Chapter 13
The Contribution of Information Science Through Scientific and Technological Knowledge in Intellectual Property

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ABSTRACT

The more than 100 million patents registered in the European Patent Office provide an unprecedented source of scientific and technological information in the history of mankind. The technological management of this information is exploited to develop technological advances in scientific, technological, and educational organizations and companies. New standards of product and process safety and effectiveness have been introduced across the world, and public and private business strategies are under constant review to comply with the prevailing paradigm. The health sector releases more than 1 million papers a year on scientific progress, while technological (patents) advance 10% per year. Therefore, updating the contribution of the information science through scientific and technological knowledge in intellectual property, a case study, will provide a contribution to reflection for the business in research, development, and innovation in health. These facts lead to constant adjustments of business in companies, universities, and government actions. In 2017, three lists of strategic products for the Brazilian Health System were changed. Using new intelligence systems, the government has adopted new strategic partnerships with the private sector, and were conceived in 2017 (others replaced) with budgets of more than US$ 2 billion. This chapter explores the contribution of information science through scientific and technological knowledge in intellectual property.

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BACKGROUND

The activities of companies, research groups, institutions and national governments are effective when they attribute value and quality to their information. These critical factors are crucial for organizations' success in their domestic and international planning, whatever their long- and short-term strategies (Magalhaes & Quoniam, 2015).

Hence, identify and analyze the amount of scientific information and state of the art with respective correlations have become hard work. The world's technological per-capita capacity to store information has roughly doubled every 40 months, since the 1980s. As of 2012, every day 2.5 quintillion (2.5×10^{18}) bytes of data were created (Lynch, 2008). Therefore, the challenge for science and enterprises is managing Big Data so that this scientific data can be retrieved and processed into strategic information for decision makers.

Intellectual property is an important asset for businesses, and knowledge is becoming increasingly crucial for competitiveness, technology, and economic development. This is particularly true for technology-intensive sectors, where knowledge is regarded as a company's most important asset (Miller, 2000).

Therefore, it is crucially important for organizations to invest in research, development and innovation, if they are to remain active and competitive. Information Science has tools that can help organizations to produce, store and manage data on any activities or processes, resulting in more effective management for innovation. With the increasingly turbulent, complex and competitive conditions in the markets in which companies operate, the use of industrial/intellectual property has become a way of assuring the continuation of their activities in the future by protecting innovations and restricting how their competitors can act. The industrial property information contained in patents identifies the latest science and technology developments, making it a powerful competitive weapon (Pierret, 2006).

The mechanisms for mining information have developed from "manuals" to dedicated portals or websites (from Web 1.0 to Web 2.0), where mass information can be obtained by automated means. This new paradigm allows huge quantities of data to be downloaded in different formats, but it cannot process this data to produce indicators that can actually help decision-makers. Therefore, studies are required using information science, such as technology trends (Quoniam, 2011).

Knowledge Management

Knowledge management requires the involvement and support of all a company's stakeholders to preserve, transmit and develop knowledge. Indeed, it is the individuals who are at the center of the creation of value and hold the keys to the success of such a project. The management of a company's knowledge and know-how is not universal, but depends strongly on the culture of the country in which it is undertaken (Balmisse, 2006).

To motivate individuals to share their knowledge, cultural and human factors must be taken into account, rather than just tools and procedures. Pesqueux et al (2011) define "culture" as the set of values, norms, habits and customs specific to a society that influence the personality of the individual (Pesqueux & Ferrary, 2011).

According Morin (1982), it is necessary to elevate the concept of "system" of this theoretical level to the paradigmatic level. A paradigm, for the author, is the set of fundamental relationships of association and/or opposition between a small number of "master concepts" that command/control all existing knowledge in all the speeches and theories. Thus, to sustain the action cycle (application) of the knowledge