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Addressing the legal challenges of technological development in agro-food SME clusters

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Today, in a period of transformation in Europe, robotics technology can play a crucial role in the business clustering of SMEs related to the agro-food supply chain (agro-food SMEs' clusters) and contribute significantly to the socio-economic development of the 281 EU regions. Due to the synergy effects of co-operative relationships, the concept of business clustering would assist SMEs, which are the backbone of the European economy, to overcome their size limits and gain a comparative advantage over individual businesses. To face the new challenges of global markets, however, the clustering of SMEs in the EU regions must be focused on economic sectors involved in the agro-food supply chain. This is because the EU has a leading position as a regulatory power worldwide in the policy domains of environmental protection, health and food safety, which constitute the fundamental determinants to ensure a competitive position of high-quality European agro-food goods.

As part of the project of agro-food SMEs clustering in the EU, this study highlights the significance for the agro-food SMEs' clusters to reap the benefits stemming from the recent technological developments throughout the agro-food supply chain. In addition, it identifies relevant concerns and, most importantly, provides innovative solutions to the legal and socio-economic challenges caused by the advent of robot applications that have already begun to transform modern agriculture, food processing and the food distribution systems. In this way, the current study aims to address the existing lack of relevant sources and, through intra/inter-disciplinary research, make a substantial and original contribution to the literature concerning the emerging area of commercial law and robotics technology.

Robotics is becoming the driving technology that supports a novel generation of autonomous and cognitive devices which, via their learning capabilities, offer a strong connection between the physical and digital world. Nowadays, satellite-driven sensors and geo-positioning systems detect water and nutrients in soil, and genome-scale tools with fitness trackers monitor the health and welfare of farm animals. Additionally, industrial robots are used from picking to processing, placing and packaging of agro-food goods, which are supplied through modern logistics operations that presently employ applications of drones and self-driving vehicles.

However, as robots obtain a high degree of autonomy, the question of who is liable for any damage they may cause is complicated, especially in the current legal system that assumes linear causation while the actions of autonomous robotised systems will be nonlinear and unpredictable. For this reason, the European Parliament report with recommendations to the Commission on Civil Law Rules on Robotics (EP report, 2017) is considering the possibility of turning sophisticated robots into electronic persons with rights, thus creating a legal space for them when making autonomous decisions and interacting independently. Therefore, this study considers that robot applications in the agro-food SMEs' clusters could acquire a special legal status, designed according to a particular ethical framework, as a "third existence" that can be placed between subjects and objects.

Furthermore, robotics technology may have a substantial impact on employment in the agro-food SMEs' clusters. Robots are already able to do numerous forms of manual labour and additionally perform several routine cognitive tasks, thereby demonstrating that recent advancements in machine learning will bring a significant part of employment at risk in the years ahead. In preceding waves of automation, technology was gradually creating more jobs than destroying them, and workers had the choice to move from one industry to another. In the present, an initial reaction to the transition of the job market is the departure from the standard employer-worker relationship through the business model of the "gig economy", which is based on the casualisation of previous stable employment forms. This proves that the institutions of the welfare state are at threat, particularly in the EU where the European social model is currently experiencing one of the major challenges in its history.

This model for a society that combines high living standards, good working conditions and economic growth is facing an important crisis of legitimacy, purpose and regulation. Accordingly, the EP report suggests the introduction of a general basic income as a response to the peril of a "jobless future" due to the advent of robots, but its implementation may encounter practical difficulties related to complex levels of the amount, goals and priorities.

Consequently, instead of supporting the idea of a general basic income, this study argues that it would be socially more efficient to focus on policies that promote a job guarantee, which preserves the social aspects of work and, most prominently, strengthens the fundamental right to work for everyone. For this purpose, the agro-food SMEs' clusters should examine available options to financially support the creation of new jobs with a decent living wage and strong labour rights in their geographical territories throughout the EU regions.

The EP report discusses a tax on robots by introducing a corporate reporting system with regard to the range and percentage of the contribution of robotics to the business turnover. By imposing a "robot tax", however, it would be a

problematic approach since, unlike the employee, the robot will receive no income and never negotiate a labour contract with business. For this reason, this study proposes an alternative solution to a robot tax, which seems to be feasible in its implementation. This is the adoption of a regional basic dividend that would be financed from the returns of the agro-food SMEs' clusters to create new social jobs needed in each EU region. A fixed share of equity issues could be directed into a regional public trust. This may be a decentralised autonomous organisation, which would generate via blockchain technology an income stream in order for a regional basic dividend to be paid.

In this way, the automatic allocation of profits for new jobs will ensure more funds available to society, which becomes a shareholder in agro-food SMEs clustering through the growing socialisation of the production of capital in each decentralised autonomous organisation across the EU regions.

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