The EU Framework Programme for Research and Innovation

HORIZON 2020

Multi- and transdisciplinary research in Horizon 2020

National Network and Information Event 2016, NCP Life Sciences Cologne, 01 June 2016

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Overview

- Multi-, Inter-, Transdisciplinarity
- Social Sciences and Humanities in SC1 (Why? What? How?)
- Multi-stakeholder approach in SC1
Multi-, Inter-, Transdisciplinarity (1)
Multi-, Inter-, Transdisciplinarity (2)

**Multidisciplinarity**: people from different disciplines working together, each drawing on their disciplinary knowledge.

- Example: economists working on a health economy work package to assess the impact of a new personalised medicine strategy, whose clinical efficacy oncologists assess in another work package?
- Standard in most/all SC1 projects for collaboration of different 'natural science disciplines': biologists, different medical specialties, epidemiologists, veterinarians, statisticians. Rarer for integration of social sciences and humanities!
- Term occurs x8 in Horizon 2020 Specific Programme (x1 in SC1: 'Active and Health Aging')
Multi-, Inter-, Transdisciplinarity (3)

**Interdisciplinarity:** integrating knowledge and methods from different disciplines, using a real synthesis of approaches

- **Example:** behavioural scientists, nutritionists and informaticians developing jointly an anti-obesity smartphone app with information, behavioural incentives etc.?

- Common in many SC1 projects – should be considered required or an asset (depending on the precise topic description)

- Term occurs x8 in Horizon 2020 Specific Programme (x2 in SC1: ‘Understanding determinants of health’ and ‘Understanding disease’)
Transdisciplinarity: creating a unity of intellectual frameworks beyond the disciplinary perspectives.

- Example: biologists and statisticians/mathematicians having created the new field of bioinformatics
- Rare though desirable. Probably happens over longer timeframes and beyond the limits of a single Horizon 2020 project.
- Term not mentioned in the Horizon 2020 Specific Programme.
Social Sciences and Humanities (SSH)

...as a specific case of multi-, inter- and transdisciplinarity in Horizon 2020 and SC1

7th Framework Programme (FP7)

Programme dedicated to SSH

No reference in the evaluation criteria to disciplines working together

Horizon 2020

1) SSH is a cross-cutting issue
2) Societal Challenge 6

Inter-disciplinarity is part of the evaluation criteria (Excellence)
The background

- **Social sciences and humanities research** will be fully integrated into each of the priorities of Horizon 2020 and each of the specific objectives... (Regulation establishing Horizon 2020)

- The priority "Societal challenges" should increase the effectiveness of research and innovation in responding to key societal challenges by supporting excellent research and innovation activities... **Social sciences and humanities research** is an important element for addressing all of the challenges (Council Decision Specific Programme Horizon 2020)
the knowledge needed for solving these issues is spread across multiple disciplines, including the SSH

embedding the SSH in Horizon 2020 calls can yield solutions/products/insights that are societally/policy relevant, cost-effective and directly applicable
SSH-flagged topics

TOPICS DEDICATED TO SSH RESEARCH
➢ issues are framed mainly from an SSH perspective
➢ most project partners come from SSH disciplines

TOPICS WITH A SIGNIFICANT SSH COMPONENT
➢ SSH expertise is an integral, though not exclusive, part of the research design of topics
➢ solutions to the problem are to be generated by integrating knowledge stemming from both SSH disciplines and non-SSH disciplines such as natural sciences, medicine, engineering and technology
SSH-flagged topics

2017 Topics flagged as relevant to integrate SSH elements*

- PM-7 Promoting mental health and well-being in the young
- PM-8 New therapies for rare diseases
- PM-20 Methods research for improved health economic evaluation
- HCO-3 Implementing the Strategic Research Agenda on Personalised Medicine
- HCO-8 Actions to bridge the divide in European health research
- (+ PM-15, PM-17, CNECT)

*http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/ftags/ssh.html#c,topics=flags/s/SSH/1/1&+callStatus/asc
SSH disciplines

sociology
psychology
anthropology
cultural studies
demography
education
religion

history
economics
administration
political science
philosophy
ethics
law
Examples of projects (1)

Life course pathways underlying social differences in healthy ageing (LIFEPATH)

- WP3: Life-course socioeconomic pathways towards healthy ageing and the role of modifiable risk factors
  - 81 PM out of 718 PM (11.3%)
  - LIFEPATH integrates biology, biostatistics, epidemiology and epigenomics approaches with social science approaches (sociology, economics and public health policies).

- **Specific challenge** (Topic description PHC-01) "...interaction between the genetic make-up of individual human beings and behavioural, environmental... factors"
Examples of projects (2)

Shaping EUROpean policies to promote HEALTH equitY (EURO-HEALTHY)

- WP: Socioeconomic, health behaviours and lifestyle determinants of health and wellbeing
  - 82.5 PM out of 457 PM (18%)
  - Expertise: mainly public health and statistics

Scope (Topic description PHC-31):

"Proposals should identify key driving forces- (external and internal to the health systems) likely to influence health and wellbeing in Europe and beyond in the future. Proposals should contribute to the understanding of the inter-relationships between these factors; analyse their economic and social impact and suggest alternative policy options to respond to the challenges they pose."
Examples of projects (3)

FoResight and Modelling for European Health Policy and Regulation (FRESHER)

- WP: all WP mainly SSH!
  - 3.7 million EUR EU contribution
  - Expertise: economics, econometrics, forward-looking analysis, modeling, health system strategies, public policy

Scope (Topic description PHC-31):

"Proposals should identify key driving forces - (external and internal to the health systems) likely to influence health and wellbeing in Europe and beyond in the future. Proposals should contribute to the understanding of the inter-relationships between these factors; analyse their economic and social impact and suggest alternative policy options to respond to the challenges they pose."
A stepping stone approach towards the Genetics Clinic of the Future (GCOF)

- WP: Public engagement & mutual learning
  - 19 PM out of 117 PM (16.2%)  
  - Expertise: social science, political science

Scope (Topic description HCO-15)

"MMLs are Coordination and Support Actions (CSA) with at least 10 countries that allow discussion and cooperation between science and society at different stages of the research and innovation process"; "The consortium may also include media, education establishments, science academies, museums, science centres"
Integration of SSH into the 2016/2017 WP

Upstream preparation of the WP:
• SSH as a key aspect in the definition of the focus areas and of other calls in the scoping papers setting the main priorities
• Specific SSH integration item in the agendas of EAG and PC meetings
• Consultation & coaching of services and DGs involved in drafting the WP
• Advocacy and awareness-raising activities focussing on Commission staff and external stakeholders

Evaluation Process:
• SSH experts in the evaluation panels of SSH-flagged topics.
• Targeted guidelines for the experts /moderators of SSH-flagged topics

Downstream - Development of a monitoring system:
• Annual monitoring report to assess the quality and quantity of the SSH embedding, starting with 2014
## Integration of SSH in the 2016-17 WP

<table>
<thead>
<tr>
<th>Societal Challenge</th>
<th>Total number of topics</th>
<th>Number of SSH flagged topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC1</td>
<td>37</td>
<td>18</td>
</tr>
<tr>
<td>SC2</td>
<td>83</td>
<td>43</td>
</tr>
<tr>
<td>SC3</td>
<td>61</td>
<td>13</td>
</tr>
<tr>
<td>SC4</td>
<td>55</td>
<td>24</td>
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<tr>
<td>SC5</td>
<td>29</td>
<td>12</td>
</tr>
<tr>
<td>SC6</td>
<td>39</td>
<td>37</td>
</tr>
<tr>
<td>SC7</td>
<td>30</td>
<td>14</td>
</tr>
<tr>
<td>LEIT-ICT</td>
<td>39</td>
<td>10</td>
</tr>
<tr>
<td>LEIT-NMBP</td>
<td>52</td>
<td>11</td>
</tr>
<tr>
<td>LEIT-SPACE</td>
<td>21</td>
<td>1</td>
</tr>
</tbody>
</table>
Integration of SSH in the 2016-17 WP

41% of topics 'flagged' for SSH
SSH in SC1- Health 2014 WP

**SSH topics:** 11 out of the 28 topics were flagged for SSH:
- 5 topics under the call PHC
- 6 topics under the call HCO

**SSH budget:** These 11 topics funded 60 projects for a budget of €275 million, out of which €33 million (i.e. 12%) went to SSH partners:
- €31 million under the call PCH
- €2 million under the call Co-ordination Activities

**SSH partners:** Account for 17% of project partners (112 out of 678) in the 60 projects. The six most represented countries are the UK, Spain, the Netherlands, Germany, Belgium and France.
Quality of SSH integration in projects funded under SSH-flagged topics

This indicator aggregates the performance of each project along four dimensions:

- Share of SSH partners
- Budget going to SSH
- Contributions from SSH are well integrated in project abstract, keywords, work packages and deliverables
- Contributions from SSH came from at least two distinct SSH disciplines

The quality of SSH integration in each project:

- None: No threshold was met for any of the four dimensions
- Weak: Threshold met for one dimension
- Fair: Threshold met for two or three dimensions
- Good: Threshold met for all four dimensions
### SC1 - Quality of SSH integration in projects funded (2014 call)

<table>
<thead>
<tr>
<th>Quality of SSH integration</th>
<th>Number of projects</th>
<th>Share of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>14</td>
<td>23 %</td>
</tr>
<tr>
<td>Weak</td>
<td>10</td>
<td>17 %</td>
</tr>
<tr>
<td>Fair</td>
<td>18</td>
<td>30 %</td>
</tr>
<tr>
<td>Good</td>
<td>18</td>
<td>30 %</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
<td><strong>100 %</strong></td>
</tr>
</tbody>
</table>

![Pie chart showing the distribution of project quality]
Some questions remain...

- Which approach to prefer: having dedicated SSH topics or significant SSH components in various topics?
- How to ensure the participation of SSH evaluators and a fair 'dialogue' with STEM (science, technology, engineering and mathematics) evaluators?
- How to ensure that the best SSH scientists are in proposals?
- How to ensure that SSH provides/is considered a real added value and not as an add-on only?
Considerations for the future (1)

- If there are topics that give "appetite" to SSH, it is better to concentrate on few key topics fewer SSH flagged topics but of better quality;
- Some specific SSH areas that might be considered for health research are: ethics, vulnerability, equity/inequality and legal matters, public policy;
- SSH needs to be initiated upstream, and not simply considered as an add-on → Help achieving impact through SSH;
Considerations for the future (2)

- Important to check: a) the level of interaction between STEM and SSH; b) the level of rigour of application of SSH c) and, in the scope, the areas that go beyond health economics;

- Evaluators → look for evaluators who have a broader knowledge (economics, statistics, psychology, anthropology and behavioural science);

- Importance to disseminate more information on good practices in embedding SSH.
Integration of SSH in the 2018-2020 WP

Upstream preparation of the WP:

• SSH as a key aspect: scoping papers setting the main priorities
• Specific SSH integration item in the agendas of EAG and PC meetings
• Consultation & coaching of services and DGs involved in drafting the WP
• Advocacy and awareness-raising activities focussing on Commission staff and external stakeholders

General information on SSH in FP7 and Horizon 2020: [http://ec.europa.eu/research/social-sciences/index.cfm](http://ec.europa.eu/research/social-sciences/index.cfm)


Multi-stakeholder approach in SC 1

Include/address all stakeholders in the innovation chain:

- Academics
- SMEs
- Industry
- Patients
- Users (health care personnel, hospitals, etc.)
- Regulators
- General public, investors, consultancies
Ubiquitous Pharmacogenomics: Making actionable pharmacogenomic data and effective treatment optimization accessible to every European citizen

- Pre-emptive genotyping of multiple important pharmacogenes
- Data collected prospectively and embedded into the electronic records of patients in NL, ES, UK, IT, AT, GR and SL
- Prescribers and pharmacists alerted through electronic clinical decision support systems when a drug is ordered or dispensed for a patient with an at-risk genotype
- Analysis of cost-effectiveness and health outcomes
- Participants: Federal Institute for Drugs and Medical Devices, Bonn, Royal Dutch Pharmacists Association (KNMP), The Hague

EU contribution: 15M EUR
Duration: 2016-2020
Coordinator: HJ Guchelaar, UMC Leiden
Thank you!

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