

Expanded abstract

Analysis of Digital Transformation in agri-food cooperatives from a gender perspective

Contextualization and objectives

Digital transformation (DT) is a process that goes beyond the mere use of digital technologies, such as Blockchain, Big Data, Cloud Computing or Internet of Things. DT involves the creation of new business models, changing the logic of the company and its value creation process (Verhoef et al., 2021). DT has advanced mainly in industry, although it is very much needed in other sectors such as agri-food. The latter is forced to address the challenges imposed by globalization in terms of food safety, food waste and sustainability (Yadav, 2022). In this sense, DT offers new opportunities to rural areas so that local producers in this sector, through innovation, can address these challenges and also avoid the depopulation process.

Among these local producers, agri-food cooperatives are a specific type of business organization belonging to the Social Economy that are going through the DT process to fulfill their important functions in the rural world. These Social Economy entities have a strong commitment to the territory, fix the population to rural areas, give greater security in food supply, offer a good quality/price ratio of such supply and also contribute to the protection of the environment (Candemir et al 2021; Grashuis and Su 2019).

Among the various factors that can influence the DT of any organization, some demographic variables such as knowledge and skills in digital technologies, business location, age of the workforce and management teams, or their gender are usually pointed out (Feliciano-Sestero et al 2023). Precisely, focusing on gender, one might think that the role played by women in DT is not very relevant, since according to the literature, the digital gender gap, i.e., the lower use of digital technologies by women is common in most organizations, although mainly in backward territories (Acilar and Saebo, 2023). Moreover, although the evidence is scarce, some research indicates that the greater presence of men in management positions can facilitate digitization (Ramdani et al., 2022).

On the other hand, in the specific case of agricultural cooperatives, this assumption is reinforced by the low participation of women in the staffs and management positions of agri-food cooperatives, as is the case in Spain (OSCAE, 2022). This low participation is related to the persistence in rural areas of a patriarchal ideology aggravated by the particularities of these territories, especially the small size of the populations, the remoteness from major decision-making centers and the lack of resources (Esteban et al., 2018).

However, we also know from certain research that, although agri-food cooperatives lag behind other organizations in their DT (Cristobal-Fransi et al., 2020; Jorge-Vázquez et al., 2019), it has been shown that gender diversity in managerial positions in companies, including agri-

food cooperatives, contributes to improved business performance (Galbreath 2018; Hernández-Ortiz et al., 2020), due to women's differential skills and competencies such as interpersonal relationships (Mitchelmore and Rowley, 2013).

Therefore, the objective of this research is to study the DT of agrifood cooperatives from a gender perspective. More specifically, the aim is to analyze each of the dimensions of this DT process: infrastructure and technologies; products and services; organizational culture and employees; processes; and, finally, customer experience. The aim is to relate these dimensions of DT to different gender variables in order to determine whether they have a significant influence on them. In this way, the aim is to determine whether the presence of women in cooperatives could contribute to reducing the backwardness of these social economy organizations in DT.

Methodology, results and practical implications

To achieve the research objective, the empirical methodology consisted of analysing the data obtained from a DT survey carried out among the agri-food cooperatives of the Autonomous Community of Extremadura, a region specialized in the agri-food sector and with one of the lowest levels of per capita income in Western Europe. From a target population of 181 agri-food cooperatives in Extremadura, a valid sample of 69 cooperatives forming part of the value chain of the Extremadura agri-food sector was obtained.

The methodology used for the empirical analysis consisted of three parts. First, based on a digital maturity matrix (DMM), an instrument used by universities, governments and companies to assess the degree of DT achieved (Valdez-de-León, 2016), a global digitization index and five partial digitization indexes of the most relevant dimensions of the DT process have been created being based on Santos et al. (2024). Secondly, a correlation matrix has been developed in order to explore the possible links that might exist between the global and partial digitization indexes and different gender variables. Finally, in those cases where such links were significantly detected, they were further explored through the development of empirical regression curves and lines.

The results show some relevant data regarding the influence of women, both in the management teams and in the workforces, on the DT of these companies. On the one hand, these results indicate that there are no significant links, either positive or negative, between gender aspects and the overall DT index. Likewise, the results show that the presence of women in management positions in the agri-food cooperatives in Extremadura has a positive and significant influence on the partial DT index of "customer experience" but, on the contrary, the presence of women in the staff of agri-food cooperatives has a negative and significant influence on the partial DT index of "processes". Finally, the results show that there is a positive and significant relationship between the presidency or management of a woman in Extremadura agri-food cooperatives and the number of women in their management teams, which could reinforce the role of women in the digitalization of these cooperatives, especially in the "customer experience" dimension.

In short, the results of this study have significant practical implications, among others, in the need to strengthen and design new public policies that contribute to reduce the existing gender gap for women in agri-food cooperatives and thus strengthen their DT. Very relevant for the design of public policies that encourage the participation of women in STEM (Science, Technology, Engineering and Mathematics) training, as it would contribute to strengthen their role in the digitalization processes.