THE INFLUENCE OF DIGITAL TECHNOLOGIES IN GLOBAL BUSINESS FUTURE: THE QUATERNARY AND QUINARY ECONOMIC SECTORS

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Abstract

Digital technologies fundamentally change all sectors of the economy through the innovation opportunities they offer in terms of product, process and business model innovation. Traditional economic sectors such as agriculture, industry and retail are profoundly changed and accelerated by new technologies that use data as a resource for innovation. The sector-specific dynamics are determined by the differences in opportunities that these technologies offer for innovation and by the differences between the types of data needed for innovation and the conditions for the adoption of digital technology (Paunov and Planes-Satorra, 2019).

The sectors of the economy developed statically, in a geographically limited perspective until the beginning of the 1950s, when the society advanced to the third industrial revolution – Industry 3.0. Since the early 1960s, the three-model economic sectors have been criticized as too limited. Therefore, in 1961, Jean Gottmann proposed for the first time the division of the tertiary sector by subdividing it into tertiary and quaternary sectors. In 1961, Gottmann described the "quaternary occupations" as those providing services that require research, such as "analysis, judgment, briefly, brain and responsibility" and "what might be called the quaternary forms of economic activity; managerial and artistic functions, government, education, research and brokerage of all kinds of goods, services and securities" (Gottmann, 1961). In 1969, Deane suggested adding a new sector of the economy, the Quinary sector

(Kellerman, 1985). As a result, the late 1960s brought together a new discussion in the field: the "Q-Sectors" of the economy.

In 1977, Abler, Adams and Gould expanded the scope of the Quaternary sector to "information activities". Abler and Adams (1977) pointed out that information production and service activities should be regarded as quaternary rather than secondary or tertiary sector. Abler and Adams (1977) defined the quinary sector as consisting of establishments that engage in control activities, the production and processing of information and non-routine decision-making. Government is the main quinary industry, but it exists both in the private sector, through corporations, and in the voluntary sector, through NGOs and Think-Thanks. This approach creates a completely different classification system in which information is used for production, transaction and consumption. It is also selected as a separate sector, consisting of channel goods and information itself. The rapid development of this sector and its dominance in developed economies requires its separate study, although its increasing interrelationships with all other sectors make it difficult to completely separate it (Kellerman, 1985).

Digital technologies allow the improvement of traditional products and business models, but especially the development of completely new digital products and business models. The characteristics of digital technologies suggest similarities in new trends in innovation in sectors, similar to other general-purpose technologies (GPTs) of the past, such as steam engine, electricity and internet (David, 1990). While end products in primary sectors, such as food or mining are unchanged, the media or music has completely changed the offer during the recent decades. Similarly, while the automotive sector has automated important parts of its production processes, others such as agriculture are less advanced (Paunov and Planes-Satorra, 2019). They represent opportunities for further research.

The final products in the primary sectors remained unchanged but thanks to the development of digital technologies, new products and industries based on information and knowledge emerged that are included in new economic sectors, the "Q Sectors" of the economy: The Quaternary and Quinary economic sectors.

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