programme in relation to its methodology, its intrinsic concepts and its goals with

respect to technology innovation. The third paper discusses research, standards and regulations related to the science of fire, the demands in the country to verify the behaviour of materials and construction systems for resistance and reaction to fire, also dealing with the acoustic part of the problem, all with emphasis on power substations. The fourth paper deals with the relationship between the increase in demand for electricity and the cost of producing energy in an isolated system, specifically the system of Manaus. The fifth and final paper examines the impact of the insertion of a criterion related to energy production by small hydroelectric plants on the distribution of GST in Minas Gerais.

On behalf of the advisory and editorial bodies, we wish you all good reading, hoping that it will be able to aid in the creation of opportunities for the benefit of the entire sector.

Klaus de Geus
Editor-in-chief