

Data at risk. A twofold reflection, in agriculture and in research, on the risks related to data

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[Alain Sandoz]

Data at risk in agriculture

In 2015, a data warehouse project emerged in Swiss agriculture, called Barto, after Bartholomew, the patron saint of farmers. It aimed to centralize all of the farmers' data in a single database. The parties involved were Agridea, a national extension centre and Identitas, an IT company close to the government, which operates the national animal traffic database.

In 2017, the warehouse project was renamed as a centralized smart-farming platform. It was incorporated into a limited company. Additional shareholders joined the initiative. One was Fenaco, Switzerland's largest agricultural cooperative, which is both the main supplier to the farms and a major buyer of their products. Another was 365Farmnet, a foreign IT company, which was assigned the task to develop the platform's core, based on a software that it operates in Europe. The owner of 365Farmnet, a major German machinery manufacturer called Claas was in business with Fenaco.

To centralize data was presented to farmers as a way to simplify their administrative work. They would no longer have to enter the same data over and over again into the systems of the public and private organizations that require it.

Public administrations require large amounts of data in exchange for various payments and subsidies to the farmers. *Personal data* is related to the farmer and

the farm. *Structural data* is related to crops, animals and labor. *Program data* is related to agricultural policy measures like landscape management, food quality and security, biodiversity, or efficient use of resources. All this private data represents none less than 160 measures and 1'000 variables for farms.

Private organizations also require lots of data from farmers. Certification bodies control the implementation of requirements using data that farmers must deliver in exchange for premiums on their products. Buyers require data by contract under the threat of cutting the farmer out of their distribution channel.

The centralized platform, by promoting a single portal for data entry, promised to reduce their administrative burden. The farmer would finally be able to tend to fields and animals, rather than sit at a desk to do computerized paperwork.

Intelligent farming services and decision support modules would enhance farm competitiveness. According to Barto, it would be in the farmers' greatest interest to increase their production or to move into value-added services such as sustainability or traceability.

The arguments did not convince all farmers. On the contrary, they felt that they were threatened.

The centralized platform would give its shareholders full visibility on every farm's daily business. Combined with their own decision-support tools, it would enable them to drive demand for inputs and supply of agricultural products, and to influence market prices and supply. The risk of "vertical integration" was high for farmers, who would meanwhile bear the burden of debt and production risks, such as losses due to weather or disease.

Farmers would have to pay for access to "services" developed from *their* data. They would be held liable for data quality by contract (according to the platform's terms of service). Meanwhile all profits would go to the platform owners.

It wasn't clear how data would flow among stakeholders connected to the centralized platform. With no control over their data, farmers were at risk. For example, if data inadvertently reached a government agency indicating high nitrogen levels in one field, while being offset in another (which can happen every day on any farm), the farmer could receive a penalty. If data from a government agency indicating a health problem of an animal was inadvertently passed on to a buyer, the farm, and even its neighbours, could be side-lined for fear that the disease might spread to the slaughterhouse (which eventually happened to an entire village because of a single sick animal).

Finally, digital farming was problematic for farmers, who saw it mainly as a debt driver. Smart farming was expensive and unattractive because its model was not applicable to Switzerland's hilly landscape and small traditional family structures and deemed incompatible with the legal, political and topographical framework of Swiss agriculture.

The central platform, by concentrating the data, threatened the autonomy of farmers, but not only theirs, also that of the organizations. If farmers had to enter their data into a single database, it meant that organizations would have to connect to the database to get the data they needed (previously provided directly by farmers).

There was no guarantee that organizations would actually be able to access the data in the centralized database, in the contents and formats and at the times necessary to perform their tasks. There was no indication of the price they would

have to pay to access this data. Centralization threatened the autonomy of the organizations, down to their very existence.

Additionally, the project planned to store all farmers' data in a cloud in Germany, under the control of 365FarmNet. This posed a problem of data sovereignty, unacceptable to public administrations. It also posed problems for resolving potential conflicts between farmers and organizations, since the data would reside in the legal realm of a foreign authority.

Proponents of the centralized platform promised that any organization could join the effort and propose modules/services connected to the database. But for the latter, it wasn't clear if this openness would really hold up, beyond the rhetoric. Shareholders could do anything on their own, as long as they controlled the platform's API.

More fundamentally, the centralized database would introduce a significant distortion of competition. Faced with powerful foreign shareholders, who would concentrate all the farmers' data, the small Swiss organizations would have no chance to compete, which would sound their death knell.

These are some of the risks perceived by farmers and leaders of agricultural organizations and that they reported during Léa's [Stiefel] field interviews. Among those fundamentally opposed to the centralized platform project was IP-SUISSE, a producers' association with a label for integrated production.

IP-SUISSE had been approached in mid-2016 by the centralization project who claimed that the data of its 20,000 farms should be turned over. This was, according to the project's proponents, in the interest of the farms. The producers association decided to simply ignore the request. But in the summer of 2017, it was surprised to see the centralized platform presented to the general public at an event organized by the Minister of Economy and Agriculture.

Over 200 people were registered for the event: farmers and representatives of organizations in the sector. Concerned for itself and for its producers about the evolution of the centralized database, now supported by the Swiss government, the association looked for a way to stop its development.

I [Sandoz] had worked with them before and they called on me. I presented IP-SUISSE with my vision. To counter the centralizing project, they would have to present the agricultural sector with a diametrically opposed alternative: an open and fully distributed platform that would be built and maintained by the sector's organizations.

My strategy was endorsed in late 2017 by the association, which appointed me project leader of the alternative to centralization and architect of the distributed solution. I named the platform ADA for "Agrar Daten Austausch" or "agricultural data exchange" in English, in reference to computer science pioneer Ada Lovelace.

It is not our intention to present the distributed platform here. I will simply mention that its technical design, supported by specific legal provisions, aimed precisely at avoiding the risks that the centralized platform presented to farmers' data. Several articles have been written on this subject and are available on Léa's [Stiefel] university page.

[Léa Stiefel]

Data at risk in research:

The reason Alain [Sandoz] mentioned ADA is because it forms the core of my fieldwork and definitely shaped the trajectory of my PhD dissertation from collection to publication of its "data". This is the moment to turn to the second part of our reflection, on the risks associated with research data.

I started my thesis in September 2017, on a digital studies contract. I was to study digitization. Beyond that assignment, no other obligations. I set out to explore what was happening in agriculture, the sector that had been my ethnographic fieldwork during my master's degree in political sociology.

In November, I came across a report published by the Federal Council outlining its future agricultural policy. This report identified digitization as a priority for the development of Swiss farming.

In January 2018, I entered the field for an initial exploratory phase. My interviews with actors drew my attention to the Barto and ADA projects, both objects of controversy, the former because of its associated actors, the latter because of the “noise” it was making opposing the centralized platform project.

In February 2018, I was invited to assist to the public confrontation of the two projects, organized in Bern, in front of an audience of some 100 farmers and leaders of agricultural organizations. I undertook to meet the spoke(s)persons of the two projects and tried to negotiate a backstage entry. The attempt was successful for ADA and failed for Barto, whose executive politely declined my request. For the latter, there was nothing interesting to observe, “it [was] just IT developments”.

In May 2018, I met with Alain, ADA’s project manager, for an initial interview during which the terms of my investigation were set. Alain was interested in my work and asked me to be his sparring-partner during the project. I was intrigued by this proposal and accepted it.

I would be able to go behind the scenes of the project and follow and document all its developments. I would have full access to the project. In return, I would provide him with regular feedback on my observations and on my progressive understanding of the dynamics of digitization in the sector. As an architect, he

would benefit from this informed perspective to drive the project, in addition to that of his own discipline and professional experience. It should be noted, to better frame this notion of “benefit”, that the ADA project was non-profit and that Alain is himself affiliated with an academic institution.

Set in the summer of 2018, these conditions for my investigation would give me access: (i) to all the documents produced by the project; (ii) to every email exchanged internally or with the actors of the agricultural sector by the project team; (iii) to all working sessions of the project team; and above all (iv) to a daily feedback from Alain on his activities and meetings with the actors of the agricultural sector, with the project leaders and with his teams. I was invited to comment at my wish, and to challenge Alain on any topic.

This approach was accompanied by privileged access to the backstage of the project and the promise of rich materials, but also, it must be said, by a certain blurring of perspectives. The materials collected, on which the research results were later to be based, mixed to some extent the perspective of the architect and that of the ethnographer.

Rather than obstructing to the problem, or trying to bury it, it seemed worthy to me to follow the path of a cross-investigation between the field actor/architect and the ethnographer, and then that of a cross-publication between the computer scientist and the sociologist. I was fortunate to meet an architect who was also a computer science professor at the university and who was motivated to engage in academic work with me. To date, we have wrote together three papers and a short review article, organized an open panel and delivered several workshop interventions.

The motto of Bruno Latour, "no good scientific report without risk-taking", was always at the back of my head.

Already in the field, when I was following the ADA project, this approach had aroused the mistrust of certain actors, including one in particular from the federal administration. The latter had declined my request to observe an ongoing digitization project within the administration, under the pretext that “the administration” had to ensure equal access to “information” for both Barto and ADA. What information this official was talking about, I have no idea... but he certainly had a problem with my proximity to the ADA project.

The problem arose again in the post-fieldwork phase. In July 2021, I undertook to communicate to a high ranking official of professional defence, the Swiss Farmers Union. I sent him the short position paper that we had written in last year's edition of the TOE festival for the “Data as a resource” track organized by Irene, Valérie, and Franck. That paper mentioned the past policies concerning data of the Swiss Farmers Union, and sending it was meant as a gesture of politeness, since his organization was mentioned abroad in a scientific context.

He answered me within a couple of hours, on a Saturday, saying that it was difficult for him to understand the text, but especially that it “seemed paradoxical to him to find in a scientific study the contribution of Mr. Sandoz... directly involved in the process of digitization of agricultural data in our country through his function in the ADA project”. A reaction that was not very clear but that shows a certain questioning of the scientific character of our production. Is my research data in danger today?

The STS field has shown that distance or detachment from the object studied, as a required pre-condition of scientific objectivity, is illusory.

Vinciane Despret speaks of detachment as a relation of subjectivity to the object studied, among other possible relations, leading in this case to a reduction of our capacities of knowledge.

Donna Haraway speaks of detachment as a fantasy of the flying eagle which, by its height, is supposed to see the world as it is. She reminds us that research is always the work of a researcher, of a body that sees and feels, of a *perspective*, and that this is its only condition for grasping and knowing the world. It would be by specifying the conditions of his/her investigation, by testifying to his/her materials and their status, that the researcher's discourse could tend towards objectivity.

Karen Barrad supports this point by arguing that the object studied, whether it is a human being or a particle, draws its very existence from the entanglement with its environment, including its observer. The separation between the observed and the observer is not a pre-existing fact but a performed act. As for Haraway, objectivity implies for Barrad an account for the way, in practice, this separation is (variably) produced.

All this is very useful to me, to us both, to defend the value of our co-produced “data”. The fact remains that our approach to joint publication is not common.

I tried to find academic references testifying/discussing this. It is not easy. I was able to find a book, "Résister à la chaîne", co-authored by Christian Corouge, a French worker and CGT trade unionist who worked on the Peugeot-Sochaux lines, and the sociologist Michel Pialoux. Academic reviews of the book are available, but without deepening the dual approach.

I found a few other references to such an approach under the label of embedded ethnography. Their authors claim a “democratic” practice of sociology, an activist approach. These are good leads, which I have yet to explore further. But a sociologist presenting a militant approach, where the field actor would not be a worker or a “dominated” person - to use a term of the critical sociology from which the references I quoted you come - but rather an engineer, a university

professor in technology is a leap of faith. It is bound to provoke some weird reactions, even from scientists, as it did beginning of this month in Annecy at a conference on strategic management.

To summarize: we were driven in the field, the architect with 30 years of experience, and myself later during my investigation - by the conviction that a centralized platform endangered the farmers' livelihood through the capture of their data and that the search for an alternative was important. That engaging professionally and personally in this alternative was worthwhile.

This conviction still drives us today in the “scientific productions” that we put to the test of our “data”, which include the discourses of actors and of technical devices. Today, the risk is that research data fall prey to accusations of lack of scientificity. This is an issue that we would be very interested in addressing with you in this workshop.