Horizon 2020’s opportunities and challenges
The biomedical research perspective

Prof. Ulrich Jaeger, BioMed Alliance Board of Directors’ Member
Horizon 2020 - Europe’s flagship programme for research and innovation

- Leverage excellence and foster cross border collaboration
- Boost the European health and wealth
- Close the gap between research and market
• Represents 24 biomedical societies
• Supports *European* vision of innovation
• Participates in the improvement of funding opportunities for research
Call upon decision makers to fully support Horizon 2020

This is an opportunity to build together on this framework programme
The scientific community’s perspective:

Results from a user’s survey on Horizon 2020
Survey:

1. Demographics
2. Call
3. Application
4. Evaluation (Summary Report)
5. Implementation
6. Evaluators
7. General
Data

Population:
- biomedical researchers with (some) experience with H2020

Sample:
- responding and eligible members of member societies of the Biomed Alliance

Response:

<table>
<thead>
<tr>
<th>Before cleaning</th>
<th>After cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>708</td>
<td>350</td>
</tr>
</tbody>
</table>
Demographics - geographical distribution

- Turkey: 12
- Switzerland: 7
- United States: 6
- Russia: 5
- Egypt: 4
- Serbia: 4
- Brazil: 3
- Iran: 3
- Israel: 3
- Ukraine: 3
- Armenia: 2
- India: 2
- Iraq: 2
- Kazakhstan: 2
- United Arab Emirates: 2
- Albania: 1
- Algeria: 1
- Belarus: 1
- Bosnia and Herzegovina: 1
- Colombia: 1
- Georgia: 1
- Japan: 1
- Moldova: 1
- Mongolia: 1
- Nigeria: 1
- Pakistan: 1
- Papua New Guinea: 1
- Peru: 1
- Saudi Arabia: 1
- South Africa: 1
- Sudan: 1
- Thailand: 1
- Venezuela: 1

EU28: 272
Non-EU: 78
Demographics - distribution of types of organizations

- University hospital: 177
- University / Research institute: 95
- Other not-for-profit organisation: 11
- Biomedical/pharmaceutical/device company: 9
- Other for-profit organisation: 6
- Self-employed/independent consultant: 15
- N.A. (e.g. unemployed): 1

General Hospital: 36
Rejected projects

Overall:
- 80% granted
- 20% rejected
- Total: 403 projects

By instrument:
- Biotechnology in LEIT (Leadership): 88.9%
- Other Horizon 2020 programme: 87.2%
- Societal Challenge 1: Health, European Research Council (ERC): 86.6%
- Total: 80.1%
- Innovative Medicines Initiative: 71.7%
- Other Societal Challenges (2-7): 65.5%
- Marie Skłodowska-Curie actions: 64.8%
The scope of the calls

Do you prefer the Horizon 2020 challenge-based approach (with an emphasis on **innovation**), or do you prefer the more prescriptive approach (with **specific call topics**) as in FP7?

<table>
<thead>
<tr>
<th>Innovation</th>
<th>Specific calls</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>32</td>
</tr>
<tr>
<td>56</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1+ SC rejections</th>
<th>0 SC rejections</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td>14</td>
<td>27</td>
</tr>
<tr>
<td>27</td>
<td>29</td>
</tr>
</tbody>
</table>

- Blue: Prefer challenge-based, broader scope of calls of Horizon 20
- Orange: No preference
- Grey: Prefer the more specific and research-focused calls of FP7
The call

Do or did reports of over-subscription to certain calls in Horizon 2020 (e.g. European Research Council, Health calls of the Societal Challenge) dissuade you from applying for future calls?

Yes: 127
No: 221

1+ rejections:
Yes: 77
No: 68

0 rejections:
Yes: 50
No: 153
The Call

If you could make improvements to the Horizon 2020 "Societal challenges" programme section call for proposals/submission process, what would they be?

<table>
<thead>
<tr>
<th>Improvement</th>
<th>Most Preferred</th>
<th>Second Most Preferred</th>
<th>Third Most Preferred</th>
<th>Least Preferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calls to focus less on innovation and allow more scope for basic and/or clinical research</td>
<td>62%</td>
<td>40%</td>
<td>28%</td>
<td>20%</td>
</tr>
<tr>
<td>Call deadline dates should be written in letters (not in numbers)</td>
<td>9%</td>
<td>15%</td>
<td>17%</td>
<td>67%</td>
</tr>
<tr>
<td>Reduce the number of proposals going to 2nd stage</td>
<td>47%</td>
<td>30%</td>
<td>36%</td>
<td>27%</td>
</tr>
<tr>
<td>Avoid having call deadlines during the summer holidays e.g. during July and August</td>
<td>32%</td>
<td>31%</td>
<td>30%</td>
<td>40%</td>
</tr>
<tr>
<td>Increase the timing between the 1st stage and 2nd stage proposals</td>
<td>14%</td>
<td>43%</td>
<td>49%</td>
<td>35%</td>
</tr>
</tbody>
</table>
In Horizon 2020, overall, do you prefer single-stage or two-stage project submission?

- **One-stage**
  - Prefer single-stage submission: 39
  - No preference: 77
  - Prefer two-stage submission: 114

- **Two-stage**
  - Prefer single-stage submission: 13
  - No preference: 9
  - Prefer two-stage submission: 48

- **0 rejections**
  - Prefer single-stage submission: 26
  - No preference: 68
  - Prefer two-stage submission: 66

- **1+ rejections**
  - Prefer single-stage submission: 13
  - No preference: 9
  - Prefer two-stage submission: 48
• Oversubscription
• High number of proposals going to 2\textsuperscript{nd} stage
• Number of funded projects <10\% overall
• Estimated costs for single applications:
  • Appr. 10.000 euro in stage 1
  • Appr. 75.000 euro in stage 2
Rejection rates revisited - analysis of resource waste, an example

**CALL: PERSONALISING HEALTH AND CARE; Call identifier: H2020-PHC-2014-2015 - Only the 2 stage calls**

<table>
<thead>
<tr>
<th>Topic</th>
<th>suggested EU contr (EUR million) per project</th>
<th>Indicative Budget (EUR million)</th>
<th>number of projects within budget</th>
<th>Prop. Received</th>
<th>Invited to stage 2</th>
<th>number of rejected projects in stage 2</th>
<th>ROI (at 85,000 Euro per application)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHC-01-2014</td>
<td>5</td>
<td>54</td>
<td>11</td>
<td>358</td>
<td>172</td>
<td>161</td>
<td>14</td>
</tr>
<tr>
<td>PHC-05-2014</td>
<td>5</td>
<td>24</td>
<td>5</td>
<td>121</td>
<td>37</td>
<td>32</td>
<td>3</td>
</tr>
<tr>
<td>PHC-06-2014</td>
<td>2.5</td>
<td>15</td>
<td>6</td>
<td>85</td>
<td>32</td>
<td>26</td>
<td>2</td>
</tr>
<tr>
<td>PHC-10-2014</td>
<td>5</td>
<td>48</td>
<td>10</td>
<td>462</td>
<td>138</td>
<td>128</td>
<td>11</td>
</tr>
<tr>
<td>PHC-13-2014</td>
<td>5</td>
<td>60</td>
<td>12</td>
<td>296</td>
<td>128</td>
<td>116</td>
<td>10</td>
</tr>
<tr>
<td>PHC-17-2014</td>
<td>5</td>
<td>48</td>
<td>10</td>
<td>136</td>
<td>55</td>
<td>45</td>
<td>4</td>
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<tr>
<td>PHC-23-2014</td>
<td>5</td>
<td>30</td>
<td>6</td>
<td>107</td>
<td>33</td>
<td>27</td>
<td>2</td>
</tr>
<tr>
<td>PHC-32-2014</td>
<td>2.5</td>
<td>24</td>
<td>10</td>
<td>116</td>
<td>31</td>
<td>21</td>
<td>2</td>
</tr>
<tr>
<td><strong>Sub total</strong></td>
<td><strong>35</strong></td>
<td><strong>303</strong></td>
<td><strong>68</strong></td>
<td><strong>1681</strong></td>
<td><strong>626</strong></td>
<td><strong>558</strong></td>
<td><strong>47</strong></td>
</tr>
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</tr>
<tr>
<td>PHC-02-2015</td>
<td>5</td>
<td>36</td>
<td>7</td>
<td>205</td>
<td>44</td>
<td>37</td>
<td>3</td>
</tr>
<tr>
<td>PHC-03-2015</td>
<td>5</td>
<td>30</td>
<td>6</td>
<td>355</td>
<td>108</td>
<td>102</td>
<td>9</td>
</tr>
<tr>
<td>PHC-04-2015</td>
<td>5</td>
<td>18</td>
<td>4</td>
<td>78</td>
<td>13</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>PHC-11-2015</td>
<td>5</td>
<td>49</td>
<td>10</td>
<td>348</td>
<td>97</td>
<td>87</td>
<td>7</td>
</tr>
<tr>
<td>PHC-14-2015</td>
<td>5</td>
<td>62</td>
<td>12</td>
<td>421</td>
<td>130</td>
<td>118</td>
<td>10</td>
</tr>
<tr>
<td>PHC-16-2015</td>
<td>5</td>
<td>36</td>
<td>7</td>
<td>312</td>
<td>33</td>
<td>26</td>
<td>2</td>
</tr>
<tr>
<td>PHC-18-2015</td>
<td>5</td>
<td>28</td>
<td>6</td>
<td>134</td>
<td>36</td>
<td>30</td>
<td>3</td>
</tr>
<tr>
<td>PHC-22-2015</td>
<td>5</td>
<td>17</td>
<td>3</td>
<td>184</td>
<td>34</td>
<td>31</td>
<td>3</td>
</tr>
<tr>
<td>PHC-24-2015</td>
<td>13.5</td>
<td>30</td>
<td>2</td>
<td>59</td>
<td>11</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td><strong>Sub total</strong></td>
<td><strong>54</strong></td>
<td><strong>306</strong></td>
<td><strong>57</strong></td>
<td><strong>2096</strong></td>
<td><strong>506</strong></td>
<td><strong>449</strong></td>
<td><strong>38</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>89</strong></td>
<td><strong>609</strong></td>
<td><strong>126</strong></td>
<td><strong>3777</strong></td>
<td><strong>1132</strong></td>
<td><strong>1.006</strong></td>
<td><strong>86</strong></td>
</tr>
</tbody>
</table>
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<td>89</td>
<td>609</td>
<td>126</td>
<td>3777</td>
<td>1132</td>
</tr>
</tbody>
</table>

126 of 3777 = 3.3% of stage 1 applications funded
126 of 1132 = 11% of stage 2 proposals funded

Estimated costs for grant preparation:
3770 x 10,000 EUR for stage 1: 37.77 million EUR
1132 x 75,000 EUR for stage 2: 84.90 million EUR
Indicative budget: 609 million EUR
The application

In your opinion, have the administrative requirements during the application/submission process in Horizon 2020 been manageable or excessive?
The application

What is your experience with the Horizon 2020 Participant Portal and electronic IT submission tool?
The evaluation

Have you, for an Horizon 2020 application, ever received an Expert Scientific Review that contained factual mistakes (e.g. statements that did not fit the proposal content)?

- 67 No
- 21 Yes
- 6 N/A
The evaluation

From the ESR, is it your impression that those that reviewed your Horizon 2020 application(s) have enough scientific expertise on the topic of your project proposal to be able to review it?

- Yes: 48
- No: 43

Percentage:
- 0% to 25%
- 25% to 50%
- 50% to 75%
- 75% to 100%
The evaluation

In general, have you been satisfied with the evaluation process for projects you have submitted in Horizon 2020, and specifically the level and quality of feedback received in the Evaluation Summary Report (ESR)?

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very dissatisfied</td>
<td>22</td>
</tr>
<tr>
<td>Somewhat dissatisfied</td>
<td>36</td>
</tr>
<tr>
<td>Neither satisfied nor dissatisfied</td>
<td>9</td>
</tr>
<tr>
<td>Somewhat satisfied</td>
<td>20</td>
</tr>
<tr>
<td>Very satisfied</td>
<td>5</td>
</tr>
</tbody>
</table>
The implementation

In your opinion, have the administrative requirements during the project implementation in Horizon 2020 been manageable or excessive?
European Respiratory Society

• Pros:
  – 65% prefer the challenge-based, broader scope of calls
  – 60% keen to continue to participate despite oversubscription to calls
  – Greatest satisfaction with European Research Council in terms of instruments
  – 60% prefer the two-stage submission but only if stage 1 really selects rigorously.
  – 55% positive experience with electronic submission tool
  – 60% consider admin requirements in application phase are manageable
  – 60% prefer faster time-to-grant and no grant negotiation

• Cons:
  – 80% experience lower or same success rate as compared to FP7
  – 40% have never heard about the National Contact Points
  – 30% have no access to support to fulfil administrative requirements for call participation
  – 80% no opinion or negative re quality of Evaluation Summary Report and feedback
The two most preferred improvements to H2020 SC1 Health calls

1. Reduce number of proposals going to 2nd stage

2. Calls to focus less on innovation i.e. Allow for greater scope for clinical research
Conclusions:

• High subscription rate – H2020 is highly accepted in the biomedical community

• Less weight on innovation, broader scope of specific calls suggested

• Low success rate of applications (in 2nd stage)

• Considerable waste of resources during application process – poor ratio of inkind money to funding

• Problems with reviewer selection

• Good IT and administration of funded calls was appreciated
Recommendations:

- H2020 is a success – continue with full force!
- Blended call system (specific calls + innovation)
- Ensure high success rate of stage 2 applications (>> 10%, up to 20%), select rigorously in stage 1
- Avoid waste of resources during application process
- Improve review quality
- Put efforts into surrogate markers for successful projects
- Build on good administration and IT
Thank you!