

## ***The french INRIA- INRAE White Book “Agriculture and digital technologies”***

*Coupling digitalization and agroecology to design more sustainable and resilient food systems*

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Digital technologies are spreading in agriculture as they do in other economic sectors. Facing this wave, two major french research institutes dedicated to agriculture (INRAE) and digital sciences (INRIA) address the following question « how can digital technologies be designed to accelerate the transition towards more sustainable and resilient food systems, including agroecology, climate-change resilient agriculture and adaptation to food transitions ? » in a [White Book](#), published in 2022 that is presented in the webinar. The approach has been to review the opportunities offered by the state of the art of digital technologies and the risks linked to these technologies, and to confront them in order to design research avenues that enable us to take advantage of the opportunities while mitigating risks. Opportunities have been found in 3 directions : better agricultural production, better inclusion in value chains and networks, and better knowledge sharing. Risks are economical (cost, power control), social (digital divide, deskilling), technical (cybersecurity, complexity), ecological (ICT footprint...) and also linked to sovereignty regarding data. Eventually, research avenues have been built in four areas : (1) digital technologies for creating and sharing data and knowledge, (2) digital technologies for helping farmers in farm management, (3) digital technologies for accompanying the collective management of territories and (4) digital technologies for better inclusion in the value chains. These areas of research are crossed by four transversal challenges, that will guide research : (1) developping holistic approaches, (2) searching resilience and not optimum, (3) looking for frugal solutions (green IT) and (4) ensuring confidence of the users (security, transparency). Last, four final messages will be delivered to pave the way to future research for a resonsible digital agriculture, in France and abroad.