Application of Advanced Analytical Techniques in Support of Socio-economic Impact Assessment of Innovation Funding Programmes

FI-IMPACT
Future Internet Impact Assurance

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Overview

• Setting the scene
  – Future Internet PPP
  – FI-IMPACT project
  – IT support to FI-IMPACT
• Data collection
• Impact assessment tools (reporting/benchmarking)
• “Best practices” identification
• Conclusion
FI-PPP Today

USE CASES

Call 1
- FI-WARE
- ENVIROFI
- FI-CONTENT
- OUTSMART
- SAFECITY
- FINESNY
- INSTANT MOBILITY
- SMARTAGRIFOOD
- FINEST

Call 2
- INFINITY

Call 3
- FI-Business
- FI-Links
- FI-Impact
- XIFI

Phase 1 Phase 2 Phase 3

PROJECTS
- CONCORD
- CEED Tech
- European Pioneers
- FI-ADOPT
- FICHe
- FINODEX
- frontierCities
- INCENSE
- SOUL-FI
- CREATI-FI
- FABulous
- FI-C3
- Finish
- FRACTALS
- IMpaCT
- SmartAgriFood2
- SpeedUp Europe

FI-CORE
FI-PPP Today

USE CASES

- Capacity Building
- Platform components

Call 1

- CONCORD
- INFINITY
- FINENET
- INSTANT MOBILITY
- SMARTAGRIFOOD
- FINSENSE
- SAFETY
- OUTSMART
- FI-CONTENT
- ENVIROFI

Call 2

- XIFI
- FI-CONTENT 2
- Finessc
- FI-STAR
- FIWARE

Call 3

- Fi-Business
- Fi-Impact
- FI-Links
- I3H

- CEED Tech
- European Pioneers
- FI-ADOPT
- FICHe
- FINODEX
- frontierCities
- INCENSe
- SOUL-FI
- CREATI-FI
- FABulous
- FI-C3
- Finish
- FRACTALS
- IMPACT
- SmartAgriFood2
- SpeedUp Europe

Phase 1: 2011 - 2012
Phase 2: 2013 - 2014
Phase 3: 2015 - 2016
FI-PPP Today

Call 1

USE CASES

- Capacity Building
- Use case scenarios
- Use case platforms
- Platform components

Call 2

Call 3

Platform components

Use case scenarios

Use case platforms


Phase 1
Phase 2
Phase 3
FI-PPP Today

Call 1

Call 2

Call 3

Capacity Building

Use case scenarios

Use case platforms

Platform components

Platform usage


Phase 1

Phase 2

Phase 3

USE CASES

Platform components

Use case scenarios

Capacity Building

Platform usage

Phase 1

Phase 2

Phase 3

FI-IMPACT
16 accelerators
“Accelerator” is a consortium of project partners funded by the European Commission with the objective to provide funds and resources to initiatives (companies) using FIWARE technology. Each accelerator funds its own initiatives.

EuropeanPioneers, IMpaCT, CreatiFi, CEED Tech, FICHe, SpeedUp_Europe, INCENSE, FRACTALS, SOUL-FI, FI-Adopt, FI-C3, FABulous, FINODEX, Finish, FrontierCities, SmartAgriFood2

~1000 sub-grantees
Selected and funded by an accelerators
Sectors covered by Accelerators

- **Universal focus**
  - CreatiFI
  - EuropeanPioneers
  - FINODEX
  - SpeedUp_Europe

- **Smart Cities**
  - CEED Tech
  - FrontierCities
  - FI-C3

- **Healthcare**
  - CEED Tech
  - FICHe

- **Smart Energy**
  - CEED Tech
  - FINODEX

- **Transport**
  - AIM
cer
  - Fronti
r
Cities
  - FI-C3

- **Tourism**
  - CEED Tech
  - FINODEX

- **Multimedia**
  - CEED Tech
  - CreatiFI
  - FABulous

- **Finance**
  - CEED Tech
  - FINODEX

- **Security**
  - CEED Tech

- **Agriculture**
  - CEED Tech
  - FINODEX

- **Food**
  - CEED Tech
  - FINODEX

- **Enviroment**
  - CEED Tech
  - FINODEX

- **Manufacturing**
  - CEED Tech

- **Gaming**
  - CEED Tech

- **E-Learning**
  - CEED Tech

- **Risk Mgmt**

- **Humanity**
  - Universal focus
  - FINODEX
  - CEED Tech
Data Collection

Created Detailed Survey
Preregistered sub grantee users
Prefilled known data
Sent (token) to users

Sub-Grantee Survey
Calculate Key Performance Indicators
Merge external indicators (Mattermark)

Assessment Environment Data Sources
- FI-IMPACT Global Database
- On-line FIWARE Dataset
- Mattermark Data
- FI-IMPACT Assessment Survey Dataset

Reporting and Analysis
Impact Assessment (Key Performance Indicators)

- **Innovation Focus**
  - Market Focus
  - KPIs
  - Feasibility
  - Registration
  - Questionnaires
  - Scoring
  - Improvement
  - Instructions and Parameters

- **Inputs**
  - Desk Research
  - IDC databases and published research

- **Market Model**
  - Potential market impacts
  - Quantitative Outputs
    - Estimate of potential take-up of Phase III projects' solutions
    - Estimate of potential market revenues of Phase III projects
  - Qualitative Outputs
    - Description of main innovation and user benefits achieved for each target market + potential success stories
INNOVATION

The Innovation indicator expresses the level of originality, maturity and sustainability of innovation to a product or service in an organization’s go to market strategy. The single measures are used to create the innovation indicator but are also used in the calculation of Market Attractiveness and Feasibility Indicators. Several conditions affect the Innovation Indicator. An innovative product or service can make a significant Impact in the market if you are ready to implement it, but can conceal substantial engineering, business planning, development, testing and marketing effort if the product or service is still in the planning phases. If the innovation is being developed and validated among colleagues and potential clients the innovation’s real market potential is increased. Innovation is quite healthy in organizations if it is part of a strategy but can be quite resource consuming where stand-alone.

Your ranking for innovation based on the data submitted is currently Medium. In this section you scored better than 29% of the 678 (total) projects and proposals that have answered this survey. The level of innovation of your project matches that of your peers. Still, you should consider ways of further strengthening the innovation element of your project.

Please visit the FI-IMPACT Library to access reading material that may be useful.

FEASIBILITY

The Feasibility indicator assesses to what extent you have assessed the economic viability of your business, and if you have already provided for the necessary funds for the startup phase. This indicator assesses whether you are aware of the funds required to start and grow your business, and whether you have secured sources for these funds.

Your ranking for feasibility based on the data submitted is currently High. In this section you scored better than 94% of the 678 (total) projects and proposals that have answered this survey. Your project is outperforming your peers in terms of feasibility – congratulations.

<table>
<thead>
<tr>
<th>Capital</th>
<th>Capital requirements covered until self-sustainable.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Secured funding: 100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Growth rate</th>
<th>Sales: We are evaluating what the potential growth rate could be.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Revenue (4 years): 55%, 46%, 25%, 18%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Customer acquisition</th>
<th>We have estimated customer acquisition cost and time.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales and marketing</td>
<td>We have defined scale-up plans but have not yet</td>
</tr>
<tr>
<td>expansion</td>
<td>launched them.</td>
</tr>
</tbody>
</table>
Key Performance Indicators Benchmarking

This dynamic benchmarking against other respondents gives entrepreneurs and their mentors a tool to monitor progress and identify areas where additional support is required.
Multi-attribute Based Similarity Tool

In this tool, similarities among projects are determined using a wide range of attributes that describe projects.

The feature-set consists of numerical, categorical and textual data obtained from questionnaires.
Accelerator Benchmarking - Methodology & Approach

Accelerators’ Indicators

**Quantitative:**
- Profile and partnership (8)
- Funding Indicators (4)

**Binary:**
- Evaluation and selection practices (2)
- Acceleration and Support Practices (9)

Sub-Grantees Performance Indicators

- KPIs
  - Market Focus
  - Innovation
  - Feasibility
  - Market Needs

- Mattermark Growth score
- FIWARE Technical score
- Additional Funding Indicator

FI-IMPACT Global Database

Interviews with A16 Coordinators

Statistical Analysis

Qualitative Analysis
Accelerator Benchmarking - Best Practices Reporting Tools

**How does it work?**

**Subgrantee & Accelerator Data Sources**
- JSI Export Full
- FIWARE Usage Assessment Score card
- Additional funding list

**FI Phases 1-3 Data Sources**
- Partners & projects data

**Working Database**
- Import to R Merge
- Project partners

**Degree of Connectivity**
- Import to R Merge

**Best practice identification**

**Correlation analysis**

FI-IMPACT
<table>
<thead>
<tr>
<th>N.</th>
<th>Indicator</th>
<th>KPI Feasibility</th>
<th>KPI Innovation</th>
<th>KPI Market Focus</th>
<th>KPI Market needs</th>
<th>Mattermark Growth score</th>
<th>FIWARE Technical Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator 5</td>
<td>Number of partners</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>--</td>
<td>--</td>
<td>++</td>
</tr>
<tr>
<td>Indicator 6</td>
<td>All phases connections</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicator 6.4</td>
<td>Partners in phase 1 and 2</td>
<td>+</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td>++</td>
</tr>
<tr>
<td>Indicator 7</td>
<td>% of professional accelerators</td>
<td>+</td>
<td>++</td>
<td></td>
<td>++</td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>Indicator 11</td>
<td>Average EC investment per subgrantee (€)</td>
<td>++</td>
<td>++</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicator 25</td>
<td>% of Subgrantees with additional funding</td>
<td>+</td>
<td>+</td>
<td></td>
<td>++</td>
<td>---</td>
<td></td>
</tr>
</tbody>
</table>

Legend: - or + = very weak correlation; --- or +++ = medium correlation
Source: FI-IMPACT 2016

Significant correlations, top 30% Subgrantees

1\textsuperscript{st} step – Indicators cleanup – correlation analysis and expert judgement
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
<th>KPI Feasibility</th>
<th>KPI Innovation</th>
<th>KPI Market Focus</th>
<th>KPI Market needs</th>
<th>Mattermark Growth score</th>
<th>FIWARE Technical Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator 8</td>
<td>Partner with Fiware coaches</td>
<td>-</td>
<td>+</td>
<td>+</td>
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<tr>
<td>Indicator 9</td>
<td>Proposal phase - online/offline support</td>
<td></td>
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<td>+</td>
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<tr>
<td>Indicator 10</td>
<td>Pipeline</td>
<td>+</td>
<td>+</td>
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<td></td>
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<tr>
<td>Selection Approach</td>
<td>Funnel</td>
<td>-</td>
<td>-</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicator 16</td>
<td>Business Innovation Support</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Indicator 18</td>
<td>Gateways to further funding</td>
<td>+</td>
<td>+</td>
<td></td>
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</tr>
<tr>
<td>Indicator 19</td>
<td>Matchmaking and Networking</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Legend: - or + = very weak correspondence; -- or ++ weak correspondence; --- or +++ = medium correspondence
Source: FI-IMPACT 2016
Summary of Correlations, top 30% performers
We have shown how a set of IT tools and computational methods can be used to assess the socio-economic impact of a big investment programme, such as FI-PPP European programme for Internet innovation.

Two approaches
- benchmarking through questionnaires and KPIs
- more exploratory techniques were used for statistical analysis and visualisation.

Best practices tools/statistical analysis
- Results have shown most of the expected correlations
- Some statistically significant new insights were detected
- Main weakness - limited available data on actual market performance
- However, even weak signals, supported the experts when performing qualitative analysis. Combined with the results of the qualitative interviews, they point to the positive role of professional accelerators within consortia, and positive impacts of practices such as workshops, matchmaking and providing gateways to further funding.