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Towards new “digital insights.” The value of Open Data for food information in Europe

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1.- Introduction

In the last years there has been a groundswell of interest around the issues surrounding the new public policy of Open Data at all levels of government in Europe – and overseas as well – because the potentiality ICT technology seems to have increasingly become the glue holding public bodies and citizens together. The application of this policy in the food sector does not seem to be escaping this cutting-edge and cross-border environment.¹ As pointed out by the Global Open Data for Agriculture and Nutrition initiative,² there are almost three objectives Open Data might reach in this field: «enabling more efficient and effective decision making; fostering innovation that everyone can benefit from; driving organisational and sector change through transparency». At its very core, indeed, Open Data is a digital format through which data are open, freely available, machine-readable and reusable by the public, in order to enable and enhance

new forms of civic knowledge production.³

However, if this new digital innovation could seem at a glance a terrific tool for sharing knowledge and promoting more democratic and trusted dialogue between the EU institutions and European citizens, the overall issue is more complex than these beliefs may suggest. This is because the EU Commission framed Open Data in terms of data-driven economy, through which to pursue business and economic opportunities, as well as to create new products and services in several fields.⁴ Additional reasons deal with the increasing technical problems pertaining to licensing, accessibility, interoperability and usability of data that still exist and lack uniform solutions.⁵ Furthermore, the legal framework currently in force on the matter has not been completed yet, and needs to be urgently defined, in order to tackle all normative tensions arising when law has to face scientific uncertainties pertaining to technological practices and processes.⁶ Therefore, a conceptual question arises: could ICT tools offered nowadays by Open Data create a perspective of communication in the food sphere as a more interactive relationship between the citizenry and public bodies?

This contribution will elaborate on the aforementioned question, by considering the normative and social aspects related to the use of Open Data in the European food domain, in order to explore how this new technology will enhance access to food information – and consumer protection, as a conse-

(1) See D. Deasy, *Food safety-the IT dimension*, in *Irish Journal of Agricultural and Food Research*, 39, 2000, pp. 343-348.

(2) Godan, *How can we improve agriculture, food and nutrition with open data?*, 2015, p. 4, <http://www.godan.info/wp-content/uploads/2015/04/ODI-GODAN-paper-27-05-20152.pdf>. The GODAN initiative is a growing network of 125 organisations that supports global efforts to make agricultural and nutritionally relevant data available and accessible. See more at <http://www.godan.info/about/statement-of-purpose>.

(3) See <http://opengovdata.org/>.

(4) See European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions, 'Open data - An engine for innovation, growth and transparent governance*, COM(2011) 882 final, Brussels, 2011, which stresses the relevance of opening up public data to pursue business and economic opportunities. See also, European Commission, *Towards a thriving data-driven economy*, COM(2011) 882 final, Brussels, 2014, where all activities related to data are considered as the drivers of the EU knowledge economy.

(5) On this issue, see J. Denis, S. Goeta, *Exploration, Extraction and Rawification. The Shaping of Transparency in the Back Rooms of Open Data*, After The Reveal. Open Questions on Closed Systems - Neil Postman Graduate Conference, New York, February 2014.

(6) P. De Filippi, L. Maurel, *The paradoxes of open data and how to get rid of it? Analysing the interplay between open data and sui-generis rights on databases*, in *International Journal of Law and Information Technology*, 23, 2015, pp. 1-22.

quence. In doing so, it will be demonstrated that Open Data might play a crucial role in generating trustworthy interactions between institutional authorities and citizens, going beyond the mere rhetoric of “data-driven economy,” as strongly promoted by the European Commission with reference to Open Data.

The analysis will start from an overview on the regulatory trajectories leading to a strengthening of the preeminent role information plays in the food sector. This lens will help to sketch the genesis and the state-of-the-art on Open Data in the European food policy agenda, so as to prove that the massive cornucopia of data made available by ICT technology, and particularly by the ever-bigger Open Data, has been gradually - but radically - altering the relations among institutions, industry and the public.⁷ Thanks to the opening up of knowledge possessed by the public sector, the consumer-citizen is becoming empowered in making better informed and personalized decisions, proactively oriented towards his personal interests and needs.

Taking this broad approach to answering our question will allow us, finally, to identify the reasons why institutions should encourage citizens to use Open Data in making food-related choices. This last analysis will be conducted by giving emphasis to the rich and versatile concept of trust, here understood as «the level of confidence with which an entity can entrust to another entity or entities specific services tailored for given contexts and quality».⁸ Two reasons support this choice.

Firstly, no doubt seems to exist that individuals need to feel confident towards activities carried out at

institutional level⁹ – even that relating to the food sector.¹⁰ In the food sector, the ways in which knowledge, both traditional and innovative, is disseminated and shared among and with citizens are of utmost relevance and inestimable value. This is because being citizens in relation to foodstuffs means making food choices as if they were rights to protect, and through which to express oneself completely and entirely.¹¹ Secondly, it is true that «the passage from primarily direct and human-based relations to mostly digitalized interactions has even increased the need for trust, not only as to the technical aspects of security measures (e.g. protection of data on the web), but also as to normative issues of transparency, accountability, openness, accessibility, etc».¹² In these terms, trust becomes a potential vehicle for building “powerful bridges” between complex digital systems and human beings.

All these reflections will lead us to argue, finally, that the use of Open Data in the food chain - regardless of the endorsement given primarily to its economic and commercial value - may open new routes between citizens and institution, by promoting and restoring trust “from farm to fork.”

2.- The regulatory trajectories of food information

Food marketing is tightly related to the two fundamental interests citizens have in their relationship with the manufacturer: the interest in food safety aims at health protection and citizens’ well-being; and the interest in the veracity of information received during the selection and purchase of products is

(7) B.S. Noveck, *Wiki Government: How technology can make government better, democracy stronger, and citizens more powerful*, Washington, Brookings Institution Press, 2009.

(8) I. Kounelis, G. Baldini, R. Neisse, G. Steri, M. Tallacchini, Â.G. Pereira, *Building trust in human-Internet of Things relationship*, in *IEEE Technology and Society Magazine*, 33 (4), 2014, p. 2.

(9) R. Gerald, A. Liberatore, *Democratising Expertise and Establishing Scientific Reference Systems, White Paper on Governance Work area 1, Broadening and enriching the public debate on European matters*, 2001.

(10) See E. Vos, *The EU Regulatory System on Food Safety: Between Trust and Safety*, in M. Everson, E. Vos (eds) *Uncertain Risks Regulated*, London, Routledge/Cavendish Publishing, 2009, pp. 249-267; E. Vos, *Eu Food Safety Regulation and Trust-enhancing Principles*, in W. Ellefson, L. Zach, D. Sullivan (eds), *Improving Import Food Safety*, Oxford, Wiley-Blackwell, 2012, pp. 111-133.

(11) See P. Sobbrío, *Diritto all'informazione, partecipazione democratica del consumatore e OGM*, in Agricoltura-Istituzioni-Mercati, 3, 2008, pp. 79-126; A. Germanò, *New Challenges for Agricultural Law. Innovating Food – Innovating the Law*, in F. Leonini, M. Tallacchini, M. Ferrari (eds), *Innovating Food, Innovating the Law. An interdisciplinary approach to the challenges in the agrifood sector*, Libellula, Tricase, 2014, pp. 31-46.

(12) E. Aguilar Moreno, M. Gemo, A. Rana, M. Tallacchini, *Open Data in Health: how knowledge may generate trust*, Draft booklet on the workshop held at JRC, Ispra (Italy), 18th November 2014, Luxembourg, Publications Office of the European Union, p. 3.

based on a relationship of trust between consumers and the food supplier.¹³ In the first case, the citizen has the right to receive appropriate and safe food, in compliance with the correlated regulatory framework. As to the second profile, it is evident that the aspect of correct information assumes greater significance when food is the product to choose. In the global dimension technological innovation has given to the market, the selection of foodstuff embeds cultural, emotional and social meanings, which frame it in a symbolic and communicative sphere.¹⁴

When food safety breakdowns interested the European scene from the 90s', leading to a severe weakening of public confidence in the food industry, safety pressures arising from the marketplace led the European institutions to put in place an urgent policy intervention, bound to completely rethink and reshape their approach to food safety – and to food information as a consequence - so as to achieve the highest possible level of health protection.

Basically, the debut of the Community strategy for food safety coincided with the publication of the Green Paper on Food Law¹⁵ in 1997, conceived as an instrument of political reflection through which to rethink the principles of food law, with the purpose of constructing a safety system capable of protecting consumers' health and environment, ex Articles 129, 129 A and 130 TEC.¹⁶

With specific regard to food information, the Green Paper focuses principally on food labelling and risk communication processes. Regarding the first point, the document suggests striking a balance between providing consumers with all useful and

correct information and avoiding unnecessarily detailed provisions, by reinforcing the labelling rules to guarantee consumer information and fair trading. With reference to the second aspect, instead, reliable information about serious health risks arising from foodstuffs is required to be made available to the public as quickly as possible, whilst avoiding false alerts and alarmist messages. The interesting point for the issue we are discussing is when the Green Paper asks for major efforts in guaranteeing to European institutions and national authorities - as well as all interested parties, including consumers, both individuals and associations - access to information on the working procedures of the Committees and to their advice.

However, this reference remained an isolated signal, if we consider that the following White Paper on Food Safety¹⁷ does not mention it, even though consumer information becomes the content of a specific chapter (7), being viewed as a legitimate factor relevant for protecting consumers' health and promoting fair practices in food trade. Consequently, the Commission undertook a dialogue with consumers to encourage their involvement in the new food safety policy. At the same time, information about emerging food safety concerns and the right to expect information on food quality and constituents are clearly recognised, so that informed choices can be made. All these guidelines and initiatives led, then, the way to a complete set of food regulations that, starting from the adoption of Regulation No 178/2002¹⁸ (so called General Food Law) which established the new European Food Safety Authority (EFSA) - and going through

⁽¹³⁾ For a broad overview on this matter, see L. Costato - F. Albisinni (eds.), *European and Global Food Law*, Padua, Cedam, 2^a ed., 2016.

⁽¹⁴⁾ Not by chance in our multiethnic society, food requirements are becoming more and more diversified. Reasons can be related to religious feelings, to the sensitivity to environmental problems, or animal welfare, as well as to ethical values. Such consumers' needs, together with the increasing number of selection criteria, have made information a powerful element in the relationship between business and the citizen. Knowledge of raw materials used, techniques and methods of production plays a vital role in guaranteeing an informed choice in the food market.

⁽¹⁵⁾ Commission of the European Communities, *The General Principles of Food Law in the European Union, Commission Green Paper*, COM(97) 176 final, Brussels, 1997.

⁽¹⁶⁾ *Ibidem*, p. 11.

⁽¹⁷⁾ Commission of the European Communities, *White Paper on Food Safety*, COM (1999) 719 final, 2000, Brussels.

⁽¹⁸⁾ Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety. For an insightful analysis of Regulation, see IDAIC (a cura di), *Commentario al Reg. (CE) N. 178/2002. La sicurezza alimentare nell'Unione europea*, in *Le nuove leggi civili commentate*, 1-2, 2003, p. 114 ss.

several modifications of legislation on food information¹⁹ (until the adoption of Regulation No 1169/2011²⁰) - took into full account many of the aspects and problems correlated to the information exchanged in the food chain.

In particular, if articles 9 and 10 of Reg. 178/2002 prescribe specific communication and civic participation mechanisms in food regulation, so as to configure a right of the citizen-consumer to be openly informed and consulted about the choices taken in the matter, Reg. 1169/2011 deals with the establishment of the general principles, requirements and responsibilities about food information (in particular, that given through labelling), with the purpose of guaranteeing the right of consumers to information and procedures for the provision of food information (Article 2).

The normative framework thus conceived undoubtedly takes a step towards a two-way communication between consumers and public bodies. At the same time, though, it poses some general questions, three of which prove to be significant for the aim of the analysis we are conducting: how can the described food legislation be related to the use of ICT and, particularly, of Open Data? Are these general rules on access to food information in line with the idea at the core of Open Data? What are the “grey zones” of this legislation?

The next section will restrict its analysis to the

above-mentioned questions, in order to keep the discussion focused.

3.- *The reuse of information in the European Union: a legal focus*

Promoters of ICT attribute to digital devices diverse and several benefits, ranging from the enhancement of society to encouraging and supporting more active and interactive forms of public life. In this flourishing realm of computing and information sharing, access to information came slowly to be recognised as human right to be upheld as «essential element of the [...] right to freedom of expression».²¹ This new vision has expanded so conspicuously to entail legal changes worldwide, and the conceptual policy of Open Data is broadly consistent with this perspective of viewing the right to know «as an essential part of democracy».²²

The crucial issues surrounding the new concept of Open Data are, in fact, mostly underpinned with the idea of making certain data freely accessible and machine-reusable; of contributing valuable information about the world; of empowering citizens to make use of those data to comment, derive value, and take action in their own communities; of enabling each government, and, by and large, society, to function more efficiently.²³

However, from a normative stance, a legal definition

(19) It found its first important regulation in Directive 79/112 (Council Directive of 18 December 1978 on the approximation of the laws of the Member States relating to the labelling, presentation and advertising of foodstuffs for sale to the ultimate consumer) whose horizontal nature reflects how the Community has proceeded with the creation of a common market, trying to overcome the different national mandatory rules, which could be an obstacle to the free circulation of foodstuffs. Directive lays down several rules on the labelling, presentation and advertising of foodstuffs, in order to inform and protect the consumer.

(20) Regulation (EU) No 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers, amending Regulations (EC) No 1924/2006 and (EC) No 1925/2006 of the European Parliament and of the Council, and repealing Commission Directive 87/250/EEC, Council Directive 90/496/EEC, Commission Directive 1999/10/EC, Directive 2000/13/EC of the European Parliament and of the Council, Commission Directives 2002/67/EC and 2008/5/EC and Commission Regulation (EC) No 608/2004. See F. Albisinni, *The new EU Regulation on the provision of food information to consumers*, in *q. Riv.*, www.rivistadirittoalimentare.it, 2-2011, pp. 1-11; A. Iannarelli, *La fornitura di informazioni sugli alimenti ai consumatori nel nuovo Reg. n. 1169/2011 tra l'omnicomprensività dell'approccio e l'articolazione delle tecniche performative*, in *Riv.dir.agr.*, 1, 2012, pp. 38-46; A. Di Lauro, *Nuove regole per le informazioni sui prodotti alimentari e nuovi analfabetismi. La costruzione di una “responsabilità del consumatore,”* in *q. Riv.*, www.rivistadirittoalimentare.it, 2-2012, pp. 1-27; S. Bolognini, *Linee-guida della nuova normativa europea relativa alla fornitura di informazioni sugli alimenti ai consumatori*, in *Le nuove leggi civili commentate*, 4, 2012, pp. 613-678; A. Germanò, E. Rook Basile, *Manuale di diritto agrario comunitario*, III ed., Torino, 2014, p. 381.

(21) European Court of Human Rights, *Kenedi v. Hungary*, May 26, 2009, <http://cmiskp.echr.coe.int/tkp197/search.asp?skin=hudoc-en>.

(22) K. Janssen, *Open Government Data: right to information 2.0 or its rollback version?*, ICRI Working Paper 8, 2012, <http://ssrn.com/abstract=2152566>.

(23) T. Berners-Lee, *Putting Government Data Online*, 2009, <http://www.w3.org/DesignIssues/GovData>; T. Davies, *Open Data, Democracy and Public Sector Reform. A look at Open Government Data Use from data.gov.uk*, UK, Open Data Institute, 2010.

explaining what essentially the term refers to has not been provided yet. In the open definition given in 2005 by Open Knowledge Foundation (OKF), a «worldwide non-profit network of people passionate about openness»,²⁴ Open Data is described as «data that can be freely used, re-used and redistributed by anyone - subject only, at most, to the requirement to attribute and share alike».²⁵ This explanation of what actually constitutes Open Data has, then, been enriched several times in the following years by experts and practitioners of the field. In 2014 Open Knowledge and the Open Definition Advisory Council released a new list of the essential principles defining “openness” in relation to data and content.²⁶ Briefly speaking, the key features of openness have been identified with the concepts of availability, access, reuse, redistribution and universal participation, in which the idea at the heart of the doctrine of eDemocracy emerges, i.e. rethinking and reshaping dynamics and interactions between public bodies and citizens, to effectively involve the

citizenry in decision-making processes, besides keeping a constant and open dialogue among administrative authorities, stakeholders and the public.²⁷ Even though the use of ICT to support public engagement in the institutions’ activity is still an in fieri field to be explored, it has been strongly attracting in recent years the interest of national governments,²⁸ non-profit organisations²⁹ and local communities.³⁰

In the European Union, after the UK government launched the first web portal (www.data.gov.uk) to release information to the public, an EU internet portal aggregating national portals was developed with the purpose of creating an EU flagship initiative allowing governments, companies and citizens to easily find, understand, and re-use data created and maintained by the European institutions and Member States.³¹ The core feature of the EU Open Data Portal³² is a metadata repository providing a multi-lingual access to data published by public administrations in Member States. In November

⁽²⁴⁾ <https://okfn.org/about/>.

⁽²⁵⁾ <http://opendatahandbook.org/guide/en/what-is-open-data/>.

⁽²⁶⁾ See <https://okfn.org/press/releases/open-definition-2-0-published-by-open-knowledge/>.

⁽²⁷⁾ Indeed e-democracy, in its broadest mean, includes several and peculiar aspects: access to information (particularly with regard to that produced by the public, with the aim of achieving greater transparency in political decision making and give citizens the possibility to control institutions’ work); dialogue between citizens and institutions, in order to generate knowledge production; attention to the voting process (with reference to electoral lists, technical modalities of the vote or criteria for voting); the possible forms of bottom-up public engagement (C. Rabbito, *Il ruolo degli strumenti di e-participation nel processo di e-government. Il coinvolgimento dei cittadini nel policy making*, in *Informatica e diritto*, 2008, p. 441).

⁽²⁸⁾ The first 100 days of the Obama Administration, for example, showed a significant commitment aiming to entering a new era of so-called Open Government. By considering the deep role transparency might play in governmental actions, the presidency took several steps to give transparency a central role into the new reform strategy. Yet the first (then) President Obama’s action consisted in signing three presidential memos, two of which dealing with the idea of open government. If in the first one the values of transparency, participation, and collaboration are asked to be implemented by an “Open Government Directive” across executive agencies and departments, the second memo called for a new FOIA policy in order to base public authorities’ activity on the principles of openness and information disclosure. In this innovative framework, technology has been viewed as one of the most powerful tool through which opening up the government to the citizenry. By launching in 2009 the Open Government Initiative project, the Obama Administration started to pursue a path rooted in a digital culture, operating under the principles of sharing and accessibility. Technology-enabled citizen participation, thus, became a desired goal to create a new level of transparency and accountability in the American society (United States, Executive Office of the President, Office of Management and Budget, *Open Government Directive*, 2009, http://www.whitehouse.gov/sites/default/files/omb/assets/memoranda_2010/m10-06.pdf; United States, The White House, *Memorandum for the Heads of Executive Departments and Agencies: Transparency and Open Government*, 2009, http://www.whitehouse.gov/the_press_office/TransparencyandOpenGovernment/). See on this issue, C. Coglianese, *The Transparency President? The Obama Administration and Open Government*, in *Governance*, 22 (4), 2009, pp. 529-544; D. Robinson, H. Yu, W.P. Zeller, E.W. Felten, *Government Data and the Invisible Hand*, in *Yale JL & Tech*, 160, 2009, pp. 160-175.

⁽²⁹⁾ See, for example, the activities carried out by the Sunlight Foundation, a national, non partisan, non profit organization that uses the tools of civic tech, open data, policy analysis and journalism to make governments and politics more accountable and transparent, as well as to enable more complete, equitable and effective democratic participation, at <http://sunlightfoundation.com/about/>.

⁽³⁰⁾ For example, <http://dadesobertes.gencat.cat>, and <http://dati.piemonte.it>.

⁽³¹⁾ See N. Shadbolt, *Towards a Pan EU Data portal-data.gov.eu*, 2010, <http://ec.europa.eu/digital-agenda/en/open-data-portals>.

⁽³²⁾ <https://open-data.europa.eu/en/data/>.

2015, the European Commission also started funding a pan-European digital service infrastructure for Open Data, the European Data Portal.³³ Its principal objective is to create a single point of access in all 24 EU official languages for data published by public administrations at all levels of government in Europe.

Surfing on "<http://www.europeandataportal.eu/en>" it is possible to browse the available datasets by subject. By clicking on the "Agriculture, fisheries, forestry and foods" section, the portal shows 712 datasets³⁴ pertaining to the topic. With specific reference to the food sector, the data shown are related to the most different fields, spanning from food contact materials to novel food, from food additives to health claims. An example is represented by the Rapid Alert System for Food and Feed (RASFF)³⁵ window, which gives public access to the data on the most recently transmitted RASFF notifications, as well as search for information on any notification issued in the past. In this way constant information for institutional bodies and citizens can be assured, as well as transparency in the procedures and, consequently, control and safety.

Nonetheless, achieving these goals requires solving some difficult problems of both technical and legal nature. The former are related to the format of the data made available. The European Data Portal represents metadata references in a common format (DCAT application profile for data portals in Europe³⁶) using RDF technology. However, though the DCAT has been implemented as the common vocabulary for harmonizing descriptions of the harvested datasets, its language and use are actually not easily understandable. If, on the one hand, the web tools made available by the Commission are

surely remarkable and very helpful to users, on the other the challenges they pose (in terms of usability and accessibility - the reference is also to the so-called digital divide) cannot be underestimated. How can Open Data comply with the pivotal requirements food information has to have if citizens often lack the necessary background knowledge to interpret and use it? May Open Data actually assure that «food information shall not be misleading»³⁷, but «shall be accurate, clear and easy to understand for the consumer»?³⁸

All these reflections clearly call for a balance between different interests, as well as requesting that law and technology be merged and intertwined, in order to create new forms of ICT- and food-related knowledge production.

As regards the legal stance, the main issue arising is concerned with the existing gap between legislation and Open Data. Directive 2003/98 on the re-use of Public Sector Information³⁹ (hereafter PSI Directive), regulates non-discrimination, charging, exclusive arrangements, transparency, licensing and practical tools to make it easy to find and re-use public documents. Inasmuch as the objective of PSI Directive is to achieve, through minimum harmonization of national rules and practices, the full potential of re-using data produced by or for the public sector, and given also that Open Data involves making data available online in universally accessible formats for any re-use without restrictions or licensing fees, this prompts the conclusion that the PSI Directive is a key instrument for all Open Data policies recently launched in Europe.

However, as shown by the European Thematic Network on Legal Aspects of Public Sector Information, «the adoption of Open Data is not what

⁽³³⁾ <http://www.europeandataportal.eu/>.

⁽³⁴⁾ Last access: 7 June 2017.

⁽³⁵⁾ As set forth by Chapter IV of Reg. No 178/2002, in Europe the "surveillance procedure" has been thought and constructed as a rapid alert mechanism (RASFF) for the notification of a direct or indirect risk to human health deriving from food or feed. That is, a sort of network involving the Member States, the Commission and EFSA, and designed on the basis of - and in accordance with - the principles of transparency, openness, participation, accountability, effectiveness and coherence. On this issue, see European Commission, *RASFF-The Rapid Alert System for Food and Feed-2015 annual report*, Luxembourg, Publications Office of the European Union, 2016.

⁽³⁶⁾ See https://joinup.ec.europa.eu/asset/dcat_application_profile/description.

⁽³⁷⁾ Article 7.1 of Reg. No 1169/2011.

⁽³⁸⁾ Article 7.2 of Reg. No 1169/2011.

⁽³⁹⁾ Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of public sector information.

PSI Directive prescribes».⁴⁰ This is due to several reasons, such as the fact that the legal act focuses merely on the economic aspects of the re-use of information, rather than on the access of citizens to information. A second motive is related with the consideration that if the re-use is to be data protection compliant (as recognized by PSI Directive), the possibility of imposing use restrictions and conditions becomes necessarily important. Third, it has to be noted that if the re-use of government information is naturally based on the access to information, PSI Directive does not oblige Member States to provide access, presumably due to the limited legislative competences of the EU to regulate access to public sector information held by authorities in Member States.

The examination of these - and further⁴¹ - legal problems pertaining to the aforementioned issues surely calls for a deeper and technical analysis that, however, goes beyond the purpose of this contribution. By sketching a brief picture on the matter, the intention was solely to outline that a gap still exists and needs to be addressed and overcome,⁴² with the aim of reaching appropriate protection of the interests at stake. For sure, the recent Directive 2013/37,⁴³ adopted because of the advent of new services and applications made possible nowadays by technological innovation, tends to follow this direction. The provision obliging Member States to allow re-use of “documents” that are already publicly accessible under national rules for access to documents (Article 1.3), notably represents a big step forward to helping public sector information to be discoverable and usable.

Nevertheless, one drawback persists and cannot be underestimated. Yet the regulatory framework and non legislative measures in force at European level

seem currently more focused on taking into account the economic dimension of the re-use of data, rather than giving social value potentially deriving from Open Data the legitimate attention it deserves. This consideration leads one to consider that the societal dynamics surrounding Open Data – even in its application to the food chain - be adequately supported by precise and well defined rules, able to legally structure and support the technical architecture of this innovative ICT-based model.

4.- *Opening up food-related data: the role played by EFSA*

In the General Food Law, references to access to food information are made by articles 40, 41 and 52, where a wide access is prescribed both to the documents possessed by EFSA, and to information relating to any potential risk to human health posed by food and feed available in the market. In both cases, the provisions claim the necessity to fully account the general principles and conditions governing the right of access to the Community institutions’ documents. Despite not having been framed with regard to ICT, these provisions mirror the idea at the heart of the paradigm of Open Data, namely building bridges with the private sector and the public, by providing access to data, while creating fertile grounds for more structured processes of communication and information sharing.

However, with reference to the activity carried out by EFSA, the main issue arising from the use of Open Data is mostly linked to EFSA being an independent scientific source of advice, information and risk communication. Whether, in fact, Open Data could allow the Authority to «be an organisation

⁽⁴⁰⁾ LAPSI 2.0, *Position paper access to data*, LAPSI 2.0 Thematic Network D2.2, 2014, http://www.lapsi-project.eu/sites/lapsi-project.eu/files/LAPSI_D2%202.pdf, p. 13.

⁽⁴¹⁾ Position papers and policy recommendations relating to PSI and Open Data produced by LAPSI 2.0 are available at <http://www.lapsi-project.eu/lapsi-20>. See also, A. Cerrillo-i-Martinez, *The Reuse of Public Sector Information in Europe and Its Impact on Transparency*, in *European Law Journal*, 18 (6), 2012, pp. 770-792; B. Ponti, *Open Data and Transparency: A Paradigm Shift*, in *Informatica e diritto*, 1-2, 2011, pp. 305-320.

⁽⁴²⁾ For a legal exploration of the relationship between Open Data and PSI re-use, see K. Janssen, S. Hugelier, *Open data as the standard for Europe? A critical analysis of the European Commission's proposal to amend the PSI Directive*, in *European Journal of Law and Technology*, 4 (3), 2013, pp. 1-12.

⁽⁴³⁾ Directive 2013/37/EU of the European Parliament and of the Council of 26 June 2013 amending Directive 2003/98/EC on the re-use of public sector information.

open to contacts with consumers and other interested groups» (Recital 56 of Reg. 178/2002), «able to communicate autonomously in the fields falling within its competence» (Recital 54), «with a high level of transparency» (Article 38.1), so as to «enable Member States to become more closely involved in scientific procedures» (Recital 51), many problems might arise from publishing commercially sensitive data (formula, production methods, etc.), such as that possessed by EFSA. Since the vast majority of EFSA's data is owned by third parties, the use and access rights of the Authority regarding its data are governed by statutory and contractual obligations, while public release of data rests on the balance between public health protection and private commercial interests connected to data usage and data disclosure.⁴⁴

For these reasons, the release of information available to EFSA is regulated by the requirement of transparency, by the principle of access to documents and by confidentiality rules bound to protect company know-how.⁴⁵

Moreover, both PSI Directive and Commission decision 2006/291/EC⁴⁶ establishing a principle of re-use of the information available to public sector bodies do not apply to EFSA directly, though – as scholarly work pointed out – both these instruments set out a regulation that «would be coherent for the

Authority to follow».⁴⁷

Along this line of reasoning, in 2014, for the first time, the Authority mentioned Open Data as the “policy” it should adopt, with the aim of becoming an Open Science organization, driven by the values of openness and transparency.⁴⁸ In promoting this willingness to open itself to the citizenry, by democratizing science and triggering innovation, EFSA is developing the Knowledge Junction, «an open repository for the exchange of evidence and supporting materials used in food and feed safety risk assessments».⁴⁹ With the aim of improving transparency, reproducibility and evidence reuse, the platform's content (including reports, datasets, images, videos, laboratory outputs, software, etc.) has been catalogued to be used by EFSA's panels and working groups and any third parties when preparing for new risk assessments.

Additionally, a Data Warehouse (DWH) has been set up to publish and distribute EFSA's collected data⁵⁰ – spanning from foodborne outbreaks to chemical contaminants, from antimicrobial resistance to food consumption – so as to facilitate data analysis and data extraction, as well as harmonisation and comparisons among different type of information. In accordance with the EU Recommendation on access to and preservation of scientific information⁵¹ and the digital agenda for Europe,⁵² the Authority

⁽⁴⁴⁾ A deep analysis of the issue of data access and use rights in EFSA has been made by A. Kocharov, *Data Ownership and Access Rights in the European Food Safety Authority*, in *EFFL review*, 5, 2009, pp. 335-346.

⁽⁴⁵⁾ See EFSA, *Decision concerning access to documents*, 2003a, <https://www.efsa.europa.eu/sites/default/files/assets/docsaccess.pdf>; EFSA, *EFSA Code of Good Administrative Behaviour*, 2003b, https://www.efsa.europa.eu/sites/default/files/corporate_publications/files/admincode.pdf; EFSA, *Openness, Transparency and Confidentiality*, 2003c, https://www.efsa.europa.eu/sites/default/files/corporate_publications/files/transparencyprinciples.pdf; EFSA, *Decision of the Management Board of the EFSA concerning implementing measures of transparency and confidentiality requirements*, 2005, https://www.efsa.europa.eu/sites/default/files/corporate_publications/files/transparencyimplementation.pdf.

⁽⁴⁶⁾ Commission decision of 7 April 2006 on the re-use of Commission information.

⁽⁴⁷⁾ A. Kocharov, *Data Ownership and Access Rights in the European Food Safety Authority*, cit., p. 345.

⁽⁴⁸⁾ EFSA, *Discussion Paper. Transformation to an “Open EFSA”*, 2014, <http://www.efsa.europa.eu/it/corporate/doc/openefsadiscussionpaper14.pdf>. This initiative has had the EU Consumer Organisation BEUC's approval, which pointed out the relevance for the Agency to guarantee more open and systematic data sharing, in order to both increase consumers' trust in EFSA work and enhance scientific scrutiny, while improving transparency and gaining legitimacy (BEUC Bureau Européen des Unions de Consommateurs, *EFSA Strategy 2020 - BEUC response to the public consultation*, 2015, p. 4, http://www.beuc.eu/publications/beuc-x-2015-117_ipa_efsa_strategy_2020_-_beuc_response_to_the_public_consultation.pdf).

⁽⁴⁹⁾ <https://zenodo.org/communities/efsa-kj?page=1&size=20>.

⁽⁵⁰⁾ EFSA's data collection activities – required by EU legislation (such as Directive 2003/99/EC and Regulation (EC) No 396/2005) or based on specific needs – are described in detail by EFSA, *EFSA Report on Data Collection: Future Directions*, in *EFSA Journal*, 8 (5), 2010.

⁽⁵¹⁾ European Commission, *Commission Recommendation of 17.7.2012 on access to and preservation of scientific information*, C(2012) 4890 final, Brussels, 2012.

⁽⁵²⁾ Available online at <http://ec.europa.eu/digital-agenda/>.

has released a technical report⁵³ on access to data in the DWH, in order to provide general rules for accessing data via the DWH and the persons and stakeholders who will have access to it.

In respect to these rules, two reflections appear worthy to be highlighted, pertaining to ownership of data, access to and use of the data retrieved from the DWH. With regard to aggregated data rendered public in accordance with the current EFSA DWH rules, the users accessing available datasets have to respect any applicable proprietary rule, including copyright. As regards EFSA, it is accountable for administering in the DWH the data collections, on the base of the principles of loyalty, due care and diligence, despite the ownership of most of the data collections lies with the data provider or with the third party mandating the data provider. This is the reason why, for instance, EFSA has refused so far to disclose the data supporting its scientific opinions, in spite of the several requests made for years by the not-for-profit foundation Corporate Europe Observatory (CEO),⁵⁴ with the aim of making EFSA's work available and transparent, while enabling scientific scrutiny of it.

The second relevant issue concerns the “boundaries” that DWH rules have set for both accessing and using the stored data. The different and restricted rules provided for each group of stakeholders⁵⁵

might, in fact, obstruct the full achievement of the objective 2 of EFSA's 2020 Science Strategy,⁵⁶ aimed at widening EFSA's evidence base and optimising access to its data. Certainly, some reasons find their roots in the difficulty of creating an Information Technology infrastructure that allows the assembling, exploring and sharing of datasets among an undefined number of users, so as to better support a focus on both quantity and quality of data. If, in fact, several data are expected to be available through web reporting tools via maps, tables, dashboards and graphs, some of them are static, namely not changeable by the user,ⁱ so that they do not allow the user to see the information retrieved in different ways. In this way, from a legal point of view, the “positive side” of freedom of information – that is, drawing upon ICT means and devices to take advantage of their full power of knowledge⁵⁷ – seems still far to be completely guaranteed. Besides, in the process of opening up public data, identification, extraction and “rawification” of data are by no means mechanical operations, and they originate from several meetings, which imply crucial discussions pertaining to various and often relevant issues.⁵⁸ As recognised by EFSA itself, «the DWH may contain commercially sensitive raw data or data protected by intellectual property rights» (i.e., chemical contaminant data originating from private

⁽⁵³⁾ EFSA, *The EFSA Data Warehouse access rules*, 2015, pp. 1-18, http://www.efsa.europa.eu/sites/default/files/scientific_output/files/main_documents/768e.pdf.

⁽⁵⁴⁾ The last case concerned the request by CEO of disclosing all the possible original elements of three key scientific studies used by EFSA in assessing glyphosate. After refusing the request, because of the possible infringement of trade secrets and intellectual property rights related to the studies' owners (i.e., all industry producers of glyphosate), the Agency finally agreed to release the raw data used in the EU safety evaluation of glyphosate, as part of its commitment to open risk assessment. Nonetheless, as stressed by CEO itself, the possibility for scientific community to scrutiny EFSA's work seems still difficult to be realized. This is because, first, the documents reached CEO are scans, so that it is impossible to machine-search them, or import the data in any other software; and, second, because large sections of the data have been redacted, due to legal concerns. CEO has thus asked the EU for a solution to urgently stop relying on secret evidence for such sort of decisions (CEO, *Scientific scrutiny on EFSA's work, at last?*, 14 December 2016, <https://corporateeurope.org/efsa/2016/12/scientific-scrutiny-efsa-work-last>).

⁽⁵⁵⁾ The groups are the following: EFSA; members of EFSA's Scientific Committee and Scientific Panels and their Working Groups; data providers; the EFSA DWH stakeholder groups, including the general public.

⁽⁵⁶⁾ «EFSA aims to enhance the quality of its outputs by giving direct access to data and promoting the development of collaborative platforms in Europe and internationally, as well as fostering data re-use and innovation. EFSA will be an advocate for openness by working with data providers and organisations funding research to adopt open data concepts and standards; gaining better access to, and making better use of, data from a wider evidence base that, where possible, follow international quality standards. EFSA recognises that its efforts to make data more accessible will have to take account of data ownership, confidentiality and security issues» (EFSA, *EFSA Strategy 2020 Trusted science for safe food Protecting consumers' health with independent scientific advice on the food chain*, 2016, p. 16, http://www.efsa.europa.eu/sites/default/files/corporate_publications/files/strategy2020.pdf).

⁽⁵⁷⁾ V. Frosini, *L'orizzonte giuridico dell'Internet*, in *Il diritto dell'informazione e dell'informatica*, 2, 2002, p. 275.

⁽⁵⁸⁾ On this issue, see J. Denis, S. Goeta, *Exploration, Extraction and Rawification. The Shaping of Transparency in the Back Rooms of Open Data*, After The Reveal. Open Questions on Closed Systems - Neil Postman Graduate Conference, New York, February 2014.

enterprises and food consumption data collection), as well as «data from which individuals may be directly identifiable in the sense of Article 2(a) of Reg. 45/2001 on personal data protection⁵⁹ applicable to EFSA».⁶⁰

This can explain the concerns food companies have expressed about the initiative taken by the Authority for the promotion of a new EFSA Data Access Policy; concerns that, however, the Authority seems to take into consideration, having explicitly stressed the need that the DWH be supported by a clear policy on access to the stored data,⁶¹ and that the DWH access rules may be revised if necessary.⁶² Moreover, with reference to the need to overcome the main problems may obstruct the full implementation of Open Data in its activities, the Authority has already developed a standardised food classification system, which describes an array of individual food items, aggregated into food groups and broader food categories in a hierarchical parent-child relationship.

Furthermore, the Agency is currently committed to both «set up and implement a comprehensive and integrated information architecture framework for centralised information access management, enabling data interoperability», and build data exchange/openness networking groups, together with innovative approaches to exploit all available sources of information.⁶³

The last example of this EFSA's long-term strategy is represented by OpenFoodTox, an open source data for substance characterisation, links to the relevant Authority output, background regulations and summaries of critical toxicological endpoints, meant as instrumental support for the work of EFSA experts and staff in providing scientific advice,⁶⁴ and in disseminating information for scientific advisory

bodies and stakeholders with an interest in chemical risk assessment. The new toxicological database has been also made available in a readily accessible format on the OECD's Global Portal⁶⁵ (eChemPortal) to stimulate further analysis of the data by the wider scientific community, thus generating new knowledge in the area of chemical risk assessment. In this way, the potential value linked to Open Data appears to prevail on perplexity and uncertainties surrounding it, with the view of a scientific community that is more open and inclusive.

5.- Beyond labelling

Article 12 of Reg. 1169/2011 on food information states that mandatory food information shall be available and easily accessible for all foods. In such context, surely labelling represents the most useful means through which to give food information. However, even though Reg. 1169/2011 addresses some of the most debated issues regarding labelling, so as to improve the related discipline, it concerns not only labelling, but more generally food information made available by any means, including modern technology tools (see Article 2 2, lett. a). Yet the advent of new media has led the European legislator to create a comprehensive and evolutionary approach to food information, which led to adopting rules aimed at «covering information provided also by other means than the label» (Recital 14). This was made regardless of the ways adopted to give food information.

It is true, in fact, that an overload of information provided on the label, for example, could negatively affect the adequacy of the information itself.

⁽⁵⁹⁾ Regulation (EC) No 45/2001 of the European Parliament and the Council of 18 December 2000 on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data.

⁽⁶⁰⁾ EFSA, *The EFSA Data Warehouse access rules*, cit., p. 14.

⁽⁶¹⁾ Ibidem, p. 5.

⁽⁶²⁾ Ibidem, p. 1.

⁽⁶³⁾ EFSA, *EFSA Strategy 2020 Trusted science for safe food Protecting consumers' health with independent scientific advice on the food chain*, cit., p. 23.

⁽⁶⁴⁾ J.L. Dorne et al., *Editorial: OpenFoodTox: EFSA's open source toxicological database on chemical hazards in food and feed*, in *EFSA Journal*, 15 (1), 2017.

⁽⁶⁵⁾ http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en.

Shortage of time, lack of technical skills and linguistic diversity often prevent the consumer from transforming information into real knowledge.⁶⁶ Transparency in communication of true information goes beyond the mere verification of the data reported on label.⁶⁷ Moreover, it is even more necessary that communication be effective in terms of quality. This consideration is supported by bearing in mind that Reg. 1169/2011 prescribes «sufficient flexibility to be able to keep up to date with new information requirements of consumers» (Recital 16 and Article 1.2), both by empowering «the Commission to enable certain particulars to be made available through alternative means» (Recital 23), and by adapting food information rules to a rapidly changing social, economic and technological environment (Recital 51). Could Open Data be a valid tool to achieve these goals?

A brief analysis of the innovative activities currently undertaken by the European Food Information Resource (EuroFIR AISBL⁶⁸) and by Open Food Facts⁶⁹ can help us answering this question. EuroFIR is an international non profit association, whose purpose is to develop, publish and exploit food composition information, as well as to promote international cooperation and harmonisation of standards to improve data quality, storage and access. Open Food Facts is a non-profit association of volunteers that contributes to update a collabora-

tive and free database of food products usable by anyone. Driven by the “Food knowledge is power to eat better” manifesto, the database is Open Data that, published under the Open Database Licence, can be reused in both non-commercial and commercial projects.

Both the associations, by providing food information through online tools (from databases to recipe calculators for creating food composition data) offering up-to-date and scientifically validated food information, are gradually blurring the line between experts and lay people,⁷⁰ while enhancing the awareness and understanding of the value of food composition data – for both research and commercial purposes – and its relevance for consumers in making healthier dietary choices. As a result, these activities – so as the plenty of further initiatives that could not be examined here⁷¹ – represent relatively well-developed and successful forms of citizens-led and technology-based projects, reflecting the tendency towards «democratization of innovation».⁷² Indeed, «unrelated and even isolated citizens from different places are quickly learning how to empower themselves to become aware of, and exert, their rights by transforming knowledge and technology into civil and community life».⁷³

Certainly, the databases and web tools created and made available by the above mentioned associations are still far away from unleashing open data's

⁽⁶⁶⁾ S. Bolognini, *Linee-guida della nuova normativa europea relativa alla fornitura di informazioni sugli alimenti ai consumatori*, cit., p. 675.

⁽⁶⁷⁾ A. Di Lauro, *Nuove regole per le informazioni sui prodotti alimentari e nuovi analfabetismi. La costruzione di una “responsabilità del consumatore*, in *q. Riv.*, www.rivistadirittoalimentare.it, 2-2012, p. 4.

⁽⁶⁸⁾ http://www.eurofir.org/?page_id=3.

⁽⁶⁹⁾ <http://openfoodfacts.org/>.

⁽⁷⁰⁾ Emblematic, in this sense, is the sentence «You don't need a PhD to take part in citizen science!» figuring on the Open Food Facts web site.

⁽⁷¹⁾ In Helsinki, for instance, the National Institute for Health and Welfare has set up the food composition database Fineli Welfare, containing data on over 4000 foods and their nutrient values, with the purpose of improving software developers' possibilities to create health applications (i.e. for tracking health) specifically designed for consumers (see <https://www.thl.fi/fi/web/thlfi-en/statistics/statistical-databases/open-data/thl-s-open-data-and-the-challenges>). In Switzerland, Opendata.ch has launched the Business Innovation food.opendata.ch programme, with the goal of building an open and public database on food and nutrition data. The programme, funded also by the Swiss food industry, aims to both gather open data that can be re-used in applications or services and scientifically accompany the public exploitation of data in entrepreneurial projects (see <https://food.opendata.ch/>). In the UK, Nesta is an innovation charity that has organised, with the Open Data Institute, an open data challenge on the theme of Food, in order to encourage teams to use available open data to develop products and services to support people to make better choices with their food (see <http://www.nesta.org.uk/food-open-data-challenge#sthash.g3zj1Jqw.dpuf>).

⁽⁷²⁾ C. Von Hippel, *Democratizing innovation*, Cambridge, MA, The MIT Press, 2005.

⁽⁷³⁾ M. Tallacchini, P. Boucher, S. Nascimento, *Emerging ICT for Citizens' Veillance. Theoretical and Practical insights*, JRC Science and Policy Reports, Luxembourg, Publications Office of the European Union, 2014, p. 18.

full potential.⁷⁴ This is due not only to the mismatch existing between the open access quality of data and the skills to adequately analyse it to provide real insights,⁷⁵ but also - as “the terms of use” state – to: first, the lack of guarantees on the accuracy of the information and data present on the sites and in the databases; second, the possible errors related to, for instance, manual input of data or data processing; third, the completeness and comprehensiveness of the provided information, as well as its conformity to any particular use and its compatibility with any third-party services. These problems may pose not a few challenges in how to best extract value from the “Open Data ecosystem.” This is why further changes and improvements have been advocated⁷⁶ with regard to both harmonisation (in terms of extending data exchange format) and standardisation (in terms of developing a EU easily understandable and applicable standard for food composition data) of the on-going work on opening up food-related data in Europe.

In this ever-changing and ever-evolving scenario, the recent (2017) Digital Single Market (DSM) strategy⁷⁷ launched by the Commission has announced a dialogue with stakeholders for a possible future EU framework for data access, in order to improve, facilitate and incentivise data sharing across countries. In particular, any Member State action affecting data storage or processing has been asked to

be guided by a “principle of free movement of data within the EU,” thus realising the full potential of the European data economy.

Moreover, in relation to the issue of data generated by the public sector, access and reuse of Open Data have been addressed by the new European Interoperability Framework,⁷⁸ that focuses on data exchange between public sector bodies, through the inclusion of specific recommendations covering aspects such as the use of machine readable, non-proprietary formats, the use of meta-data, quality and licensing.

In this context, the so-called legal interoperability, that is «about ensuring that organisations operating under different legal frameworks, policies and strategies are able to work together»,⁷⁹ is understood by the Commission as an essential element to be guaranteed, together with the promotion and standardization of legal regimes facilitating the reuse of data (such as licences).⁸⁰

So that, for the Open Data community to foster meaningful dialogue between citizens and civil society, the technical and legal issues inherent to data infrastructures⁸¹ call for normative and social changes to be stated and framed as a matter of democracy and participation, able to face power asymmetry within the food chain. Indeed data protection and data stewardship can be considered as social construct, and as such subject to continuous

⁽⁷⁴⁾ See the Overseas Development Studies report for examples of the challenges at <https://www.odi.org/events/4201-data-revolution-finding-missing-millions>.

⁽⁷⁵⁾ To this regard, Nigel Shadbolt, chair and co-founder of the Open Data Institute, has affirmed: «Too much of our data infrastructure is currently unreliable, inaccessible or only available for those who can pay. Innovators struggle to get hold of data they need, while many citizens do not feel empowered to access and use data. We must improve data skills throughout society, so policymakers, businesses and citizens can interpret and use it well» (<https://www.theguardian.com/media-network/2017/jan/06/2017-open-data-initiatives-transparency>).

⁽⁷⁶⁾ See <http://www.eurofir.org/food-information/quality-and-standards/harmonisation-and-standardisation/>.

⁽⁷⁷⁾ European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. ‘Building a European Data Economy’*, COM(2017) 9 final, Brussels, 2017a.

⁽⁷⁸⁾ European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions. European Interoperability Framework - Implementation Strategy*, COM(2017) 134 final, Brussels, 2017b.

⁽⁷⁹⁾ European Commission, *Annex to Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions - European Interoperability Framework - Implementation Strategy*, COM(2017) 134 final, Brussels, 2017c, 23.

⁽⁸⁰⁾ *Ibidem*, p. 34.

⁽⁸¹⁾ A data infrastructure consists of data assets and the technology to store, share and use them; the organisations that operate and maintain them; the processes by which they are maintained; and guides describing how to use and manage the data (<https://theodi.org/what-is-data-infrastructure>).

change.⁸² As a consequence, Open Data easily appears to be listed among the means laid down by Reg. 1169/2011 «to guarantee the right of consumers to information» (Article 1.2) - though the role played by food industries in the sharing of knowledge advocated by Open Data remains still widely marginal,⁸³ owing to the intricate issues related to both data ownership and market speculations. However, given that the Open Data's outstanding feature consists in its capacity to create a digital network, in which consumers can operate and take informed decisions as active citizens, what is at the stake is the need for food companies to strongly contribute with institutions to facilitate the transfer of information. Yet access to corporate data is being fervently promoted and supported as the next frontier in the development of Open Data⁸⁴ by the United Nations Global Pulse,⁸⁵ a flagship initiative encouraging for- and non-profit sectors to “donate” and exchange their own data, by anonymising their datasets and providing that data to create novel insights of digital knowledge. Although it is not yet clear what the main features of this new form of data sharing are, and what rules and standards it must comply to, research activities are gradually proving the potential lying behind the plethora of digital data currently held by industry.

As regards the food domain, a noteworthy step in this direction has been taken by FoodTrade, a social enterprise bringing together more than 1600

businesses (to date) and consumers, with the aim of mapping the food supply chain system to help people buy and sell fresh produce, so as to contribute to the creation of a fair, sustainable and local food system.

Through the creation of FoodTrade Menu, an automatic allergen labeller that uses Open Data from the Food Standards Agency, the organisation compiles information from food producers, growers and government to produce tailored menus with flagged dishes and recipes including information needed for a consumer to make an informed choice. In this way, by both providing information about food allergens in food products and enabling food businesses to connect to suppliers that match their ingredient list, the smart menu management tool helps businesses respond to the requirements of Reg. 1169/2011.⁸⁶

What emerges from these experimental forms of connectivity mediated by the web it is that industry has been gradually commencing to focus also on contributing to knowledge production, by upholding access to information and data exchange to add value to its community and nurture fertile ground for future innovation. Whether, on one hand, embracing this viewpoint surely opens several challenges to face for small, medium and multinational commercial entities, it is true, on the other hand, that a democratic rethinking of data ownership⁸⁷ might constitute a powerful way for food players to benefit

(82) L. Moerel, *Big Data Protection. How to Make the Draft EU Regulation on Data Protection Future Proof*, Tilburg, Tilburg University, 2014, p. 36.

(83) According to a research conducted by Deloitte on the distribution of data-sharing models, only 2% of companies studied make corporate data available for re-use in a more or less open manner (Deloitte, *Impact assessment support study on emerging issues of data ownership, interoperability, (re)usability and access to data and liability*, First Interim Report, cited in European Commission, *Commission Staff Working Document on the free flow of data and emerging issues of the European data economy accompanying the document Communication Building a European Data Economy*, SWD(2017) 2 final, Brussels, 2017d, p. 15).

(84) S.G. Verhulst, *Mapping the Next Frontier of Open Data: Corporate Data Sharing*, 2014, <http://www.unglobalpulse.org/mapping-corporate-data-sharing>.

(85) United Nations Global Pulse, *Responsible Data Forum on Private Sector Data Sharing – Event Summary*, 2014, <http://www.unglobalpulse.org/RDF-private-sector-data-summary/>.

(86) E. Dowding, *Overview of FoodTrade Menu, a tool that helps to ensure compliance with FIRs*, in CIEH Food, 2014, http://food.cieh.org/food_trade_menu_a_tool_that_helps_to_ensure_compliance_with_firs.html?RequestId=b57a9838.

(87) In relation to open farm data, for instance, the GODAN has suggested four possible strategies to pursue in sequence or combination. They embrace an interinstitutional cooperation bound to reach consensus on the terms and conditions of ownership of open data; model frameworks adopted at the local, national or regional level as examples to be emulated; a social certification scheme aimed at promoting best open data practices; and an international agreement on ownership of open data (GODAN, *Ownership of Open Data: governance options for agriculture and nutrition*, 2016, <http://www.godan.info/documents/ownership-open-data-governance-options-agriculture-and-nutrition-0>).

from innovation driven by the wide and cutting-edge “Open Data movement.”

6.- ICT-related food information: how knowledge may generate trust⁸⁸

In the EU’s Open Data policy, the desired objectives are almost the same as those proposed by other Open Government data programs:⁸⁹ transparency (in a democratic society, citizens should know what public bodies are doing in order to exercise public control over their work); generating economic and social value (making data open means, creating both new business opportunities and innovative services for the citizenry); providing evidence for better policy making.⁹⁰ But what is still lacking, in the author’s opinion, is a clear reference to the possibility of using Open Data both to promote new forms of public engagement and to generate more trusted relations between public authorities and citizens – even in relation to the food sector.⁹¹

Indeed augmented transparency and public engagement have been usually considered by scholars⁹² as means to boost citizens’ trust. In view of the profusion of attempts scholarly work has made to define transparency, it can be said, in a nutshell, that this concept addresses the awareness of government’s activities, in order to make citizens informed about public affairs, enhance accountability of institutional bodies, promote social development and democratize decision-making processes.⁹³ As far as

participation is concerned, instead, public engagement could be defined as a spectrum of diverse organized and structured situations and activities, more or less spontaneous, in which lay people are involved and lend their support to agenda setting, decision and policy making processes.⁹⁴ It is, therefore, a vast and heterogeneous phenomenon, justified by both the need to ensure public confidence in the policy authorities, and to extend the knowledge base on which decision making takes place. Since, as said before, the aims behind Open Data are, *inter alia*, the promotion of transparency and the support of public engagement – regardless of the endorsement given primarily to its economic and commercial value – we might argue that the practices visible in the new paradigm of Open Data are opening new routes for restoring trust.

As the US scholar Nissenbaum⁹⁵ pointed out – «trust is an extraordinary concept covering a variety of relationships, conjoining a variety of objects» as it can refer to a relationship between one person and another, or between one person and digital information systems. In its first meaning – Nissenbaum explained – trust is a relational attitude characterized by vulnerability, being with no guarantees, no warranty. This kind of relationship between at least a trustor and a trustee leads in turn to two conceptions of trust. If in one conception trust possesses a merely instrumental value, acting «as a bridge between uncertainty and action»,⁹⁶ the other one «regards it as being an overriding value, valuable in itself».⁹⁷ The new forms of so-called “com-

⁽⁸⁸⁾ See the title of E. Aguilar Moreno, M. Gemo, A. Rana, M. Tallacchini, *Open Data in Health: how knowledge may generate trust*, Draft booklet on the workshop held at JRC, Ispra, Italy, Luxembourg, Publications Office of the European Union, 2014.

⁽⁸⁹⁾ A comparison among the different initiatives and a reflection on the problems arising on the matter is presented by T. Davies, *Open Data Policies and Practice: An International Comparison*, 2014, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2492520.

⁽⁹⁰⁾ N. Shadbolt, *Towards a Pan EU Data portal–data.gov.eu*, 2010, <http://ec.europa.eu/digital-agenda/en/open-data-portals>. <https://open-data.europa.eu/en/data/>; HM Government, *Open Data White Paper. Unleashing the Potential*, 2012, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/78946/CM8353_acc.pdf.

⁽⁹¹⁾ On the potential capability of Open Data to establish trust with citizens and boost democratic participation, see D. Lathrop, L. Ruma, *Open Government: Collaboration, Transparency, and Participation in Practice*, Sebastopol, CA, O’Reilly Media, 2010.

⁽⁹²⁾ R. Gerald, A. Liberatore, *Democratizing Expertise and Establishing Scientific Reference Systems, White Paper on Governance Work area 1, Broadening and enriching the public debate on European matters*, cit.

⁽⁹³⁾ A. Florini (ed), *The Right to Know. Transparency for an Open World*, New York, Columbia University Press, 2007.

⁽⁹⁴⁾ M. Bucchi, *Scegliere il mondo che vogliamo. Cittadini, politica, tecnoscienza*, Bologna, Il Mulino, 2006, p. 92.

⁽⁹⁵⁾ H. Nissenbaum, *Will Security Enhance Trust Online, or Supplant It?*, in R. Kramer, K. Cook (eds), *Trust and Distrust Within Organizations: Emerging Perspectives*, Enduring Questions, Russell Sage Publications, 2004, p. 157.

⁽⁹⁶⁾ *Ibidem*, p. 175.

⁽⁹⁷⁾ *Ibidem*, p. 176.

mons-based peer-production” of knowledge (socio-technical systems in which individuals cooperate to provide information or cultural goods) constitute – according to Nissenbaum’s line of reasoning – a clear example of this last conception, since they can be considered valued relationships, because trust-based.

The recent application of Open Data in the food sector appears suitable to be added to this realm. This is because Open Data appears to present the contours owned by commons-based peer-production, i.e. decentralization of activities and the social nature of motivations at the base of participating people’s action.⁹⁸ The new consumer-ICT interactions epitomised by Open Data have been unleashing great opportunities to upgrade the modalities of knowledge production in relation to food. These emerging citizens-based initiatives are contributing to reshaping the boundaries between private and public knowledge production in a myriad of ways: by fostering new forms of shared responsibility and accountability in aggregating, interpreting and reusing piecemeal and dispersed information; enhancing citizens’ food-related knowledge; promoting freedom of information; extending and increasing deeper and trustworthy relations between institutions and the public. In these terms, Open Data reveals unknown territories, as it envisions the possibility to “stipulate” a new contract among public bodies, the business sector and society at large. This redefinition of interactions amongst social actors in their relationships with digital devices may restore trust of the citizenry in the face of institutional failures in guaranteeing the right to know.⁹⁹

By going beyond the mere willingness to give food information, all these “life’s civic spaces” are gaining momentum at virtually every level - both private and institutional – allowing people to exhibit virtuous

behaviour. In this way, Open Data might also represent an innovative and helpful method to fulfil principle 3, lett. c) of the UN Guidelines on Consumer Protection,¹⁰⁰ that asks governments to take action to ensure «access of consumers to adequate information, to enable them to make informed choices according to individual wishes and needs».

Particularly in the food sector, the possibility provided to individuals of acquiring a variety of data and, then, reusing them to create new forms of knowledge is able to voice the requests expressed by the General Food Law. When Reg. 178/2002 stresses the necessity «to ensure that consumers, other stakeholders and trading partners have confidence in the decision-making processes underpinning food law» (Recital 9), and that «consumer confidence and the confidence of trading partners is secured through the open and transparent development of food law and through public authorities taking the appropriate steps to inform the public» (Recital 22), insightful answers to these requests could arguably come from the proper use of Open Data.

Likewise, re-use of information in the framework of EFSA’s activities might play a significant role in engaging the public in scientific deliberations and decisions.¹⁰¹ This would be in accordance with those provisions of General Food Law requesting for «the confidence of the Community institutions, the general public and interested parties in the Authority» (Recital 40), for openness of the Authority to contacts with consumers and other interested groups (Recital 46), as well as for an Authority capable of enabling Member States «to become more closely involved in scientific procedures» (Recital 51). One could observe that most of these provisions belong to preambles and recitals, and whereas they do not possess binding force, they represent instead

⁽⁹⁸⁾ About the profiles characterizing commons-based peer-production, see Y. Benkler, H. Nissenbaum, *Commons-based Peer Production and Virtue*, in *The Journal of Political Philosophy*, 14 (4), 200, pp. 394-419.

⁽⁹⁹⁾ C. Jin-Hee, K.S. Chan, *Building Trust-Based Sustainable Networks*, in *IEEE Technology and Society Magazine*, 32(2), 2013, pp. 32-38; I. Kounelis, G. Baldini, R. Neisse, G. Steri, M. Tallacchini, Â.G. Pereira, *Building trust in human-Internet of Things relationship*, cit.

⁽¹⁰⁰⁾ United Nations, *United Nations Guidelines for Consumer Protection (as expanded in 1999)*, Department of Economic and Social Affairs, New York, 2003, http://www.un.org/esa/sustdev/publications/consumption_en.pdf.

⁽¹⁰¹⁾ A. Spina, *Scientific Expertise and Open Government in the Digital Era: Some Reflections on EFSA and Other EU Agencies*, in A. Alemanno, S. Gabbi (eds), *Foundations of EU Food Law and Policy Ten Years of the European Food Safety Authority*, Aldershot, Ashgate, 2014.

descriptive and explanatory statements aimed at clarifying the normative context. However, it has been argued that these statements have acquired an increasingly significant normative value in orienting, for instance, the interpretation of norms. From this perspective, they can be seen as “prescriptive descriptions,” as they shape the seemingly factual landscape legitimizing the normative provisions.¹⁰² In these terms, “Whereas” appear suitable, with reference to the issue we are discussing, to outline and mark the direction of EFSA’s new policy.

Thus we can argue that the rapid development of ICT resulted in the birth of a new “digital insight,” namely a sort of digital-social contract between the EU authorities and the citizenry, through which food and knowledge pertaining to it are becoming a vital part of shared civic initiatives. This trust-enhancing shift driven by Open Data is likely both to force interesting changes in the relations amongst social actors and to contribute to modelling the future of food sector.

7.- Concluding remarks

Individuals need to feel confident towards activities carried out at institutional level – even that relating to the food sector. In the environment of connectivity the paradigm of Open Data is creating, the real time capture and exchange of data can inspire consumer confidence by increasing the opportunities of a dialogue with the EU institutions. Untold volumes of data provided through ICT might serve to spread innovation, besides intensifying collaboration among stakeholders. By using Open Data, European citizens could gain reliable knowledge from the proactive exploitation of accessible information, given that shared data constitute public goods that can be creatively reused in many ways,

so as to increase in value.

But in this picture - in spite of its prima facie attractiveness – the aforementioned technical and legal problems tightly linked to Open Data must not be neglected, if we want its civic and social value to be fully unleashed. A trust-based relationship amongst human beings – even when it is connected by digital devices - requires that expectations towards intentions and behaviors of each others be continually reaffirmed. This is particularly evident when the trustor is an institution. In this relation based on the certainty of clear and shared – or at least commonly accepted – rules, in fact, any inconsistency of communication, due to unclear or contradictory messages, is enemy of clarity and undermines trust.¹⁰³ Facing this issue shall thus be the most preeminent challenge for the European legislator in the near future.

ABSTRACT

In the food sector, the massive plethora of data made available by the so-called Open Data has been gradually - but radically - altering the relations among institutions, industry and the public. Thanks to the opening up of knowledge possessed by the public sector, the consumer-citizen is becoming empowered in making better informed and personalized decisions, proactively oriented towards his personal interests and needs. In light of this scenario, the goal of this essay is to consider the normative and social aspects related to the use of Open Data in the food sector, with an emphasis on both its relationship with European food law and the role this new ‘digital insight’ might play in generating trustworthy interactions between institutional authorities and citizens.

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⁽¹⁰²⁾ M. Tallacchini, *Diritto e scienza*, in B. Montanari (a cura di), *Luoghi della filosofia del diritto. Un manuale*, Torino, Giappichelli, 2009, p. 274.

⁽¹⁰³⁾ B. De Marchi, *Le origini della comunicazione del rischio nella legislazione europea*, in S. Rodotà, M. Tallacchini (a cura di), *Trattato di biodiritto, Ambito e fonti del biodiritto*, Vol I, Milano, Giuffrè, 2010, p. 478.