



COMFOCUS

Community on Food Consumer Science



D8.3 Recommendations to the specific work packages within COMFOCUS to foster RRI

An Open Document



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Glossary

Abbreviation	Full form
COMFOCUS	Community on Food Consumer Science
FCS	Food Consumer Science
IAB	International Advisory Board
FAIR	Findable, Accessible, Interoperable and Reusable
JRA	Joint Research Activities
MC	Management Committee
RRI	Responsible Research and Innovation

Executive Summary

Aim: The overall objective of WP8 is to embed reflexivity and responsibility into COMFOCUS and to develop frameworks, tools and best practice guidelines for the practical governance of the Community in line with the principles of Responsible Research and Innovation (RRI). The sub-objectives are to create a framework based on the conclusions of relevant literature (Task 8.1), to enable public engagement in order to identify key ethical and social concerns for COMFOCUS (Task 8.2), to create recommendations and tools that would enable members of the COMFOCUS community to reflectively engage with and apply RRI in practice (Task 8.3) and to develop a guideline for responsible (ethically, socially acceptable and legally compliant) practical governance and data use of COMFOCUS (Task 8.4).

Method: Task 8.1 served to identify the ground items relevant for D8.3, through the creation of a conceptual framework based on relevant RRI scholarly literature. Having identified the conceptual issues, the activities were focused on practical aspects related to COMFOCUS. This stage involved asking the COMFOCUS researchers and Management Committee to identify specifically which of the general issues could be applicable to the project. Two different workshops were held.

Results: The results of the literature review and the workshops produced two relevant items that must be taken into account and that need to be resolved before WP8 finalises. The items that need to be agreed upon are a clear understanding of what kind of organization COMFOCUS will be (which affects COMFOCUS Governance) and, depending on the organization roles, what type of data governance will be necessary to be implemented.

This report is the final version of D8.3, which has been considered to be a rolling document throughout the duration of COMFOCUS. In this final version, specific reflection has been made on the gender dimension (and other socio-demographic characteristics).



CHAPTER 1

Introduction

1. Introduction

The overall objective of WP8 is to embed reflexivity and responsibility into the work of COMFOCUS and to develop frameworks, tools and best practice guidelines for the practical governance of the community in line with the principles of Responsible Research and Innovation (RRI). In order to achieve its objective, several actions have been followed, commencing with the conceptual analysis of the whole COMFOCUS project in order to identify potential or sensible RRI issues. But this analysis by itself may not be useful if no corrective actions are proposed to the project researchers and, as the case may be, solutions implemented.

The set of deliverables designed as an outcome of WP8 follows the before mentioned path of analysis and recommendations. As per the “Description of deliverables” (Grant Agreement, page 133, literally transcribed), the set of deliverables is composed by the following 4 documents:

- D8.1 Framework on ethical and socio-legal issues relevant to COMFOCUS (M10).
- D8.2 Report on societal engagement with food consumer science community (M36).
- D8.3 Recommendations to the specific WPs within COMFOCUS to foster RRI (M48).
- D8.4 General guideline for responsible COMFOCUS (M48).

WP8 analytical part begins with D8.1, which proposes the framework subject of study, focusing on ethical and socio-legal potential factors relevant to COMFOCUS, followed by D8.2, that uses a wider subjective approach, this time within the consumer science community. The advising part of WP8 lays on D8.3 and D8.4, which stand respectively for “Recommendations to the specific WPs within COMFOCUS to foster RRI” (this D8.3) and “General guideline for responsible COMFOCUS” (D8.4). The rationale behind this method, conceptual framework analysis and advisory/correction proposals, although simple, is widely accepted as a key within the research community (Maxwell 2013, p. 49; Ravitch & Carl 2016, p. 65; Ravitch & Riggan 2017, p. 41) and proposed as an important approach in innovation studies for the analysis of the context (Owen et al, 2013, pp. 28-30).

D8.3 was initially planned for M48, however, it has been considered that a rolling document could better reflect an ongoing analysis of the project, the analysis which must be dynamical oriented. This deliverable reports on WP8 activities that include engagement with Joint Research Activity (JRA) WPs through which we sought to understand, assess and modify the processes in line with the expectations and principles of RRI, identifying the possible scenarios that are ethically and socio-legally challenging. In this final version of D8.3 a critical reflection has been made on the gender

dimension and other socio-demographic and behavioural characteristics related to diversity and equality during all the COMFOCUS activities.

1.1 Intended general guidelines

Even though the concept of RRI has suffered from a conceptual top-down framing by the European Commission (see Von Schomberg, 2011), different authors who have contributed to the Science and Technology Studies (STS), argued that technologies are never neutral but they do have strong social and political implications. These socio-political and cultural considerations are often overseen due to the lack of understanding and consideration of implications of technology by those engaged in innovation and research management and policy development (Winner, 1977). In our approach to WP8 we have taken the perspective of not taking initially any concept at face value.

In order to identify the possible scenarios with ethical, societal and legal implications, different activities have been planned and carried out since the start of COMFOCUS project. Literature review conducted in Task 8.1 has been used to draw in advance the planned future guidelines that will be the outcome of Task 8.3, documented in D8.4, focused on what RRI principles mean for the sustainable future of the community on FCS. It is necessary to emphasise that a project held inside a living community is subject to change, therefore there is the possibility of modification of the initial ideas. Notwithstanding, there are pillars that we consider immutable and that will serve as an absolute guidance as cornerstones for RRI, such as the respect for the dignity and rights of all humans (United Nations, 1948; UNESCO, 2021; Nature, 2022).

The intended general guidelines have been used as the topics of the different activities held during this period and are hereinafter documented in the different appendices. After an initial workshop, used to identify each relevant ethical, legal and social (ELS) issue per task (Appendix 1), the different topics were studied using the following activities:

1. Governance requirements (for which a separate workshop was organised, see Appendix 2).
2. Prompts for applying Responsible Research and Innovation principles to each Work Package (Appendix 3).
3. Data Governance proposal (Appendix 4).
4. Data Deposition Agreement (Appendix 5).

Thus, the study of COMFOCUS governance requirements, application of RRI to COMFOCUS activities and data governance, including its legal aspects, have been the core of WP8 activities that will serve as building blocks for the final guidelines.



CHAPTER 2

Identifying RRI issues and
challenges

2. Identifying RRI issues and challenges

In order to identify RRI issues in COMFOCUS, a workshop was held on the 17th November 2021 (Appendix 1). COMFOCUS' Description of Action was used as a template where every activity that could be related to ethical and socio-legal activities was highlighted, producing a comprehensive list of all the possible issues (Appendix 1 includes as item 1b the template, where the highlighted parts have been kept). The criteria of what issues could be relevant was guided by the RRI conceptual framework result of T8.1, using an expansive interpretation. Therefore, if any activity could be subject to RRI analysis, it was marked as relevant for the workshop outcome. This document was shared with the workshop participants, who were researchers ascribed to different WPs and who knew beforehand the activities that were subject of analysis. In this way, they confronted the activities they would develop during the lifespan of COMFOCUS project with the set of values, principles and norms that are related to RRI.

The common work produced by the participants was documented and remains as explicit knowledge and guideline for the rest of WP8 activities. To this result we should add the possible reflection on RRI issues that were made visible during the workshop and that may have become tacit knowledge of the participants.

The topics that were identified were not substantially different to the expected ones (already previewed through the conceptual framework —T8.1): COMFOCUS project sustainability and governance; necessity of interaction on RRI issues through JRA between WP8 and other WPs; and research data requirements, both in terms of management and legal acquisition/harvesting.

2.1 Identifying issues through JRA between WP8 and other WPs.

Due to the necessity identified by WP8, during the first year of COMFOCUS operation WP8 carried several activities to address them. Details about the activities are included in the Appendix 3 but for the purpose of methodological comprehensiveness it is relevant to mention the list of activities carried out as JRA between WP8 and other WPs.

Activities:

(1) Activities within WP1

- a. guided discussion with Management Committee (MC) to decide what kind of entity COMFOCUS will be.

(2) Activities within WP2

- a. reviewed communication activities including newsletter;
- b. reviewed the online text for Open Call;
- c. D2.5: design of the technology developers workshop; contributed a talk to the workshop

(3) Activities within WP3:

- a. reviewed Open Call documentation;
- b. created a Data Deposition Agreement template;
- c. specified governance processes for the Open Call 1.

(4) Activities within WP4:

- a. engaged in decision-making about harmonisation of self-reports;
- b. contributed a talk to the consumer science experts' workshop.

(5) Activities within WP5:

- a. contributed to the logic framework for COMFOCUS;
- b. contributed to the COMFOCUS ontology and provide advise over the licence and inclusion in Github;
- c. helped develop meta-data for the Easy Questionnaire Tool.

(6) Activities within WP6:

- a. reviewed the processes of harmonisation of innovative tools across all tasks.

(7) Activities within WP7:

- a. involved in discussions regarding the development and presentation of the tools developed within COMFOCUS.
- b. checked the ontology alignmen



CHAPTER 3

COMFOCUS governance

3. COMFOCUS governance

Not dissimilar to any ICT research infrastructure or scientific project, COMFOCUS governance raises ethical, sociological and legal issues. Initially, the first identified issues for the project governance were directly dependent on what would COMFOCUS be post-project. Depending on the activities held by COMFOCUS and the infrastructures designed, a bespoke approach would be needed to identify RRI issues within each WP. Scholar literature has considered the necessity in RRI to study different issues, depending on the type of organization, for example if the activity is to be commercial, then business ethics should be included into the analytical framework (Paredes-Frigolett, 2021). Currently, it is not clear what sort of final organization, if any, will be the rightsholder of the future COMFOCUS rights. Hence, this aspect will need further works.

Notwithstanding, it was relevant at this stage of the project to discuss possible answers to the three following questions:

1. Will COMFOCUS develop a platform that will act as a repository for metadata or for physical datasets?
2. Will COMFOCUS act a repository that stores actual data donated by researchers?
3. Will COMFOCUS platform do both of the above depending on the provided dataset?

The three issues are directly connected to COMFOCUS future as a knowledge platform. In order to study them a workshop was held on the 18 March 2022 oriented to obtain the MC input. The documentation provided for the participants was based on the D5.1, *Report on COMFOCUS Logical framework of food consumer science*, it proposed different possible perspectives depending on the answers to the three posed questions, and it described the legal conditions set forth in the GDPR for the roles of data controllers or data processors. Depending on the nature of data, its hosting or mere linking through metadata description, a different type of organization for the future COMFOCUS needs to be taken into consideration.



CHAPTER 4

Data governance

4. Data Governance

Apropos data governance, two additional aspects should be considered. The first one is data governance and the second one refers to the necessary consent to be obtained to manage the data. Both issues are detailed in Appendices 4 and 5.

The key outcomes from the discussion at the MC meetings related to COMFOCUS Governance were further transferred into a proposed living document, *Guideline to consider data governance – prompts for WPs* (see Appendix 3) which, once updated by the different WPs, will inform the project-wide creation of RRI structures and processes. Through the analysis made by WP8 jointly with all the WPs within JRA, through two workshops (Appendices 1 and 2), two main documents have been proposed:

- WP8 Data Governance proposal for COMFOCUS [April 2022] (see appendix 4)
- WP8 Data Deposition Agreement [May 2022] (see appendix 5)



CHAPTER 5

Gender dimension and other
relevant characteristics

5. Gender Dimension and other relevant characteristics

Since the very beginning of the project, a critical reflection regarding gender dimension and any other socio-demographic and behavioural characteristic related to diversity and equality has been present during all COMFOCUS activities, tasks and goals. Specifically, these aspects have been taken into account in two WPs: WP4 “Harmonising self-report FCS approaches” notwithstanding the general considerations related to values of diversity and equity that are part of the core of this WP8 regarding “Responsible Research and Innovation”.

One of the outcomes of WP4 was D4.1, which was submitted on the 28th October 2021, M8 of COMFOCUS, hence at a very early stage of the project. The content of WP4 studied extensively the gender dimension and other socio-demographic and behavioural characteristics in its subsections 1.1.2, 2.2, 3.1.2, 3.1.3, 3.1.4, 3.1.5 and 3.1.6. The resulting D4.1 studies were used to design the EQT (Easy Questionnaire Tool) and were present in the design of the Open Calls and in the TNA (Transnational Access) WP.

The content of D4.1 explores the characteristics under the ontological, epistemological and analytical perspectives. Specifically, under the ontological perspective it studies the relationship between measures selected; referred to the epistemology it covers the origins and limits of measures selected and analytically it takes into account the limitations of use/purpose and suitability. For the purposes of acknowledging that the following entire content has been reviewed and adopted by WP8, we include in this deliverable the relevant parts written in D4.1:

- In subsection 1.1.2 Ethical considerations, it was stated that the European Code of Conduct for Research Integrity (2017) asserts that “Research protocols take account of, and are sensitive to, relevant differences in age, gender, culture, religion, ethnic origin and social class”. However, it is important to recognise that Socio-demographic (SD) questions can potentially be sensitive and as such, careful consideration should be given to the construction of the questions and choices presented to the participant to ensure that they do not cause offence and that they are inclusive. For example, it can cause frustration if a participant is presented with categories on gender which do not represent them. In addition, participants must not be forced to respond to sensitive SD variables and a ‘Prefer not to say’ option should be available to them for these types of questions.

Furthermore, inclusion of an extensive list of SD variables can considerably lengthen a survey leaving little room for collection of the required study specific variables. In the

context of respecting participants' privacy and limiting participant burden, employing the minimum SD variables that are needed to conduct a study is considered to be the optimal approach."

- Referred to Sex/gender identity, subsection 3.1.2, specifically entitled "Sex/gender identity", it was stated that "'Sex' is a biological categorisation assigned at birth (e.g. Male, Female, Intersex) which is defined by genital anatomy (Tate, Ledbetter, & Youssef, 2013). 'Gender' is a self-assigned identity representing a person's "current sense of self in relation to societal gender categories" (Tate et al, 2013, p.1) and as such one's gender identity can be the same (cis) or different (trans) from their birth assigned sex category. Gender identity has also been defined as "a person's deeply-felt, inherent sense of being a boy, a man, or male; a girl, a woman, or female; or an alternative gender" (Hughes et al, 2016, p.140). Historically, in social science the terms, 'Sex' and 'Gender' have been used interchangeably. A systematic review of the largest surveys in the United States, suggests that "essentialist practices that treat sex and gender as synonymous, easily determined by others, obvious, and unchanging over the life course" (Saperstein & Westbrook, 2015, p.534) are problematic and perpetuate findings and beliefs that are disconnected from "the diversity of gendered experiences" (Saperstein & Westbrook, 2015, p.536). "

"It is important in COMFOCUS that we do not perpetuate this conflation as demographic characteristics, including gender, have been shown to have a significant effect on food choice (Westenhoefer, 2005) and on the underlying mechanisms which have been shown to impact on food choice, for example food risk perception (Nardi, Teixeira, Ladeira, & Santini, 2020). Across the different European level surveys and Research Infrastructures such as the European Social Survey (ESS), the statistical office of the European Union (EUROSTAT) and other large scale longitudinal surveys such as the Survey of Health, Ageing and Retirement in Europe (SHARE), a binary approach to categorising participants with an opt out has typically been taken (e.g. Male/Female/Prefer not to say) and this data is described in their codebooks as 'Gender' or 'Sex'. Similarly, published food-related research tends to report data in binary terms with respect to Gender/Sex of the participants although from many of these publications it is unclear as to what questions were posed to participants regarding their sex/gender and which response options they were given. It is clearly necessary moving forward, that the findings of social science are able to represent people in terms of their current sense of self. However, for food-choice studies, which involve some form of biological outcome, it still remains important to also capture a person's sex as assigned at

birth. The approach suggested by Tate et al (2013) in their paper ‘A Two-Question Method for Assessing Gender Categories in the Social and Medical Sciences’ would appear to be the best way forward for COMFOCUS. This involves asking participants about the ‘Sex’ they were assigned at birth and also about the ‘Gender’ they identify with currently. “

- Regarding Ethnicity and Country of Birth, subsection 3.1.3. studied this characteristic. It was there stated that “There is an emerging consensus at the European level that we should be moving away from asking people about their ‘race’ (Gove et al, 2018). Race was a concept developed based on physical and geographical characteristics, and ethnicity emerged later, based on additional elements including culture, language and religion (Mersha, & Beck, 2020). The genetic diversity within one ‘race’ or ‘ethnic’ group can often be greater than that found between groups (Cooper, 2013), and as such is not a biological or genetically valid means of categorising people. Ethnicity has often been viewed as a static variable which is dependent upon one’s ancestry (Constant, Gataullina, & Zimmermann, 2009). Ethnic identity, however, can vary, as it depends on how aligned and committed an individual is to the values, beliefs and customs of their culture of ancestry and/or to other cultures to which he or she has been exposed to and/or is currently living in, even if that happens to be their own country of origin (Constant et al, 2009). Ethnic identity is a fluid and flexible variable which can change over time. In fact, developmental models of ethnic identity look at how awareness of ethnicity can emerge from experiences of discrimination in childhood as well as when a deeper sense of self develops in adolescence and young adulthood (Schwartz et al, 2014). An individual’s ethnic identity can also equally align with more than one culture, and commitment with one culture (e.g. a culture of origin) does not preclude commitment to another (e.g. the culture of the host country) or vice-versa (Constant et al, 2009; Askegaard, Arnould, & Kjeldgaard, 2005; Oswald, 1999; Peñaloza, 1994; Barry, 1980). Equally, individuals may not show commitment to either culture (Barry, 1980). They also may draw upon elements of various cultures as a hybrid identity (Askegaard et al, 2005; Oswald, 1999; Peñaloza, 1994). Since the 1990s, research has flourished around ethnic identity, which is viewed as a “subjective, self-ascribed sense of oneself” (Schwartz et al, 2014, p.59). Research has shown that ethnic identity is more closely related to consumer behaviour than ethnicity (Laroche, Kim, Tomiuk, & Belisle, 2005; Ogden, Ogden, & Schau, 2004; Webster, 1991).

Acculturation is also closely linked with ethnic identity, as it measures the degree to which an individual or group adopts the attitudes, values, customs, beliefs, and behaviours of another culture s/he or they have been immersed in (Crespo, Smit, Carter-Pokras, &

Andersen, 2001). Thus, an individual's ethnic identity is influenced by his/her level of acculturation.

To measure ethnic identity and acculturation, researchers have often used variables related to language (Cleveland, Laroche, & Papadopoulos, 2015; Phinney, 1990). Other variables often utilised include media usage (Cleveland et al, 2015; Cleveland, Papadopoulos & Laroche, 2011), social interaction (Cleveland et al, 2011; Laroche, Kim, & Hui, 1997; Laroche, Kim, & Clarke, 1997), self-identification, pride, and desire to maintain/participate in the home and host cultures (Cleveland et al, 2015), participation in traditional or mainstream celebrations (Phinney, 1990; Laroche, Kim, & Tomiuk, 1998) family structure and sex roles (Laroche et al, 1998). Religion is also an important part of culture, but its association is complex because it spans different cultures, and the same culture may have different religious groups within it (Cleveland, Laroche, Pons, & Kastoun, 2009).

Food choice is closely associated with ethnic identity as it is an important part of culture (Cappellini, & Yen, 2013; Cleveland et al, 2009; Peñaloza, 1994). However, it is also impacted by other factors, including the availability and accessibility of food from different countries, time constraints driven by new lifestyles in the host country, and divergent food preferences among younger generations, with children and younger adolescents often expressing the desire for foods more readily available in their host country rather than those from their parents' cultures (Elshahat, & Moffat, 2020a; Elshahat, & Moffat, 2020b; Zulfiqar, Strazdins, & Banwell, 2021).

A review of ethnicity in social survey measures suggests that the two main approaches utilised are: 1) using established, mutually exclusive categories or 2) using a multiple characteristic approach (Connelly, Gayle, & Lambert, 2016). This second option is more informative and provides greater insights into an individual's ethnic identity. It is for this reason that we suggest it is important not only to collect data about country of birth, maternal and paternal ancestry but also to consider including questions that capture duration of residence in host country (if not born there), what language(s) is (are) spoken at home (Connelly et al, 2016), and perhaps a measure of 'feeling like a citizen' and or 'feeling foreign' as used in other studies (Akay, Constant, Giuliatti, & Guzi, 2017).

For the purposes of defining minimum level criteria for capturing SD data on 'Ethnicity' we are however proposing that COMFOCUS utilises the ESS measure for 'Ancestry' as the optimal route to identify majority and minority national groups, indigenous populations and those with a migration background (Heath, Schneider, & Butt, 2016). Using this measure survey respondents can provide a maximum of two ancestries which can be coded against the newly developed European Standard Classification of Cultural and Ethnic Groups (ESCEG) in order to create an ESS-harmonised measure of Ancestry. Furthermore, we are proposing that the ESS measures for 'Country of Residence' and 'Country of Birth' should also be captured.

The related concepts of 'Ethnic identity' and 'Acculturation' may then be considered further as part of future measure harmonisation activities to determine whether additional standardised/harmonised variables such as language spoken at home, duration of residence in host country should be made available as optional study specific variables to enhance the minimum level SD variables for certain future studies if needed.

- In what is relevant to Educational Attainment, subsection 3.1.5 states as follows: "Education includes academic, vocational and professional education and 'educational attainment' is defined as the highest formal educational programme successfully completed by an individual (Schneider, & Ortmanns, 2019). As stated previously educational systems vary between countries and as such country-specific response options are required to reflect the differences between these educational systems. This presents problems when attempting to make cross-country comparisons (Schneider, 2009; Braun, Michael & Mohler, 2003; Braun, Michael, & Müller. 1997). Furthermore, due to increasing social mobility/economic migration, problems are encountered when asking respondents to select educational attainment options of the country they reside in when they were not educated according to that country's system. "

"For the purposes of a minimum level COMFOCUS 'Educational Attainment' variable, it is proposed that we collect data on the highest level of education achieved by an individual utilising the country-specific Education Levels defined in SERISS to tailor the surveys to the country in which they are being conducted. This would then allow the creation of a derived harmonised ISCED 2011 variable from this data. Regardless of where a survey is being conducted it would be hugely beneficial if within the COMFOCUS Tools that are being developed, we could provide the functionality for a participant to select the country in

which they were educated (if different from the country in which the survey is being conducted) so that they may be presented with the country-specific options relevant to where they undertook their highest level of education rather than being asked to equate their educational attainment to a non-familiar system. It is however recognised that this may be difficult to implement in the stage of COMFOCUS as a starting community.”

- Finally, regarding Household Composition, in subsection 3.1.6 it mentioned literally: “Household Composition has been defined as “a single person or group of persons who share resources, activities and expenditures on a regular basis for a specified period of time” (Casimir, & Tobi, 2011, p.504). Lacovou & Skew (2011) explored variations in household structure with the addition of new Member States to the EU. They used the following categories to examine household composition; single person <65 years, single ≥65 years, couple both <65 years, couple at least one ≥65 years, couple plus dependent children (at least one <18 years), couple plus adult children (all over 18 years), lone parent plus dependent children (at least one <18 years), lone parent plus adult children (all over 18 years), extended family, other households including lodgers and unrelated sharers). However, Mean Consumption Expenditure in EUROSTAT is classified using six types of households: one adult, two adults, three or more adults, each with and without dependent children, respectively (Office for Official Publications of the European Communities, 2003). It is interesting to note that in this measure EUROSTAT defines a child as a household member aged less than 25 years in full social and economic dependence. Those aged 15 years and older who are socially and economically independent are classified as adults. Older adults are classified as those aged 65 and older. The overall number of persons in the household is also captured as a variable. In contrast, the ESS 2018 not only captures the number of persons in the household, but also more granular information on their gender, year of birth and relationship to the survey responder rather than setting pre-defined categories.

For the purposes of establishing a minimum level measure for ‘Household Composition’ within COMFOCUS it is proposed that the ESS 2018 measure for number of persons in the household is employed ([ESS9-2018, ed.3.1, Variable hhmb](#)) as this will most easily facilitate data linking across different datasets. This involves asking participants the question “Including yourself, how many people - including children - live here regularly as members of this household?”. Despite the differences in defining children across the various EU level surveys, it is considered important for COMFOCUS that we also implement a minimum level variable to capture the number of children of less than 18 years of age residing in the

household by asking the question “How many members of your household are less than 18 years of age?”.

Additional questions employed by the ESS on relationships, ages and gender for all members of the household could be considered as additional, optional more granular household composition variables that may be useful for particular research questions and study specific contexts.

Taking specifically into account the outcomes of D4.1, WP8 has introduced in D8.4 a set of recommendations for the FCS research community applicable to all dimensions studied in COMFOCUS project. The recommendations cover both a singular perspective and an infrastructure integration one. The singular perspective includes the concepts used to harmonise gender and socio-demographic measures as one of COMFOCUS components. Likewise, the infrastructure integration (formed by the institutional, social and data infrastructure layers) pays attention to these aspects in its full perspective. Under both perspectives singular and infrastructural, the strengths, weaknesses, omissions and best practices related to these concepts have been widely studied for building the recommendations for the future of the FCS discipline.



CHAPTER 6

Conclusion

6. Conclusion

We have presented in this deliverable a broad view of how WP8 has created recommendations to enable members of COMFOCUS researchers to reflectively engage with and apply RRI in practice. This specific objective helps accomplishing the general objective of WP8, which is to embed reflexivity and responsibility into the project, helping to develop frameworks, tools and best practice guidelines for the practical governance of the Community in line with RRI.

The deliverable has presented the RRI intended general guidelines of not to taking initially any concept at face value, describing the different interventions used to identify RRI issues in COMFOCUS WP1 to WP7 and the challenges resulting from them. It has then posed questions on COMFOCUS governance, COMFOCUS data governance and gender dimension and other socio-demographic and behavioural characteristics, detailing how the works served to produce in D8.4 a set of recommendations for the FCS research community under a twofold focus: a singular perspective and an infrastructure integration one. The singular perspective is offered to facilitate a COMFOCUS component development perspective, while the infrastructure integration (institutional, social and data infrastructure integration) offers a panoramic and comprehensive point of view on how the future of COMFOCUS enriches the future of the FCS discipline.



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Appendix 1: Workshop 1

Appendix 1: Workshop 1

Workshop 1 was organised by WP8 for the whole of the COMFOCUS consortium to embed reflexivity and initiate ethical thinking at the early stages of activities.

This workshop was used to develop and refine the RRI Conceptual Frameworks reported in D8.1.

The full conceptual framework can be found in Section 8 of D8.1, Table 5.

1 Agenda WP8 Workshop 1

17th Nov 2021

Microsoft Teams meeting

13:00-13.05

Welcome and the introduction to the WS (Lada/Javier)

13.05-13.20

Ethical, social and legal considerations; Challenges for COMFOCUS (Lada)

13.20-13.25

Instructions for the first Session (Javier)

13.25-14.00

Break out session 1

Please reflect on the challenges identified in light of your specific tasks.

Do you agree that these issues are important for COMFOCUS?

Are there any additional issues you would like to highlight?

14.00-14.10:

Feedback from groups' discussions

14:10-14:15:

Comfort break

14:15-14:45

Break-out session 2:

What steps can be taken to address these challenges?

14.45-14:55:

Feedback from groups' discussions

14:55-15:00:

Closing remarks

Appendix 1a: The presentation given to explain the aims of the workshop and the tool to achieve the goals



Workshop: Two main sessions

13.25-14.00 Break out session 1

Please reflect on the challenges identified in light of your specific tasks.

Do you agree that these issues are important for COMFOCUS?

Are there any additional issues you would like to highlight?

14:15 -14:45 Break -out session 2:

What steps can be taken to address these challenges?

Tasks	Issue/Challenge	Description of the issue	Steps to be taken to resolve this issue
	Inclusivity (Participants)	Skin type (colour & sensitivity) & hair type (thick/afro hair) may affect data, data quality and participant diversity	<ul style="list-style-type: none"> • Skin colour can affect Photo Plethysmogram • EEG data quality can be affected by hair (connection to scalp) • Placement of ECG, dependent on setup, might involve central torso, and some privacy issues. • Is FaceReader gender/race agnostic? Work on neurodiverse groups? • Eye Tracking does not work in some individuals (e.g. macular degeneration, nystagmus, glaucoma): screening form • Procedures can be more time consuming, so there may be a bias in those taking part (e.g. bias in UK Biobank)
	Inclusivity (Researchers)	Data analysis/collection can be restrained by access to resources such as proprietary software, and through clarity of format of data. This will allow more researchers to use it, and make the most of the existing data. Type of data collected can affect privacy, e.g. body signature Control/oversight of developers – who developed software, is there understanding of the software; who is producing the “virtual” reality, how is that accounted for, who decides what is the layer of augmented reality that will be used?	For data collected to be used widely, it is best to have it in an open and standard format (e.g. BIDS for MRI), and able to be analysed/opened using free, open source software (as well as a my in-house analysis).
Biases in text mining, how can we account for the move from the unstructured to the structured data?			

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Tasks	Issue/Challenge	Description of the issue	Steps to be taken to resolve this issue
WP6	Informed Consent	Methods & data could be more complex to understand (what happens, what data collected, what it means).	An addendum to information sheet, consent form to ensure knowledge of risks. Also has screening form
	Right to withdraw	Setup can be involved & take some time. This combined with novelty may mean the participant is less likely to withdraw (due to time of setup), despite discomfort	Say what you are going to do & how it should feel before doing it. Actively check if participant OK regularly.
	Training	Without training, setup time can be longer, more discomfort might be felt by participant, and data quality might be lower (ethical issue of collecting unusable data). Any potential hygiene issues may need to be trained as well	Setup, removal & cleaning can be trained in similar way to allow standardised setup for patient comfort and data quality.
	Privacy issues	Physiology data is potentially “identifiable” data (directly or indirectly with other linked data) or “special category” data (data concerning health)	<ul style="list-style-type: none"> • Ensure fully anonymised in both data/metadata • By themselves, these physiology data are unlikely to be identifiable (face reader excluded?), and also could be argued to not be related to health (heart rate excluded) • No linkage, or no excessive linkage with other data (esp. identifiable /special category data). • Or manage linkage on access (only give specific variables) or on controlled platform (no first order data leaves platform, only stats). Examples are UK BIOBANK, DPUK or even NHS digital. • Storing second order data (e.g. ECG trace vs heart rate) would have different privacy concerns. Store what’s needed? Better to store all for future-proof and open science usage (most use out of data).
	Potential Diagnostic	Procedure has potential to be diagnostic tool (e.g. EEG, ECG)	<ul style="list-style-type: none"> • Kit designated for research only (diagnosis forbidden). • Researchers untrained in diagnostics using data • In other, more potentially diagnostic data (e.g. MRI) there are specific procedures on what to do with any suspected abnormality.

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Appendix 1b: Framework for considering ethical and socio-legal issues per WP in COMFOCUS. The table below was used as a template to instigate discussion about the challenges and to enable co-creation of the solutions to address these challenges.

NB. The yellow marks were the parts of the task descriptions that could be affected by RRI issues.

Task 1.1 - Establishment of management framework, quality procedures and Data Management Plan

Task leader WR | Contributors: WU, SPI | Months: M1-M3

Task 1.1 aims to set up the COMFOCUS Execution Handbook And **Data Management Plan**. This project management framework will be prepared and executed by the Project Management Team (PMT) and administrative, legal and financial departments of WR and be reported and available on the project part of the website (M3). At the start of the project, the PMT will prepare a document describing the **standard quality procedures** and will supervise the adoption of the procedures by all project partners. The procedures include: the project planning, deliverables, objectives, resources and roles & responsibilities, **publication and dissemination** procedures, standard procedures for **data collection** and procedures on conflict mediation and corrective actions and will be explained and reviewed during the Kick-Off meeting (M2). Risk management follows a bottom-up approach, risks will be identified in cooperation with all WP/task leaders. The **risk management procedure** will be added to the Project Execution Handbook (M3). Besides this, a Data Management Plan will be developed which specify what data will be open: detailing what data the project will generate, whether and **how it will be exploited or made accessible for verification and re-use, and how it will be curated and preserved**. This deliverable will evolve during the lifetime of the project in order to present the status of the project's reflections on data management (M6-M48).

Task 1.2 - Legal, Administrative, Financial Management and Reporting

Task leader WR | Months: M1 - M48

Task 1.2 aims to execute the necessary legal, administrative and financial reporting of COMFOCUS. Assistance will be given from the legal, administrative and financial officers of WR on budget management and (financial) reporting and to finalise the Consortium Agreement with EC and the partners and have it signed by duly authorised representatives of the EC and the legal entities of the partners. This task will

support the partners how to complete a cost statement and the associated requirements, to apply cost control and justification. We will forward the agreed payments to the partners, following agreed activities and deliverables and at agreed dates and act as a contact point for the EC covering contractual and financial matters. The PC/PMT will prepare the annual and Final Progress Reports (M48). Progress reports are an important auditable deliverable of WP1 of the project and include an overview of the respective WP/Activity progress. The progress reports will be submitted to the EC on annual basis and at the end of the project, conform the regular H2020 schedule.

Task 1.3 - Scientific supervising, IAB and project monitoring

Task leader WU | Contributors: WR, SPI | Months: M1 - M48

Task 1.3 aims to addresses all scientific and technical project activities matters required to integrate and coordinate the initiation, preparation, execution, control, and closure of the WPs in order to meets its objectives. This includes the regularly assessment of the performance of the project and WPs in terms of scope, schedule, cost and quality. SC will prepare the agenda and the necessary documents and include all efforts addressed to maximize quality of the project's process and outputs/ outcomes in line with requirements of RRI. SC is responsible for the joint publications on position and final outcomes of COMFOCUS in international refereed journals. This task also includes the set-up of the COMFOCUS International Advisory Board (M6), including an ethics expert, their day-to-day management and overseeing the contributions to relevant project tasks of IAB but all related item for VA/TNA will be supervised in conjunction with WP3. The SC and PC will have a half yearly meeting with the International Advisory Board alternately by conference call or face to face in annual project meeting.

Task 1.4 - Networking, Stakeholder Forum and Innovation management

Task leader SPI | Contributors: WR | Months: M1 - M48

Task 1.4 aims to ensure the maximal impact of all network activities and explore innovation opportunities to reach maximal impact of COMFOCUS on the pan European Community on food consumer science and beyond. We will set up a Stakeholder Forum (M9) to foster

discussion and feedback on the strategic importance in the overall COMFOCUS objective and the culture of co-operation between the participants and other relevant stakeholders in terms of **innovation strategies**. To achieve this, we will have a half yearly meeting with Stakeholder Forum (representatives) alternately by conference call or face to face in annual project meeting. Based on the results of the project different perspectives (**new services, new products, COMFOCUS Toolbox**) during the timeline of the project will be discussed.

Task 1.5 - Organisation of Kick-Off and project meetings

Task Leader: WR | Contributors: WU, SPI | Months: M1 – M48

The PC will organize and implement COMFOCUS Kick-Off meeting (M2). All project meetings (see section 3.2) will be annual 2-day, face-to-face consortium meetings will be organized (M11, M24, M35 and M46). Apart from reviewing progress and results, these meetings focus on discussing **strategic issues (barriers & opportunities), risk management and quality control**. Project meetings shall be followed up with minutes which will be available to all members via the dedicated internal project website. The PC will **prepare the agenda** for the meetings and will inform each member of the meeting schedule and provide the **reading materials** at least two weeks in advance. Preparation and dissemination of the minutes of review meetings are the responsibility of the PC. In addition, smaller quarterly meetings (at least) will be held (either conveniently linked to other face to face meetings or through Webinar/phone).

WP2 Tasks

Task 2.1 – Establish effective communication, dissemination and exploitation strategy

Task Leader: SPI | Contributors: WR, WU, UoS, UA, Noldus, UTU | Months: M1 – M4

Task 2.1 aims to establish a clear **communication, dissemination and exploitation strategy** to guarantee that COMFOCUS creates a strong

awareness and solid linkages and uptake between FCS actors and stakeholders. It also must promote the use of project results and the organic growth of FCS community during and beyond project duration. The communication, dissemination and exploitation strategy will include the best way to engage the stakeholders and the most suitable channels and tools to target each one. For that purpose will be established a Communication, Dissemination and Exploitation Plan (D2.1) including: **Focus of the COMFOCUS Knowledge Platform and pan-European community building, Target audiences and Potential users, Key messages, Methods, Potential use/exploitation**, as described in section 2.2 and 2.3. This task will defined a **set of key performance indicators**, KPIs, which, will be monitored and managed by WP2 and will also develop the **visual identity of COMFOCUS**, that includes the final project logo, colors and typography, to be used across all official communication. Aligned with the periodic reporting 4 updates of the D2.1 will be provided (M12, M14, M36 and M48).

Task 2.2 – Development of COMFOCUS website for intra and inter-community networking

Task Leader: SPI | Contributors: WR, WU, all WP leaders | Months: M1 – M48

Task 2.2 aims to develop the **COMFOCUS website**. This website acts as outer appearance, integrated with the communication and networking activities developed in this WP, and providing information about the project objectives, phases and outcomes and consortium partners This website will be used for the announcement and summaries of meetings, workshops, summer schools, conferences, calendars of various activities within the project and in particular will promote the COMFOCUS Open Calls on VA/TNA (WP3). The COMFOCUS internal platform, developed by SPI, will be equipped with an intranet, accessible to COMFOCUS partners for **sharing project information and relevant project documents** for consultation.

Task 2.3 - Development and maintenance of the COMFOCUS Knowledge platform

Task Leader: WR | Contributors: all | Months: M1 – M48

Task 2.3 aims to develop the COMFOCUS Knowledge platform for external users, including the researchers applying to the COMFOCUS Open

Calls to share information and be accessible to user communities (academia and industry) and technology developers. This will provide an essential part of the networking and will include also a (1) **discussion platform**, (2) the **COMFOCUS Toolbox** (WP7), and (3) a library to share harmonised **protocols, guidelines, literature, and results** (WP 4, 5 and 6). At this level, and in close collaboration with WP3, the COMFOCUS Knowledge platform will also include (4) a **portal** to apply for VA/TNA, with **more detailed information** about consumer science infrastructures, related activities, expertise of the respective institutional infrastructure, and the procedures for obtaining subsidized access. It will show an **interactive map** of FCS RIs across Europe, describe the services provided by COMFOCUS. The COMFOCUS Knowledge platform will maintain for three years after the closing the project and will be linked to the platform of FNH-RI.

Task 2.4 - Development of dissemination materials

Task Leader: SPI | Contributors: All | Months: M1 – M48

Task 2.4 aims to create the materials for communication and dissemination which follow Task 2.1, 2.2 and 2.3. These materials will include short videos, brochures (one in the beginning and one in the end of the project), posters, roll ups and newsletters (every 3 months, M4-M48) to disseminate COMFOCUS and its results. A **Twitter** page and **Facebook account** will be established as a way of promoting the project and engaging with its stakeholders. Proper (national) language will be ensured, where needed. COMFOCUS results will be published periodically in different forms. And will also be actively disseminated by project partners in national meetings, conferences etc. The **dissemination materials** will be available on the COMFOCUS website. **Other dissemination channels** include partners presentations/informal talks, scientific sessions, high-level debates and final conference.

Task 2.5 – Promotion of joint harmonisation activities with technology developers

Task Leader: Noldus | Contributors: SPI, UTU, DIL, IRTA, UNIBO and all WP leaders | Months: M1 – M37

Task 2.5 aims to **identify technologies** that are not yet utilised in the institutional infrastructures of consumer science and to develop joint

understanding of these new and emerging technologies, the effect on harmonisation of measurements and protocols and guidelines on FAIR and RRI design and data management. Three dedicated workshops (“Measuring Food Consumer Science”) will be held in The Netherlands (M7), Finland (M21) and Spain (M35) for the interaction between technology developers and COMFOCUS partners and to facilitate and define potential for: WP4, WP5, WP6, WP7 and WP8. Since all consumer scientists in COMFOCUS are experts, the potential for transfer of knowledge between them and technology developers will be maximised and yield new integrated harmonised measurements and protocols.

Task 2.6 – Sharing best practices among Consumer Science experts

Task Leader: AU | Contributors: SPI, WU, WR, UoS, DIL, IRTA, UNIBO, Nofima, UNITN, SUA, UTU, JSI | Months: M18 – M48

Task 2.6 aims to discuss, set and distribute COMFOCUS best practices on measuring consumer science, harmonised measurements, guidelines and protocols among the pan-European consumer science community. Six round table meetings in two rounds in 3 countries and aligned with all JRA WPs will be organised: 6 pan-European workshops in Denmark (M12, M24,) Spain (M18, M30) and Slovakia (M24, M36). The first round table meeting in each country will be organised mainly to identify the necessary steps, while the second round table meeting will be used to define, distribute and publish the agreed-on protocols and standards. Both workshops will include international partners of COMFOCUS. The COMFOCUS Toolbox will be discussed and available knowledge and feedback will be collected. Results of each round table meeting will be reported and distributed through the COMFOCUS Knowledge platform to be discussed in the broader pan-European consumer science community (Task 2.3).

Task 2.7 – Engaging the public (consumers) on ethical and societal dimensions of COMFOCUS

Task Leader: UoS | Contributors: SPI, WU, WR, AU, JdIC, DIL, UNIBO, SUA | Months: M10 – M20

Task 2.7 aims to foster public engagement on social, ethical and legal concerns and barriers to the sustainable FCS community. Consumers are the key stakeholders of COMFOCUS, both as data subjects and as beneficiaries of FCS community. Their engagement is necessary in order to

identify and anticipate the potential. In this task we will conduct **public engagement events** in 6 European countries: Denmark, Spain, Slovakia, Germany, Italy and the UK. These will be organised before the second round of expert workshops (M24), in order to ensure concerns of the publics are fed into the best practice guidelines.

Task 2.8 – Providing practical training to potential users

Task Leader: UTU | Contributors: UoS, AU, WU, UNIBO, UNITN, SUA, IRTA, Nofima, WR, DIL, JSI | Months: M24 – M48

Task 2.8 aims to foster the summer schools and workshops to demonstrate and **disseminate harmonised measurements, protocols, datasets and to study best practices** in the field of FCS. Four summer schools-type training courses will be held in the summer of year 3 and 4 of the COMFOCUS and for small groups of potential users (total 40-80 participants). The summer schools will be held at the university partners (WU, UNIBO, UA, UoS, UNITN, SUA) or if possible, joining external events when appropriate. Topics will include: General introduction to consumer science, hands-on training at (food) consumer science harmonised measurements, protocols and guidelines for use of infrastructures and dedicated installations. Furthermore, basic insight in **data models** and **methods of creating meta data, use of guidelines, raw data acquisition and processing (data) pipelines**. Also the use of data science on harmonised datasets will be demonstrated providing practical training on use of the COMFOCUS Toolbox (WP7).

Task 2.9 – International Consumer Science conferences

Task Leader: WU | Contributors: SPI, All | Months: M1 – M48

Task 2.9 aims to foster dialogues among consumer scientists and adjacent sciences as nutritional science or food technology science to disseminate the COMFOCUS results in order to foster a advanced community. The emerging field of FCS research requires a series of **conferences to disseminate results and to allow timely circulation and exchange of ideas concerning consumer behaviour-specific technologies and methods**. A one-day COMFOCUS conference will be preferably held in Year 2 (M20), Year 3 (M30) and Year 4 (Final

Conference – M45) of the project. Each of the conferences will focus on a specific theme. If possible, each of the COMFOCUS conferences can be organised back-to-back with other conferences as FENS, JPI HDHL or EITFood. The workshops from Task 2.5 and 2.6 can also be held during the conferences when appropriate.

Task 2.10 – Dissemination and dialogue actions and outreach to new users

Task Leader: WR | Contributors: SPI, WU, UoS, UNITN, AU, SUA | Months: M1 – M48

Task 2.10 aims to support broader dissemination beyond the pan-European consumer scientists community, addressing adjacent science domains. The COMFOCUS partners organise, and widely advertise, annual user meetings focussing on interaction between the social and life science. In M6 a list of relevant stakeholders groups from different domains and dissemination opportunities will be identified (Task 2.1) taking into account the alignment with user meetings of diverse research infrastructures such as FNH-RI, ESS, SHARE, EFFoST, EuroFIR, Metrofood and user meetings from identified relevant national research infrastructures (e.g. in the Netherlands BBMRI Cluster, or Food Waste Knowledge Hub). Those user meetings are very productive in the acquisition of new users and for the dissemination of project results. In all the events considered pertinent, COMFOCUS partners will use the dissemination materials developed in Task 2.4.

WP3 Tasks

Task 3.1 – Preparing COMFOCUS Open Calls for VA/TNA

Task Leader: SUA | Contributors: WU, SPI | Months: M1– M14

Task 3.1 aims to finalise the documentation on the procedures and protocols the COMFOCUS Open Calls to apply for VA/TNA processes and ensure that all necessary administrative requirements for transnational working have been identified and described. To this extent the

COMFOCUS Open Call text includes the **research priorities** based on consultation with WP3, WP4, WP5 and WP6. The text of COMFOCUS Open Calls will be issued to partners at M10 and M13 including background documents on VA/TNA Programme Guidelines; VA/TNA Programme Data Protection and RRI Policy, VA/TNA Programme Application Form. A corresponding **Training Programme** will be developed, to use the VA/TNA infrastructures and comply to the COMFOCUS requirements (Data management conform FAIR principle and RRI guideline) (WP2). The process of the 1st round of COMFOCUS Open Call (strongly linked to WP 4 self-reported measures) is: M14 – RQ's (gaps and needs RQ's) from WP 4 will be handed over to WP3; M15 – Launch of the 1st COMFOCUS Open Call; open to M17 (WP3); M18- Peer review and prioritisation by IAB and MC (process etc by WP3); M18-M20 WP3 Access manager will negotiate practical details with the involved infrastructures/installations (practical access, specific training available, housing(general) etc.; M20 First experiment can start; M32 Finalisation of the last experiment. The process of the 2nd round of COMFOCUS Open Call linked to WP6 in relation to WP4; M24 RQ's (gaps and needs RQ's) from WP 6 emerging technologies will be handed over to WP3; M25 Launch of the 2nd COMFOCUS Open Call; open to M27; M28 Peer review by IAB and MC; M28-M30 WP3 Access manager will negotiate practical detail with the involved infrastructures/installations (practical access, specific training available, housing(general) etc.; M30 First experiments can start; M42 Finalisation of the last experiment.

Task 3.2 – Communication on COMFOCUS Open Calls for VA/TNA

Task Leader: SPI | Contributors: SUA, WR, All providers WP9-WP18 | Months: M10 – M40

Task 3.2 aims to prepare a **communication strategy** on COMFOCUS Open Calls to create awareness and interest by (new) users. COMFOCUS will give as wide a publicity and information as possible on the access program, with an emphasis on the group of new users, without neglecting its traditional collaborators base. COMFOCUS operates a **website homepage** (WP2) which provides a COMFOCUS Knowledge platform for information on the expertise, virtual and experimental infrastructures offered, examples of results, new possibilities, all its activities and the procedures for obtaining subsidized access, and the **application forms**. All partners will contribute to signal the opportunity and Open Calls within their network, e.g. the communities of FNH-RI or Metrofood. Four one-day workshops (M14,M24) will be organised in

four different member states taking into consideration various aspects and expected impacts, two will be held at COMFOCUS partners countries (Slovakia and Italy) and two workshops in non-COMFOCUS countries (Sweden and Poland), to inform potential users about consumer science infrastructures. The workshops will elaborate on general aspects of consumer science and the opportunities of **measuring consumer behaviour** offered COMFOCUS infrastructures. To publicise the opportunities for access to the infrastructures, an important strategy to interest researcher's community is to advertise at International (European) Meetings, e.g. Pangborn, FENS, JPI HDHL annual meeting.

Task 3.3 – Review procedure and User Selection

Task Leader: WU | Contributors: SUA, WR, SPI | Months: M14 – M24

Task 3.3 aims to foster a **transparent and peer reviewed selection process** of the applications. Potential users submit their application to Management Committee (MC) of COMFOCUS. All proposals are subject to a peer reviewing process by IAB. The IAB provides expertise to review and select and to submit confidentially written assessments to the MC, as part of the documentation of the selection process. The **criteria for the review process** as given in H2020 Annotated Model Grant Agreements: Framework Partnerships and Specific Agreements: April 2014, Article 16. In doing so, the procedure will apply the **principles of transparency, FAIR and conform to the RRI principles** (for graphical representation of the procedure, see 1.3 Concept and methodology). Based on the recommendation of the reviewers and the feasibility, the proposed projects will be assessed by the respective infrastructure manager, proposed projects will be ranked and assigned by this priority.

Task 3.4 – Access Management

Task Leader: SUA | Contributors: all providers of WP9 – WP18 | Months: M18 – M40

Task 3.4 aims to negotiate, prepare and document the execution of the applications for experimenting with the use of COMFOCUS offered VA/TNA infrastructures. Accordingly, the MC decides with the manager of the infrastructure offering transnational access if the proposed

projects can be executed as described, or after revisions. The access management team (SUA, all partners offering VA/TNA) will enable the **implementation of the selected users' projects** by collaboration with the local staff members of the **infrastructure providing access**. The local staff members can be the infrastructure manager and the dedicated scientists.

Task 3.5 – Mentoring and support for users

Task Leader: SUA | Contributors: WR, WU, AU, UoS, DIL, IRTA, UNIBO, Nofima, UNITN, UTU | Months: M18 – M40

Task 3.5 aims to develop and apply a mentoring protocol to train the users to become familiar with consumer behaviour approaches and the infrastructure while achieving the set scientific goals for each project. All proposed projects are listed in the COMFOCUS internal website including the project summary, the project status, reviews, feasibility assessment and priority and is online available throughout the duration of COMFOCUS. Additionally, the MC sends the IAB a summary of the **user selection process** on a regular basis (every 6 months). A local staff scientist will be assigned to each user project to coordinate and to be the primary link between users and local staff and act as a mentor who will assist the users throughout the access period. For this purpose the local staff and the access management team of COMFOCUS support the user in: (1) **finalising the (experimental) design**; (2) **training and understanding of the standard operating procedures** (SOPs) applicable to the design; (3) **executing the experimental phase** and if necessary **enabling data processing and analysis**, and (4) **data interpretation** including the preparation of **manuscripts** and **reports** as appropriate.

Task 3.6 – Monitoring, evaluation and recommendations

Task leader: SUA | Contributors: WR, WU, AU, UoS, DIL, IRTA, JSI, JdIC, UNIBO, Nofima, UNITN, UTU, Noldus | Months: M18– M46

Task 3.6 aims to ensure that commissioned projects are progressing along agreed timescales. Concise reports will be submitted at start and end of experiments with details of the work, review on service provided by VA/TNA, as well as the **reliability and validity of COMFOCUS harmonised guidelines, protocols and COMFOCUS Toolbox** (WP3, WP4, WP5, WP6, WP7 and WP8). Summaries will focus on **lessons learnt for**

the selection, operation and monitoring of future experiments.

WP4 Tasks

Task 4.1 – Measures linking to other infrastructure and data bases

Task Leader: UoS | Contributors: WR, WU, AU, DIL, UNIBO, Nofima, UNITN, SUA, UTU, JSI, Noldus | Months: M1 – M8

Task 4.1 aims to harmonise Socio-Demographics (SD) measures linking to other infrastructure and data bases. We will highlight the means/methods through which SD can be captured across studies and countries in a way that will enable comparison across study populations. SD include a set of variables that are often captured using categorical measures and relate to the apparently non-problematic social categories such as gender, age, ethnicity, country, education, work status, household composition, profession and income.

Nevertheless, across research communities there is a remarkable inconsistency in how these SDs are being measured, which means that linking such data is often not possible without extensive data curation based on (existing) literature review and exploring approaches of other RIs as SHARE, ESS, CESDA, EUROSTAT etc. We will explore the complexity (low hanging fruit, prioritise measures), nature and sources of this diversity (e.g. cultural, structural, societal factors influencing how SD variables are conceptualised), map the measures currently used and propose a more harmonised way of capturing SD. These SD measures have to be operationalised in a manner that enables the country and purpose-specific details, while at the same time maintaining a possibility to reduce the data in to categories that are comparable over datasets. This task will develop guidelines for harmonised, minimum level criteria for measuring socio-demographics in questionnaires (M4), validate among peers and select best practice for data set selection (M6), and publish to WP4 (M8).

Task 4.2 – Measures related to psycho-social consumer characteristics

Task Leader: AU | Contributors: WR, WU, UoS, Nofima | Months: M3 – M14

Task 4.2 aims to select the most relevant **psycho-social consumer constructs** for harmonisation and develop guidelines at least for 20 most used psycho-social constructs and their measurement that are typically used in segmenting consumers. The main challenge is defined as **psycho-social variables** that are typically measured with different multi-item scales and for most measures there are several options to choose from with different pros and cons to consider in their use. However, these constructs (e.g. attitudes, norms and tendencies) are often those that have strongest link to outcome measures (see Task 4.3 below). We will map the **most used and relevant concepts utilising the work DONE-network has done and select measures for those concepts that will be included in the harmonised measures**. Some of most used concepts already have validated methods that can be directly included in the list of recommended standardised methods (psychological eating attitudes), but others need protocols to explain the appropriate use of the methods (e.g. health interest, identity measures etc). The number of constructs should be open so that the community can later complement this list as new measures may emerge from on-going studies.

Task 4.3 – Measures related to product/food experience and expectations

Task Leader: IRTA | Contributors: WR, WU, AU, UoS, DIL, Nofima, UNITN, SUA, UTU | Months: M3 – M16

Task 4.3 aims to select the most relevant **measures related to product/food experience and expectations** for harmonisation and develop guidelines. (1) **Hedonic measures** on product perceptions - Over the last decades, a number of scales have been developed and utilized to measure hedonic responses in both basic psychophysical and applied research. In recent years a number of new **scaling methods** have been developed, resulting in discussions about theoretical and practical differences among the methods. The **currently used measures and scales will be reviewed** and the most appropriate measures for different needs will be **selected and included in the protocol guidelines**. (2) **Perception of food products and concepts** - In many consumer studies perceptions of product prototypes or descriptions are used to measure consumers specific perceptions of products that can be related to consumer characteristics. These typically include product **attributes** that related to food choice motives, such as healthiness, convenience, price and mood. However, there is no harmonisation on how these

attributes are measured and providing guidelines and harmonising the use of scales would enable to compare findings and combine datasets from different studies. (3) **Knowledge and nutrition literacy**. Consumer knowledge is a multidimensional construct involving the familiarity and expertise the consumer has about food products, nutrition, cooking and other food-related issues. Nutrition literacy describes consumers' ability to interpret the nutrition-related information in a meaningful way. Both knowledge and nutrition literacy have been measured with various **scales dependent on the use context, culture and country**. This task will produce guidelines and protocols on **appropriate measures of the different knowledge constructs, as well as how and when they could be used**.

Task 4.4 – Measures related to consumer behaviour as an outcome

Task Leader: Nofima | Contributors: WR, WU, AU, UoS, IRTA, UNITN, UNIBO, SUA, UTU | Months: M3 – M16

Task 4.4 aims to select the most relevant **measures related to consumer behaviour** as an outcome for harmonisation and develop guidelines.

(1) **Antecedents of behaviour** - Several different constructs, such as **willingness, intention, habit and loyalty** have been used as antecedents or proxies of behaviour, especially in studies where measuring actual behaviour is not possible. The antecedents of behaviour have been operationalised in several ways, but there are still no clear recommendations which methods and scales that are the best ones to use.

Reviewing and analysing the different measures will provide guidelines for best options to choose for different research questions.

Harmonising the used measures would enable to combine datasets and thereby in long term, provide in the future an opportunity to follow how consumers' behavioural tendencies have develop over time. (2) Willingness to pay (WTP) – Survey-based techniques for measuring WTP can be divided into two types, direct and indirect surveys, in this task only WTP from survey data (stated preferences) will be harmonised. Different **ways of measuring WTP will be reviewed, analysed and discussed in order to find the most appropriate self-reported measures, and provide harmonised guidelines** for them.

Task 4.5 – Measures related to consumers as agents in the food system

Task Leader: UoS | Contributors: WR, WU, AU, UNIBO, UNITN, SUA | Months: M6 – M24

Task 4.5 aims to select the most relevant **measures related to consumers as agents in the food system** for harmonisation and develop guidelines. Within this task, we expand on the DONE framework by incorporating a novel concept of “food citizenship”. Food citizenship is an emerging paradigm of food choice that acknowledges that human relationship with food must be conceptualised within a broad food system. It recognises that food choice should be understood not merely as a matter of transaction (whereby food is treated as a commodity) but as a matter of relations between **different agents within the food system actively shaping relationship between production and consumption**. Conceptualising food choice as citizenship is about awareness of agents’ rights and responsibilities to maintain a sustainable, just food system. A **range of variables** can be relevant to the study of food choice from the perspective of food citizenship. These are examined both at the level of individual beliefs, perceptions and ethical positions, but also at the level of inter-group (inter-agents) relationships. (1) **Trust, risk /benefit perceptions, and ethical beliefs** – Beliefs are crucial for consumers’ food product acceptance and are a determinant of food choice. However, they also help us understand affective and cognitive factors underpinning people’s active engagement with a broad food system. These concepts are explored using a range of general and food/context-specific measures. The current task will map the concepts, identify the rationales behind different operationalisations of these concepts and systematically explore the measurements used. A careful triangulation of analysis of literature, synthesis of different conceptual and methodological approaches and expert-led dialogue will culminate in clear, transparent and well-justified guidelines and best practices. The guidelines will clarify the possibilities for harmonised approach to these measures. Furthermore, it will help us develop a framework of possible correlates of these factors with a possibility to create new innovative datasets to better understand the factors that promote food citizenship. (2) Relationships within the food system - Beyond the affective-cognitive factors of engagement, such as trust and risk, human engagement with the food system is also a matter of **intra-group processes such as community engagement/action, social support, participation in culturally-specific rituals and active participation in food production** (such as allotment farming). In addition, inter-group dynamic based on the role different agents play in the food system and their perceptions of the way in which the dynamic system of agents is configured – can also influence food choice. For instance, identification with a particular

cause can be linked to food activism, which in turn can reinforce and further influence food choice. The task will aim to **identify the constructs which can capture the determinants of food choice based on people's active engagement with the food system as moral agents**. These could include variables such as strength of identification and group belonging, participation in community action, inter-group conflict, social ties. The choice of variables will be driven by theoretical understanding of their likely correlation with food choice. Once defined and systematised, the measures will be reviewed and harmonised in a guideline.

Task 4.6 – Process of compiling harmonisation and guidelines

Task Leader: AU | Contributors: WR, WU, SPI | Months: M1 – M48

Task 4.6 aims to describe the process to guide Task 4.1 to task 4.5 in the internal process to reach consensus on harmonised measures, guideline and protocols. However, the in-between results need to be discussed in a broader way. In collaboration with WP2, meetings will be organised dedicated to this internal and external process of discuss, validate, best practice **data selection** within peer groups to review and improve the results of WP3 and therefore **increase the uptake of the harmonised measures, protocols and guidelines**. WP5 and WP6 will also be part of those meetings, to collaborate on the related data model based on the outcomes on WP3 and the implement common procedures to validate harmonised measures among peers. Furthermore, Tasks 4.1 to Task 4.5 will provide several of guidelines that will be **posted online** and should have common format and structure to make the guidelines easy to use for the whole starting community. The guidelines will be open access and available to all scientists so that those from outside the community who wish to co-operate with the starting community can plan their studies accordingly. The publishing and utilisation of on-line guidelines will be co-ordinated by WP2 in close collaboration with WP3.

WP5 Tasks

Task 5.1 – Develop COMFOCUS Logical framework on food consumer science

Task Leader: WU | Contributors: All | Months: M1– M48

Task 5.1 aims to provide a COMFOCUS Logical framework on food consumer science to identify relevant concepts, their relations and interactions. The COMFOCUS Logical framework will align the communication between scientific partners, and it serves as a fundament for the next tasks in WP5, WP4, and WP6. The content of the COMFOCUS Logical framework addresses the scientific subdomains, parties/organisations that are active and their relations and interactions and unambiguous vocabulary (harmonisation of terminology). To foster discussion, agreement on practical tools to document the framework (like Microsoft Visio, PowerPoint, choice of standard modelling methods e.g. flow diagrams, lay out) is necessary. Next step is to define the different views/perspectives that have to be developed for users/stakeholders of this framework to identify relevant concepts (e.g. consumer-products-environment-culture), relations and interactions (how do these concepts determine and influence consumer behaviour). Afterwards and internally, the draft results will be published on the COMFOCUS intranet (WP2), so that the content are at all times available for discussion by all partners. First approved version will be ready in M5, after the COMFOCUS Kick Off meeting (M2) where the first lines of thinking will be introduced. During the timeframe of COMFOCUS new insights will be added, so it will be a framework in evolution. In M14 the COMFOCUS Logical framework serves the launch of the Open Calls with a common understanding and by identifying gaps in this understanding. From M24 it is expected that the framework will be in a draft final stage and will be published on the COMFOCUS Knowledge platform, open for broad discussion in the pan-European Community.

Task 5.2 – Develop harmonised data models for harmonised measures

Task Leader: WR | Contributors: JSI, UoS, All other partners for input | Months: M1– M48

Task 5.2 aims to harmonise the data that is to be generated by harmonised measures. This is a prerequisite to facilitate the FAIR use of data within the community. The harmonisation of measures in WP4 and WP6 form the basis for the development of the harmonised data models.

An practical agreement will be made on **tools and modelling language to document the data models**. Data models include (1) structure of a data set belonging to a certain harmonised measure (entities, attributes, units, relations between entities and attributes) and (2) meta data of a data set (used harmonised measure, party that generated the data, date of generation, country of generation). This task will be executed in an iterative way in cooperation and discussion with the partners in Task 5.3 and WP4 and WP6. The time and effort needed for harmonisation in WP4 and WP6 will be specific for each measure at hand. So some measures will be harmonised early in the project (e.g. socio demographical measures are expected to be already close to harmonisation) and others will be harmonised at later point in time.

Task 5.3 – Develop an ontology for search and knowledge representation

Task Leader: WR | Contributors: JSI, UoS, All other partners for input | Months: M1– M48

Task 5.3 aims to **develop and agree on ontologies in the food consumer science domain for search and knowledge representation**. We will agree on **tools for the ontology development and presentation, and publishing standards** for the ontology. Second, we will **define the domains** for which the ontology will be developed. The next step is to investigate the **applicability of already existing ontologies** and develop ontology as far as no ontology exists, and link the ontology to existing ontologies, ongoing iterations to share and review knowledge is foreseen. Finally, we will **publish** the ontology according to the internally agreed publishing details. The ontology will include: (1) **unambiguous definition of vocabulary** (multilingual representation); (2) **representation of knowledge** (relations between entities); (3) **measures, available harmonised datasets and harmonised data models**. This depends on sufficient availability and sufficient level of maturity of harmonised data models. In M1 the bidirectional interaction with task 5.2 starts, as in M7 the interaction with WP6 starts. The ontology will be used in task 7.2, task 7.3 and task 7.4.

Task 5.4 – Enhance ontology on food consumer science for new scientific insights

Task Leader: WR | Contributors: JSI, UoS, All other partners for input | Months: M24– M48

Task 5.4 aims to **enhance the ontologies and new relations based on harmonised datasets**. Those insights come from scientific research in COMFOCUS Open Calls on transnational and virtual access (WP3) and hypotheses generated from representational learning in WP7 based on expert knowledge questions from the science community. Based on this information and in close collaboration with WP2 this task will update the ontology on food consumer science. This version will be published at the COMFOCUS Knowledge platform. This is additional input for WP 7, Task 7.4 – Scientific analysis and visualisation tool.

Task 5.5 – Develop data validation criteria

Task Leader: WR | Contributors: JSI, UoS, All other partners for input | Months: M6– M48

Task 5.5 aims to develop **criteria for acceptance and disclosure of datasets** within this community, to guarantee the **FAIR and responsible use of data**. **Criteria on quality like completeness, correctness or accuracy** will indicate the applicability for integration, analysis and representational learning. For **responsible use of data** the criteria will be formulated with input from WP8. These developed criteria on FAIR and responsible use are input for WP7 to implement the data validation tool for the COMFOCUS Toolbox. Criteria must address: How is meta data created that unambiguously relates to the developed ontology and to ensure findability? How is the accessibility, interoperability managed? The meta data report gives the following information for each variable: variable name, datatype, domain (i.e. the allowed values), definition when the data is missing, sanity checks with the other variables, a general description of its origin (data provenance), data needs to be compliant with the developed ontology in food consumer science. The accessibility and interoperability must foster that data should be provided in very **simple data files** (e.g. text only such as TXT, or CSV comma separated values files (in text format) etc. The criteria will evolve during COMFOCUS along with the roadmap of WP4, WP5, WP6, WP7 and WP8. For each dataset, the following outputs are generated: meta data report, data quality report and, in case missing data, analysis of the missing data points and will be input task 7.1. All criteria must lead to increased **re-usability of data** in food consumer science.

Task 5.6 –Workshops on validation of intermediate results and process

Task Leader: WR | Contributors: AU, UoS, JSI, SPI, JdIC, DIL, IRTA, UNIBO, Nofima, UNITN, SUA, UTU,

Noldus | Months: M6– M48

Task 5.6 aims to provide curricula for the validation workshops. These workshops will be held every 6 months. These one-day workshops preferably will be organised in close collaboration with WP2, preferably back to back with general assemble meetings of COMFOCUS as IAB and SF should be involved (M6, M12, M18, M24, M30, M36, M42). This task **validates the intermediate results of WP5**. Also the process will be evaluated and improvements in process will be defined, that are to be implemented in the next 6 months.

WP6 Tasks

Task 6.1 – Harmonising protocols and standards of psychophysiological measures

Task Leader: UNITN | Contributors: WR, WU, UoS, IRTA, DIL, SUA, UTU, Noldus | Months: M9 – M24

Task 6.1 aims to **harmonise protocols and standards used to obtain psychophysiological measures** and explore the extent to which psychophysiological measures can be aligned with self-reported measures (e.g., emotions, beliefs) and other sources of data (Task 6.3, 6.4, and 6.5) to better explain consumer choice behaviour (self-reported or observed in virtual and real environments). This will be the first step to integrate psychophysiological data with the COMFOCUS Knowledge platform (WP2). Consumers' psychophysiological reactions to choice environments or food products can reveal actual consumers' decisions better than self-reported measures (e.g., self-reported emotions or beliefs). These reactions can be objectively measured using **data** related to hearth rate, galvanic skin response and pupil diameter that can be **collected using emerging technologies such as skin conductivity sensors and eye-trackers**. Psychophysiological reactions to choice

environments or food products can be also gathered using readers of **facial expressions** (e.g. FaceReader) which are able to reveal consumers' emotions (e.g., disgust, joy, etc.). The procedure used to integrate this psychophysiological data to existing datasets (e.g., self-reported measures, observed purchasing behaviour) can be very challenging because such data are generally very rich, dynamic over time (e.g. per 40 ms for eye tracking) and also specific for an individual for a given situation or a product.

Task 6.2 – Technical harmonisation of psychophysiological data acquisition

Task Leader: Noldus | Contributors WR, WU, UoS, UNITN, DIL, SUA, UTU, IRTA | Months M1 – M48

Task 6.2 aims to create **prototype software which will integrate and synchronize psychophysiological data** acquired using the protocols developed in Task 6.1. In order to optimize the possibilities for multimodal data analysis, it is necessary that data streams in an experiment are integrated and aligned with respect to time. The software will be based on current software from the partner Noldus, considerably improved with respect to performance (to process big data), security (**GDPR compliance**) and analysis. Ideally, panel data and self-report measures will also be integrated. **Sensor integration will be developed in an open way, to maximise the number of IoT and other sensors (eye trackers, physiology acquisition, wearables, etc)** which can be used with the system. Sub-projects will be selected provide **datasets** labelled with relevant high-level mental constructs such as confusion, stress, pleasure, and these datasets will be used to train AI/machine learning based analysis modules.

Task 6.3 – Harmonising reconstructed and virtual reality research approaches

Task Leader: IRTA | Contributors: WR, WU, UoS, UNITN, DIL, SUA, UTU, Noldus | Months: M9– M24

Task 6.3 aims to document existing methods based on **virtual environments** and their relevant applications; then to harmonise the **conditions under which they can be efficiently implemented** (including which consumer segments they can be applied to). Reconstructed reality, virtual reality, augmented reality, mixed reality, online environments (such as virtual supermarkets), and immersion rooms are technological

applications that have quickly developed in recent years in order to create an environment to study food choices which is as close as possible to the real environment, but more easily controlled. They are a bridge between experimental and real-life studies but it is not yet known whether they best represent experimental or real-life studies. Moreover, the conditions under which virtual environments better capture consumers' actual food choice behaviours still need to be **documented**. This will be done by using the infrastructures available within the consortium, many of described in WP 10/TNA1 to WP18TNA9. Results will be evaluated to check how these approaches can be harmonised and integrated to the COMFOCUS Knowledge platform (WP2) and in WP5 and WP7.

Task 6.4 – Harmonising procedures for text mining

Task Leader: Nofima | Contributors: WR, WU, UoS | Months: M13 – M48

Task 6.4 aims to develop a guideline on **harmonised text data mining procedures** in food consumer science (data structuring, definition of relations between text occurrence,). Digital channels (social media, blogs) offer consumers new ways of expressing their needs and food choice motives. By **harvesting text data from the web**, researchers have the possibility of extracting spontaneous information from a large number of consumers. However, tools for validating this information and how it can be used to understand consumer behaviour, are still lacking. In text mining a set of tools are used to transform unstructured data (text) to structured data (word tables), **where the chosen methods depend on the final goal of the analyses**. In this task we will select two use-cases related to societal food consumption issues (e.g. meat reduction). Data from participating countries will be collected from the web in agreement with **GDPR** rules. Topic modelling will be used in order to group different texts and characterise these groups (topics) for final extraction and interpretation of consumer insights. The use cases will establish the premises of a guideline for **harmonised text data mining procedures in consumer science**, and will be the first step of harmonised text data mining and uploaded to the COMFOCUS Knowledge platform (WP2).

Task 6.5 - Harmonising longitudinal consumer data

Task Leader: UNIBO | Contributors: WR, WU, UoS, UNITN, SUA, UTU, Noldus | Months: M9 – M48

Task 6.5 aims to harmonise methods and develop protocols for integration among different types (and sources) of longitudinal consumer data. Longitudinal data are valuable sources of information to analyse actual consumer trade-offs, and explore heterogeneity in consumer behaviour. In order to potentially combine and integrate different types of longitudinal data to, harmonised methods give the opportunity to combine other consumer data observed over time (e.g. self-reported or experimental data collected over repeated time periods, even if not necessarily on the same sample). However, there are methodological challenges and integration issues to be addressed, e.g. due to differences in time frequencies or in the unit of analysis (individual consumers vs. households vs. point of purchase). Statistical techniques, incl. machine learning methods, have the potential to address these challenges. Longitudinal (e.g. panel) data is defined as observations on the same statistical units (e.g. individuals, households, retail points, etc.) over multiple time periods, typically collected via surveys, barcode scanner, and increasingly through new technologies. Examples include consumer panels or retail scanner data, which record food and drink purchases on large samples and at the highest level of product detail and combine them with label information. The time unit for this type of data is the individual purchase occasion, including day and time of purchase. Furthermore, innovative types of panel data are increasingly collected through new technologies (e.g. Internet Of Things such as smart fridges or smart health devices); they maintain the main characteristics of panel data (repeated measures over time), but they are associated with an increased level of complexity due to the potential amount of information that can be collected and stored, as well as heterogeneity in time frequency of data collection.

Task 6.6 – Process of compiling harmonisation and guidelines

Task Leader: Noldus | Contributors: WR, WU, UoS, IRTA, DIL, UNIBO, Nofima, UNITN, SUA, UTU | Months: M9 – M48

Task 6.6 aims to describe the process to guide Task 6.1 to Task 6.4 in the internal process to reach consensus on harmonised measures, guideline and protocols. However, the in-between results needs to be discussed in a broader way. In collaboration with WP2 meetings will be organised dedicated to this internal as external process of discuss, validate, best practice data selection within peer groups to review and

improve the results of WP6 and therefore **increase the uptake of the harmonised measures, protocols and guidelines**. WP4 and WP5 will also be part of those meetings, to collaborate on the related data model based on the outcomes on WP6 and to implement common procedures to validate harmonised measures among peers. Furthermore, Tasks 6.1 to Task 6.4 will provide a number of guidelines that will be **posted online** and should have common format and structure to make the guidelines easy to use for the whole starting community. The guidelines will be open access and available to all scientists so that those from outside the community who wish to co-operate with the starting community can plan their studies accordingly. The publishing and utilisation of on-line guidelines will be co-ordinated by WP2 in close collaboration with WP6.

WP7 Tasks

Task 7.1 – Data validation tool for COMFOCUS Toolbox

Task Leader: WR | Contributors: JSI, WU, UoS | Months: M1 – M46

Task 7.1 aims to develop a novel tool for checking the validity of data in the given dataset and its metadata. To find an optimal answer to the given scientific question, researched datasets need to be of the highest possible quality. The data validation tool will be checking the validity of data in the given dataset and its metadata, considering the **data validation criteria**, defined in WP5 and WP8 and the ontology created in WP5. A report generated by the tool will be an important input to WP3, WP4 and WP6. The data validation tool will be linked to the COMFOCUS Knowledge platform (WP2).

Task 7.2 – Harmonised dataset search tool for COMFOCUS Toolbox

Task Leader: WR | Contributors: JSI, WU, UoS | Months: M1 – M46

Task 7.2 aims to develop a **search tool** to find harmonised datasets. This tool will enable to search for the exploration and exploitation of single or multiple datasets harmonised as defined in WP5. **Searching and filtering will be enabled using the navigation of metadata defined by the ontology (WP5).** To design the tool in a user-friendly way, human-computer interaction (HCI) techniques will be applied, involving researchers and other stakeholders as end users. Moreover, we will create a new **knowledge graph** (Task 7.5), which will enable querying of multiple datasets. In this way, complex questions requiring knowledge from diverse data sources will be answered with greater confidence. The harmonised data set search tool will be linked to the COMFOCUS Knowledge platform (WP2).

Task 7.3 – Harmonised protocol search tool for COMFOCUS Toolbox

Task Leader: WR | Contributors: JSI, WU, UoS | Months: M1 – M46

Task 7.3 aims to develop a **tool for searching** the collected protocols in order to support the COMFOCUS community in finding harmonised research protocols (WP4 and WP6). A registry of the harmonised protocols will be created, providing the information relevant for researchers. This information will be created using the ontology (WP5) and considering any relevant open source framework for standardising metadata for research protocols. The harmonised protocol search tool will be linked to the COMFOCUS Knowledge platform (WP2).

Task 7.4 – Scientific analysis and visualisation tool for COMFOCUS Toolbox

Task Leader: JSI | Contributors: WR, WU, UoS | Months: M1 – M46

Task 7.4 aims to develop a **tool for scientific analyses and visualisation**. The analysis requires two pre-processing steps: 1) **data** of different types (e.g. images, text documents, structured data) have to be **normalised**, and 2) the normalised **data needs to be fused**. The normalisation will be performed using advanced computational techniques with respect to the data model (defined in WP5). To perform the data fusion, the normalised data will be explored to **select** i) critical and non-critical (matching) **variables and metrics** that are subject to data fusion (considering the ontology developed in WP4), and ii) **relationships that need to be preserved** (considering the knowledge graph developed in

Task 7.5). Special focus will be given to the fusion diagnostics based on feature selection techniques in a combination with the correlation analysis and the multi-criteria decision process. For the analysis of the fused data, analytical techniques from ML (e.g. ensembles of methods, meta-learning, supervised and unsupervised learning), deep learning, and statistics will be applied, considering the needs of the demonstrators (Task 7.4) and WP3 COMFOCUS Open Calls. To visualize the results of the data analysis, the tool will provide a **module for visual presentation and analysis of features in a form of charts, maps and other visualization forms**. In this sub-task, we will closely collaborate with WP2 (Consumer Expert Group). Once developed, the Scientific analysis and visualisation tool will be linked to the COMFOCUS Knowledge platform (WP2).

Task 7.5 – Representational learning tool for COMFOCUS Toolbox

Task Leader: JSI | Contributors: WR, WU, UoS | Months: M1 – M46

Task 7.5 aims to upgrade the COMFOCUS ontology with a reasoner to derive new knowledge, resulting in the **knowledge graph** (Task 7.4) as part of representational learning tool, (i.e. a paradigm of machine learning), will be used to analyse and represent the concept features, which are valuable because they can describe concepts individually. The representation means that the concepts and their relations are represented as low-dimensional spaces. A great benefit of such a graph is that the users of the harmonised dataset search tool (developed in Task 7.2) will be able to submit queries in a style that is much closer to a natural language, using a familiar domain vocabulary. **The meaning of data will be expressed in terms of concept and relation names that are familiar to those interested in the food consumer science domain.**

Task 7.6 – To link the COMFOCUS Toolbox to the COMFOCUS Knowledge platform

Task Leader: WR | Contributors: WU, UoS, JSI | Months: M14 – M48

Task 7.6 aims to **link the tools from concept to final to the COMFOCUS Toolbox** (M14). This will be in alignment with WP 3 Open Calls for VA/TNA. Also the draft descriptions of the COMFOCUS Tools and the guidelines need to be prepared, tested and uploaded. All those activities

are serving WP2 COMFOCUS Knowledge platform and WP3 Open Calls on VA/TNA. The platform will be the **portal to access and explore**, as the applicants for the Open Calls need to be informed about the primarily and ongoing updated COMFOCUS Toolbox and the separate tools as such.

Task 7.7 – Process for validation and training of the tools in the COMFOCUS Toolbox

Task Leader: JSI | Contributors: WR, WU, UoS | Months: M1 – M48

Task 7.7 aims to provide curricula for the user needs and validation workshops. WP7 will contribute in the iterative approach of WP4, WP5 and WP6. In close collaboration with WP2, WP7 will **set the agenda** and curriculum and organise workshops (M6, M12, M18, M24, M30, M36, M42) to discuss progress efforts of WP 7 with the consortium, consumer experts and Stakeholder Forum, etc. In conjunction, WP7, together with WP2 and WP3, contribute to trainings, summer schools, etc. to **disseminate the findings** to e.g. COMFOCUS community and COMFOCUS Open Calls applicants.



Appendix 2: Workshop 2

Appendix 2: Workshop 2

Agenda WP8 Workshop 2

18 March 2022

What kind of entity will the COMFOCUS Knowledge Platform (CKP) be?

Informing the governance requirements

1. Will the COMFOCUS platform act as a repository only for metadata and data provenance but not store the physical datasets? YES/NO
2. Will the COMFOCUS platform act as a repository to store actual data donated by researchers? YES/NO
3. Will the COMFOCUS platform do both depending on the dataset under consideration for inclusion? YES/NO

Consideration of these options will be addressed by thinking about:

- a) What functionalities will CKP enable?
- b) What are the governance requirements to enable these functionalities?

Workshop slides to generate discussion:

WP8: INFORMING ELSI & GOVERNANCE REQUIREMENTS

What kind of entity will the COMFOCUS Knowledge Platform be?

COMFOCUS project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement 1010000200. The website represents the view of the author only and is neither sole responsibility, it cannot be considered to reflect the views of the European Commission, neither the Innovation and Networks Executive Agency (INEA). The European Commission and the Agency do not accept responsibility for the use that may be made of the information it contains.

D5.1 Report on COMFOCUS Logical framework of food consumer science states:

The COMFOCUS project aims to start a community to integrate key European research infrastructures in the inherently multidisciplinary field of food consumer science.

Such integration will take place at two important levels.

- First, at the social /professional level in which we strengthen interaction and collaboration, not only among established researchers and institutes within the consortium, but also beyond that and reaching out to new generations of food consumer scientists to have access to and actively contribute to designing this “new way” of conducting consumer science research and make use of our methodological infrastructure. The interactive process of development and implementation of harmonization approaches for measures and research protocols is an important COMFOCUS mechanism.
- Second at the **data level**, where COMFOCUS will build the **COMFOCUS Knowledge Platform** , an **infrastructure that will bring together consumer science data in the field** to ensure their FAIR-ness. It will be the structure within which existing data are Findable, Accessible, Interoperable and Re-usable to other researchers and enable the exploration of higher order research questions in the field.



In order to inform and design the Ethical, Legal and Governance framework and requirements that the COMFOCUS Knowledge Platform will need to implement, several key decisions need to be made:

1. Will the COMFOCUS platform act as a repository only for **metadata and data provenance** but not store the physical datasets? YES/NO
2. Will the COMFOCUS platform act as a repository to store **raw data** donated by researchers? YES/NO
3. Will the COMFOCUS platform **do both** depending on the dataset under consideration for inclusion? YES/NO

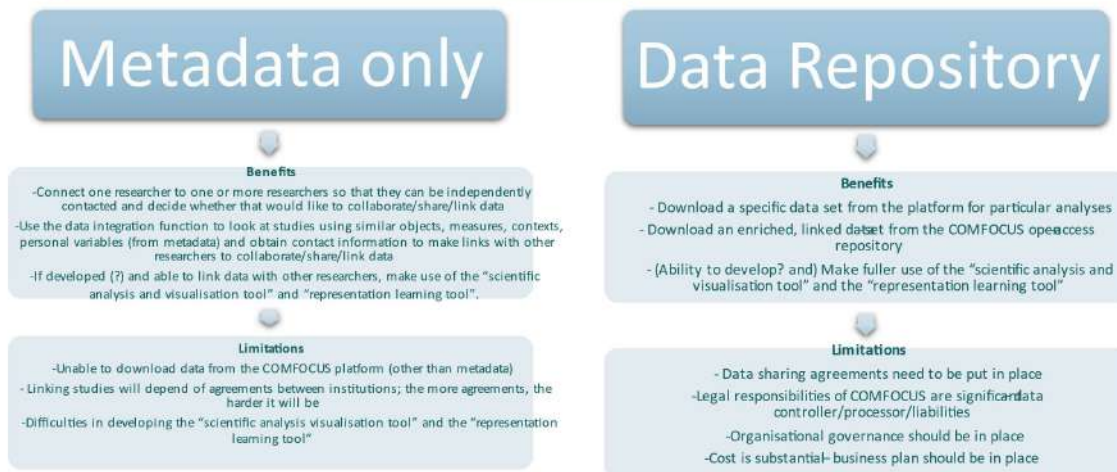


The answers to the above questions will drive the requirements



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Both : Access to COMFOCUS knowledge platform: discussion forum, library (with harmonised measures and protocols), COMFOCUS tools. Ability to pre-register study to COMFOCUS using its connectors and harmonised measures and protocols and to submit metadata that conforms to COMFOCUS standards (using the COMFOCUS validation tool) so that others are able to search and find the study conducted.



Caveat: COMFOCUS is not a legal entity yet. Only universities/institutions are

	Y/N	Who has the responsibilities/whi kind (e.g. data controller; data processor; data broker)	Who has the rights and wha kind (e.g. access rights; ownership rights)	Who has the capability/wha type? (technical oversight; data curation; administrative oversight)	Who has the capacity / what type? (storage; technological tools e.g. tags; EQT)
Meta-data only	Functionalities				
	search for protocols and best practices				
	search for harmonised concepts and measures				
	search for studies specified by criteria				
	search for datasets specified by criteria				
	search for researchers				
	search for RIS/labs/instruments				
	brokerage of linking of researchers to help themshare data (subject to permissions- data stays within the institutions)				
	function that enables researchers to deposit own metadata				
	function that enables researchers to contribute to the development of concepts and measures to COMFOCUS ontology				
Data repository	function that enables researchers to deposit own data				
	access to all openly available data (subject to permissions- data stays within institutions)				
	data visualisation				
	representational learning tool				
	analysis tools				

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1. Will the COMFOCUS platform act as a repository only for **metadata and data provenance** but not store the physical datasets? **If YES**

- How does COMFOCUS intend to broker these data linkages/ facilitate links between data owners and new researchers wishing to use their data?
- How will the planned COMFOCUS Knowledge Extraction and Data Visualisation activities be conducted and shared (i.e. if the data is not stored by COMFOCUS)?
- What tools will be provided and who will be able to access them?
- Is there an intention to monetise data access/knowledge extraction/data curation or data visualisation services?
- What organisational design is necessary for the process of data brokerage to be managed? E.g. how the requests for data will be received, by whom, who makes the decisions about the requests, will there be a standing committee for ethics, stakeholder committee, admin officer, etc.
- What kind of legal agreements will be in place between data owners and COMFOCUS?
- What institutional arrangement will exist to manage/have oversight over these?



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2. Will the COMFOCUS platform act as a repository to store actual data donated by researchers? **If YES**

- What storage capacity will there be?
- What will be the role of COMFOCUS under these circumstances? Targeted data processor/data controller?
- What format will the data have? e.g. raw data, conditioned/curated, aggregated, data etc? Who will decide on the type/ level of data conditioning/curating needed?
- Will data stored be fully identified or pseudonymised?
- Will any data defined by GDPR as 'Personal data' or 'Special Category' data be included?
- How will requests for access to the data be managed?
- Will access be limited to public researchers with specific research questions that have undergone an evaluation by a scientific and ethical committee or will industry also have access?
- Will data be physically shared with requesting researchers or will their access to data be managed through an analysis portal (data lab) where analyses can be run, access to individual data is possible, but the cannot be copied or leave the facility in any other way than in aggregated form after clearance by COMFOCUS management?



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2. Will the COMFOCUS platform act as a repository to store actual data donated by researchers? **If YES (continued)**

- How will protection of the intellectual property rights of data owners (original data collectors/researchers) be managed?
- How will the ethical provenance relating to the data be managed and complied with? (e.g. only according to original participants' consent etc)
- How will participants' rights to withdraw their data be managed?
- Will data subjects be able to track the use of their data and how will this process be managed?
- How will the planned COMFOCUS Knowledge Extraction and Data Visualisation activities be conducted and shared? What tools will be provided and who will be able to access them?
- If data stored is unstructured/semi-structured, how will the modelling and driven analysis be managed and by whom?
- Who will have the oversight of the ML/algorithms that will be used to enable knowledge extraction and visualisation?



8

2. Will the COMFOCUS platform act as a repository to store actual data donated by researchers? **If YES (continued)**

- Is there an intention to monetise data access/knowledge extraction/data curation or data visualisation services?
- How will risks be managed security breaches?
- How will the benefits of an open data platform shared or who will have the oversight of the benefits/impacts?
- What processes of complaints might there be? Who will be liable? The issue of the complaints Wiki.



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3. Will the COMFOCUS platform do both depending on the dataset under consideration for inclusion? YES/NO **If YES**

- All of the previous considerations for both conditions 1 & 2 will be relevant!

OPEN CALLS

- **If the data generated in the Open Calls is to be retained, reused and repurposed by COMFOCUS after the end of the project it is critical that the appropriate ELSI and Governance requirements are established at the outset !!**



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Other considerations relating to proposed COMFOCUS activities at the Social/Professional level

- How will access to authoritative materials (e.g. harmonised measures, standardised protocols, ontologies/semantic data models etc) be managed? OPEN? FAIR?
- Will training and consultancy services be provided?
- Will these services be monetised?
- What is the overall COMFOCUS Business Model for sustainability? Who will keep materials, infrastructure up-to-date and relevant?
- Will there be a Stakeholder/Public Forum for ongoing engagement and future steering of the community?



11

Are we a data controller?

- We decided to collect or process the personal data.
- We decided what the purpose or outcome of the processing was to be.
- We decided what personal data should be collected.
- We decided which individuals to collect personal data about.
- We obtain a commercial gain or other benefit from the processing, except for any payment for services from another controller.
- We are processing the personal data as a result of a contract between us and the data subject.
- The data subjects are our employees.
- We make decisions about the individuals concerned as part of or as a result of the processing.
- We exercise professional judgement in the processing of the personal data.
- We have a direct relationship with the data subjects.
- We have complete autonomy as to how the personal data is processed.
- We have appointed the processors to process the personal data on our behalf.



Are we a data processor?

- We are following instructions from someone else regarding the processing of personal data.
- We were given the personal data by a customer or similar third party, or told what data to collect.
- We do not decide to collect personal data from individuals.
- We do not decide what personal data should be collected from individuals.
- We do not decide the lawful basis for the use of that data.
- We do not decide what purpose or purposes the data will be used for.
- We do not decide whether to disclose the data, or to whom.
- We do not decide how long to retain the data.
- We may make some decisions on how data is processed, but implement these decisions under a contract with someone else.
- We are not interested in the end result of the processing.

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Appendix 3: Prompts etcetera

Appendix 3: Prompts for applying Responsible Research and Innovation (RRI, WP8.3) principles to each Work Package

These prompts were designed to help discuss and plan for each Work Package the specific issues and wording required in a data governance, information sheet(s) and informed consent and how to manage specific RRI and ELSI issues. This in turn will inform the project-wide creation of these RRI structures.

This can be used as a “living document” and updated as work packages progress through their deadlines.

Data Acquisition & Management

Think of what sections would need to go into a data management plan for the data/analysis your WP is engaged in.

Research Stage	Prompt	Thoughts
Data Collection	How collected? (software used, online, in-person)	
	What kind of data? e.g. ECG trace, heart rate	
	Any non-digital data? (e.g. only take digital consent?)	
	Ensure minimal amount of data collected to answer question?	
	Personal or special category data?	
	Identifiable?	
	Potentially diagnostic?	
	Potential recruitment bias? e.g. certain groups more/less likely to take part or have to be screened out.	
Potential method/data bias? e.g. Heart rate & skin colour, use of cultural specific VR settings, or things		

	<p>impacting on data quality.</p> <p>Specific information required in Participant Information Sheet to gain appropriate consent?</p> <p>(See example statements for Participant Information Sheet and Consent Form in sections below)</p>
	<p>How to ensure standard guidelines followed to ensure participant comfort & internal validity of data?</p> <p>How to ensure external validity of data? E.g. baseline/validation data</p>
	<p>Input from stakeholders possible/useful in design?</p>
Data Organisation	<p>What documents are required to understand data for re-use by others/in future?</p> <p>e.g. metadata, variable names, guidelines, lab notebooks</p>
	<p>Any guidelines on folder structure & data naming (to ensure coding works across data)?</p> <p>How to check & report data quality?</p> <p>When?</p>
	<p>Procedure to report any error affecting data quality across network?</p>
Data Storage	<p>Where is data stored?</p> <p>(e.g. both at institute & COMFOCUS, on OSF?)</p>
	<p>When is it moved to storage?</p> <p>At what stage is data “uploaded”?</p> <p>Security of platform?</p> <p>e.g. both to unwanted access and to data loss</p>
	<p>How non-digital data is stored?</p> <p>Paper copies destroyed?</p> <p>Type of data: Raw Data or</p>

derivative/processed?

Size of data to be stored (per participant)?

Can it be anonymised or pseudo-anonymised?

Kept separate from other data to prevent identification?

In what format?

Inter-operable with multiple (& open-source) analysis & visualisation tools?

Right to withdraw?

At what stage(s)?

Data Access

How will these data be accessed?

In what format(s)?
Raw data, derivative, full data, anonymised, pseudo-anonymised?

How is access controlled?

Who will have access?
e.g. partners have access to all data? Or have to apply?

How to ensure/govern data management of third parties?

What re-purposing of data is possible/allowed?

What are the licenses of data (and accompanying code to process data)?
Examples: MIT license, CC-BY-4.0, <https://creativecommons.org/licenses/by/4.0/>

How to inform stakeholders/researchers of data?
How ensure accessible to all?

What is the citation reference for using the data?

Data Analysis

Analysis in online safe space only? (e.g. Data Safe Haven, Trusted Research Environment)

Any data linkages to avoid to prevent identifiability?

Any chance of incidental findings? e.g. diagnostics, but also results from data not sought that might have ethical issues

How to manage these possible

incidental findings?

Procedure for novel incidental findings?

Procedures for inaccuracy in data recording checks in place?

Data preservation How long is data preserved?

What is preserved?

What is deleted? When?

Data Dissemination Update to stakeholders?

Anonymisation on publication possible?

Attributions/credits carefully considered?

Data Management Plan

Please use above prompts and discussion points to fill out a skeleton data management plan. Headings below are given as an example only.

Data Collection

Data collection Software & Applications

Data Types

Data Organisation

Data Quality

Documentation and Metadata

Personal Data

Standards and metadata

Documentation

Storage and Backup

Data Handling

Data Formats

Access & Security

Selection and Preservation

Data Sharing

Methods for data sharing

Responsibilities & resources

Ethical issues

Are there any other ethical and legal, or RRI issues specific to your work package that are not data management related?

Issue	Prompt	Thoughts
Ethical Governance	Who reviews documents for research governance & ethics? At what stage? e.g. Each institute will have to defer to their own board	
Participant comfort/consent	e.g. In complicated procedures, could you regularly check participant is OK, and inform them of what you are doing before doing it?	
Public/Patient Involvement (PPI)	Is this desirable for the study topic? When/who should be involved? How will it be incorporated into the study design?	
Participant Recruitment	Is this appropriate for the target population, the type of	

study and the channel of recruitment?

Is third party involved? What agreements are in place to manage data privacy and security?

Instruments

Ensure data minimisation, check for unintended biases and exclusions

Data analysis

Adequate and transparent procedures for big data analytics present?

Unwarranted prediction by automated techniques checked for?

Data coding and attributions of meaning is transparent? Is data sufficiently contextualised and informed by epistemology, theory, context?

Group-level harms/profiling not considered?

Algorithms for ML-enabled data harvesting

Who has developed algorithms?

Transparency of algorithms/explainability - what assumptions informed algorithms? Any biases and exclusions?

**Beneficence
Long-term use of results**

Procedures in place to ensure the use of data in line with the participant consent and PPI outcomes.

Procedures in place to distinguish the use of data for public vs commercial interest?

Beneficence: care for participants

Risks and benefits to the participant carefully considered?

	Means to address them highlighted?
Intellectual property	Intellectual property/ownership of data unclear or compromised

Participant Information sheet

Please fill out here with bullet point sections that will need to be in the information sheet for your work package.

Section headings below are taken from University of Surrey standard information sheet as an example only.

- What is the purpose of the study?
- Who is responsible for study?
- Why have I been invited to take part?
- Do I have to take part?
- What will happen to me if I decide to take part?
 - Explain complicated procedures clearly
- What happens if I do not want to take part or if I change my mind?
 - Right to withdraw, how, what & when
- What are the possible benefits in taking part?
- Are there any potential risks involved?
 - *E.g. eye-tracking specific risk: photosensitivity epilepsy, eye conditions, magnets interfere with heart devices, drying of eyes*
- How is project being funded?
- Will my participation be kept confidential?
 - Data security & process to ensure privacy/confidentiality
- Will my data be shared or used in future research studies?
 - What sort of data (anonymous, personal, special category), to whom, how? Outside the EU?
- What will happen to the results of the study?
 - Stakeholder engagement, any data published identifiable?
- Who has reviewed this study?
- What is personal data?
 - Details of any personal or special category data collected
- Who is handling my personal data?
- What will happen to my personal data?
 - How personal or special category data kept, why, and for how long
 - When can withdraw data?
- What if you have a query or something goes wrong?
- Who should I contact for further information?
- Sources of support

Informed Consent

Please fill out here with bullet point statements that will need to be in the consent form sheet for your work package.

These statements are taken from University of Surrey standard consent form as an example only, you may need more items (e.g. for eye-tracking: I have completed the screening questions honestly and to the best of my knowledge).

- I understand that my participation is voluntary and that I am free to withdraw at any time during the study without giving any reason. Furthermore, I understand that data already collected can only be withdrawn up to [explicit date or time limit (e.g., one month after collection, or after anonymisation)].
- I understand that information I provide will be used in various anonymised outputs, including [report, publication, presentation, website etc].
- I understand that my personal data, including this consent form, which link me to the research data, will be kept securely in accordance with data protection guidelines, and only be accessible to [research team & responsible persons].
- I understand any personal contact details collected about me, such as my phone number and address, will not be shared beyond the study team.
- I agree that [GP ,other] may be contacted if any unexpected results are found in relation to my health and understand that I will be informed when this happens.
- I understand that my anonymity cannot be guaranteed in the [discussion forums/focus groups], but participants will be asked to keep the discussions confidential and the research team will keep any information collected confidential
- I consent to the processing of my special category data [race; ethnic origin; politics; religion; trade union membership; genetics; biometrics; health; sex life; or sexual orientation] for the purposes stated in the information sheet.
- I consent to my [audio recording/video recording/photo] to be used for the purposes stated in the information sheet.
- I agree that my real name can be used for quotes
- I agree for my [personal data/audio recordings/photos/videos] to be transferred to research collaborators external to the [research institute] for the purposes described in the information sheet.
- I give permission for my de-identified data to be archived [in an external data archive (e.g. OSF, COMFOCUS)] and shared anonymously with other researchers, in order to carry out future research [specify any restrictions on use e.g. not for commercial use or only safeguarded access].
- I consent to my identifiable [personal data/special category data] to be deposited/stored in [name of archive, e.g. OSF, COMFOCUS] for similar future ethically approved research studies and I understand that I can withdraw this consent at any time without giving a reason.
- I agree for my personal contact details to be stored by [the research team] who may wish to invite me to participate in follow-up studies to this project or in future studies being conducted at [research institute].

Prompts for applying Responsible Research and Innovation (RRI, WP8.1) principles to WP 4: Specific examples

The main outcome from WP 4 will be the choice of harmonised measures and connectors. In selecting these, WP 4 task participants should consider the following issues:

Method/data bias. Some questionnaires (and specific questions) work better in certain countries, languages and cultures than others, and among those with higher vs lower levels of formal education or those who are disabled (e.g., visually impaired) or institutionalised (e.g., elderly in care homes). Consideration should be given to making the harmonised measure chosen relevant and applicable to the widest possible population. This does not preclude other researchers from choosing to add their own culturally relevant items or measures alongside the harmonised measures chosen, to ensure that important cultural differences are captured as well as making core data comparable across countries and cultures.

Participant comfort. Researchers must ensure that questionnaires are not too lengthy, so as not to be a burden to participants.

Potentially diagnostic/incidental findings. If one of the connectors chosen measures dietary intake, consideration needs to be given to whether individuals will be informed about 'unhealthy' dietary choices they are making and potential consequences to their health.

Prompts for applying Responsible Research and Innovation (RRI, WP8.1) principles to WP 5 & 7:

Specific examples

WP5 Objectives:

To develop data models for the data generated by each measure in WP4 and WP6 and vocabulary or ontologies with definitions of entities and relations between entities to enhance the data models. The sub-objectives are:

- to provide a COMFOCUS Logical framework to identify relevant concepts (Task 5.1);
- to harmonise data to facilitate the FAIR use of data within the community (Task 5.2);
- to develop and agree on basic ontologies for search and knowledge representation (Task 5.3);
- to enhance the ontologies with new scientific insights (Task 5.4);
- to develop criteria for acceptance and disclosure of datasets to guarantee the FAIR and responsible use of data (Task 5.5);
- to document the procedure of WP5 and provide curricula for meetings (Task 5.6).

WP7 Objectives:

To create the COMFOCUS Toolbox based on advanced computational techniques to perform data-driven research of scientific insights for food consumer science. The sub-objectives are:

- to develop a tool for checking the validity of data (Task 7.1);
- to develop a search tool to find harmonised datasets (Task 7.2);
- to develop a tool for searching the collected protocols (Task 7.3);
- to develop a tool for scientific analysis and visualisation (Task 7.4);
- to upgrade the ontology on food consumer science (Task 7.5);
- to link the tools from concept to final to the COMFOCUS Toolbox (Task 7.6);
- to train and validate the COMFOCUS Toolbox (Task 7.7).

WP5 & 7 task participants should therefore also consider the following issues:

- How does COMFOCUS intend to broker these data linkages/ facilitate links between data owners and new researchers wishing to use their data?
- What organisational design is necessary for the process of data brokerage to be managed? E.g. how the requests for data will be received, by whom, who makes the decisions about the requests, will there be a standing committee for ethics, stakeholder committee, admin officer, etc.
- What kind of legal agreements will be in place between data owners and COMFOCUS? What institutional arrangement will exist to manage/have oversight over these?
- What will be the role of COMFOCUS under these circumstances – e.g. data custodian/data processor/data controller?
- What format will the data have – e.g. raw data, conditioned/curated, aggregated, meta-data? Who will decide on the type/ level of data conditioning/curating needed?
- What storage capacity will there be?
- Will data stored be fully de-identified or pseudo-anonymised?
- Will any data defined by GDPR as ‘Personal data’ or ‘Special Category’ data be included?
- Will access be limited to public researchers with pre-defined research questions that have undergone an evaluation by a scientific and ethical committee or will industry also have access?
- Will data be physically shared with requesting researchers or will their access to data be managed through an analysis portal (data lab) where analyses can be run, access to individual data is possible, but the data cannot be copied or leave the facility in any other way than in aggregated form after clearance by COMFOCUS management?
- How will protection of the intellectual property rights of data owners (original data collectors/researchers) be managed?
- How will the ethical provenance relating to the data be managed and complied with (i.e. re-purposing only according to original participants’ consent etc)
- How will participants’ rights to withdraw their data be managed?
- Will data subjects be able to track the use of their data and how will this process be managed?
- How will the planned COMFOCUS Knowledge Extraction and Data Visualisation activities be conducted and shared (i.e. if the data is not stored by COMFOCUS)? If data stored is unstructured/semi-structured, how will the modelling and ML-driven analysis be managed and by whom? What tools will be provided and who will be able to access them? Who will

have the oversight of the ML/algorithms that will be used to enable knowledge extraction and data visualisation?

- How will risks be managed – security breaches?
- What processes of complaints might there be? Who will be liable? The issue of the commons – example Wiki.
- How will access to authoritative materials (e.g. harmonised measures, standardised protocols, ontologies/semantic data models etc) be managed? OPEN? FAIR? How will the benefits of an open data platform be shared or who will have the oversight of the benefits/impacts?
- Is there an intention to monetise data access/knowledge extraction/data curation or data visualisation services?
- Will training and consultancy services be provided? Will these services be monetised?
- What is the overall COMFOCUS Business Model for sustainability? Who will keep materials, infrastructure up-to-date and relevant?
- Will there be a Stakeholder/Public Forum for ongoing engagement and future steering of the community?



Appendix 4: data governance proposal

Appendix 4: Data Governance Proposal

Community on Food Consumer Science (COMFOCUS) (EU 101005259)

Proposed contractual framework for data sharing platform

BACKGROUND:

- A primary aim of this project is to develop a research infrastructure to connect scientists in this domain through connecting their scientific data, sharing protocols, best practices etc.
- Pursuant to this, we will be inviting researchers (external to our project) to carry out small-scale studies to collect data independently of the Consortium, using key variables identified by EASYQUESTIONNAIRE Tool (EQT), on the understanding that they will then deposit a copy of said data with the Consortium for incorporation into the platform and further (consumer science) academic research purposes.
- Consumer scientists will be invited by way of an open call for research proposals, which will be assessed by the Consortium based on merit. The first call for proposals, Open Call 1, will be launched May 10, 2022.
- The EASYQUESTIONNAIRE Tool (EQT) software is hosted by Wageningen University and Research. This tool can store both raw research data and meta data.
- Once we have capacity to link the pooled datasets, we intend to expand our invitation to the research community at large. We acknowledge that this may require a change in hosting arrangements and further funding/infrastructure.
- In addition to inviting research scientists to conduct studies independently of the Consortium, we will also invite researchers (external to the project) to collaborate with the Consortium, visiting member sites to access facilities and use kits and/or installations. This second call for proposals, Open Call 2, will be launched in Autumn 2022.

To encourage participation, we need to ensure engaging with our platform is:

- Simple
- Mutually beneficial
- Low risk (on both sides)
- Transparent

Issues to be addressed:

- Principles of Data Deposition – how do we encourage participation?

- Data protection – can we insist on anonymised data only?
- Decision making – how do we ensure transparency?
- Data hosting – how do we make this sustainable in the long-term?
- Legal administration
- Visiting researchers
- Evolution of the platform

Development of contractual framework in phases:

- Phase 1 - Data Deposition and Collaboration Agreement template (non-negotiable, EU/Adequate countries only).
- Phase 2 – Data Access for researchers outside of food consumer research.
- Phase 3 – Collaboration route made available for commercial organisations.
- Phase 4 – All the above for outside of EU/Adequacy.

Phase 1 - Data Deposition (Open Call 1)

We propose:

1. A simple application form is developed for proposals, and the Management Committee take decisions on those submitted (in accordance with the governance terms of the Consortium Agreement), on, at minimum, a monthly basis – more regularly would be better.
2. That access to the EASYQUESTIONNAIRE Tool (EQT) software is provided for free, or at cost (if necessary).
3. Wageningen University and Research is appointed as host of the pooled meta and research data in the first instance, because EQT has the capacity to store these data, and determining a separate IT infrastructure for the platform will take significant time and probably more investment.
4. As hosts of this key software, Wageningen University should be responsible for executing any legal agreements in respect of data deposition on behalf of the Consortium, in the first instance.
5. A simple (sensible) non-negotiable data deposition agreement template is developed, which is available for review when each 'call for proposals' opens. It will:
 - a. Provide a licence to access and use EQT.

- b. Request that only copies of data be deposited – researchers shall otherwise be free to use the data they collect as they see fit.
 - c. Compel researchers to use ‘public interest’ as their legal basis for collection of personal data, as opposed to consent (because ‘research’ is automatically considered a compatible purpose).
 - d. Require all data be collected in accordance with applicable laws and include a warranty in this respect - Belgian (EU) law will apply to the interpretation of the agreement.
 - e. Require that data must be comprehensively anonymised at source.
 - f. Provide that the depositor grants to Consortium a non-exclusive, sublicensable licence to use the data for **further research purposes**, including but not limited to train our data visualisation models and representational learning tools for the future research infrastructure. This licence needs to be for broad research purposes to allow for evolution of the platform.
 - g. Grant an automatic, non-exclusive, non-sublicensable licence to access and use the pooled dataset in the platform for further **academic research purposes** to anyone who deposits data.
 - h. Ensure acknowledgement of Consortium funding in any dissemination activities such as journal publications, conference presentations, etc.
6. This agreement be issued as non-negotiable to minimise the administrative burden of this exercise.
7. Calls for proposals will be restricted to institutions in EU Member States, the UK and other countries who have secured an adequacy rating from the EU, in the first instance.

Using the existing governance structures of the Consortium (Management Committee) saves us having to determine a new governance structure and voting procedure. Once the platform is up and running, it might be worth publicising the terms of reference for Management Committee decisions on proposals, and even an appeals procedure, to encourage further engagement through transparency of process.

Also, if possible, we should incorporate a further level of data encryption into our data linking process, to ensure a robust approach to data protection.

Collaboration (Open Call 2)

Further to the above, we propose these principles of Data Deposition be combined into a non-negotiable collaboration agreement, which will cover the following additional/distinct points:

1. Visitation of researchers – simple terms covering duty to comply with institutional policies and applicable national laws of host institution.
2. Details on access to equipment/facilities; and/or distribution of tasks, where applicable.
3. Publication/Authorship and/or other intellectual property rights (IPR) as the case may be.
4. That whilst these agreements should also be approached as non-negotiable, they will need to be executed by the individual (institutional) member of the Consortium that is hosting, in each instance.
5. Deposition of the data generated in the course of the collaboration, whether collected by the Collaborator's employing institution or the Consortium host institution, will be sufficient for the Collaborator to secure access to the platform (and all data contained therein) - there will be no requirement for Collaborators to deposit separate research data, generated independently of the collaboration, in order to secure access to the platform (as per the Data Deposition arrangements above).
6. Each party shall bear their own costs in respect of the Collaboration.

Other considerations/clarifications:

- The Consortium may need a data protection policy which is easily accessible – we suggest use of Wageningen's University's existing policy on this (if they host), only adapting if necessary.
- All legal agreements would need to be entered into by institutions, as opposed to individual academics, with their employing institutions providing all insurance cover except that pertaining to premises.
- There is an ambition to expand access to platform from food consumer research to the scientific community at large and even commercial organisations (for research purposes)

only). This would likely require a revised version of each of these agreements, particularly to ensure appropriate use of data by commercial organisations.

- Comprehensive records of all proposals/decisions will need to be kept, including suitable confirmation that the data has been anonymised before transfer, to ensure the responsibility for data subjects does not transfer to the Consortium.
- We need to determine how data will be deposited – anonymised or not, gone are the days of sending an Excel spreadsheet by email, I think.

NB: given the infrastructure needed to maintain this platform long-term, it might be sensible to limit access by commercial organisations to the collaboration route only (movement of staff not mandatory), or otherwise charge for access.

Data Access

The intention is for the platform to eventually evolve to allow for mere access to the platform data, for research which does not require the use EASYQUESTIONNAIRE Tool (EQT). This would require a separate (non-negotiable) template, which, contrary to the above:

- Would require a copy of any aggregate data generated through analysis of COMFOCUS data be deposited back in the platform.
- Does not include an automatic licence to the pooled dataset at large.

Proposals for Data Access will only be accepted for a limited dataset – as opposed to the platform dataset at large, based on the proposal submitted - but otherwise will be subject to the same decision-making procedure outlined above.

Finally, the intention is that, in time, all of the above be adapted to allow for engagement by institutions outside of the EU/Adequacy Rating.



Appendix 5: Data deposition agreement

Appendix 5: Data Deposition Agreement

TEXT (INFORMATION THE AGREEMENT NEEDS TO BE INCLUDED IN THE) ONLINE/DATA DEPOSITION APPLICATION FORM TO FACILITATE THIS CONTRACT:

Data Producer: _____ (NB: should be PI name and substantive employing institution)

Study title and reference: _____ [INSERT DATA DEPOSITION APPLICATION REFERENCE DD_INI_DDMMYY: ____-____-_____] (“Study”) (NB: a Study consists of a single protocol under which the Deposited Data were originally collected).

Collaborators: _____ (please list all named Collaborators in respect of the Study – this list should mirror that contained in any application for ethical approval)

Legal basis for collection of data: _____
(NB: this must not be consent alone. Data must be collected either in the public interest, i.e., for research purposes, or otherwise for legitimate business interests, in order to enable its subsequent use for research purposes, as compatible purpose).

This Agreement shall be effective as of the date on which the Management Committee of the COMFOCUS project (“Management Committee”) confirms their approval of the Data Deposition Application.

The Data Deposition Application shall form part of this Agreement and any terms not expressly defined in this Agreement shall have the meaning given to them in the Data Deposition Application, including but not limited to Study and Collaborators.

The authorised official of the employing institution of the investigator wishing to deposit the Data, together with said investigator shall be referred to as the “Data Producer” under this Agreement. However, it is not intended that the investigator be liable as an individual under this Agreement; their employing, or formally affiliated institution (as appropriate) shall be liable on their behalf for any defaults.

Terms and Conditions:

In signing this Agreement:

1. The Data Producer grants [insert legal title of contracting institution from consortium] (“[INSERT ABBREV]”), in its role as administrator of the COMFOCUS project, a non-exclusive, royalty-free, perpetual, irrevocable, sub-licensable licence to use, process, combine, transfer, store and release the data collected, derived and/or generated pursuant to the Study (“Deposited Data”) in accordance with the terms of this Agreement.
2. As between the parties, the Data Producer retains custodianship and ownership of the Deposited Data and shall remain Data Controller for the purposes of data protection law. Further to the licence granted in clause 1, **a copy** of the Deposited Data shall be provided to INSERT ABBREV pursuant to this Agreement.
3. The Data Producer warrants:
 - a) That the Deposited Data has been collected and/or generated in accordance with widely accepted standards of good practice for academic research in the Higher Education Sector in the UK and European Union, for example the European Code of conduct for Research Integrity (<https://www.allea.org/wp-content/uploads/2017/05/ALLEA-European-Code-of-Conduct-for-Research-Integrity-2017.pdf>).
 - b) that where the Deposited Data has been obtained from humans, it has been collected in accordance with applicable laws, including but not limited to with appropriate informed consent and ethical approval. The informed consent, ethical approval and associated required documentation obtained pursuant to the Study shall hereinafter be referred to as the “Ethics”;
 - c) that it has the right under applicable laws and the Ethics to transfer the Deposited Data to INSERT ABBREV for use, storage and transfer to third-parties for academic research and teaching purposes, including but not limited to export of the Deposited Data to international third-parties unconnected with the COMFOCUS project, for academic research and teaching purposes;

- d) that the Deposited Data shall be anonymised prior to transfer, or if the Data Producer can only achieve pseudonymisation that the risk of identification by INSERT ABBREV is sufficiently remote as to permit INSERT ABBREV to treat the Deposited Data as anonymised pursuant to this Agreement;
- e) that the Data Deposition Application has been completed to the best of its knowledge;
- f) that it is not subject to any obligations to any third-party which would prevent or conflict with the licence granted under clause 1 of this Agreement;
- g) that it is not aware of any allegation or claim from a third-party, including but not limited to infringement of intellectual property rights, in respect of the Deposited Data;
- h) that it has the authority to deliver and deposit the Deposited Data in accordance with the terms of this Agreement on behalf of itself and any relevant Collaborators. INSERT ABBREV shall have no obligation to either seek or verify the above permission/arrangements.

Unless expressly provided herein, INSERT ABBREV shall have no obligation and accepts no responsibility in respect of these warranties, and the Data Producer shall be liable for any claims arising due to the breach of these warranties.

- 4. INSERT ABBREV warrants that it will:
 - a) make no attempt to identify participants; and
 - b) execute an agreement with any third-party to which it intends to transfer the Deposited Data which:
 - i. prohibits the re-identification of participants; and
 - ii. obliges said third-party to comply with applicable EU law in respect of their use of the Deposited Data.
- 5. Except as provided under the warranties in clause 3, the Deposited Data is provided “as is” and that the Data Producer makes no representation or gives any warranty that the Deposited Data are of satisfactory quality or fit for purpose, nor that any advice or information given by it or any of its employees or students in respect of the Deposited Data will not constitute or result in any infringement of third-party rights.
- 6. The Data Producer hereby agrees to indemnify INSERT ABBREV against all third-party claims arising from any breach of this Agreement, including but not limited to any breach of the warranties provided in clause 3, **by the Data Producer**. Except as expressly provided herein, both parties exclude liability for any loss, claim or damage arising out of or in connection with this Agreement to the fullest extent permitted by law.
- 7. The Data Producer grants permission for information about the Study to be included and made publicly available on the COMFOCUS project website and through other associated COMFOCUS publications (electronic or written).

8. Further to the license granted under clause 1, INSERT ABBREV hereby grants the Data Producer and those Collaborators named in the Data Deposition Application a non-exclusive, royalty-free, non-transferable, non-sublicensable licence to :
 - a. Access and use the EASYQUESTIONNAIRE Tool for the purposes of the Study;
 - b. Access the COMFOCUS project database ("COMFOCUS Platform Database"); and
 - c. Access and use the data contained in the COMFOCUS Platform Database (COMFOCUS Platform Data") for further academic research and teaching purposes.

INSERT ABBREV shall bear no responsibility for the analysis or interpretation of COMFOCUS Platform Data by the Data Producer and/or their Collaborators.

9. The Data Producer shall ensure copies of all publications arising from the Study and/or use of COMFOCUS Platform Data shall be submitted to the Management Committee in a timely fashion to enable monitoring of data use. All publications arising from use of the Deposited Data or COMFOCUS Platform Data shall acknowledge the COMFOCUS project (in addition to any authorship requirements) as follows:

"This study makes use of [the resources of]/ [data generated or collated by] the Community on Food Consumer Science (COMFOCUS) project, funded by the EU Commission under the Horizon 2020 scheme. A full list of the investigators and funders who contributed to COMFOCUS/ [generation or collation of the data] is available from [insert web address]." and;

10. Authorship in any publication shall be determined in accordance with standard academic practice.
11. The Data Producer accepts and agrees that for a period of five (5) years from the date on which the Deposited Data were deposited into the COMFOCUS Platform Database, it will use reasonable efforts to: 1) notify and 2) procure that any Collaborators notify, the Management Committee in writing of any secondary data analysis to enable the Management Committee to manage COMFOCUS Platform Data effectively and avoid duplication of analyses.
12. Except as expressly provided herein, the Data Producer shall not use the name or logo of the INSERT ABBREV or the COMFOCUS project or any of its personnel in any marketing or other publication, without first obtaining the written consent of the Management Committee of the COMFOCUS project . The Management Committee shall revert to their respective organisations as necessary to grant this permission.
13. Nothing in this Agreement shall create, imply or evidence any partnership or joint venture between the parties or the relationship between them of principal and agent. No party has the authority to make any representation or commitment, or to incur any liability on behalf of the other and each party shall be severally liable for any breach of this Agreement.
14. This Agreement (and any dispute, controversy, proceedings or claim of whatever nature arising out of this Agreement or its formation) shall be construed, interpreted and governed by the laws of Belgium and shall be subject to the non-exclusive jurisdiction of the English courts.

THE TERMS OF THIS DOCUMENT ARE NON-NEGOTIABLE

AGREED AND ACCEPTED BY an authorised institutional representative of Data Producer:

Name _____ (block letters)

Title and position _____

Institution _____ (name of legal entity)

Signature _____

Date _____

Investigator

I have read and understood my obligations under this Agreement and agree to be bound by them.

_____ (block letters)

Title and position _____

Institution _____

Signature _____

Date _____



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