The agricultural sector is going through enormous challenges these days: from food production to worldwide scarcity of resources, from air pollution to changes to seasonal events in the life cycle of plant and animals. Such challenges will have important social and economic effects in the years to come, as the population grows in the scale of billions, and the world looks for new solutions to feed itself.

One way to address these issues could be using agricultural technologies (AgriTech) tools for making food production ‘smarter’ and creating data-driven food chains, with the aim of improving yield, efficiency and profitability of agriculture in general. AgriTech tools can be products, services or applications derived from agriculture that improve various input/output processes concerning the food chain – for instance, also by means of the blockchain, as detailed in our article "A chain reaction: applying blockchain to the food supply chain".

Thanks to Artificial Intelligence (AI), drones, 5G, blockchain, the Internet of Things (IoT) and big data analytics, this is already happening in many parts of the world, as the concept of industry 4.0 spreads, although the scale of this disruption will be much bigger in the future. One of the most interesting innovations in this field is so-called ‘smart farming’ or ‘precision farming,’ a farming management concept that makes extensive use of modern-day digital technologies in agricultural production. In fact, smart farming technologies provide farmers, corporations and farm offices with actionable information on their crops or animals so they can use such information to improve the quantity and quality of food production in a certain area.

What is a “smart farm?”

Farmers in this century have access to GPS, soil scanning, data management, IoT sensors and AI-powered tools. This technology is, by far, the most important contribution to agriculture since the last industrial revolution.

The massive use of technology in agriculture allowed the creation of so-called ‘smart farms.’ These agri-business ventures base their \activities on smart farming techniques through which farmers can better monitor the needs of individual animals and crops, adjust their nutrition and farming accordingly, thereby enhancing the food production chain.

Smart farms are on the rise globally, as interest in process optimization and sustainability achieved by using modern technologies reaches new heights, thanks to AI, IoT and big data analytics – whose legal implications we discussed in TMT Bites second issue. For example, there are practical applications in the field for precision farming and the use of drones and self-driving vehicles. We addressed the legal issues of self-driving vehicles in this past article: (Smart) autonomous cars: no longer Asimov’s science fiction ".

Despite the hype around ‘connected agriculture’ and ‘smart food chains,’ smart farming is still in a developmental phase, while the AgriTech sector in general is booming.
In fact, manufacturers of farming machines and seed producers and agricultural service providers are looking more and more at digital development focused on agriculture, as this area is expected to have greater influence on production methods in the coming years.

**What are the main legal issues connected to smart farming?**

Smart farming raises diverse legal issues, which remain partially unanswered. Below is a list of some of the major issues, some of which relate to the development, use, adoption and commercialization of AgriTech tools.

1. **Contracts**: The issue of protecting data used for smart agriculture is essential for the development of successful digital farming and AgriTech projects. This is why contract negotiation in this field is crucial for achieving all the possible benefits while protecting the value of data as an asset. Apart from obvious data privacy, security and IP protection clauses (which we also addressed in this article on AI and contracts: shaping standards), users of AgriTech tools need to identify in advance, who will be responsible in case the processing of data leads to wrong decisions affecting the food production chain. Such decisions may also include the use of self-driving tractors, which are subject to the general set of obligations applicable to self-driving cars. In this scenario, strong compensation and limitation of liability clauses may help, as AgriTech providers should also be able to guarantee their reliability by means of adequate certifications and audits.

2. **Data security**: Farmers’ main fear is that their data ends up in the wrong hands, from competitors to the public. In this respect, IT security is crucial, and agreements with AgriTech providers should include specific clauses in this regard. In addition, the loss of personal data may trigger data breach notification obligations under data protection laws as well as endanger companies from a confidentiality perspective. In any case, a digitalized agriculture needs adequate safeguards for its data sets, which should be treated as an actual asset by each agri-business venture.

3. **Data privacy**: Although smart farming techniques are mainly based on the processing of non-personal data, the assignment of such information to a specific identifiable individual can be possible in many different ways. For instance, data of animals directly refers to their livestock owner; crops data relates to farmers’ personal details and so on. In this case, privacy laws (such as GDPR) should apply, as there would necessarily be a personal data processing activity. Further issues may arise if modern machines, such as remote-controlled drones or tractors have the ability to monitor their users, track their performance and identify them. In addition, in this case, data privacy issues may arise (as well as employment matters), thus companies and AgriTech providers should look into creative ways to address them.

4. **Intellectual property**: Who owns the data? How can they be protected from an IP point of view? These questions are very important from a business perspective, as data privacy laws cannot solve this issue. In fact- IP law protects exclusive rights on intangible assets (such as organized databases) and regulates the granting of right of use and licensing to third parties. Data itself cannot be protected (yet), however copyright provisions can help to achieve the highest possible level of safeguard in many ways. This is why it is very important to include IP protection clauses in contracts relevant to AgriTech services or products.

5. **Regulatory**: Food is one of the most regulated industries in the world, both in the EU and in the US. In fact, there are many laws, regulations and guidance of supervisory authorities to comply with when it comes to producing, selling, importing or exporting food and agricultural products in general. Such obligations may become easier to comply with by using AgriTech tools that are able to monitor, track and record every step of the food chain in detail. In fact, they can be used as a tool for achieving a high level of regulatory compliance, as well as in case of audits and inspections by competent authorities.

**What are Italian regulators saying?**

The Italian AgriTech scene is still in its early stage of development compared to that of other countries, such as the
US. According to recent reports, only one percent of the entire national cultivable farmland is currently cultivated by means of smart farming techniques.

In this respect, Italy is investing heavily in the development of its national smart agriculture sector. This is currently possible by both EU funding opportunities sponsored by the Ministry of Agriculture, as well as by the opening of the ‘Industry 4.0’ national investment plan to agri-business ventures.

As for the regulatory landscape, Italian applicable law concerning smart farming and AgriTech in general is not covered by any specific piece of legislation. However, the combination of provisions belonging to different areas of the law—from health and safety to civil law, from IT to privacy, from IP to public law—may be used as a reference to regulate specific projects and investments in this field.

Do you have further questions, or do you want to share your thoughts on this article? Contact our Dentons Italy TMT Team at tmtbites.italy@dentons.com and do not forget to sign up to our TMT Bites Newsletter!

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