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EIP-AGRI WORKSHOP DATA SHARING: ENSURING FAIR SHARING OF DIGITISATION BENEFITS IN AGRICULTURE

FINAL REPORT
JULY 2017



1. Executive Summary

Although the phrase “data is the new oil” is becoming more and more popular, there is much uncertainty about the impact of data governance and sharing models. There is a variety of sharing models that have different degrees of openness, transparency, division of added-value, or potential for market power distribution. Data will not only be the core asset, but also the core lubricant that will define the socioeconomic models around every single industry¹. For agriculture, finding fair and acceptable ways to support data sharing among the various stakeholders will also be crucial in ensuring that the benefits of the digital revolution in agriculture reach everyone involved, especially farmers.

The workshop on Data Sharing in agriculture (Bratislava, April 4-5, 2017) was organised by the European Commission, DG Agriculture and Rural Development. Under the umbrella of the European Innovation Partnership (EIP-AGRI), it brought together a select group of about 80 stakeholder representatives who brainstormed on existing or potential arrangements, frameworks and pathways to enable effective, fair and valuable access to (and reuse of) agricultural data. In this report, an overall reflection of the workshop experience is provided. More specifically, the report briefly touches upon three key issues that were raised during the workshop:

- ▶ Which are the right questions to ask, before sharing data (industry or personal) via a specific platform or service?
- ▶ Can we develop a list of recommended good practices to enable and facilitate fair data sharing in agriculture?
- ▶ What is the role of the European Commission in creating conditions for the data economy in agriculture to develop in a way that will benefit all the stakeholders involved equally and fairly?

The report provides an outline of what was learnt during the workshop and some thoughts about how this important dialogue may be continued and enriched. It also serves as a call to action to the key stakeholders, in the light of the upcoming transformation of the sector. Continuing the dialogue is both timely and important. It needs to be practical, owned by the stakeholders of the sector and facilitated (or even coordinated) by the European Commission.

¹ medium.com/twenty-one-hundred/data-is-the-new-oil-a-ludicrous-proposition-1d91bba4f294

2. Why a workshop on data sharing in agriculture?

Data is currently characterised as “the world’s most valuable resource”² or “the oil of the digital era”^{3,4}. The European Commission is responding to the changing environment. It is trying to create a policy framework that will enable and catalyse a European data economy with clear, common principles and rules that will respect European citizens and help European companies grow in a fair competitive environment. The European Commission’s Directorates-General (DGs) DG Agriculture and Rural Development (DG AGRI) and DG for Communication Networks, Content and Technology (DG CONNECT) are interested in the ways in which data will transform the agricultural and food sector. They therefore are working together to initiate a dialogue about the changes to come and the enabling conditions required. This will contribute to the Commission’s political priority of creating a Digital Single Market⁵.

DG AGRI aims to encourage data-powered innovation in the agricultural sector by linking up research and practice, bringing different actors together, and stimulating the exchange of ideas. Within the framework of the European Innovation Partnership on Agricultural Productivity and Sustainability (EIP-AGRI), various projects and networking activities have been set up to achieve this - such as a Focus Group on Precision Farming⁶ and a 2016 data revolution seminar on New Data Business Models⁷. DG AGRI was aware of the disruptive potential of digital technologies and their associated information flows⁸, and wanted to start a dialogue about fair data sharing, tasking EIP-AGRI with the organisation of a stakeholder engagement workshop.

Enabling data to flow freely between locations, across borders and within a single data space is the cornerstone of the European Commission’s priority for Digital Single Market⁹. DG CONNECT¹⁰ is working on conceptualising and developing the policy framework that will enable data to be used throughout the various sectoral value chains for scientific, societal and industrial purposes. DG CONNECT has launched a wide-ranging stakeholder consultation, interacting with as many stakeholders as possible.

The EIP-AGRI Workshop on Data Sharing that took place in Bratislava April 4-5 2017 was an opportunity to engage a wide range of stakeholders from the agricultural and food sector in this dialogue. The workshop objectives were:

- ▶ To explore existing and potential data governance models, to protect and satisfy the interests of the different parties involved, both within and outside agriculture.
- ▶ To evaluate the benefits for farmers of the most promising data governance models as well as to identify which constraints hamper their involvement in these models.
- ▶ To bring the relevant actors together to create the identified enabling environment(s) for data sharing and create new business/data sharing opportunities.
- ▶ To explore the potential of the principles and concepts described in the DG CONNECT Communication on Building a European Data Economy¹¹.

² www.economist.com/news/leaders/21721656-data-economy-demands-new-approach-antitrust-rules-worlds-most-valuable-resource

³ ana.blogs.com/maestros/2006/11/data_is_the_new.html

⁴ www.forbes.com/sites/perryrotella/2012/04/02/is-data-the-new-oil/#1389828e7db3

⁵ ec.europa.eu/commission/priorities/digital-single-market_en

⁶ ec.europa.eu/eip/agriculture/sites/agri-eip/files/eip-agri_focus_group_on_precision_farming_final_report_2015.pdf

⁷ ec.europa.eu/eip/agriculture/sites/agri-eip/files/eip-agri_seminar_data_revolution_final_report_2016_en.pdf

⁸ knowledge.insead.edu/blog/insead-blog/the-dangers-of-platform-monopolies-6031

⁹ europa.eu/rapid/press-release_IP-17-5_en.htm

¹⁰ ec.europa.eu/info/departments/communications-networks-content-and-technology_en

¹¹ ec.europa.eu/digital-single-market/en/building-european-data-economy



3. Are we asking the right questions?

In his book *Who Owns the Future?*, Jaron Lanier¹² sees a threat in large enterprises asking users to give away valuable information in exchange for free services, as they may accrue large amounts of data without paying each individual for their contribution to the data pool. This raises an important concern when it comes to fair models for data sharing in agriculture: which are the questions to ask to assess the effectiveness and fairness of a data sharing model (especially from the farmer's perspective), before sharing private (business or personal) information via a specific platform or service?

Before the workshop, existing data sharing frameworks were analysed to identify the key issues that they highlight and address - the DATA-FAIR Governance Guidelines , the ODI's Data Spectrum , the FAIR principles , Tim Berners-Lee 5 Star Scheme , and the Creative Commons licenses . An initial list of technology-, access- and licensing-oriented questions was developed, influenced by these frameworks. As the intention was to also capture the perception of stakeholders about the benefits and threats related to data sharing with a particular platform, a number of additional questions were included.

During the workshop, participants were asked to use the proposed list of questions to assess two types of existing cases: a very popular social media platform that people use to share personal activity information, and a number of sector-specific data platforms that they have discussed and analysed in groups. As a result, further questions and considerations were added to the pool of questions. The complete list of questions, including those added after considering the participant contributions, is presented in the following tables.

¹² en.wikipedia.org/wiki/Who_Owns_the_Future%3F

¹³ www.slideshare.net/SjaakWolfert/governance-of-data-sharing-in-agrifood-towards-common-guidelines

¹⁴ theodi.org/data-spectrum

¹⁵ www.force11.org/group/fairgroup/fairprinciples

¹⁶ 5stardata.info

¹⁷ creativecommons.org/licenses/

Ownership, Access, Control

Who owns the data? Do you own the data (as an individual or a business) or does another organisation own it? Does using a particular software service mean that ownership is transferred to the service provider? Does sharing data with a governmental agency mean that this is public sector information? Is there a specific regulation that requires data to be openly shared? Does data include a description about who the owner and the original source is?

Who can access the data, and how? Can only people that work for a specific organisation access the data? Can anyone that has an account in the system access it? Is it easy for a person or a software system to access the data?

Which are the data versions and which part are you sharing? How are the different data parts, versions and derivatives separated? Is it clear which part of the data is primary vs. derived versions? Is it clear which part is personal or private vs. machine-generated? Who owns each part and how do you separate what is being shared?

Is data safely stored, managed and shared at this location? Is data securely stored in this location or system? Is data encrypted and/or protected? Are secure access and communication protocols being followed? Are there procedures to address data hacking efforts?

Do you feel that you are in control of your data? Can you modify, download, update or delete your data? Do you have a clear way to request such changes? Is your data used or distributed without your consent?

Do you feel that you can trust this platform? Do you know who has access and under which terms? Do you know how you can change something in relation to your data? Do you know how often and how your data is shared or used by the platform or others?

Legal & Terms

Is there a license about who may (re)use the data, and how they may use it? Is there a specific license about who may access and use the data? Is there a license about the conditions of use? Are the terms of use easy to identify, read and understand?

Is commercial use of this data allowed? Can an individual or organisation reuse this data to make money? Which are the allowed commercial uses? Does this require an official permission from the data owner?

Are data sharing terms explained to all parties? Is the data sharing model clearly explained to all parties and partners involved? Does everyone understand who and how is going to have access to their data? Are the licensing and usage terms clearly described and articulated?

Is the license agreement monitored or audited by a third party? Who is responsible for ensuring that the terms agreed are being kept? How is the agreement regulated and by whom? What can the parties do in case of a violation of the agreement to protect its interests?

Perceived Benefits & Threats

What are the benefits of sharing data with this platform? What is your perception about the benefits of using this platform? Are they monetary? Do you value receiving a free feature or service? Do you feel that you belong to a specific network or community?

Are there any factors that might limit willingness to share data with this platform? Could there be a fear of sharing data with/via this platform? Are there any specific factors that may account for this?

Business Model

For which purpose are you sharing data with this platform? What exactly will be done with the information? How is it going to be used? What is the value that it adds to the business model of the platform?

Who owns the value generated from your data? How is this value being monetised and distributed? Who is receiving a share in this value? Is this a fair and even distribution of value?

Additional considerations

In which file format is the data included or stored? How easily can a software system automatically process the data? Is it in a PDF file that does not allow parsing and copying? Is it following an accepted standard or specification? Is it in a custom file format that requires a specific application to read it?

How can someone find your data? Can the data be accessed only within a specific closed software system? Can it be discovered online but not accessed? Can everyone find and access it directly? Is there a catalogue that people may use to search and find the data?

How well-described is the data? Does the data source (or data set) have a description? Is the data description structured using well-formed metadata? Is the data description using a metadata standard or specification?

Is modifying this data allowed? Can an individual or organisation change, modify and reproduce the data? Who reviews and approves these modifications? Can anyone freely modify and distribute this data?

Is the data connected or combined with other data? Is the data linked to other data sources or types? Can I move from this data to other relevant data within the specific system or in another system? Can it be combined with other data?

It is interesting to note that the frameworks considered initially take a more technical view of data sharing, by looking into the way that data should be formatted and licensed in order to become accessible and re-usable. The workshop participants introduced a new perspective which is related to the business model behind the platform: the way in which the service provider is generating value by using or sharing data provided by the users. One important dimension was why the data is of value, asking questions like "For which purpose are you sharing data with this platform?" and "what exactly will be done with the information?". The second important dimension has been how new value is attributed and distributed, by asking "Who owns the value generated from the data?".

4. How can we create an enabling environment?

After hearing the variety of perspectives and issues that should be considered when examining a data sharing platform or service, participants developed their own recommendations on how to create an enabling environment. The various breakout groups arrived at some key elements that were considered essential. These included elements to enable the creation of a trusting and transparent environment, with clear incentives and legal terms, compliant to specification and standards, and with capabilities to localise and expand a service. A number of negative elements were also identified, focusing on a lack of transparency on the intended use of the data, over-legislation and -regulation, as well as too much centralised architecture. Overall, an actionable list of things to do (and not) in order to create an enabling environment has been developed.

Good Practices (the Dos)
To enhance transparency & trust:
Provide clear terms (contractual, legal, usage and others) that will be openly communicated to all parties involved in information exchange.
Ensure mechanisms and facilities for safe data storage, management and communication.
Be open and clear about how the data is going to be used and how the generated value will be distributed.
Ensure that the service provider can be identified in a visible way and that its credibility can be verified.
Allow users to be in control of the data sharing process, especially in terms of who has access and is licensed to use the information, as well as in terms of changing the terms of use.
To have more accurate terms of use & licensing:
Provide customised and fine-grained copyright descriptions, terms of access and use, as well as licenses that will cover all data versions, derivatives and parts.
Elaborate specific provisions of who has access to which part of the information and for which purpose.
Clearly position the data sharing approach in the scales of the data spectrum (ranging from closed, to shared, to open models).
In terms of incentives:
to make clear the type of incentives for data sharing that are offered, in order to have a fair, equally profitable scenario – this may be monetary, unlocked features, additional value generated from the data, contribution to a societal good cause, etc.).

Problematic Practices (the Don'ts)

Hide intentions and purpose of the expected use of the data and the value that will be generated through this.

Adopt architectures and technologies that over-centralise data collection, processing and storage.

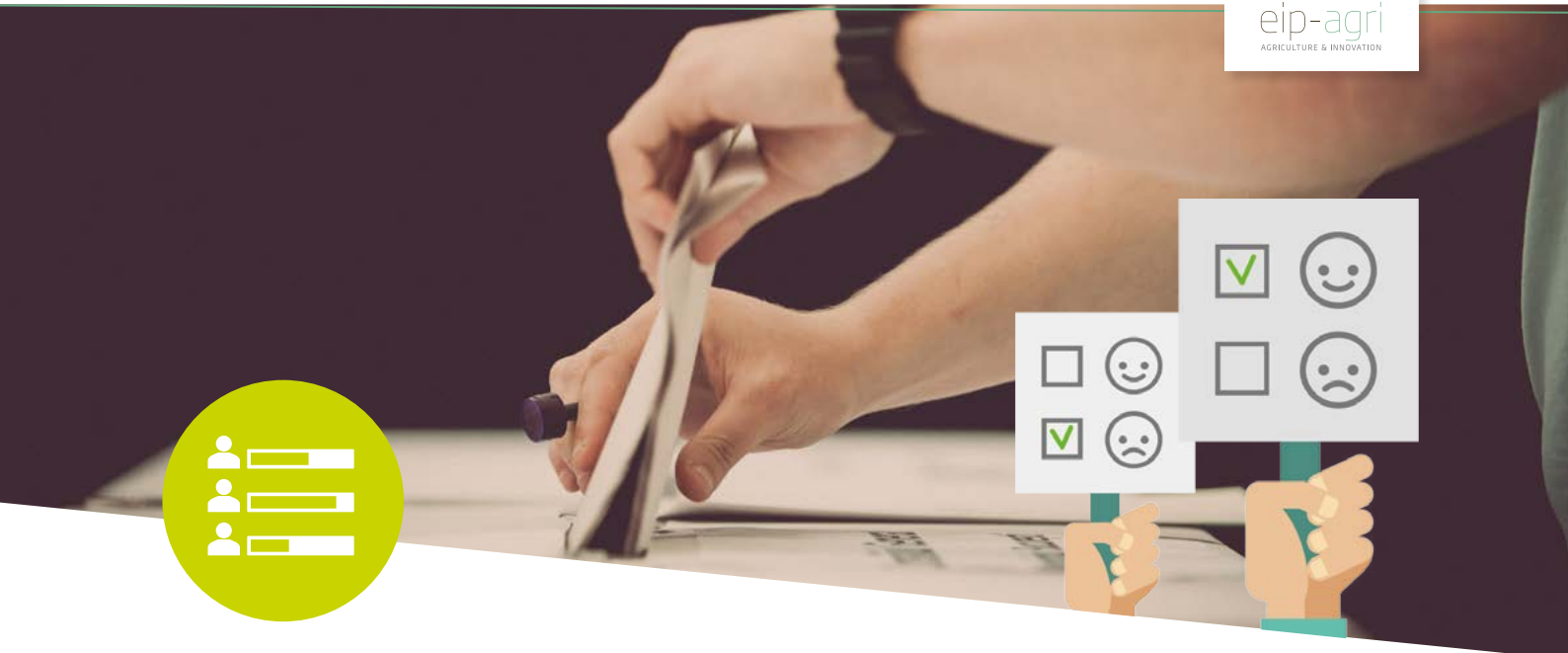
Over-regulate data sharing, creating obstacles in the free flow of the data (e.g. by being very localised or protective).

The list was tested by participants while developing their own data sharing scenarios. Nevertheless, it was difficult for them to explain if and how the key elements identified were taken into consideration, when designing and proposing new reference data sharing models and scenarios. The storyboards produced by participants were very interesting and linked to existing services and platforms, which was a good way to ensure that the discussion was realistic and pragmatic. Given the size of the groups (more than 10 people) and the time given (a few hours to work on their scenarios), it seemed to be difficult to specify how the issues raised will be ideally addressed in the future and how the proposed scenarios comply with the key elements identified.

As participants indicated in their feedback, their understanding on enabling environments for data sharing grew. On the other hand, the depth and complexity of the issues made it very difficult to elaborate on e.g. specific terms for data sharing and use or mechanisms to control who has access to which information. Rather than expecting that participants would explore and improve promising data governance models, the workshop proved more of a learning process.

The list of enabling factors is not a recipe to be applied as such; it needs to be further thought through, to examine its applicability and how it should be adapted to different data sharing contexts. The importance of the different enabling factors varied depending on stakeholder group. This suggests the need for a more focused and specific approach where the enabling elements can be examined in the context of specific market segments and value chains. This should be part of an ongoing dialogue that will probably generate different results, depending on whether you are looking at e.g. farm management systems or machinery data.





5. How can we build a European data economy in the sector?

The European Commission has already started working on fair and transparent rules that will protect data privacy, ownership and movement. The General Data Protection Regulation (GDPR¹⁸) is introducing a single pan-European set of rules for data protection - especially for companies operating in the EU market. This will ensure that personal data can only be gathered under strict conditions and for legitimate purposes, in a way that also protects it from misuse, and respects certain rights. Furthermore, the European Commissions¹⁹ has recently proposed a Regulation for Privacy and Electronic Communications that will modernise existing regulations on topics like confidentiality of digital communication, cookies, etc.

In the Communication on Building a European Data Economy²⁰, the Commission explores what kind of measures would be required to achieve free data flow within the Digital Single Market, looks at removing unjustified or disproportionate data location restrictions, and outlines emerging issues regarding access to and transfer of data, data portability and liability of data, with a focus on non-personal, machine-generated data. As part of a wide-ranging stakeholder engagement process, the Commission organised a feedback session within the Bratislava workshop.

The results (presented below) are only indicative and drawn from a small set of the complex issues raised in the Communication. They provide a snapshot of the thinking of participants at the given point in time, after being exposed to a variety of data sharing situations and challenges. It is not possible to draw any concrete conclusions based on this feedback, as responses were not grouped per stakeholder type or per value chain. We would expect that specific stakeholders (such as the owners of agricultural software systems or machinery) would view things differently from their customers, and these different views need to be separately captured and considered. Furthermore, in some value chains like farm management software systems, portability of data is essential; where as in others this is a less important feature.

¹⁸ www.eugdpr.org

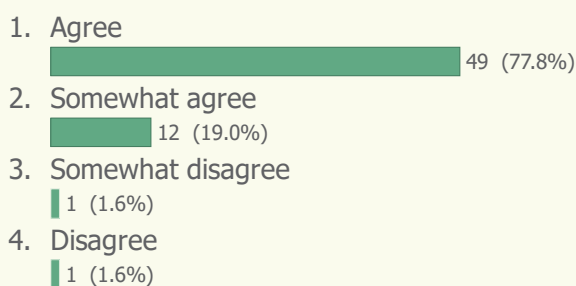
¹⁹ ec.europa.eu/digital-single-market/en/proposal-eprivacy-regulation

²⁰ ec.europa.eu/digital-single-market/en/building-european-data-economy

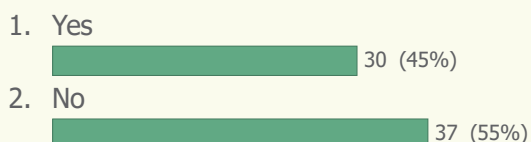
Participant responses on a select number of issues raised in the Communication on Building a European Data Economy (EU Commission)

1 Do you agree with the following statement?

"The producer of data (farmer, food company, etc.) should have the right to determine who has access to the data he / she produced"

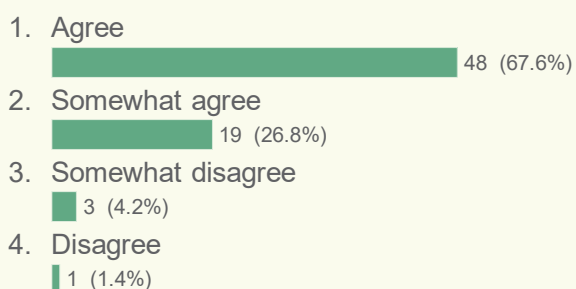


2 Are you willing to pay more for the machine/application/etc that is capturing the data if you will be able to determine who has access to the resulting data produced on your enterprise?

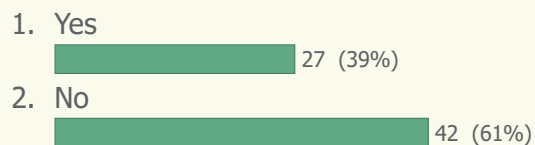


3 Do you agree with the following statement?

"When changing supplier the producer of data should be able to take his/her data and transfer them to a different data platform?"

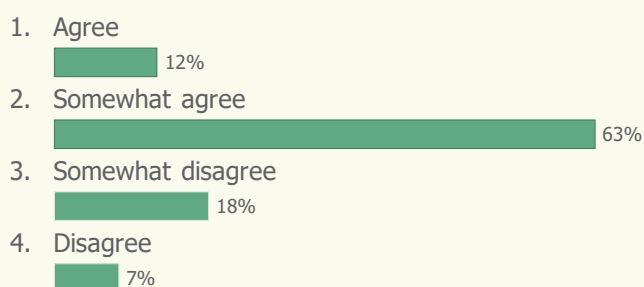


4 Are you willing to pay more for the machine/application/etc that is capturing the data if you will be able to take all the data collected when you change supplier?



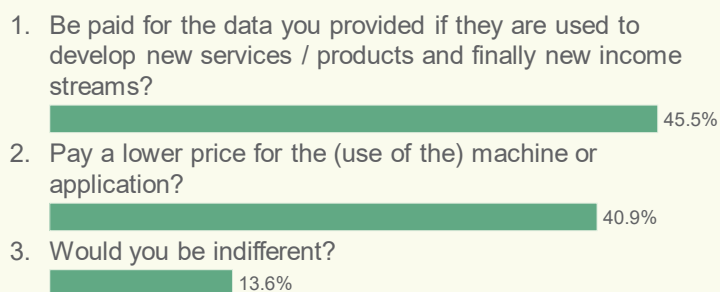
5 The data captured by private businesses may be of interest for public authorities or scientists. Do you agree to the following statement?

"Public authorities and or scientists can have access to the data produced on my farm / in my company / etc."

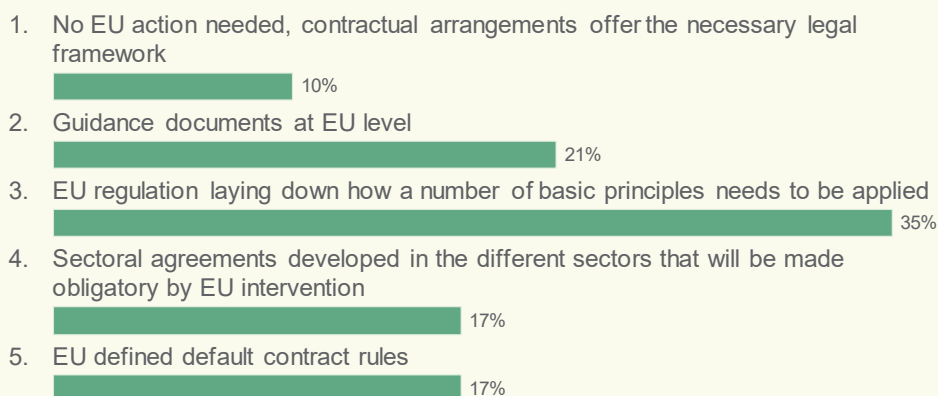


6 The data captured via machine or application can be used to develop new services and or products by the developer of the machine/application or by a 3rd party.

Would you prefer to:



7 Which of the following possibilities do you want the Commission to develop in order to create a legal framework for data exchange?



From the participant responses to the two initial questions, it seems that the issue of controlling who has access to data is considered to be a right of the data producer. It is interesting to note that participants think that the owner's right to control should not be considered as an extra paid feature or a premium version of the platform.

In a very similar way, participants seem to believe that data portability should be an essential characteristic of any platform, allowing the producers to transfer their data to other platforms, either competitive to the one they are using or aimed to serve a different need. Again, they seem to consider that portability should not be an extra paid feature or service.

In terms of some other dimensions of relevance to the data economy Communication, participants responded that they find sharing private data with research and public sector sounds interesting but not fully convincing. They would be interested to know more about incentives for providing their data to be commercially reused.

With respect to the legal framework, the option by far preferred among workshop participants was that the European Commission should develop a regulatory framework for data sharing in the agriculture sector. A very small proportion of participants thought no EU action is needed. Considering that these were preferred options and that they are not mutually exclusive, one can safely conclude that the vast majority of participants would like the EU to take action, but that there is strong variation in the strength and detail of the expected response, ranging from guidance documents to enforced sectorial agreements. It is going to be both valuable and important to look within the different market segments to consult further on their needs and expectations. It is also probable that if the same people are asked again in the future, their responses may be different, as they become more and more aware of the complex opportunities and threats of various data sharing models.

Another interesting remark is that the questions selected for this workshop are only the tip of the iceberg in terms of the variety and complexity of issues that the Commission puts forward in its Communication and online public consultation. Aspects like improving access to anonymous machine-generated data, protecting data investments and assets, avoiding disclosure of confidential or private data, and technologies for reliable identification and exchange of data are important; yet, they could not all be covered by this specific workshop - both in terms of

time and the readiness of stakeholders to respond. For the Commission to gather more evidence on the functioning of data markets within this sector and to explore possible solutions from the policy side, more elaborate discussions will probably be needed focusing on the aspects put forward by the Communication that have not been covered in this workshop.

6. What should come next?

“Flows of data have created new infrastructure, new businesses, new monopolies, new politics and—crucially—new economics. Digital information is unlike any previous resource; it is extracted, refined, valued, bought and sold in different ways. It changes the rules for markets and it demands new approaches from regulators. Many a battle will be fought over who should own, and benefit from, data.”²¹

The main conclusion from the Bratislava workshop is that this is the time for both the public and private sector in Europe to take action. As new markets and business models emerge in the sector, ensuring that the key stakeholders are aware of the issues and that appropriate (and enough but not too much) regulation is in place, will help European stakeholders be part of the new picture - rather than striving to survive new types of monopolies. This need was strongly communicated in the workshop and was also clear by the interest and involvement of the participating stakeholders. A data-oriented dialogue needs to be systematically kicked off, using the variety of mechanisms and channels that the sector stakeholders use (such as EIP-AGRI and GODAN²²) but also the Commission’s implementation plan for the Digital Single Market²³. The agricultural sector is crucial to the European economy and environment. It is less digitalised and data-aware compared to other sectors (such as the automotive or energy ones) but its key stakeholders are very aware of the importance of this discussion.

It is important to consider that the issues at stake (that are also put forward by the Data Economy Communication) are very complex and new. They are also often specific and specialised, depending on the particular market segment or value chain that one is examining. This calls for a more detailed and in depth examination and elaboration within the sector, of which the outcomes are not possible to foresee. The dialogue will need to be more segment-specific and become more localised. The process introduced and tested in Bratislava is a good starting point that may be adapted and replicated on a regional and national level. The learnings from Bratislava could be taken into relevant initiatives and forums (such as COPA-COGECA²⁴, CEMA²⁵, BDVA²⁶, AIOTI²⁷, and the policy workshops of BigDataEurope²⁸ and eROSA²⁹), so that a more informed dialogue continues to take place.

Considering that technology is rapidly changing, therefore affecting the discussion about data sharing and governance, one might say that many of the issues covered in the workshop are a moving target. This could be true, as with the introduction of new technologies (such as wearable technologies and commercially-deployed virtual reality applications) the dialogue will need to be repeated and extended. It is crucial that the Commission establishes and takes advantage of permanent consultation mechanisms with the key stakeholders, rather than one-off consultation activities that have a given time frame. The data ownership, sharing and governance issues will become more and more relevant in the years to come.

There is an opportunity ahead that may prove to be a game changer in the European data market³⁰. The European data infrastructures and initiatives funding open access and licensing of publicly funded research and innovation (via the PSI directive³¹ and H2020 open access rules³²) are an opportunity for the whole industry. Nevertheless, this opportunity requires a careful elaboration of the terms under which European companies may reuse open data to generate new business. It would make sense to enable and support company-driven initiatives that will

pilot the commercial reuse and exploitation of scientific data produced by such actions. It may be that the concept of “data commons” is introduced; this could lead to the creation of pre-competitive data sharing spaces and infrastructures that will be equally open to all interested stakeholders. Regulation may play an important role here, introducing standard contractual and licensing terms that will protect the interests of the research and academic institutions, but also giving the opportunity (and flexibility) to European companies to innovate³³.

Indeed, action at European level is needed, but also the sector will have to play an important role in developing a future data sharing environment which corresponds to the needs of all those involved. The diversity of approaches, challenges, risks and opportunities is vast, which means regulating or framing this domain is challenging. To reach satisfactory solutions, a continuous interaction between practice and different potential frameworks will be necessary. The concept of Digital Innovation Hubs³⁴ may be an environment in which such novel data-powered ecosystems and value chains emerge. Such experimental and collaborative environments may adopt and extend the elements to enable fair data sharing in their business and operational models, they may bring traditional stakeholders closer to their technology counterparts allowing both to innovate, for example in EIP-AGRI Operational Groups and future Horizon 2020 projects. The main threat is the creation of monopolies within such data ecosystems and markets. Therefore, ensuring that a variety of models and approaches may be tested and (hopefully) flourish, could be a way to avoid excessive concentration of power. Such an approach will also reveal (and hopefully help clarify) the uncertainty and contradictions that we have seen in the responses of stakeholders in terms of specific data sharing scenarios. For example, clarify the terms under which they would permit and promote the commercial exploitation of machine- or software-generated data in their specific value chain applications.

Continuing the dialogue will be both timely and important. But it needs to be practical, owned by the stakeholders of the sector and facilitated (or even coordinated) by the European Commission. The agricultural sector is too crucial to our society for data sharing to be regulated by market forces only.

²¹ www.economist.com/news/briefing/21721634-how-it-shaping-up-data-giving-rise-new-economy

²² www.godan.info

²³ ec.europa.eu/digital-single-market/en/news/digital-single-market-commission-calls-swift-adoption-key-proposals-and-maps-out-challenges

²⁴ www.copa-cogeca.eu

²⁵ www.cema-agri.org

²⁶ www.bdva.eu

²⁷ aioti-space.org

²⁸ www.big-data-europe.eu

²⁹ www.erosa.aginfra.eu

³⁰ Can Europe lead a data revolution in agriculture and food? (<https://goo.gl/YjhPjM>)

³¹ ec.europa.eu/digital-single-market/en/european-legislation-reuse-public-sector-information

³² ec.europa.eu/research/openscience/index.cfm?pg=openaccess

³³ There is a gap here in the current standard grant agreements mandating open access to research data and how they govern subsequent contractual obligations (such as the contracts of the scientists working on a specific research project). One way to go would be to provide standard contractual terms that will individually oblige scientists to provide open access to the research data that they are producing, collecting or managing. This should go together with an appropriate list of compliant licensing options that will allow these scientists to select and apply the right license that respects their intellectual property and data (re)use permissions.

³⁴ ec.europa.eu/eip/agriculture/en/content/eip-agri-seminar-digital-innovation-hubs-mainstreaming-digital-agriculture



All information and presentations from this workshop can be found on the workshop event page at the **EIP-AGRI website**.

7. Additional references

Dean Allemang, Bobbin Teegarden, "A Global Data Ecosystem for Agriculture and Food", GODAN, August 2016³⁵.

EIP-AGRI, 'Data revolution: emerging new data-driven business models in the agri-food sector', EIP-AGRI Seminar Report, June 2016³⁶.

Jeremy de Beer, "Ownership of Open Data: Governance Options for Agriculture and Nutrition", GODAN, September 2016³⁷.

Open Harvest Chania Declaration v.1 (2016³⁸) and v.2 (2017³⁹).

Paul Stacey & Sarah Hinchliff Pearson, "Made with Creative Commons", Creative Commons, 2017⁴⁰.

Paul Stacey, Garin Fons, Theresa M Bernardo, "An open ecosystem engagement strategy through the lens of global food safety", F1000 Research, May 2015⁴¹.

Michael E. Sykuta, "Big Data in Agriculture: Property Rights, Privacy and Competition in Ag Data Services" International Food and Agribusiness Management Review Special Issue - Volume 19 Issue A, 2016

³⁵ www.godan.info/documents/data-ecosystem-agriculture-and-food

³⁶ ec.europa.eu/eip/agriculture/en/content/eip-agri-seminar-data-revolution-final-report

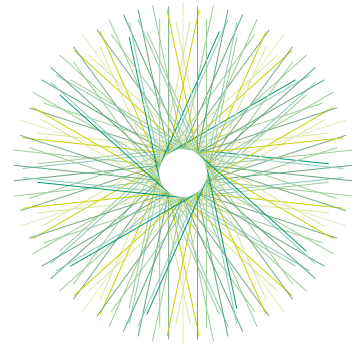
³⁷ www.godan.info/documents/ownership-open-data-governance-options-agriculture-and-nutrition-0

³⁸ www.godan.info/news/open-harvest-2016-participants-release-chania-declaration

³⁹ goo.gl/S3aQhr

⁴⁰ creativecommons.org/made-with-cc/

⁴¹ f1000research.com/articles/4-129/v1



eip-agri
AGRICULTURE & INNOVATION



The European Innovation Partnership 'Agricultural Productivity and Sustainability' (EIP-AGRI) is one of five EIPs launched by the European Commission in a bid to promote rapid modernisation by stepping up innovation efforts.

The **EIP-AGRI** aims to catalyse the innovation process in the **agricultural and forestry sectors** by bringing **research and practice closer together** – in research and innovation projects as well as through the EIP-AGRI network.

EIPs aim to streamline, simplify and better coordinate existing instruments and initiatives and complement them with actions where necessary. Two specific funding sources are particularly important for the EIP-AGRI:

- the EU Research and Innovation framework, Horizon 2020,
- the EU Rural Development Policy.



funded by  European Commission



Join the EIP-AGRI Network & Register via www.eip-agri.eu

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