D2.1 Impact Assessment Guidebook

Version 1, December 2014

Executive Summary

This deliverable is the Guidebook for the Impact Assessment (IA) process carried out in the FI-Impact (Future Internet Impact Assurance) Project. It contains a description of the analytical methodology and the tools, which will be used to perform the ex-ante Socio-Economic Impact Analysis and market forecast during the course of the project. It describes how to use and apply the methodology, processes and tools. While designed as a manual for internal Consortium use, it will be available to all Phase III stakeholders with an interest in understanding the relationship between particular FI-PPP actions and wider ICT market trends and potential in Europe.

It is expected that given the tools to understand the context and potential of the market, all FI-PPP stakeholders can act on the information to assess and maximize their individual involvement. The European Commission and FI-PPP administrators can use it to better understand how we intend to assess Phase 3 of the FI-PPP. Accelerator projects can use it to categorize and understand the market potential of their portfolio of funded enterprises. Finally it can be used by funded projects to identify and assess their particular market, allowing them to maximize their potential and actual impacts, verifying the coherence and sustainability of their actions with the market trends and outlook.

It is divided into seven general sections. Following an introduction, Section two explains the motivations for carrying out an IA and its value to the European Commission and FI-PPP Phase 3 administrators, accelerators and individual consortia. Section Three describes the Methodological Framework including the Key Performance Indicators used during the course of the project to measure economic, social and scientific and knowledge impact, as well as potential end-user benefits. The Fourth Section describes how the Impact Assessment Methodology is implemented, while Section Five describes how quality control validation and risk management issues are addressed. Section Six describes the self-Assessment tools that any internal or external initiative can use to measure their performance, benchmark against industry standards or monitor their own performance over time. It is essentially based on the IA methodology and correlated analysis. Section Seven provides some references for background reading.

While this document, the underlying analytical data, the output studies, reports and mappings are all intended to be available to the public, the analytical approach and software tools used to derive information may be based or contain foreground information from partners of the FI-Impact Consortium.

Acknowledgements

Disclaimer

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1. Introduction

1.1. Scope of the Deliverable

This deliverable describes the Impact Assessment (IA) process, the tools employed to achieve results and the market context FI-IMPACT is using to assess Phase 3 of the FI-PPP at this point and forecast potential impact up to the year 2020. It is designed to help all Phase III stakeholders to better understand particular FI-PPP actions and their relationship to wider ICT market trends and potential in Europe. It is expected that based on understanding the context and potential of the market, all FI-PPP stakeholders can act on this information to assess and maximize their individual involvement. Therefore this Guidebook is intended to help the European Commission and FI-PPP administrators to understand how we intend to assess Phase 3 of the FI-PPP. Accelerator projects can use it to categorize and understand the market potential of their portfolio of funded enterprises. Phase 3 funded projects themselves can use it to identify and assess their particular market allowing them to maximize their potential and actual impacts, verifying the coherence and sustainability of their actions with the market trends and outlook.

The FI-Impact Guidebook will:

- Explain the motivations for carrying out of IA to Future Internet administrators, initiatives and individual FI-PPP Phase 3 consortia;
- Describe the benefits of impact that each category of user of the document can expect to achieve;
- Describe and motivate the Key Performance Indicators and the measurement system used;
- Describe the particular IA indicators and KPI for each indicator anticipating their scope, metrics, calculation methods, and indicative data collection needs and sources;
- Provide hands-on guidelines describing how consortia can implement and exploit the indicators to better align their plans and performance with users requirements and market trends;
- Highlight the criteria of identification of good practices and potential success cases, based on the KPIs;
- Describe the process of implementation and recommended frequency/timing of Performance and Impact Assessment.

The intended audience includes the specific stakeholders from the FI-PPP made up of European Commission and FI-PPP project participants. In particular it is intended to help Phase III Accelerator projects to establish a common framework, methodology and vocabulary for assessing the market and the single initiative clusters across the range of the Phase III ecosystem.

Furthermore the approach is based on industry accepted evaluation metrics and measurement process that have been used for several decades and is based on deep business knowledge and data. Given its commercial applicability it is clearly also of interest to external stakeholders. Examining this document will provide solid evidence-based analysis to Industrial and Research communities that are interested to find out

how the Future Internet will advance, investors that are looking for market outlook and single technology providers that are interested in market potential.

Finally it is a drill-down evolution to a standard IA approach that takes the European practice of Impact Assessment to a deeper, initiative level, allowing a potentially more advantageous way to evaluate programs. As such this document may be interesting to other units and directorates that are looking for improved methods to assess their own programs and initiatives.

1.2. Glossary

This section provides an explanation of the terms used within this guidebook:

- IA = Impact Assessment. In the context of this guidebook the Impact Assessment abbreviated IA is the output of the FI-Impact Project pertaining to the qualitative and quantitative analysis and forecast of the FI-PPP potential socio-economic impact.
- KPIs = Key Performance Indicators
- FI-PPP = The Future Internet Public-Private Partnership, short: FI-PPP, is the European initiative promoting Internet-enabled innovation.
- FIWARE = FIWARE is used in the context of this guidebook to mean the entire FI-PPP community, the open source platform, the enabling technologies and the support infrastructure.
- FI = Future Internet refers to those technologies promoting Internet-enabled innovation
- Project = in this context a "project" is an initiative receiving grant funding from the European Commission though an FI-PPP Phase 3 Accelerator project call.
- Program = A group of activities which are designed to be implemented in order to reach policy objectives. In this context it is the FI-PPP program.
- Phase III initiatives are all the projects responding to the FI-PPP Phase 3 Accelerators Open Calls, including those selected and not selected. They are also called proposals or applicants.
- Proposers are the components of the team presenting a proposal.
- Phase III projects, or in short "projects", are the initiatives which have successfully passed at least one phase of selection by one of the 16 FI-PPP Phase 3 Accelerators.
- Phase III Accelerator Projects are referred to as Accelerators and not as projects.
- Policy =A policy can be defined as an agreement or consensus on a range of issues, goals and objectives which need to be addressed
- Outcomes = the effect the process has had on the initiatives targeted by it.
- Outputs= the products or results of the process.
- SE = Socio-Economic

2. Intended Use of the IA Methodology

This chapter is provided to:

    I.   Explain the need for an IA;

    II.   Establish and communicate the benefits of an IA for the different Stakeholders in the FI-PPP;

    III.   Lay down guidelines for using this guidebook.

Furthermore it defines the context, the processes that will be carried out by the FI-Impact project, the stakeholders and their expected roles and benefits.

2.1. Why an IA is important

There were approximately 21.6 million Small and Medium Enterprises in Europe in 2013 employing more than 88.8 million people and generating 3.7 trillion Euros of revenue[1]. The business demography in Europe is different to North America or Asia Pacific where SMEs generate approximately 10% less to the regional GDP.

Table 1 SME Comparison Number, Employment and Value Added Eurostat 2013

	Micro	**Small**	**Medium**	**SMEs**	**Large**	**Total**
Number of enterprises						
Number	19,969,338	1,378,374	223,648	21,571,360	43,517	21,614,908
%	92.4%	6.4%	1.0%	99.8%	0.2%	100%
Employment						
Number	38,629,012	27,353,660	22,860,792	88,843,464	44,053,576	132,897,040
%	29.1%	20.6%	17.2%	66.9%	33.1%	100%
Value Added						
Million Euros	1,362,336	1,147,885	1,156,558	3,666,779	2,643,795	6,310,557
%	21.6%	18.2%	18.3%	58.1%	41.9%	100%

SMEs are more important to our economy. However, the European Commission Directorate of Enterprise's annual report[2] on the economic performance of SMEs shows just how fragile this section of our economy is. The years starting in 2008 have had a profound impact on the financial and economic position of many SMEs as they are in fact less resilient to economic downturn than their larger counterparts. Only after six years are the numbers of business registries, employment and Value Added returning to 2008 levels as we can see in the Figure 1 below.

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[1] Data Eurostat 2013 (excluding financial services)

[2] Annual Report on European SMEs 2013/2014, Final Report July 2014

Figure 1 Returning to 2008: DG Enterprise Report on European SMEs 2014
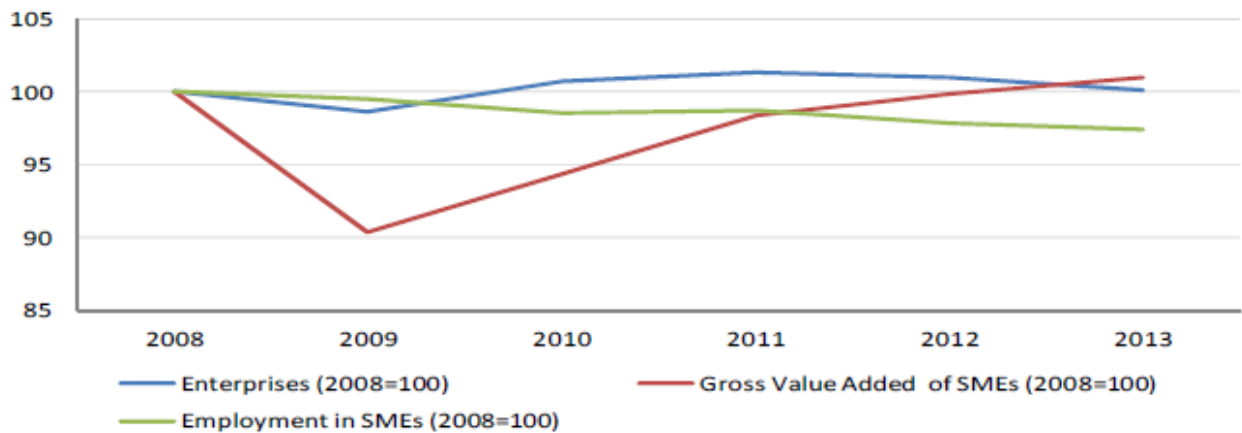
Source: Annual Report on EU SMEs, Eurostat Data 2013

While the economic downturn has been more marked in some sectors and in some countries, it is clear that the micro-enterprises have fared the least well. Studies like the Annual Report on European SMEs paint a clear picture of the impact of a macro-phenomenon like economic downturn, clearly identifying sectors and segments that have done poorly or have fared better but it is the IA process that correlates SME related phenomenon like access to finance, availability of skilled staff or experienced managers, competition, cost of production, customers base or regulation influence the potential impact of the SMEs performance and help policy makers take a proactive stance in relation to the macro economic trends. IAs are regularly carried out by government institutions like the European Commission at a higher level to guide policy and to highlight the costs and benefits of different policy alternatives to provide meaningful program such as the FI-PPP in high growth potential sectors like Future Internet, but there are fewer examples of IA geared for smaller sub-segments and sectors like those found in Phase III of the FI-PPP.

It is clear that we must ensure that this segment of the economy has the right incentives and is put in the condition to express its potential and Programs such as the FI-PPP are key contributors to this process. It is essential that these programs are closely monitored in order to adjust their governance based on ongoing results and to make sure that investment and policy are as focused and effective as possible. It is important that all stakeholders including the Micro and Small Enterprises understand the potential of the various market segments and customer bases if they wish to perform better and generate market impact.

It is our intention to take the IA approach further and adapt it to the innovators and SMEs launched by Phase III and to all the FI-PPP ecosystem. We will analyse their targeted markets and analyse which sectors and approaches will potentially fare best. We will highlight which components of their business strategy may help to maximize their potential impacts, identified through the performance indicators presented in this deliverable, and assess their potential cumulative impacts.

2.2. Value and How the IA can be used by Stakeholders

2.2.1. The European Commission

The European Commission is well aware of the growth potential of the FI-PPP, having already carried out a-priori[3] and midterm IA[4].

These analyses have the objectives of helping the EU institutions to design better policies and laws facilitating better-informed decision-making in the legislative process. Furthermore they are intended to ensure coherence of Commission policies. Focusing on the benefits and costs of different policy alternatives they generally improve the quality of policy and EU intervention keeping it as simple and effective as possible.

However these types of analysis are for the Commission alone and have wider policy and resource allocation ramifications. They necessarily look at the entire ecosystem and aggregate data, drawing conclusion at a very high level. These types of studies discover trends and medians of results and draw overall conclusions. Trends such as job creation, economic growth, business creation are described at a programmatic level.

The FI-Impact project on the other hand will carry out a more specific IA than undertaken in previous studies, analyzing a well-defined segment of the FI-PPP program with specific markets, actors and goals. The KPIs are meso-program level and describe real go-to-market uptake potential, from the outlook of a single industrial sector. The FI-IMPACT ex-ante IA will provide Program Managers with a new snapshot of potential that may influence their approach in the future as well as concrete talking points for the promotion of this PPP and similar approaches in the technology domains considered.

2.2.2. The FI-PPP Program Stakeholders

The FI-PPP is surrounded by a number of actors that go beyond current project participants, Commission Services, Accelerator projects, participating SME and Entrepreneurs. There is a whole community of platform developers, Industrial actors, research communities, public authorities and investors who have in some way contributed to the status of the requirements, technology use cases and implementation platforms. They are all potential benefiters/users of the IA. The FI-Impact IA is able to answer their questions as to which FIWARE technologies, which countries, which markets and which channels hold promise as potential success areas. Leveraging the time and investment of the whole Phase III communities they can get an idea of real implementation potential of areas they are planning to invest in and assess the potential and outcomes of technologies and markets. They can also look at single KPIs and monitor any given parameter over the course of the project. Investors can single out groups of initiatives to assess investment potential in the SMEs and Entrepreneurs or in the Ideas/sectors that look most promising further promoting the uptake of FIWARE technologies.

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[3] FI3P - "Towards a competitive European Internet industry", May 2012

[4] Interim assessment of the FI-PPP, May 2012

2.2.3. The Accelerator Projects

The FI-IMPACT ex-ante IA has a clear value to the Accelerator Projects. By offering an independent IA and especially by providing insight into the potential market demand of the range of initiatives being selected, our project will provide useful complementary information and intelligence supporting the Accelerators in their activity. In addition FI-IMPACT will be in the unique position to be able to aggregate and compare the results of the calls of all the Accelerators, providing monitoring results and highlighting which proposals are presented to multiple calls and which proposers are active in multiple proposals. This will help avoiding double funding.

FI-Impact will offer insight into the assessment process based on over 50 years of Market Analysis experience of FI-Impact partners. The FI-IMPACT Coordinator is a global market leader in IT market analysis. Members of the FI-Impact consortium are in an authoritative position to provide a framework for demonstrating the potential Socio-Economic impact of the horizontal technologies at the core of the FI-PPP Phase 3 funded projects. Members of the FI-Impact consortium have deep experience in providing qualitative and quantitative based analysis and evidence of the potential of the vertical Industrial Sectors addressed.

The IA carried out in FI-Impact will be a valuable tool for Accelerator project managers to analyse their portfolio of projects in the context of the wider economic IT ecosystem. Being able to define which industrial sectors, and which technologies will contribute to the overall IT landscape and how important that contribution will be in the near future, is essential to understand how to best advise and guide their SME/Entrepreneurs in the essential start phases where they can still tune their business approach. FI-Impact's IA will provide them with KPI based qualitative evidence tied to accurate market purchasing and growth projection, proving them with valuable market intelligence to help Accelerators and the projects they fund make better informed decisions.

The Accelerators will need to assess and measure their project portfolio. Many will have to decide who they should continue to support through further financing and who should not receive further support. The FI-Impact IA will give them an additional tool to support internal analysis and make better-informed decisions, keep the Commission Services informed of the reasons for their decisions and compare their performance across Phase 3 FI-PPP. FI-Impact can provide a valuable glossary and common yardstick for Accelerator managers to talk about potential and market of their SME/Entrepreneur initiatives.

2.2.4. The SME and Entrepreneurs

Beyond the grant funding provided through Phase 3 of the FI-PPP, the fundamental interest of successful SMEs and Entrepreneurs is to survive and be profitable. The best way to make money is to have a differentiated product or service offering and a well-defined target customer base. FI-Impact's IA will provide insightful analysis of the outlook for market being targeted by SMEs/Entrepreneurs' co-funded under Phase 3 FI-PPP. For example in the early phases of development a SME may have a good FIWARE enhanced technical solution for Manufacturing. At an early stage they may have the chance to modify their approach including intended implementation. Understanding for example, that the discrete manufacturing domain is expecting stronger growth than the process-manufacturing domain originally targeted may be helpful in targeting higher

potential customers and alternative channels to reach that market. Small changes at an earlier stage, can result in dramatically more positive outcomes. FI-Impact will provide an Honest Broker Market and sectorial analysis that can truly serve as an early stage reality check.

2.3. Overall usability of IA results

The European Commission will find the IA useful for introspective analysis and policy planning. FI-PPP administrators and supervisors may want to use the IA to assess their outcome and performance and prepare internal and external communication. The Accelerators may want to use the IA to access their portfolio of projects and adjust their geographic, technological or funding plans for upcoming sub-calls and future activities. The funded initiatives themselves can use the IA to analyse their target market objectives based on the sectorial findings, and some initiatives may decide to reposition themselves based on expected competition and niche market analysis. The deliverables released in Workpackage 2 of the FI-Impact Project will all be in the public domain and published on the FI-Impact portal after delivery to the European Commission.

The results themselves can be combined with other research, aggregated, republished or used for predictive, consulting and analytical purposes. FI-Impact and other data sources on which our analysis is based should be referenced when used or republished.

2.3.1. Overall mapping results

The first step of our IA will include high level mapping of Phase III activities and will contain holistic information regarding the entire body of proposals that are received. It will contain at least the following useful information:

a) Total number of proposals submitted,
b) Number of retained proposals and in the funding range
c) Geographic origin of proposers
d) Business type of proposers
e) Organizational characteristics of proposers
f) Size of Proposer organization
g) Expertise of proposers
h) The funds provided for each target sector;
i) The FIWARE technologies leveraged.

Additionally by request of partners from the Accelerator projects "statistical" data regarding the name and frequency of proposers that appear in more than one proposal submission either to an Accelerator call or across different Accelerators will be provided.

2.3.2. Target market assessment

The Accelerators will receive a large number of proposals. A subset of these will be funded across one or more phases. A typical IA would be quite complex and require a dedicated team, reliable data and will take several person weeks to complete. It is impossible to carry out several hundred of these studies and the FI-IMPACT IA will be a meso-level analysis, carried out ex-ante as very few or none of the examined initiatives will reach the market before the end of our project. We will first map the initiatives and cluster similar initiatives. At this point we will analyse the clusters according to the

methodology described in this guidebook. Detailed analysis will be carried out by vertical industrial sectors and by horizontal technological sectors according to the market addressed by the funded initiatives. It will include

a) Vertical industrial and horizontal technological clustering of all the funded initiatives;
b) Identification of NACE rev. 2 target markets addressed;[5]
c) Geographical coverage of the clusters and their targeted markets;
d) Main demand trends affecting the markets targeted by the clusters;
e) Fi-WARE technologies addressed and role in the FI-PPP ecosystem;

The market model designed by FI-IMPACT will allow to estimate:

f) The potential take-up and revenues of the clusters
g) Their growth potential
h) The economic factors influencing the estimated market

The selection of initiatives will be performed by the Accelerators in various waves and following several steps of selection. FI-IMPACT will deliver in early 2015 a first mapping of the Accelerators' calls results to be shared with all the FI-PPP community and will regularly update it. The ex-ante IA including the market estimates will be produced mid 2015 as indicated in this Guidebook and updated once in the second year of the project.

2.3.3. FI PPP Ecosystem Assessment

The assessment will also be carried out considering the entire FI-PPP ecosystem. This is intended to examine if the funding is potentially effective in its context assuming an aggregation of all of the activities performed to date and considering the plans and on-going activities required to complete Phase III. It represents the macro-economical and technical overview of the programme and will include a survey and evaluation of the:

a) Services, tools, applications, technologies that will be supplied by the funded initiatives
b) The applicants position in the FI-PPP ecosystem;
c) Coverage of roles in the ecosystem;
d) The potential impact per clusters of initiatives with similar target markets.

2.3.4. Results

The results of this deliverable and ensuing IAs will be used by FI-Impact internally to complete the obligations expected from the contract with the European commission and will be the basis for the deliverables that are at the basis of the agreement. In any case where there is doubt as to the process or significance, partners will first reference this document.

The Results and the IA analysis at various stages will be used to communicate with FI-PPP programme stakeholders. For example FI-Impact will carry out aggregated analysis

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[5] see:http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=NACE_REV2

and mapping of the FI-PPP Phase 3 Calls, the nature of their respondents, and the particular focus of proposals received. The initial results are already being used in communications with the community and through the Basecamp FIWARE wide discussion portal.

3. Description of the Methodology Framework

3.1. Overview

The main objective of FI-IMPACT is to collect and assess qualitative and quantitative evidence of the potential socio-economic impact of the FI-PPP program by measuring and projecting potential market sector economic potential, stakeholder take-up and technological impact of Phase III projects to 2020.

The methodology framework designed to achieve these goals is presented in Figure 2 below and is based on three main components, each of which is based on different specific methodologies. They are:

- **A market model**, which will draw on the detailed mapping of the Phase III projects to estimate their potential take-up, their target markets (e.g. their "footprint" on the EU economy), their demand drivers, their potential revenues;
- **A socio-economic impacts model (SE impacts model)**, which will build on the market estimates to assess the potential direct, indirect and induced impacts of the Phase III projects, in terms of macro-economic impacts, social impacts, users' benefits, the social and scientific impacts.
- The development of **Key Performance Indicators (KPIs) measuring the readiness** of the Phase III projects to achieve their objectives and potential impacts with reference to objective benchmarks. The development and measurement of KPIs responds to 3 main objectives:
  - To carry out a qualitative analysis of the main factors affecting the selected projects and their chances of success, feeding into the main assumptions of the market and impacts models;
  - To develop an online self-assessment tool that all projects can compile to gain feedback on their readiness for success. The self-assessment tool will be available to all projects and proposers, including those who were not successful in receiving grant funding.
  - To identify a long list of 50 potential success stories out of the expected 1100 funded projects and a short list of up to 10 cases with high impact potential, to be used to illustrate the value and reach of the FI-PPP.

As better explained in the following paragraphs, the market model results are an input for the SE impacts model. The results of both models are ex-ante assessments, because it takes at least 1-2 years after the end of a project to produce impacts. Almost none of the Phase III projects will reach the market and produce impacts before the end of the FI-IMPACT Support Action. However, both models will include **forecasting results to 2020** based on main trends and likely scenarios based on IDC research. This will include for example projecting the potential revenues gained and economic impacts generated by the initiatives funded by Phase III.

Figure 2 Methodology Framework Components and Interdependencies
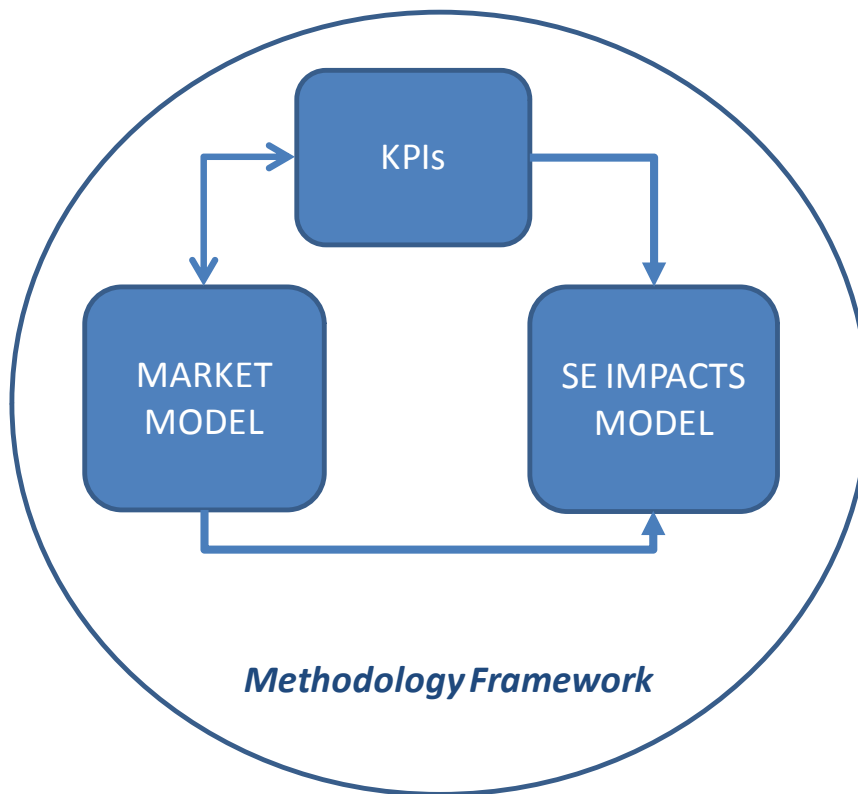
Source: FI-IMPACT 2014

Figure 2 shows the interdependencies of the methodology framework components. The market model and the KPIs are interdependent as they will be developed in parallel and influence each other. Both KPIs and the market model feed into the SE impacts model.

Each of the components of the methodology are described in detail below. As shown in Figure 2, the methodology will be implemented through a Monitoring and Impact Assessment cycle (as Accelerators will continue recruiting and selecting new projects, and/or training them, throughout the duration of FI-IMPACT). As a result, it will be necessary to revise and update the market and impact estimates, as the basis of analysis will change. In addition we expect to take into account and as necessary incorporate feedback received from the FI-PPP community and other stakeholders.

The cycle includes the following main steps (more detail is presented in chapter 3):

- Development of the Methodology Framework;
- Monitoring of FI-PPP initiatives;
- Mapping of FI-PPP Phase III and initial measurement of KPIs;
- Implementation of the web-based instruments including the self-assessment tool;

This phase of the cycle will be concluded in April 2015, when we will be able to present the first full description of the Phase III activities. At this date we expect the Accelerators to have completed all the first calls and the second calls will have started so there should be already a sizeable sample of selected and funded initiatives. After this we will work in parallel on the data collected through the monitoring and mapping following two

different methodology "paths", closely inter-related, until the end of the project in June 2016:

- The **KPIs path**, to carry out the cyclical assessment of the projects to identify and promote good practices and potential success stories;
- The **IA path**, to implement the market and IA models and estimate the ex-ante impacts.

This is shown in the Figure 3 with the following main steps:

KPIs Path:

- Continued monitoring on Phase III; cyclical data collection and assessment of the projects to identify success stories;
- Production of the final Assessment report on the good practices and success stories.

IA Path:

- Production of the first ex-ante Impact Assessment;
- Revision of the IA taking into account feedback, new results from monitoring and data collection from the Accelerators;
- Production of an updated ex-ante Impact Assessment

Figure 3 FI-IMPACT's Monitoring and Impact Assessment Cycle
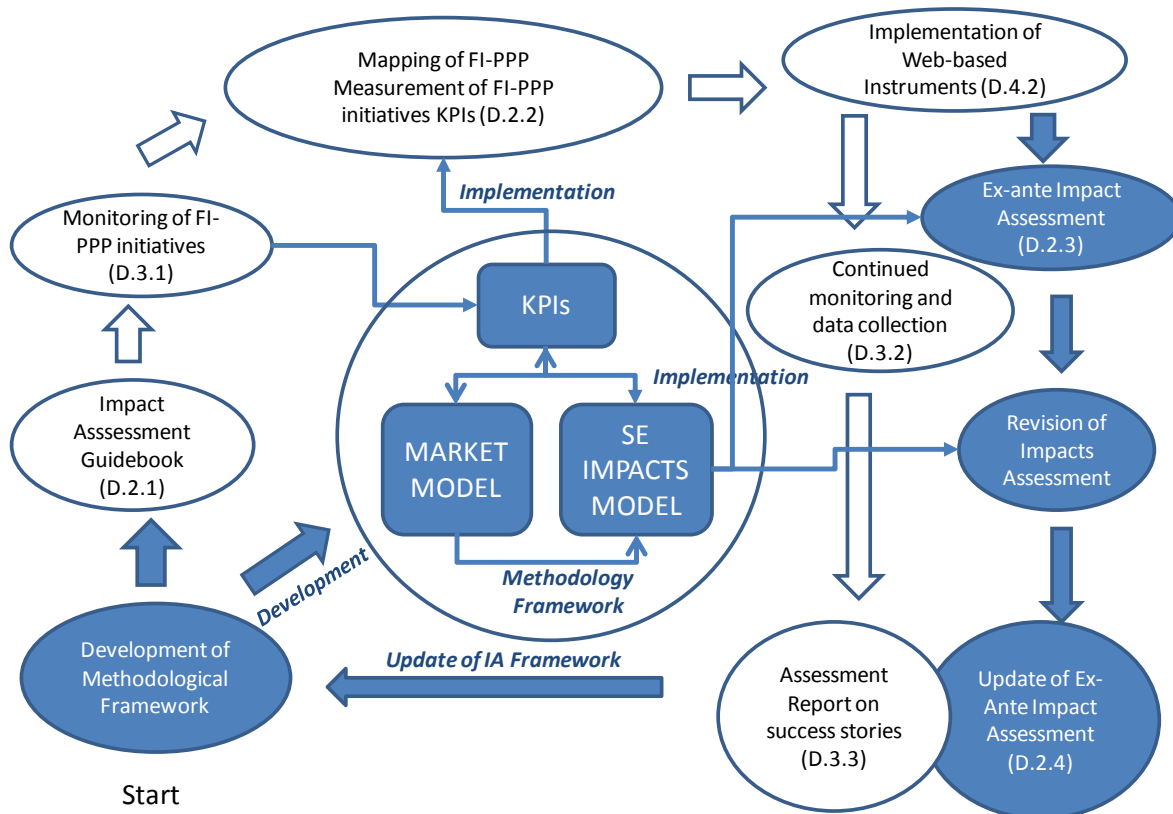
Source: FI-IMPACT 2014

The cycle depicted in Figure 3 is a necessary simplification to describe the workflow and highlight the main dependencies between activities and the main deliverables. In reality, interaction with the Accelerators will be ongoing and we will develop and implement the models as an iterative process. There will be by necessity "cut-off" dates of data collection before the main deadlines for deliverables, in order to enable the finalization of elaborations and estimates.

3.2. Methodology rationale

Research on socioeconomic impacts has focused on the causality links between the deployment of ICT and the achievement of potential benefits, the mechanisms of diffusion and adoption of ICT, the role of policies to compensate market failures and/or overcome barriers to ICT adoption (for example the digital divide). Initially very simple technology diffusion models were used, taken from market research methodologies, based on the assumption that the use of ICT products and services would by itself lead to the achievement of benefits. But very soon it became clear that the evolution towards the Information Society required a systemic approach and that the reaping of benefits was related with social, cultural, organizational as well as technical innovation.

Today the analysis of ICT impacts takes place within the more general perspective of innovation policies and strategies, within the conceptual framework of the evolution of the innovation system. More sophisticated models are used to analyse the links between research and development, innovation systems and the business environment to understand the effectiveness of the innovation process and therefore the mechanisms of uptake of ICT technologies and services. These considerations must be taken into account when assessing the potential demand for the main services and applications to be launched by the Phase III projects.

The emergence of open innovation and social innovation models is driving a new reflection in the IA area. The combination of technology and social innovation is a powerful force for change whose impact will be strongly felt over the next 5 - 10 years. According to the ISTAG (IST Programme Advisory Group)[6], ICT is entering into a societal or infra-centric phase, in which social innovation is becoming a main driver for ICT development. Social innovations are new ideas (products, services and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations. This is very clear in the so-called apps economy, for example.

One of the disruptive consequences of this shift is that the dynamics of innovation have changed substantially. Innovation has moved 'down' the value chain. Bottom up and user generated innovation has become more influential and traditional models of production, social organisation and value creation as well as the speed of innovation have changed dramatically. This calls for a flexible and agile approach towards innovation that enables the continuous identification and valorisation of emerging opportunities. To what extent will Phase III project exploit these innovation mechanisms, such as social innovation? This will be an important aspect of our analysis,

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6 IST Programme Advisory Group (ISTAG) report "Orientations for EU ICT R&D & Innovation beyond 2013" http://cordis.europa.eu/fp7/ict/istag/documents/ istag_key_recommendations_beyond_2013_full.pdf

requiring for example to classify/cluster the Phase III projects based on their level of innovation, type of business model and ability to exploit the new demand drivers.

These trends and challenges are well represented in the structure of Horizon 2020, the EU Framework Programme for Research and Innovation, which aims at bridging the research-innovation-market gap (the valley of death). In fact, the FI-PPP itself is an innovation platform inspired by similar principles, which aims at building synergies between stakeholders (business actors) originating from multiple industry verticals to create and operate a sustainable Future Internet business ecosystem in Europe. This ecosystem is composed of inter-dependent, inter-linked business stakeholders, adopting new business roles and offering new value propositions towards end customers. As described by the 2013 FI-PPP White Paper[7], this ecosystem follows a more advanced economic logic than traditional platform based business ecosystems, based on the rationale of linear bilateral exchange. The FI-PPP's innovative platform can be exploited by multiple groups of stakeholders from multiple entry points and business trajectories (or "sides"). Potentially this may result in complex value chains, depending on the business models chosen by the Phase III innovator projects.

In summary, the first step towards the assessment of the potential market impacts of Phase III requires mapping the whole FI-PPP ecosystem and analysing how the new projects fit into the FI-PPP value chain, what is their interaction with other stakeholders, what are their main business models. To do so we will need to analyse and group the selected projects into homogeneous clusters with similar roles in the value chain, business models and target markets (bottom-up analysis). The results of this analysis will feed the market model and the identification and measurement of KPIs, which in turn will feed the SE Impacts model.

However, our goal is not to estimate the potential impacts of each individual project and then simply add them up to calculate the overall impact. This approach is not only impractical, it would also multiply the chances of error. Our methodology for the market model combines a bottom-up approach (aggregating project data in clusters, leveraging our data collection and mapping of Phase III) and a top-down approach (leveraging data on the overall target markets' size and potential growth, based on IDC research and other public sources). The market model is essentially based on IDC methodologies.

The socio-economic IA model follows best practice established methodologies for estimating macroeconomic and social impacts. The IA methodology applied by FI-IMPACT is aligned with the EC's own IA and ex-ante evaluation Guidelines and with best practices in the IA field, well known by the consortium partners and employed in various studies for DG Connect. Their effectiveness is multiplied by the partners' unique knowledge of the ICT market and therefore their capability to identify and measure impacts and benefits based on a combination of proprietary data and public sources.

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7 "Towards FI-PPP Innovation and Business Ecosystems", by Pieter Ballon, Anand Raju, Cristina Cullell-March, Exploitation and Business Modelling WG, November 2013

3.2.1. Conceptual Framework

It is important to reinforce the basic definition of impacts that are relevant in the context of policy evaluation methodologies, in order to clarify how we apply them in this project. They are:

- **Outputs** are the actual deliverables of the policy initiative or the programme, products or services delivered, corresponding to the **operational objectives**. They are under the direct control of the policy managers and can be directly verified.
- **Impacts** are the main effects of the policy intervention on the socio-economic system; they may be expected or unexpected, the first kind usually corresponds to the **overall goals** of a policy. Impacts tend to develop in the medium-long term and to be influenced by many other factors besides the policy intervention.
- **Results** (also called outcomes) are the immediate and short-term effects of the policy intervention. , They usually correspond to the **specific objectives.** Positive results are usually an intermediate step set out to achieve the desired impacts.

Applying these definitions to FI-IMPACT we define the following:

- **Outputs** are the actual results of the Accelerators (number of calls, number of proposals collected, number of projects funded… like) and of the Phase III projects activities (number of products created, number of Apps created, number of IT services created, number of FIWARE experimentation facilities used…);
- **Results or outcomes** are the immediate results achieved by the Phase III funded projects such as tools or technologies developed, prototypes or services tested;
- **Impacts** are the medium-long term consequences of the Phase III projects bringing the FIWARE-based innovation to market, producing revenues and creating jobs, finding customers and satisfying them, and triggering new innovation and indirect and induced impacts in the socio-economic system.

Measuring outputs can be achieved by monitoring specific indicators (e.g. number of proposals an accelerator received, or the number of apps created), whereas impact based assessment deals with goals and measurements, which are a consequence of the outputs and are relative to a – not necessarily pre-defined – baseline.[8]

As described below, FI-IMPACT's monitoring and mapping activities are focused on FI-PPP Phase III outputs, with a primary focus on Impact Assessment.

3.3. Monitoring and Mapping of FI-PPP Phase III outputs

FI-IMPACT is the only CSA with the task to provide an aggregated view of Phase III activities and achievements as well as impacts. The first step of FI-IMPACT was active engagement with the 16 Accelerators projects and with the other Coordination and Support Measures to coordinate monitoring of their main plans and activities. The main goal of this activity is to organise an ongoing flow of data and information from all the Accelerators to FI-IMPACT to collect the evidence needed for our assessments. It is not FI-IMPACT's responsibility to benchmark the Accelerators or to judge their comparative

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[8] Cmp.: Epstein, M. J., & Yuthas, K. (2014). Measuring and Improving Social Impacts: A Guide for Nonprofits, Companies, and Impact Investors. Berrett-Koehler Publishers.

performance; our goal is to cooperate with them and provide support in order to better assess the results of their calls for proposals. This will be done through the value-added analysis carried out of the data provided to us.

The main objectives of our monitoring activities are:

- Mapping FI-PPP Phase III, that is providing a structured overview based on mapping templates of the 16 Accelerators and of the projects responding to their calls for proposals, which are their main outputs;
- Supporting the identification and measurement of KPIs of proposals/projects;
- Supporting the selection and in-depth assessment of the good practices and potential success stories;
- Providing data for the development of current and forecast market estimates.

3.3.1. Mapping Template of Accelerators

The mapping template of the Accelerators includes three main typologies of information:

- **Value proposition** that is their main objectives, target markets, FIWARE technologies privileged (if any), geography covered during the calls, expected benefits and total funding to be distributed;
- **Calls roadmaps**, including the number of calls and selection steps, their criteria of selection, the timing of calls and selection steps, the number of proposals expected and the numbers achieved, the number of proposals to be funded and the average funding
- **Data sharing**, meaning when and under what process the Accelerators delivered their datasets, how the confidentiality issues where managed, what where the structure of the datasets and their content (that is the type of data collected on proposals and whether it was coherent with the indicators suggested by FI-IMPACT). This data will not be used to evaluate the Accelerators, but simply to guide the elaboration and aggregation of the results. Since Accelerators have different timing and approaches to the selection and support of initiatives, FI-IMPACT must be very careful to harmonize the data for aggregation and insure comparability where possible. In addition FI-IMPACT must respect the confidentiality requirements posed by the Accelerator and clarify how the data will be shared and disseminated within the FI-PPP community and beyond.

This data will be collected for each Accelerator and then aggregated, providing a map of the Accelerators collective coverage of target markets, geographies, and main selection criteria, with easy to understand infographics. This will facilitate assessment of for example the geographic coverage achieved across the 28 EU 28 Member States and priority target markets.

According to preliminary elaborations, the 16 Accelerators expect to receive a total of approximately 6700 proposals and plan to fund approximately 1200 projects (c.18% of total).

Table 2 Mapping Template of Accelerators

Data		
Accelerator Value Proposition	Main objectives	
	Target markets	
	FIWARE technologies privileged (if any)	
	Geography covered	
	Expected EU benefits	
	Total funding	
Calls Roadmaps	Number of calls	
	Criteria of selection of proposals	
	Timing of calls and selection steps	
	Number of proposals expected per each call	
	Number of proposals to be selected per each calls	
	Average funding per proposal	
Data sharing	Approach to datasets sharing and dissemination, confidentiality	
	Timing of provision of dataset	
	Structure of dataset	

Source: FI-IMPACT 2014

3.3.2. Analysis and Elaboration

The analysis and elaboration of the data collected with the mapping templates will be carried out mainly through semi-automated tools including:

- Statistical analysis of quantitative data
- Semantic analysis of the text of applications received

These aggregated results, combined with the data collected for the KPIs will be used to produce a description of the FI-PPP Phase III ecosystem; a "go to market" roadmap of the Accelerators calls and of their projects, clarifying when the different batches of selected projects will be funded and when they can be expected to launch their FIWARE-based innovation on the market (this in turn will influence the expected timing of their impacts).

3.3.3. Mapping Template of Proposals/ Projects

The mapping template of proposals was designed to collect the data on their key characteristics, after consultation with the Phase III Accelerators. The data collected will be elaborated and aggregated to answer the main questions indicated in the table below.

There are three main measurement areas:

- **Organisational profiles**, describing the main characteristics of the organisations submitting proposals for funding by the Phase III Accelerators, by

organizational type, number of employees, turnover and number of years established;

- **Exploitation of FIWARE**, focusing on which FIWARE technology enablers the proposers plan to use;
- **Duplication check**: the Accelerators asked FI-IMPACT to carry out a check of the possible presentation of the same proposal to more than one Accelerator or the presence of the same personnel in multiple proposals. The EC has declared that presenting the same proposal to more than one Accelerator for potential funding is possible, but that no proposal can be funded twice.

All Accelerators are expected to collect these data points so the coverage of these aspects should be complete for all Phase III proposals.

These data are objective and neutral (as there is not direct correlation with the likely performance or success of proposals). Their aggregation and elaboration will allow the synthetic description of the average proposal profiles, geographical coverage across the EU 28 and planned exploitation of FIWARE. A key result will be a gap analysis of the uncovered areas (both thematic and geographic).

Table 3 Mapping Template of Proposals/ Projects

	Data	Segmentation and Elaboration Criteria	Mapping question
Organisations Profile	Type of organization	SME, Start-up, Web Entrepreneur, other (% distribution)	Who are the proponent organisations - by type?
	Location by country	28 EU (% distribution by country)	Where do the proponent organizations come from? Are all the EU28 MS equally represented?
	Number of years since foundation	Aggregated into average life classes (% distribution by size class)	What is the average number of years of establishment of the proponent organisations? Are there more start-ups and web entrepreneurs or more SMEs?
	Number of employees	Aggregated into classes of company size (% distribution by size class, broken down by type)	What is the average size of the proponent organisations?
	Annual Turnover	Aggregated into classes of turnover (% distribution by turnover class, broken down by type)	What is the average level of turnover of the proponent organizations?

	Data	Segmentation and Elaboration Criteria	Mapping question
Exploitation of FIWARE	Role in the FI-PPP Value Chain	Developer of Enabler, Service Provider, Technology Partner for Others, Training Provider, Application Developer, Market Facilitator (% distribution of organization by role).	Which role do proponents plan to play? Are there some roles that are more popular/ roles not covered?
	FIWARE Technology to be used	Category of technology from the catalogue (% distribution of proponents by type of technology)	What is the level of exploitation of FIWARE technologies? What is the balance between areas covered/not covered?

	FIWARE Technology Generic Enabler to be used	Name and type of enabler (% distribution of proponents by enablers, ranking of enablers most used)	What is the level of exploitation of FIWARE enablers? What is the balance between enablers covered /enablers not covered (in %)? Which enablers appear more attractive for the proposers?
	Data	**Segmentation and Elaboration Criteria**	**Mapping question**
Duplication check	Number of proposals	Number and % distribution of proposals by accelerator and total, by country and total	How many proposals were submitted by accelerator and by country? What is the level of coverage of the EU28?
	Number of proposers	Number of CVs included with proposals, aggregated in average size classes (% distribution of proposals with average number of proponents)	How many CVs were included with each proposal on average?
	Level of duplication of proposals	Cross check of same proposals by accelerator call (number of proposals on total presented to more than one call/accelerator)	How many proposals were presented to more than one call?
	Level of duplication of proposers	Cross check of proposers CVs across proposals and accelerators calls (number of CVs appearing in more than one proposal)	How many CVs were presented in more than one proposal (within one call or for different calls)?

Source: FI-IMPACT 2014

3.4. Key Performance Indicators

Based on the preliminary data collection and active engagement with the Phase III Accelerators, we have modified the indicative Key Performance Indicators outlined in the original FI-IMPACT proposal to focus on 4 main assessment areas. For each assessment area we have identified a set of indicators that should be measurable with the data collected during the application process (see the tables below).

The assessment areas correspond to the 4 main groups of factors affecting the likely implementation and performance of the projects. They are:

- **Innovation Focus**: including the type of technology solution, the level of innovation and the potential IPR to be generated.
- **Market Focus**: describing in detail the type of customers, markets and geographies targeted by each project, as well as status of revenue and business models
- **Feasibility**: this area includes the funding requested, the quality of the financial plan, the level of expertise available within the teams of each proposer
- **Potential benefits and impacts**: this area aims at identifying the user benefits and social and environmental impacts expected by the proposers, possibly including a ranking of answers.

Our objective is twofold:

- To apply a factor analysis or similar statistical techniques to elaborate the basic indicators and identify clusters of projects with similar value propositions, target markets, business models. To do so we will also leverage the mapping indicators described above. We hope to be able to group the approximately 1,190 funded projects into 10 - 15 clusters.

- To elaborate a synthetic indicator of performance for each of the 4 assessment areas, based on a semantic scale (high, medium, low) calculated through the aggregation of the basic indicators per area. This indicator can be measured for individual projects, for project clusters, for the entire group of projects funded by Phase III.

It may not be feasible to collect all the basic indicators in each area, notwithstanding the best efforts of FI-IMPACT. However we will make sure that for each area the minimum indispensable of indicators will be measured to justify the assessment, where necessary substituting missing basic indicators with a proxy.

For every synthetic indicator we will indicate the benchmarking scale corresponding to the high-medium-low level based on objective data and evidence. In most cases the benchmarks will not be absolute (e.g. a target number to be achieved) but relative: for example whether the technology solution suggested is coherent with the priorities of investment indicated by the target users. IDC's databases of ICT users preferences and priorities for investments will be leveraged for these evaluations.

The indicators benchmarks cannot be anticipated at this stage: they will depend on the profile of projects, the type of available data, and the correlation we can make (consistency check) between the business ideas and potential market demand.

We do not expect to measure performance for each individual proposal or funded project, since the volume is too high.

However, the synthetic indicators will help us to identify good practices in each performance area and potential success stories. A good performer does not necessarily need to have top scores in all 4 areas, as there are different ways to achieve success For example, a project focused on incremental innovation (low innovation level, in our scoring scale) but with high feasibility and a large potential market may be equally or more successful than a project proposing disruptive innovation with a highly rewarding but smaller niche target market. The mapping indicators and the 4 performance assessment areas represent the conceptual framework driving the development of the self-assessment tool.

In fact, the measurement of KPIs compared with the mapping indicators for each projects cluster will help to correlate performance readiness with the projects positioning in the FI-PPP value chain. This should help to respond to questions such as: what is the correlation (if any) between the exploitation of specific FIWARE technologies and performance readiness?

Figure 4 Main typologies of Key Performance Indicators
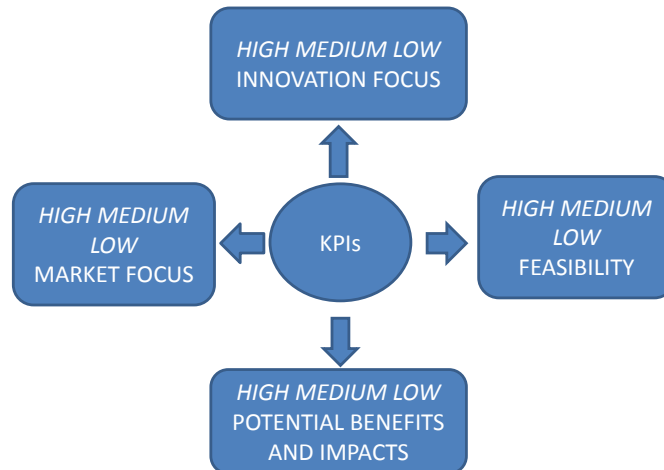
Source: FI-IMPACT 2014

Table 4 KPI Templates

KPIs	Indicators	Segmentation and Elaboration Criteria	Mapping question
Innovation Focus	Technology Solution	Classification by type of technology solution (e.g. Cloud service, mobile app) (% distribution of proposals by type)	What are the main typologies of technology solutions designed by the proposers?
	Source of business idea	Competitor, Client, Stakeholder Community, Internal User, Beta Client, Literature/Technology Roadmap, Market Research, Applicants' Perception of Gap	What the main sources of the business ideas proposed? What is the correlation between the type of business idea, the type of proponent and the source of the idea?
	Level of innovation	Level of innovation: high (highly transformative, potentially disruptive); Medium (innovative, medium transformative impacts); Low (evolutionary, incremental innovation) (% distribution of projects by level)	What is the average level of innovation of the proposals? A higher level of innovation may lead to higher impacts but also have higher funding and expertise requirements
	Current stage of development	Idea, Prototype, MVP (minimal viable product), In the market (after rollout) (% distribution of projects by stage)	What is the current stage of development of the proposals? How far are they from the market?

KPIs	Indicators	Segmentation and Elaboration Criteria	Mapping question
	Project IPR by type	None, Patent Pending, Patents, Copyrights, Utility Models, Trademarks, Design, Licenses (% distribution of proposals by type of IPR)	How many projects plan to generate new IPR? Is this relevant for their revenues model? Which type of IPR?

KPIs	Indicators	Segmentation and Elaboration Criteria	Mapping question
Market Focus	Project revenue model	Main source of expected revenues (% distribution by source)	What is the main source of expected revenues? How sustainable is the proposed revenue model?
	Project Target Customer	Type: B2B, B2C, B2G, C2C (% distribution by type)	Who are the main target customers?
	Project Geographical Scope	Region, Country, Multinational, EU, Global (% distribution by geography)	What are the main geographical focus of the projects?
	Project Target Market Sector	Industry sector/company size (% distribution by target market)	Which are the main target markets? What is the ranking of target markets in terms of the number of proposals addressing them?
	Level of Competition perceived by project	None, high, medium, low competition (% distribution of projects by level of competition)	How does the level of perceived competition compare with actual competition in the targeted market? What is the average expectation of competition?
	Project Business Model Status	High, Medium, Low level of development of revenue model and market targets (% distribution by level)	Is the level of development of the business model adequate for the projects' targets and expectations?

KPIs	Indicators	Segmentation and Elaboration Criteria	Mapping question
Feasibility	Total Funding Requested	By amount thresholds (% distribution)	What is the average funding requested? Is it consistent with plans?
	Explanation financial plan	High, Medium Low quality of financial plan (% projects by quality level)	What is the quality of the financial plan?
	Milestones	High, medium. Low credibility of milestones (% projects by level)	Did the project design a reasonable roadmap with credible/sustainable milestones?

KPIs	Indicators	Segmentation and Elaboration Criteria	Mapping question
	Expected Yearly Growth Rate of Users	Classified by size classes (% distribution by growth rate class)	Is the expected rate of growth realistic and sustainable?
	Team Number of Members	Large, Medium, Small team (by experience, by type of staff, by full or part time employment)	Is the quality of the team appropriate to implement the business idea?
	Need for additional capabilities	classified by type of experience needed to develop/bring to market the product (if any)	Which skills are missing from the team to bring their idea to the market?

KPIs	Indicators	Segmentation and Elaboration Criteria	Mapping question
Potential Benefits and Impacts	Potential user benefits	List of benefits (ranking by number of projects targeting them)	What are the main expected benefits?
	Potential economic impacts	List of impacts (ranking by number of projects targeting them)	What are the main expected impacts?
	Potential social and environmental impacts	List of impacts (ranking by number of projects targeting them)	What are the main expected social and environmental impacts?

Source: FI-IMPACT 2014

3.5. Market Model Methodology

The market model (Figure 5) will apply IDC methodologies to estimate the potential demand for the outputs of Phase III funded projects on the basis of their target markets. The market model will not take into consideration proposals not shortlisted for funding by Phase III Accelerators, but will focus only on the selected projects expected to be launched on the market.

The model will calculate the potential market impact of the Phase III projects based on economic impacts indicators calculated at the meso-level (project clusters) and macro level (total Phase III projects).

Figure 5 Outline of Market Model

Inputs

Mapping Phase III results

KPIs Measurement results

Desk Research

IDC databases and published research

Market Model
Potential market impacts

Estimate of potential take-up of Phase III projects' solutions

Estimate of potential market revenues of Phase III projects

Description of the main innovation and user benefits achieved for each target market + potential success stories

Quantitative Outputs

Qualitative Outputs

Source: FI-IMPACT 2014

The main inputs of the model (see Figure 5) will be:

- The results of Phase III mapping of projects and KPIs measurement, specifically the segmentation of the funded projects into homogeneous clusters with similar value propositions, target markets, business models. Important elements will also be the description of the positioning of the projects in the FI-PPP ecosystem and their "footprint" in the EU market where final business and consumer markets will be impacted by the funded projects. This will define the scope of the market model. In addition the Accelerator roadmap and the information on projects' plans will help us estimate the likely time to market of the proposed solutions.

- Desk research on main public sources about the demand drivers and barriers of the technology solutions developed by the Phase III projects and more in general if the FI-based technologies and services. This will contribute to shape the main assumptions about take-up perspectives.

- IDC ongoing research on ICT markets and its main databases. They include:
  - o IDC's worldwide Blackbook, a database providing quarterly updated data on IT spending and IT market status and growth, for all the main market segments, for 54 countries, with a 3 years forecast (Figure 6). The Blackbook data is collected through first level research by local analysts (on average 100,000 interviews per year) and aggregated by IDC's worldwide research experts. This is an invaluable source of intelligence about market size and growth trends.

- o IDC's forecast methodology based on cross-checking and validating IDC's experts opinions through a structured "assumption builder" tool and periodical assessment of business, social and technological market growth drivers. IDC's 3 years forecasts are developed within a worldwide scenario of the IT market evolution, whose assumptions are specified and validated for each of the main world regions (including Western and Eastern Europe).
  - o IDC's Vertical Markets research, which analyses the potential demand of ICTs by technology and solution for the main vertical markets. As part of our mapping exercise we have outlined a first match between IDC's verticals and the Accelerators' declared market targets (Figure 7), which will be updated with the same data about the market targets of the Phase III project clusters. This is one of the ways in which we will outline the Phase III "footprint" on market demand and shape the main assumptions about take-up.
  - o IDC's research on Digital Transformation dynamics and emerging demand trends on innovative technologies such as Big Data, IoT and Social Media technologies by vertical market. As an example, Figure 8 shows the top 3 "hot" application areas of Future Internet technologies by each vertical market, based on IDC's annual survey of business users' investment priorities and adoption patterns. These data can be used to investigate if the solutions proposed by the Phase III projects meet the priority investment areas of their potential users.

This data will be used as inputs to the model in order to estimate:

- The overall size of the potential target markets addressed by Phase III project for 2014 to 2018 (period currently covered by IDC's forecasts) in terms of IT spending and number of users. These markets will be a subcomponent of the overall IT market estimated by IDC and be influenced by the future developments assumptions currently held by IDC for the period 2014-2018.
- The share of these markets that can be potentially captured by the Phase III projects in terms of IT spending and number of users once they reach the market. Indicatively that should happen between 2016 and 2018. We will take as a focal point for the measurement the first year when all of the Phase III projects innovation will be on the market, which is likely to be either 2017 or 2018.

To assess the market impacts, the model will use the following economic impacts indicators:

- **Level of take-up measured in terms of the number of potential users**, in absolute terms or as a % of the population of potential users. For example if a cluster of projects is developing FIWARE-based services for business users in the manufacturing sector, the indicator will estimate the % of EU manufacturing sector enterprises who may adopt such services in the period 2016-2018.
- **Amount of potential revenues collected by Phase III projects,** measured as a % of total IT spending in their target markets for similar categories of products and services in the period 2016-2018.

Table 5 Market Impact Indicators

	Level of Impact	
Indicators	**Projects' Cluster**	**Total Phase III**
Potential take-up	Number of users per cluster	Total number of users
Potential revenues	Potential revenues per cluster	Total revenues

Source: FI-IMPACT 2014

The main quantitative outputs of the market model therefore should be:

- Quantitative estimates of the potential take-up of the Phase III projects in terms of number of potential users in the EU, broken down by:
  o Phase III project cluster
  o Type of user (business vs consumer)
  o Vertical market
  o Geography (EU country)
- Quantitative estimates of the potential revenues of the Phase III projects the EU, possibly broken down by:
  o Phase III project cluster
  o Type of user (business vs consumer)
  o Vertical market
  o Geography (EU country)

The main qualitative outputs of the model will be:

- Qualitative descriptions of the innovation dynamics potentially triggered by Phase III projects innovation, emerging value chains, of the potential user benefits per each type of application/service developed or target market addressed, potential success stories, as well as potential barriers to adoption and failure risks.

It is important to note that these estimates are by definition carried out ex-ante, since they pre-date the moment when the solutions developed will actually hit the market.

Even if some of the funded projects reach the market by the end of 2015 (which is probably the earliest possible date) we would need at least an additional year to collect evidence on their actual sales and therefore calculate an ex-post impact (which is beyond the life of FI-Impact).

Taking this into consideration, the objective of this market model is to estimate the maximum potential impact on the market of all the Phase III projects, assuming that the majority of them are successful, even if it likely that a certain percentage will not be successful.

We are not focused on evaluating the chances of success of each individual project, because we assume that the Accelerators will screen out weak business ideas, selecting and supporting only the best of them, who should therefore have higher chances of success.

On the other hand, the projects will likely have different levels of risk (some of them addressing highly competitive markets, or developing highly innovative and potentially risky ideas) or face unexpected market or technology barriers.

Therefore we will carry out a sensitivity analysis, assuming different failure rates of the funded projects and how this can affect the likely quantitative indicators of take-up as well as revenues.

The results of the market model will include a qualitative description of the potential evolution of the FI-PPP ecosystem, the potential market dynamics triggered by the adoption of the FIWARE innovation driven by the Phase III projects business ideas, and potential success stories.

Figure 6 IDC Blackbook – Classification of ICTs
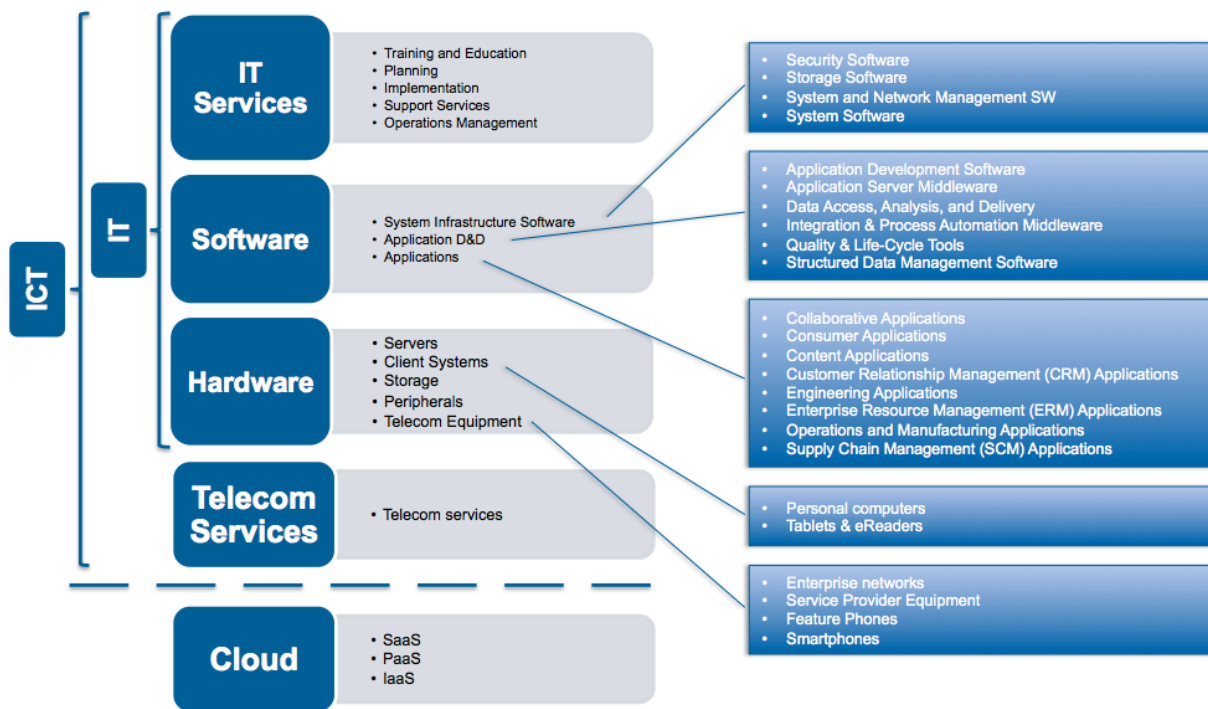
Source: IDC 2014

Figure 7 Vertical Markets Segmentation and Accelerators Market Match

IDC Vertical Segmentation:

- Agriculture, Construction and Mining (ACM)
- Financial Services
  - Banking
  - Insurance
  - Other finance
- Government
  - Central Government
  - Local Government
- Communications
- Manufacturing
  - Discrete Manufacturing
  - Process Manufacturing
- Education
- Healthcare
- Retail/Wholesale
- Transport
- Utilities
- Business Services
- Other
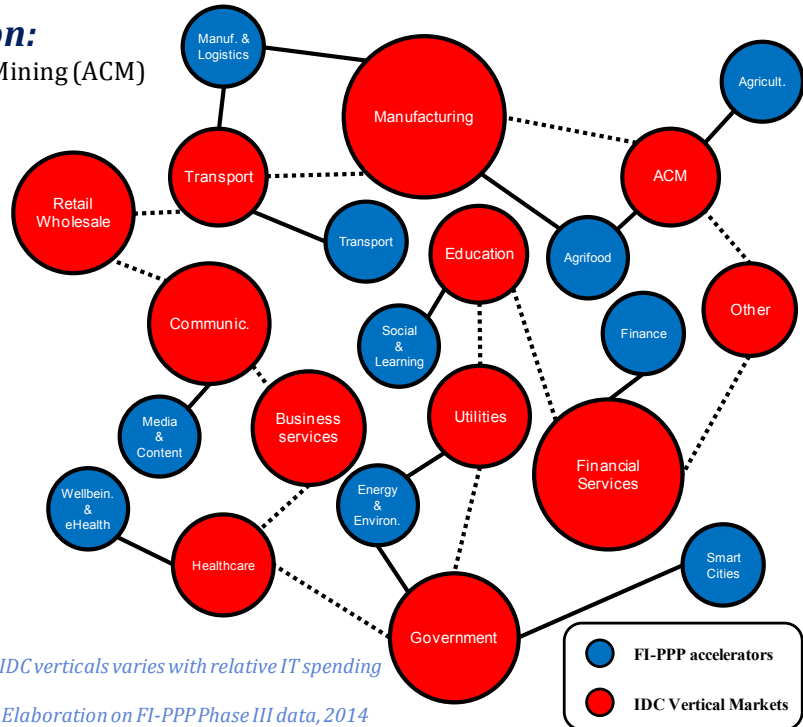
Dimension of IDC verticals varies with relative IT spending

Source: IDC Elaboration on FI-PPP Phase III data, 2014

Source: IDC 2014

Figure 8 FI Technologies "Hot" Investment Areas by Vertical Market
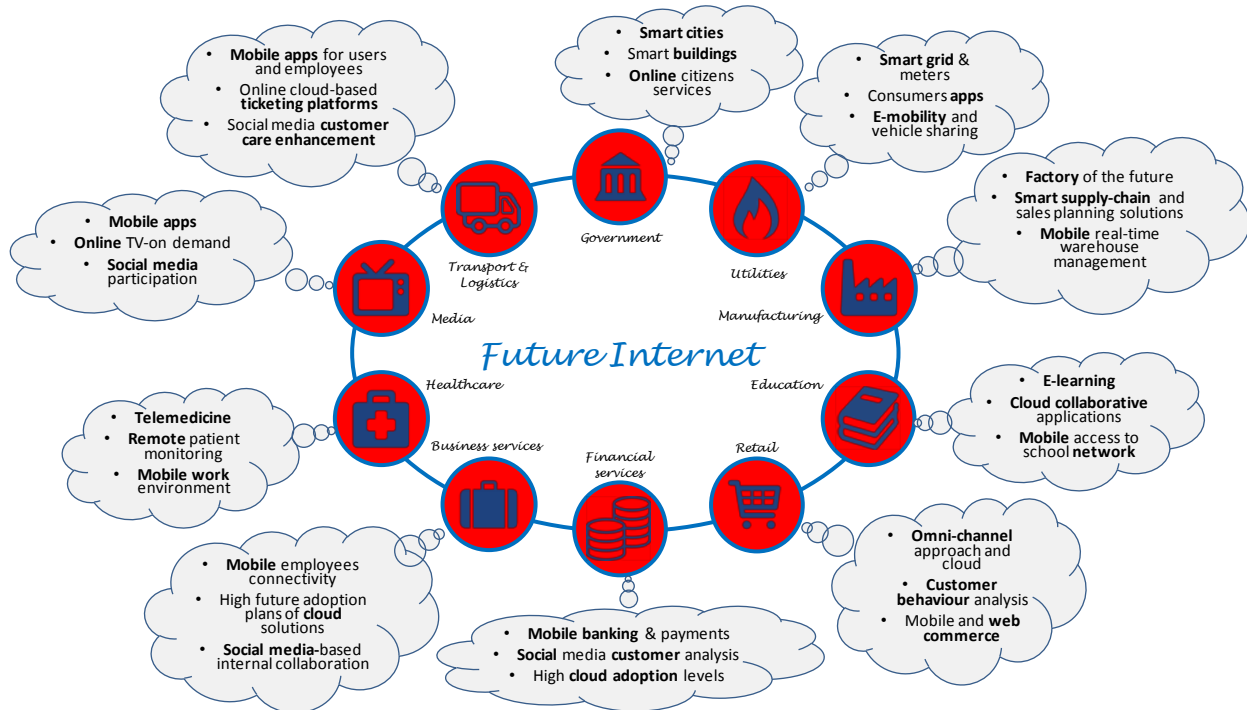
Source: Elaboration on IDC Vertical Markets Survey, 2014

3.6. Socio-Economic Impact Assessment Methodology

Building on the results of the model estimating the potential "market impacts" of the Phase III projects, we will develop a Socio-Economic Impact methodology focused on the assessment of the likely global, cumulative impacts of the FI-PPP on the EU social and economic system, for the period up to 2020-2022 (5 full years after the first FI-PPP innovations reach the market). This methodology will include a macroeconomic impact model with a wider scope than the previous one, incorporating a quantitative estimate of the direct, indirect and induced impacts on EU economic and employment growth. Qualitative social Impact Assessment methodologies will address social, environmental and scientific impacts, building on the analysis of the potential users benefits described above. The main value-added of this methodology will be to look beyond the immediate consequences of bringing to market about a thousand innovative ideas, which are likely to be relatively small compared to the size of the EU economy and markets. By looking at the social as well as the economic dimension, and taking a medium-long term perspective to 2020, this methodology will highlight the potential contribution of the FI-PPP ecosystem to innovation and growth, focusing on its capability to enable the diffusion of digital transformation and digital culture in Europe. We will also assess the potential contribution of the FI-PPP to the main social challenges addressed by the H2020 programme.

The main steps will include:

- Identification and classification of the main potential economic, social, environmental, knowledge and scientific impacts of the FI-PPP Phase III, also taking into account the contribution of the previous Phase I and Phase II enabling Phase III achievements;
- Definition of the main indicators measuring these impacts, their scope, measurement approach and expected results;
- Development of the macroeconomic impact model measuring direct, indirect and induced economic impacts;
- Development of forecast scenarios defining the main trends and framework conditions affecting the perspective evolution of the demand for Phase III technologies and solutions to 2020;
- Estimate of the forecast scenarios consequences on the range and intensity of main socio-economic impacts;
- Drawing conclusions on the most likely, cumulative FI-PPP socio-economic impacts to 2020 and the overall role of the FI-PPP ecosystem for innovation and growth in the EU economy and society.

They are described more in detail below.

3.7. Identification and classification of impacts

This task is based on desk research of the main public sources and economic literature on ICT socio-economic impacts, as well as IDC research on Internet technologies and services. The preliminary identification of indicators for each category of impact is presented below. It will be finalized when elaborating the data on the actual projects selected by Phase III Accelerators.

3.8. Economic Impacts

3.8.1. Description

Within the context of FI-IMPACT we will use the following definitions of the economic impacts:

- **Direct Impacts** are the initial, immediate economic activities (i.e. jobs, business outputs and income) potentially generated by Phase III projects once they go to market, after the end of Phase III. Direct impacts coincide with the first round of spending or new jobs created in the economy. This will take at least 1 year after the solutions launched by the Phase III projects hit the market.
- **Indirect Impacts** are the economic activities (additional business outputs, income and jobs) occurring in other businesses/industries supplying inputs to the Phase III projects (supplier impacts) and in the businesses adopting the Phase III projects innovations. They are generated at the same time as the direct impacts, because they are a function of direct impacts.
- **Induced Impacts** are the second order effects over the entire economy generated by the combined direct/indirect impacts, due for example to the additional spending by the newly hired employees, or the increased wages and salaries of the enterprises benefiting from the direct and indirect impacts. This spending creates induced revenue increases and employment in nearly all sectors of the economy. The timing of induced impacts is slightly delayed compared to direct and indirect impacts.

The sum of the direct, indirect and induced impacts defines the **total economic impact**.

The indicators chosen to measure these impacts are the following:

- Absolute value of the direct, indirect and induced impacts of all the Phase III projects, in millions of EURO;
- Incidence of this value as a % of EU GDP;
- Number of jobs created, calculated on the basis of employment/revenues ratios.

Table 6 Macro-Economic Impact Indicators

	Value of the potential FI-PPP market		Employment Impacts
	Value in €	**% of EU GDP**	**Number of Jobs created**
Direct Impacts			
Indirect Impacts			
Induced Impacts			
Total			

Source: FI-IMPACT 2014

3.8.2. Scope and Measurement Approach

Direct Impacts

The measurement of direct impacts will be based on the results of the Market model about the potential revenues generated by the Phase III projects. For the sake of this measurement, we will consider the Phase III projects as a group of new enterprises entering the market with a set of new products. Given the profile of these organisations and web entrepreneurs, we can assume that all or the great majority of them should be classified as part of the IT industry sector. Therefore we should assess whether they will have a positive incremental or negative or neutral substitution impact on the forecast revenues of the IT industry. Based on IDC's research on the evolution of IT spending, this will depend on the type of technologies and services they will offer. For example, IDC has recently estimated that every Euro spent on a cloud computing SaaS (Software as a Service) solution replaces €2.30 previously spent in traditional hardware, software and services to deliver the same outcome[9].

Indirect Impacts

Indirect impacts come from increased revenues of organizations supplying goods and services to the Phase III projects, as well as the increased revenues and jobs gained by business users adopting Phase III supported technologies and services. The estimate of indirect impacts is critical for the assessment of overall economic impacts particularly for general purpose technologies such as ICT. The basic assumption is that the business benefits of Future Internet technologies improve productivity, reduce IT capital costs liberating resources for business innovation, allow faster time to market of new products and services, and generally increase the competitiveness and revenues of the user industries. These aggregated impacts represent additional GDP growth and new jobs creation.

These positive impacts are measured through a "multiplier", meaning that for every Euro invested in FI technologies (direct impacts) there are 2 or more Euros generated in indirect impacts. This allows calculating indirect impacts by applying the multiplier to the value of the direct impacts. This is also called the Leontiev multiplier, from the name of the Russian economist who invented the input-output tables, which calculate the investment and input-output flows between industry sectors. The use of input-output tables is one of the most common methodologies used to calculate the value of the multiplier between sectors. The actual size of potential benefits can be deduced from case studies and market research on the users of similar technologies.

This methodology is standard practice in the IA of infrastructures investments and ICTs. IDC has applied it several times, starting in 2009 on behalf of Microsoft[10] and more recently calculating the potential GDP and employment impacts of cloud computing in the EU on behalf of the EC[11], including forecasts to 2020 based on alternative scenarios. It is also applied in academia, for example economist Federico Etro[12] calculated the

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9 **"**Uptake of Cloud in Europe**"** see references

10 The Economic Impact of IT, software and the Microsoft ecosystem on the global economy, Global White Paper IDC 2009

11 Study "Uptake of cloud computing in Europe", ibid.

12 Federico Etro May 2011, see references

economic impacts of cloud computing by using a dynamic stochastic general equilibrium (DSGC) calibrated model augmented with endogenous market structures in line with recent developments in the macroeconomic literature. The same model was recently applied again by two Japanese economists finding that cloud computing appears to generate positive economic impacts in Japan as well[13].

Many of the Phase III projects are planning to use cloud computing, so we expect that these similarities will help us in assessing the potential multiplier of direct impacts. A more specific reference comes from the results of the GPD and employment impacts of FI-PPP phase 1 calculated by the FI3P project led by Rand Computing with Wik Consulting and IDC[14].

Induced Impacts

Finally, another round of impacts descends from the consumption induced by increased business revenues, thanks to the additional income earned by employees. This is known in economic literature as the Keynesian multiplier or demand multiplier, and is applied to the total of direct plus indirect impacts. Keynesian multipliers are not specific to ICT but are calculated based on average consumption impacts.

Employment impacts

Employment impacts must be equally divided between direct impacts (jobs created by the Phase III initiatives) indirect impacts (jobs created by the organizations supplying the Phase III initiatives or using their products) and induced impacts (jobs created thanks to the additional growth in the economy).

The estimate of employment impacts will focus on jobs created as a consequence of the additional revenues generated through direct, indirect and induced impacts. They will be calculated using a simple methodology based on employment/output ratios. The usual procedure equates increased business revenues with job creation using standard revenues per employee ratios sourced from Eurostat input/output tables. However the most recent release of the I/O tables is from 2008, before the economic crisis. In IDC's most recent impact models these ratios have been reduced through a correction factor, to take into account the lower rate of new jobs creation prevailing in the European economy in recent years. For employment estimates we should also take into account the business model chosen by Phase III supported enterprises: in the Internet sector, particularly for OTT (Over-The-Top (of the Internet)) operators such as Google, the average level of revenues per employee is much higher than those of traditional industries. Even if Phase III initiatives are likely to start at a much smaller scale than a Google, the ratio employees/revenues of their business model could be similarly low.

Unfortunately, this approach to employment impacts allows estimation of jobs creation, not of net employment impacts, which would require calculating also the potential jobs substituted or eliminated by FI-PPP related innovation. This is extremely difficult to do, even though we may be able to advance some hypotheses about the potential net

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13 Ozu-Kasuga 2014, see references

14 Fi3P study, Final Report, available at http://www.fi3p.eu/assets/pdf/final/ FI3P%20Final 20Study%20Report20v1 200.pdf

impacts on the labor market. Another important factor we will need to consider is the potential skills supply gap. If some Phase III initiatives require specific skills and these are not readily available on the EU market, this may constrain their growth and the potential jobs gains. This will be examined within the framework conditions for development scenarios.

3.8.3. Expected Results

The model outputs should allow calculation of the additional GDP growth coming from the adoption of FI-PPP technologies as a result of Phase III go-to-market action. An example of the visualization of the expected results is shown in the following figures, taken from the FI3P study already mentioned. FI-IMPACT will compare its results to the estimates produced in that study.

Figure 9 2011 Estimate of FI-PPP Phase I Potential Cumulative GDP Effect
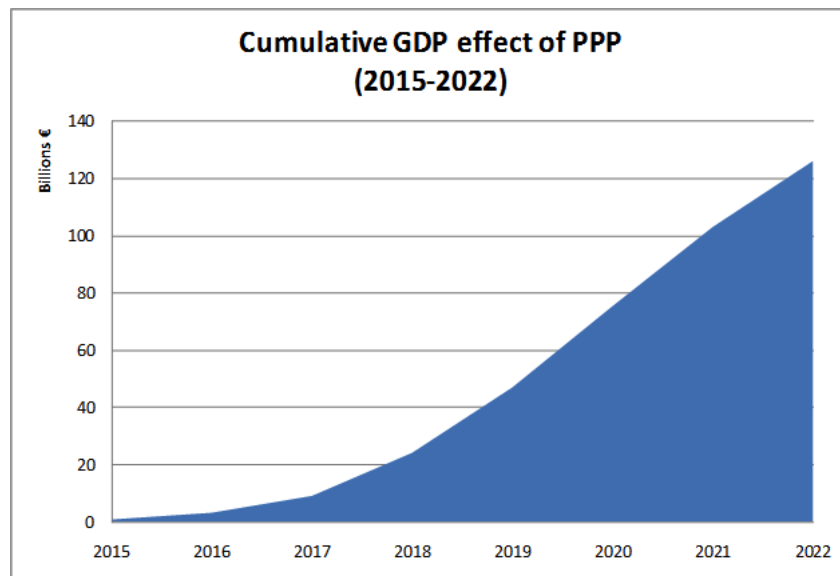
Source: WIK consulting, Fi3P 2011

According to the FI3P study the cumulative potential impact of FI-PPP Phase I was estimated at:

- Real GDP effect 2020: **€28 bn**

- Corresponds to **0.24%** of the total real GDP of the EU

- **Cumulative** overall positive impact on European real GDP in **2022** is **€126 bn**

- Employment: maximum positive effect EU 27: +42,000 jobs (2016)

- Positive cumulative potential effects on employment

Figure 10 2011 Estimate of FI-PPP Phase I Potential Impact on Employment
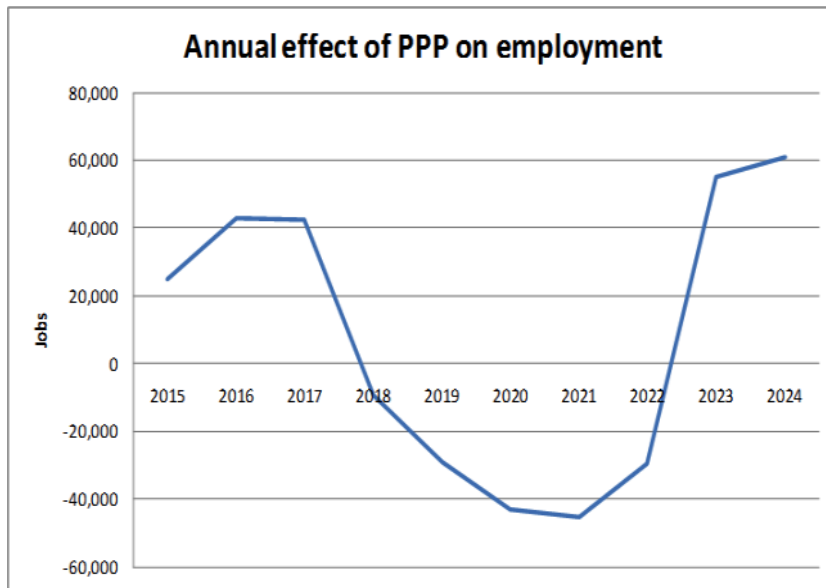
Source: WIK consulting, Fi3P 2011

3.9. Potential end-user benefits

3.9.1. Description

As described in Section 2.5 the market model will measure the Phase III project clusters and their potential economic impacts, describe their value chains and potential market positioning. Building on this and IDC research we will select a list of the main typologies of end-user benefits, separately for business users and consumers, correlated with the main projects' clusters. An indicative list is presented in the table below, sourced mainly from IDC's analysis of expected benefits from Cloud computing and IoT, which are both technology domains covered by FIWARE.

Table 7 Potential End-user Benefit Indicators

Stakeholder category	Type of benefit	Indicators	
		Projects' cluster	Total Phase III
Business users	Increased return on R&D investments, additional innovative services, shorter time to market	High, Medium, Low, None	Aggregated indicators
	Improved efficiency and effectiveness of business processes, with specific relevance for supply chain management and logistics	High, Medium, Low, None	Aggregated indicators

	Productivity improvements and enhanced asset utilization	High, Medium, Low, None	Aggregated indicators
	Improve energy efficiency, reduce emissions	High, Medium, Low, None	Aggregated indicators
Consumers	Better customer experience, better quality of service	High, Medium, Low, None	Aggregated indicators
	Increased transparency and reduced information asymmetry	High, Medium, Low, None	Aggregated indicators
	Time and/or costs savings	High, Medium, Low, None	Aggregated indicators

Source: FI-IMPACT 2014

3.9.2. Scope and Measurement approach

The list of potential benefits could be quite long, therefore we will select a limited number of relevant benefit categories that include the most relevant demand drivers for the targeted markets and user categories.

Since this is an ex-ante assessment we cannot collect data on actual benefits likely to be achieved by the Phase III supported projects. But we can leverage our segmentation of the Projects in Clusters with specific combinations of type of technology/type of product service/type of target market. Therefore we will:

1) Identify the 4 - 5 top ranking potential benefits for each cluster combination of technology and target market, based on IDC user surveys, other market research and/or public studies;
2) Assess the potential intensity of each benefit for each cluster, using semantic indicators, indicatively with a 4 step scoring scale (high, medium, low or none).
3) Aggregate the semantic indicators of all the clusters to measure the overall level of expected potential user benefits generated by the FI-PPP Phase III. If we can collect quantitative metrics for some benefits, they will be converted into a semantic scale to allow aggregation.

For every qualitative indicator the benchmarking scale (high, medium, low, none) will be clearly documented and based as much as possible on objective data and evidence collected from IDC user surveys or from literature. The measurement of the relevance and intensity for each projects' cluster will have to be clearly documented for each indicator. It can be correlated for example with the size of the potential market and expected take-up (estimated by the market model). The type of stakeholders can be segmented further, for example by type of business user (by vertical market, by company size, for example benefits for SME users could be quite specific).

3.9.3. Expected results

The expected results will be a ranking of the main expected benefits and their level of intensity for each of the Projects' clusters and an aggregated view for the FI-PPP Phase III.

3.10. Potential Social Impacts

3.10.1. Description

All public and private initiatives and organisations, have social impacts, whether positive or negative, intended or unintended. Measuring social impact can be difficult to assess, particularly if the measured targets are challenging to attribute to numeric indicators or are referring to time-delayed (e.g. 10 years from now) effects. The definition of social impact used by FI-IMPACT is taken from the EC's expert group on social entrepreneurship (GECES): "*The reflection of social outcomes as measurements, both long-term and short-term, adjusted for the effects achieved by others (alternative attribution), for effects that would have happened anyway (deadweight), for negative consequences (displacement), and for effects declining over time (drop-off).*"[15] The social impacts will be indicatively categorised into the following four groups: potential impacts on social behaviour; social inclusion; learning and thinking; and democracy and participation (table 8). In addition, impact areas related with the social challenges addressed by H2020 will also be examined. A more specific list of indicators will be developed based on desk research and in correlation with the mapping of the Phase III projects and their expected outputs.

Table 8 Potential Social Impact Indicators

Type of Stakeholder	Type of Impact	Indicators	
		Projects' cluster	Total Phase III
Individuals segmented by age/education/income	Potential Impacts on social behavior	High, Medium, Low, None	Aggregated indicators
Social groups at risk of exclusion (disabled, long-term unemployed…)	Potential impacts on social inclusion	High, Medium, Low, None	Aggregated indicators
Students / overall population	Potential impacts on learning and thinking	High, Medium, Low, None	Aggregated indicators
Citizens segmented by age/ education / income	Potential impacts on democracy, transparency, participation	High, Medium, Low, None	Aggregated indicators

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[15] See online: http://ec.europa.eu/internal_market/social_business/expert-group/index_en.htm

Potential Impact on H2020 Main Social Challenges	Indicators	
	Projects' cluster	**All Phase III Projects**
Health, Demographic Change and Wellbeing	High, Medium, Low, None	Aggregated indicators
Secure, Clean and Efficient Energy	High, Medium, Low, None	Aggregated indicators
Smart, Green, and Integrated Transport	High, Medium, Low, None	Aggregated indicators
Inclusive, Innovative, and Secure Societies	High, Medium, Low, None	Aggregated indicators
Climate Action, Resource Efficiency, and Raw Materials	High, Medium, Low, None	Aggregated indicators

Source: FI-IMPACT 2014

3.10.2. Scope and Measurement Approach

We will follow an approach similar to the one described above for end-user benefits, leveraging the segmentation of project clusters with specific combinations of type of technology/type of product service/type of target market. We will:

- Identify the 4 - 5 top ranking potential social impacts for each cluster based on combination of technology type and target market;
- Assess the potential intensity of each category of impact for each cluster, using semantic indicators, indicatively with a 4 step scoring scale (high, medium, low or none).
- Aggregate the semantic indicators of each cluster to measure the overall level of expected potential user benefits generated by the FI-PPP Phase III projects.

To conduct the measurement we will refer to the best practice methodologies on social impacts, with a specific focus on the Social Return on Investment (SROI) approach, assuming that we can collect sufficient data. Secondly, the assessment includes a cross-Impact Assessment[16], which is a method for determining the relationship between events and potential impacts on future, related events. The cross-impact analysis performed by FI-IMPACT is scenario-driven, including likely outreach of Phase III projects.

3.10.3. Expected Results

The expected result is a detailed cross-Impact Assessment of Phase III projects, describing social scenarios, outcome indicators, events and their possible impact.

As part of the expected results, the assessment should identify which stakeholders are generating the potential social impact and to what extent they are making a

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[16] Cmp. : Gordon, T. J. (1994). Cross-impact method. Washington, DC: United Nations University.(Part of Glenn 1994a).

contribution. While the primary stakeholders are the Phase III Accelerators, to measure social impact properly it is important to include key thematic stakeholders funded by each accelerator (e.g. Smart Cities, Logistics, Agriculture, etc.) and understand the scope of their interactions. Collecting proposal materials submitted to each accelerators can give a first glimpse of this kind of information. Later on (expert) interviews will be necessary to fully describe scenarios and forecast potential SROI.

Additionally, all outcomes of the accelerator funded projects will be included in an innovation map, linking innovations with potential social impacts. For this purpose the evidences of the outcomes will be collected with documentation created by funded projects and uploaded to the FI-IMPACT Online Library by the Accelerators. This innovation and outcome map will then be used to give a specific value to social impact. The map is furthermore a main input for scenario development of the cross-impact analysis, as the innovation take-up can be split into specific domains for which different events can occur. The innovation map can also contribute to potentially refining the indicators used for the social Impact Assessment and estimate how long a potential impact will last.

Lastly, the social Impact Assessment should provide an assessment of deadweight, displacement, attribution and drop-off. Deadweight is the amount of a potential outcome, which would have happened even if the funding of FI projects had not taken place. Attribution is an assessment for direct outcomes and causation by FI funding. Drop-off gives estimates on how long a potential impact lasts, particularly linking it to specific thematic fields supported by the accelerators.

3.11. Potential Scientific and Knowledge impacts

3.11.1. Description

Scientific and Knowledge impacts are normally produced by cooperative research projects such as those funded by the FI-PPP in Phase I and II. Phase III is naturally different and more focused on innovation and go-to-market applied research and development. For this reason we do not expect knowledge impacts connected with basic research, but those connected with applied research and innovation.

There may be impacts relevant for science: for example if some initiatives will use FIWARE for exploitation / testing of scientific results, or if they plan solutions targeted to the scientific environment. The nature and scope of the funded projects will guide the selection of the appropriate indicators.

The main areas of investigation are indicated in the table below, to be finalized based on the actual characteristics of the projects selected for support.

Table 9 Potential Scientific and Knowledge Impact Indicators

Potential Scientific and Knowledge Impacts	Indicators	
Type of impact	Projects' cluster	All Phase III Projects
Patents and Publications	High, Medium, Low, None	Aggregated indicators
Use of standards	High, Medium, Low, None	Aggregated indicators
Collaboration between researchers	High, Medium, Low, None	Aggregated indicators
Knowledge transfer and spill-over effects	High, Medium, Low, None	Aggregated indicators

Network effects	High, Medium, Low, None	Aggregated indicators

Source: FI-IMPACT 2014

3.11.2. Scope and Measurement Approach

The analysis and measurement of these indicators will follow a similar approach as the other impact categories indicated above, with the main 3 steps:

- Identify the 4-5 top ranking potential scientific and knowledge impact for each cluster combination of technology and target market;
- Assess the potential intensity of each category of impact for each cluster, using semantic indicators, indicatively with a 4 step scoring scale (high medium low or none).
- Aggregate the semantic indicators of all the clusters to measure the overall level of expected potential knowledge and scientific impacts generated by the FI-PPP Phase III.

3.11.3. Expected results

The expected results will be the assessment of the overall level of the main potential knowledge and scientific impacts of the FI-PPP Phase III, complementary to the social impacts assessment described above.

3.12. Scenario forecasts methodology

The market model and the impacts model will deliver ex-ante impacts assessment for the period 2016 - 2017 (when the outputs of the Phase III projects should go to market) and therefore already include short-term forecasting. They will be done by leveraging IDC's market forecasts, developed through a structured methodology taking into account the main short-term trends and global macroeconomic and social context affecting the ICT market. We could define these impacts as "first wave" impacts, generated as soon as the Phase III innovation start being commercialized. The key assumptions behind these short term forecasts will be clearly documented and justified.

Within this time-frame, we will not develop alternative scenarios, since the range of uncertainties should be limited and the main demand-supply dynamics should be relatively clear.

However, it is important to project the potential impacts beyond the short-term. Socio-economic impacts take time to fully develop, as the organizational and technology changes brought about by innovation shape the market and innovation influences society. In addition, only the value of cumulated impacts over at least 5 years provide a good understanding of the relevance of a new technology. We can call them the "second wave" impacts and they should be deeper and wider than the first wave ones.

We will therefore consider the short-term scenario and the first wave impacts as the starting point: a baseline scenario. From this starting point we will apply a scenario building methodology by developing different possible trajectories of the take-up of FI-PPP technologies, the main factors affecting their adoption, and the market evolution under alternative macroeconomic and framework conditions. The timeframe of these scenarios is likely to be between 2016/2017 (the first full year after all the Phase III projects will have completed their activities and gone to market) and 2021/2022 (5 years later).

The process will be based on the following main steps:

1. Identification and ranking by relevance of the key uncertainties (focal issues) affecting the FI-PPP ecosystem evolution in the next 5 years, drawing on the analysis described above. If they are complex, it may be useful to break them down in sub-scenarios to be developed separately and then recombined. For example, we could develop separate sub-scenarios about macroeconomic trends (EU GDP alternative growth trajectories) and/or society evolution (will the hyper-connected society develop in Europe in the next 5 years?).
2. Development of clear and coherent assumptions about the evolution of these main trends in the next 5 years, building on desk research, interviews with selected opinion leaders within the FI-PPP community and each targeted market, and the FI-IMPACT expert assessment;
3. Selection of scenario logics along the "key axes of uncertainty" previously identified and develop them, by combining sub-scenarios into coherent and alternative storylines;
4. Assessment of the impacts of each scenario by projecting the indicators under the alternative scenarios, calculating cumulative impacts to 2022;
5. Communication of the scenarios results and feedback collection from the FI-PPP community;
6. Revision and finalization of impact forecasts and scenarios.

The scenarios outputs will be presented in the first Ex-ante Impacts Assessment deliverable and revised and updated in the second Ex-ante Impacts Assessment deliverable.

4. Implementation of the Impact Assessment Methodology

4.1. Process and Timing

The implementation of the Impact Assessment methodology described above will be carried out mainly through the Work packages 2, 3 and 4 as shown in Figure 11 below. The other work packages of FI-IMPACT (WP1 – Dissemination and Community Engagement and WP5 – Project Management) are not shown in this Figure because while essential to achieving the project's goals, they are not primarily concerned with these activities.

As shown below, the main responsibility of the methodology development and implementation is carried by WP2 with the support of WP3 which coordinates the interaction with the 16 Accelerators and the data collection. WP4 has also a supporting role by developing and maintaining the online tools, primarily the online resources library and the self-assessment tool.

Figure 11 Impact Assessment Process
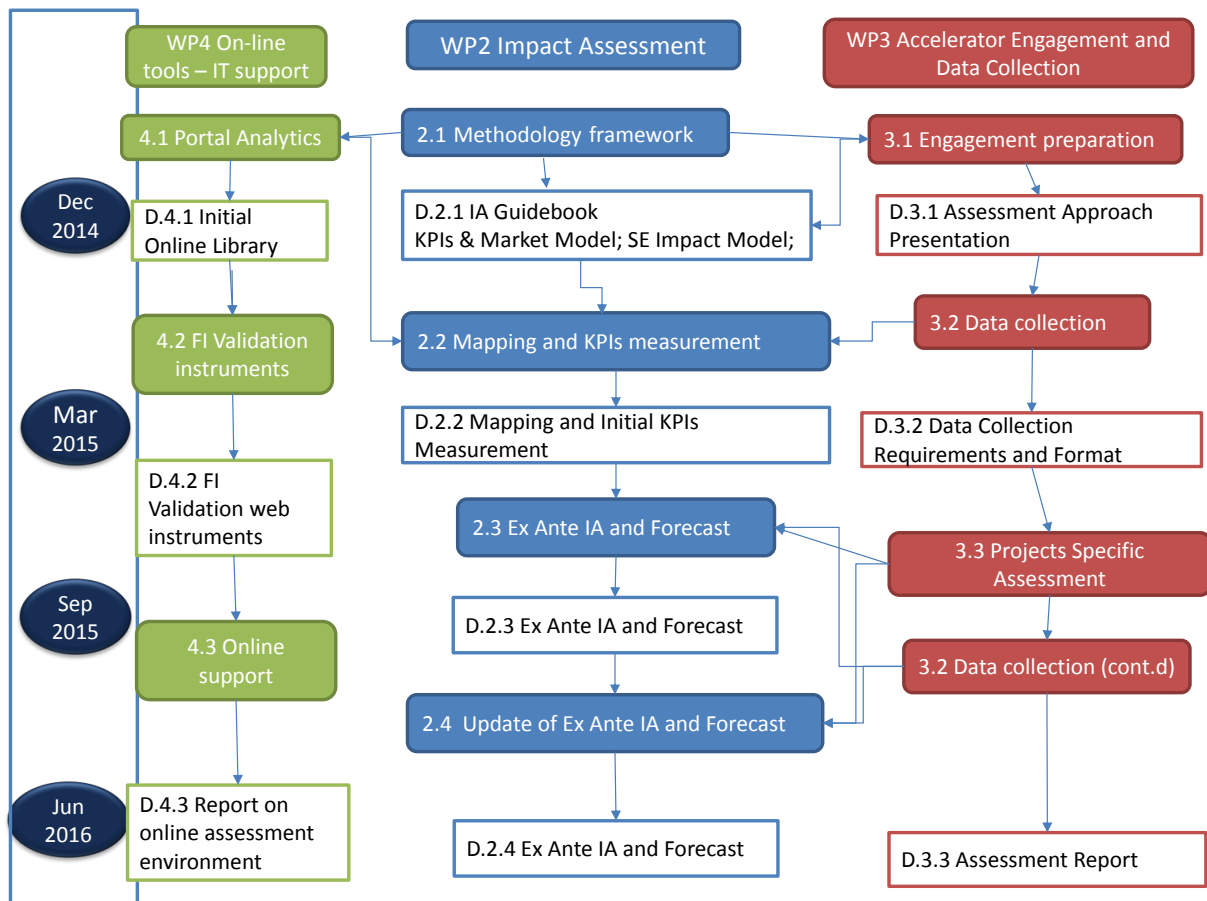
Source: FI-IMPACT 2014

The methodology implementation process is summarized in Figure 3 as the monitoring and Impact Assessment cycle. The main steps are the following.

4.1.1. Methodology development and monitoring

The first 6 months of FI-Impact (from July to December 2014) were dedicated to the following activities:

- Development of the Methodology Framework, which included:
  - o Design of the 3 main components of the framework (Key Performance Indicators, the Market Model and the SE Impacts Model), their scope, their interdependencies and their expected outputs;
  - o Identification and classification of the KPIs and of the impact indicators;
  - o Identification of the most appropriate data collection and measurement methods for the indicators selected;
  - o Description of the forecasting and scenario building methodology;
  - o Development of the quality control and risk management process;
  - o Development of the Mapping Templates and the Self-Assessment tool template.

This is all reported in this Impact Assessment Guidebook.

In parallel FI-Impact carried out the following activities:

- Organization of the active engagement process with the 16 FI-PPP III Accelerators, shared between the FI-IMPACT Partners;
- Development of data collection questionnaires to be used within the call for proposals, which were designed in consultation with the Accelerators and the EC, (to facilitate harmonization of application formats and the consequent elaboration and aggregation of proposal data);
- Data collection about the Accelerators themselves and the forthcoming calls for proposals, dealing with confidentiality issues through NDAs;
- Producing a "go to market" roadmap of the Accelerator calls and selection processes, to identify when the different batches of projects will be funded and when they can be expected to go to market;
- Agreement with the FI-PPP community for FI-IMPACT to collect, aggregate and share monitoring data about the calls results and the type of proposals collected, including potential duplication of proposals and proposers.
- Development of infographics to share visualized and summarized versions of first monitoring results with the FI-PPP community.

The first results of this process and the key components of the methodology are presented in the FI-Impact Assessment Approach presentation (Deliverable 3.1, December 2014).

4.1.2. Mapping and Measuring KPIs

The second phase of FI-IMPACT up to March 2015 will focus on the complete mapping of the FI-PPP Phase III, which will include:

- Completing the collection of the datasets of proposals from the Accelerators;
- Elaborating the data collected to describe in a synthetic way the distribution of the proposals by type and characteristics, their main business ideas, their geographical distribution across the EU 28 and the level of planned exploitation

of FIWARE. These data will be collected and aggregated through the Mapping templates.

- Carrying out a more in-depth statistical analysis of **selected funded projects;**
- Carry out the first measurement of KPIs on the selected projects. This may require a further round of requests of information and data from the Accelerators or the projects themselves;
- Elaborate the main benchmarks of the KPIs based on external data and/or "best in peer group" values;
- Develop a structured description based on the mapping templates and the KPIs templates of the FI-PPP ecosystem and the potential role of Phase III projects;
- Feed the benchmarking and KPI data into the self-assessment tool.

These activities will be presented in the following deliverables:

- Mapping of FI-PPP Phase III and initial measurement of KPIs (D.2.2, March 2015)
- Data Collection Requirements and Format (D 3.2, March 2015)
- Implementation of the web-based instruments including the self-assessment tool (D.4.2 April 2015).

Reviewing the Accelerators' call roadmap in the Figure 12 we notice that by February 2015, 12 Accelerators will have completed a first step selection resulting in approximately 500 projects to be funded (some of these will not receive second or third phase funding in further selection rounds). This will be the first batch of projects for which we can measure the KPIs, since we must include a cut-off at least one month before the delivery of the deliverable. The actual number of projects funded may vary, depending if the Accelerators need to modify their plans and if the expected numbers of proposals materialize. From the current data, it seems there may be more proposals than initially expected.

There will be a need to carry out a second round of measurement of KPIs for the other Accelerators, with a cut off in July 2015, when we will be able to assess all the projects selected by the first call and a smaller number of projects from the second call (see Figure 12).

Other data collection dates of will be fixed once confirmed by all Accelerators. The last round of data collection will be closed in February 2016 when the last batch of projects from the 3rd call should be available.

Figure 12 Accelerator Calls Roadmap
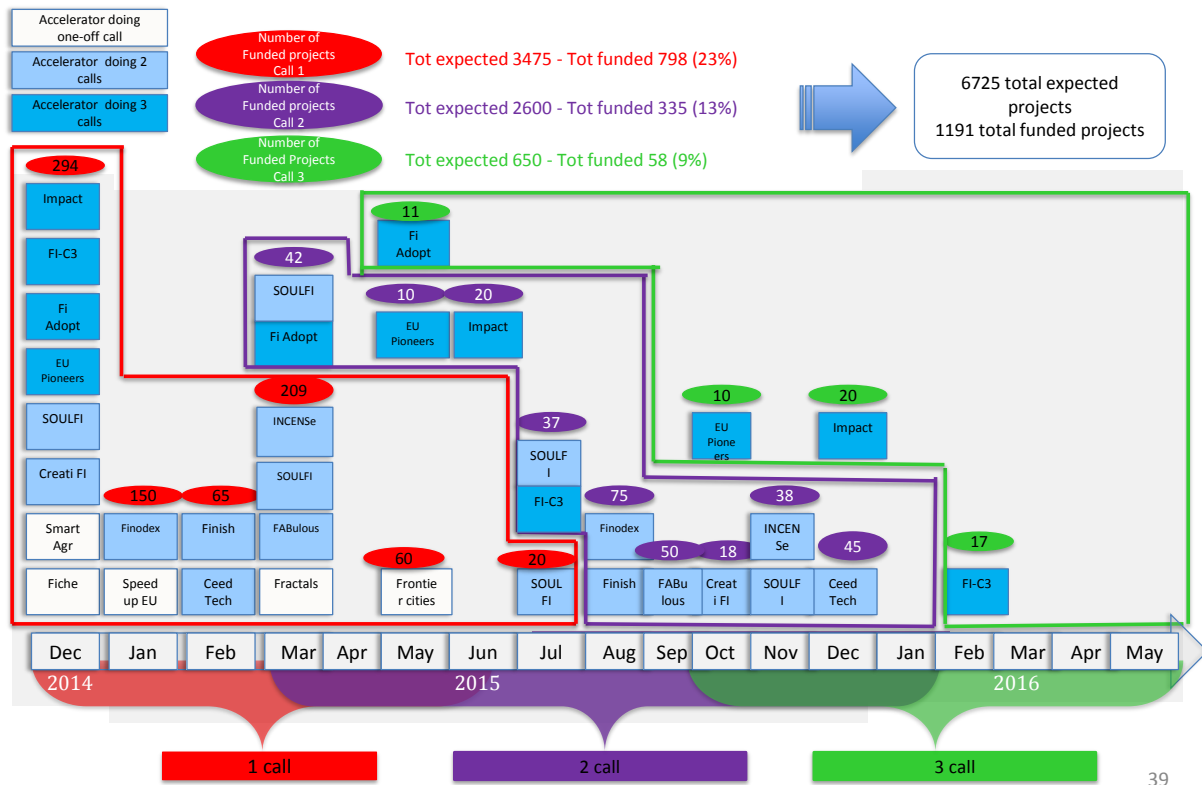
Source: FI-IMPACT 2014

After the production of D.4.2 in April 2015 FI-IMPACT will work in parallel following two different methodology "paths", closely inter-related, until June 2016.

4.1.3. KPIs cyclical assessment process

The periodical measurement of KPIs will enable a cyclical assessment of the funded projects to feed into the mapping updates, gradually developing the analysis of the FI-PPP Phase III "footprint" in the socio-economic system.

This will be based on staged, periodical data collection from the Accelerators, as anticipated above and with the approach described in D.3.2.

The other main objective will be to identify and promote good practices and potential success stories (a task entrusted to WP3). This will lead to the identification of a long list of 50 potential success stories, out of which we will select a short list of up to 10 cases with high success and impact potential (based on proposed KPIs) that will be disseminated and used to illustrate the value and reach of the FI-PPP.

This work will be presented in the following deliverables:

- Final Assessment report on the good practices and success stories (D.3.3 –June 2016);
- Final report on the online environment (D.4.3 –June 2016).

4.1.4. Impact Assessment Process

The Impact Assessment methodology will build on the results of the monitoring and mapping of the funded projects, and will include the implementation of the market model, the SE Impact model, and the development of scenarios and the forecast of indicators to 2022.

This work will be carried out as described earlier in this guidebook, with the following indicative timing:

March-June 2015:

- Desk research
- Development of the market model and calculation of results
- Preliminary development of the SE model
- Initial elaboration of draft scenarios
- Qualitative impacts assessment (users benefits, social, scientific and knowledge impacts)

July-August 2016:

- Implementation of the SE model and calculation of results
- Finalisation of alternative scenarios and calculation of impacts by scenarios forecasting indicators
- Development of conclusions on quantitative and qualitative impacts
- Production of First ex-ante Impact Assessment (D.2.3September 2015);

October-March 2016:

- Further rounds of data collection on funded projects, with a cut-off in February 2016 when the last data will be available
- Finalisation of the success stories
- Collection of feedback on the results of the First Ex-Ante Impact Assessment
- Update of FI-PPP Mapping

April-June 2016:

- Revision and update of market model and SE impact models calculations
- Incorporation of results on potential success stories
- Revision and update of scenarios and forecasting results to 20202
- Production of Update of Ex-ante Impact Assessment (D.2.4, June 2016).

5. Quality Management and Risk Management

5.1. Quality management processes

The FI-IMPACT consortium considers quality control as a fundamental element of the implementation of the project. This chapter presents the quality management, validation and risk management processes that will be applied specifically to the Impact Assessment methodology.

The methodology presented in this report is based on best practice in the field and strives to achieve the highest possible quality results at each step.

The quality process is based on the following main steps:

- **Quality Planning**: preliminary analysis of the main quality requirements for each phase of the methodology and measures to be taken to meet these requirements. For each phase of the methodology we have identified the expected results, the quality requirements to be respected, how they can be controlled and how they should be revised if they don't respect these quality requirements. This will be applied specifically to the three main components of the methodology framework:
  - The measurement of KPIs
  - The market model
  - The Socio-Economic (SE) Impacts model
- **Quality Assurance**: this is the implementation of the quality plan through evaluation of the overall technical work performance on a regular basis to provide confidence that the implementation of the methodology will satisfy the quality requirements. This will be implemented quarterly and at each main milestone of the project. This will be assured by the Quality manager through regular internal quality reviews under the coordination of the FI-IMPACT Project Manager and will be reported in the management progress reports.
- **Quality Control:** review of the main results of each phase of the methodology by monitoring the key parameters for compliance to quality requirements and identifying ways to eliminate causes of unsatisfactory performance. This will be implemented in the process of production and delivery of the IA deliverables including:
  - D.2.2 Mapping and Initial KPIs Measurement in March 2015;
  - D.2.3 Ex-Ante IA and Forecast in September 2015
  - D.2.4 Update of Ex Ante IA and Forecast in June 2016.
- **Feed-back and Validation**: finally, we will also go through a process of feed-back and validation of the main methodology approach and results by the FI-PPP Phase III community as described in the paragraph 5.3.

The following paragraphs present our quality planning for the main components of the methodology.

5.2. Quality of indicators

The indicators designed for each of the 3 main components of methodology (KPIs, market model and socio-economic impacts model) correspond to the main principles of good practice indicated by the Commission's IA Guidelines. The indicators strive to follow the criteria identified by the acronym RACER as indicated in the following table.

Table 10 Quality requirements of Indicators

Quality requirement	Description	Quality Assessment Approach
Relevant	Closely linked to the objectives to be reached	Expert evaluation by the consortium partners
Accepted	Recognized by the main interested stakeholders	Through the feedback and validation activities
Credible	Credible for non-experts, unambiguous and easy to interpret	Through the feedback and validation activities
Easy to monitor	Data collection should not require excessive effort by the Accelerators/projects who must provide the data and should be feasible through the resources available to the FI-IMPACT consortium	Preliminary check of data collection requirements followed by test in practical experience
Robust	Robust against manipulation, e.g. providing consistent results upon repeated application	This will be tested through statistical methods of the internal consistency of data and sensitivity tests of their range of variation

The measurement process, when we will start measuring the indicators with the data collected from the Accelerators, will provide a reality check. In that phase it may be necessary to modify, revise or drop an indicator, if it does not satisfy these main quality requirements. The eventual modification of indicators will be clearly documented in order to guarantee full transparency and understanding of the measurement process.

5.3. Quality of data

5.3.1. Validity and Reliability of data

Within the context of this project, we will also need to examine the quality and internal consistency of the data to be elaborated as inputs for the market model and socio-economic impacts model. The main quality parameters which will be considered are the **validity and reliability** of data. More specifically, these terms are defined in statistics as follows[17]:

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[17] See for example Measurement: Reliability and Validity Measures", by Jonathan Weiner, PhD, Johns Hopkins University http://ocw.jhsph.edu/courses/hsre/PDFs/HSRE_lect7_weiner.pdf

- **Validity** means the degree to which the data measures what it is designed to measure. Validity reflects those errors in measurement that are systematic or constant. Validity can be verified in various ways: through the opinion of the main stakeholders ("face validity"), and/or of experts, through correlation with external variables (for example predicting future performance) and/or checking that the measured sample is sufficiently representative of the structure of the universe under analysis.
- **Reliability** is the extent to which a measurement gives results that are consistent upon repeated application. Variations in a repeated measure can be due to chance or unsystematic events, systematic inconsistency or actual change in the underlying event being measured. Statistical tests (for example Cronbach's coefficient of Alpha statistics) can measure the internal consistency of data.

There can be no validity without reliability, but there can be reliability without validity. Therefore validity is almost more important than reliability. Moreover, validity and reliability are not binary concepts based on yes/no assessments, but vary within a continuum. The criteria used to assess the validity and reliability of the data used in this project will be clearly documented.

5.3.2.   Quality control of data from other sources

The IA methodology will combine data collected from the Phase III initiatives with data collected from other sources, especially from IDC databases and research. The consortium partners will apply to these data the same criteria of quality control described above, clearly documenting the data sources. In addition, IDC applies quality control processes to data collection and elaboration based on the following principles:

- Supply chain cross-checks: IDC performs a series of checks within the supply side, and the software and component markets focusing on processors, graphics chips, operating system licenses, and disk drives. These crosschecks insure proper market sizing and provide additional insight on market performance.
- Time series analysis. Historical data by vendor, brand, market segment, channel, and other variables are plotted in a time series. For example, graphical tools provide indications of discrepancies and outliers in market trends. Any discrepancy in trends and patterns are reviewed.
- Market share and growth analysis. Data is analyzed by form factor and market segment. Analysis is performed on vendors or sections of their data that show an unusual growth pattern. IDC communicates the potential discrepancy to vendors for verification. If sufficient evidence is not provided, triangulation work is performed.
- Triangulation. IDC uses secondary sources of confirmation through an extensive network of partners within the supply, distribution and demand side communities.

5.4. Quality requirements: KPIs measurement

The preliminary quality requirements of the KPIs measurement phase of the project and their assessment approach are presented in the table below.

Table 11 KPIs: Quality Requirements

Methods	Description	Quality requirements	Quality Assessment Approach
Monitoring Phase III	Data collection from Accelerators on calls, proposals and projects selected	Timely, efficient, complete, consensus based	Validation by project manager based on execution of data collection
Mapping templates	Design of monitoring and mapping indicators of FI-PPP Phase III	The indicators must be Relevant, Accepted, Credible, Easy to monitor, Robust	Performed by the consortium partners (see table above)
Statistical analysis of mapping data	Elaboration and aggregation of the data on proposals	Results must be valid, reliable, and coherent	Through statistical tests and expert assessment by consortium partners
Semantic analysis of the text of proposals	Extraction of significant and comparable data on proposals	Results must be valid, reliable, and coherent	Through statistical tests and expert assessment by consortium partners
Measurement of KPIs	Elaboration of synthetic performance indicators by cluster and for all the FI-PPP Phase III, compared to benchmarks	Transparent, coherent, comparable and as much as possible based on objective and evidence-based criteria	Through statistical tests and expert assessment by consortium partners

5.5. Quality requirements: Market model

The preliminary quality requirements of the Market model phase of the project and their assessment approach are presented in the table below.

Table 12 Market model: Quality Requirements

Methods	Description	Quality requirements	Quality Assessment Approach
Clustering of funded projects	Segmentation of funded projects into homogeneous clusters with similar value propositions, market targets, business models	Robust, valid and reliable	Through statistical tests and expert assessment by consortium partners

Methods	Description	Quality requirements	Quality Assessment Approach
Market model design	Definition of the structure of the model, inputs and outputs	Robust, valid and reliable	Through statistical tests and expert assessment by consortium partners
Estimate of potential take-up	Calculation of the potential users population reached by the FI-Phase III initiatives by cluster and target market	Robust, valid and reliable	Through statistical tests and expert assessment by consortium partners
Estimate of potential revenues	Calculation of the potential revenues collected by the FI-Phase III initiatives by cluster and target market	Robust, valid and reliable	Through statistical tests and expert assessment by consortium partners
Analysis of potential innovation and users benefits	Description of potential innovation and users benefits by cluster and target market	Robust, valid and reliable	Through statistical tests and expert assessment by consortium partners

5.6. Quality requirements: Socio-economic impacts model

The preliminary quality requirements of the Socio-economic impacts model phase of the project and their assessment approach are presented in the table below.

Table 13 SE impacts model: Quality Requirements

Methods	Description	Quality requirements	Assessment Approach
Identification and classification impacts indicators	Definition of indicators by impact category specifying scope, measurement approach and expected results	The indicators must be Relevant, Accepted, Credible, Easy to monitor, Robust	Performed by the consortium partners (see table above)
SE impacts model design	Definition of the structure of the model, inputs and outputs	Robust, valid and reliable	Through statistical tests and expert assessment by consortium partners
Estimate of indirect and induced impacts	Calculation of the multipliers driving indirect and induced impacts	Coherent with literature on macroeconomic impacts

Robust, valid and reliable | Referenced through desk research

Through statistical tests and expert assessment by consortium partners |
| Development of forecast scenarios | Identification of the main trends and framework conditions affecting potential demand and design of | Transparent, coherent, and as much as possible based on objective and evidence-based criteria | Clear documentation of scenario development process and key assumptions behind |

Methods	Description	Quality requirements	Assessment Approach
	alternative demand trajectories to 2020	Accepted by FI-PPP Phase III community	scenarios Validated through feedback by stakeholder community
Estimate of forecast scenarios impacts	Calculation of the main economic impacts and qualitative impacts by scenario	Coherent with literature on macroeconomic impacts Robust, valid and reliable Accepted by FI-PPP Phase III community	Referenced through desk research Through statistical tests and expert assessment by consortium partners Validated through feedback by stakeholder community

5.7. Feedback and validation

Feedback and validation of the main methodology approach and results by the FI-PPP Phase III community will be carried out as follows:

- Ongoing interaction with the Accelerators on the development of the main indicators and continuous verification of the quality of datasets delivered by them;
- Feedback on the present Impact Assessment Guidebook (D.2.1) which will be widely circulated within the Phase III community.
- Feedback on the results of the first D.2.3 Ex-Ante IA and Forecast (September 2015)

We will collect opinions and insights whether the IA deliverables are aligned with the following criteria (in a broad way, as this will not be a formal peer review):

- Relevant scope and appropriate methods;
- Reliable data, sound analysis and credible results;
- Valuable conclusions and recommendations;
- Clarity and completeness of the deliverables.

5.8. Quality control of Deliverables

The Quality Manager will be responsible of the quality control of deliverables, which will be based on:

- Quality control by the deliverables' authors

- Internal peer review and eventual requests for revisions

- Sign-off and delivery to the EC

The peer reviewers will receive the draft deliverables 2 weeks in advance to the delivery date and will provide specific feedback. An English-language check will be part of the quality control mechanism for each deliverable. For each of the main deliverables of the project the internal Peer Reviewers will review and, where necessary, clearly indicate the necessary revisions.

The deliverable's authors will implement the requested revisions before delivery to the EC, under the control of the Project Manager.

The peer review will be based on the following criteria:

- Compliance to quality requirements indicated below (valuable conclusions and recommendations, clarity and completeness)
- Conformance of deliverables to the objectives set forth by the workplan;
- Conformance of deliverables structure to the requirements defined by the workplan;
- Conformance of deliverables content to the requirements defined by the workplan;
- Quality of the research presented in the deliverables;
- Appropriate selection of methodologies depending on objectives and scope of the research;
- Appropriate implementation of methodologies according to workplan;
- Conformance of empirical work and/or technical support to most accepted and widely used best-practices in each appropriate functional/professional field.

The PM will be responsible of the last control of the deliverables before sending them to the EC and will decide how to implement revisions in case they are requested by the peer reviewers or by the EC after delivery.

Table 14 Quality Requirements for Deliverables

Quality Requirements	Description	Quality Parameters	Applied to
Valuable Conclusions and Recommendations	Conclusions and Recommendations must be relevant for the final objectives of the study, provide value added, be comprehensive, useful, applicable and sufficiently detailed. They must be objective, not influenced by any personal or partisan bias.	Value added Comprehensiveness Usefulness Practicability Impartiality	All deliverables and reports
Clarity and completeness of Deliverables	Deliverables must be clear, comprehensive, and easy to read, in a style and look appropriate for their targeted audience. They must be complete, responding to the study workplan and specifications, providing supporting evidence and background as appropriate, and documenting the methodology employed.	Clarity Completeness Suitability for target audience Communication Value added	All deliverables and Reports

5.9. Risk Management

Risk management ensures that adverse events are avoided and/or their negative impact is minimized. The objective of this risk management process is to anticipate these

possible events (assigning to each a probability and an impact) and to provide a mechanism to control and mitigate them.

Concerning the IA methodology, the partner responsible for WP2 will bear the main responsibility for risk management, under the supervision of the Project Manager supported by the Quality Manager.

The WP leader will monitor constantly the potential problems, with the support of the consortium partners involved with the IA methodology. The table of the main potential risks will be updated with the corresponding countermeasures and contingency plans. The WP leader will report to the PM about the results and consequences of risk management and will also alert the Quality manager if some unavoidable risks will require changes in the methodology and technical work.

Table 15 IA methodology: main potential risks

Risk	Impact (H, M, L)	Probability (H, M, L)	Management Strategy
Insufficient reliability and quality of data/information from the funded projects	H	L	Careful organization of data collection process with the collaboration of the Accelerators, plus quality control and cross-check of data collected, with further rounds of data collection if necessary
Difficulty in aggregating the data about the funded projects to estimate cumulative impacts	H	M	Use of advanced statistical methods such as factor or cluster analysis to identify key similarities and differentiators; two-step aggregation process, first clustering projects and then estimating cumulative impacts; use of semantic indicators allowing comparability of different indicators (scorecard approach)
Lack or incompleteness of data from desk research	H	L	Expand the list of sources and deepen the cross-analysis of collected data also leveraging expert interviews
Difficulty in estimating correctly the size of the potential market of the funded projects	H	M	The consortium team will leverage IDC's experience in estimating emerging demand of new services and will investigate the similarities of Phase III suggested solutions and products with others in other market segments to provide estimates. The estimates will be cross-checked for validation with leading stakeholders from the FI-PPP community with expertise in the same target markets.
Insufficient evidence from the funded projects about potential jobs creation	H	H	The consortium will compare the projects with similar companies and initiatives and identify parameters of job creation
Non respect of the schedule	M	M	The PM will follow closely the implementation of the work plan and inform the EC of any risks of significant delays and the corrective actions

Risk	Impact (H, M, L)	Probability (H, M, L)	Management Strategy
			to be taken.
Insufficient quality of the research presented in the deliverables	H	L	Design and implementation of best practice methodologies complemented by quality assurance process by the Quality manager and internal peer review.
Lack of clarity, communication value, non-suitability to target audience, incompleteness	M	L	Internal peer review mechanism, leveraging the partners' experience in dissemination and communication activities

Legenda: H = High; M = Medium; L = Low

6. Approach to Self-Assessment Tool

6.1. Overview

As defined in Sections two and three of this document the proposed indicators and assessment framework will facilitate an Impact Assessment aggregating and analysing sectorial clustered economic data for the entire FI-PPP. An enormous undertaking if not that Project partners have more than 50 years' experience doing exactly this job and a wealth of background data as a starting point. As defined in these sections, this Impact Analysis will consider data and economic activity data regarding economic sectors at the meso-level. Single Economic Sector Assessment and Market Forecasts are the result of tens of person months of concerted team effort. Thus FI-Impact expects to be able to cluster similar proposals and identify meaningful market sector outlook and potential impact. This means we do not expect to enter into details individual proposals selected for funding beyond a mapping carried out on higher-level KPIs. Additionally we have a time frame and calendar strictly governed by the FIWARE calendar and contracts agreed with the European Commission. This initial version of this Guidebook was completed in December 2014, the initial mapping and KPI measurement will take place before the end of March 2015 and the ex-ante assessment will be performed before the end of the Summer of 2015.

On the other-hand SMEs and Entrepreneurs participating in the program may or may not have development and go-to-market time frames that are aligned with the timing of FI-IMPACT. The number of SMEs and Entrepreneur may be more numerous than any study could expect to accommodate. Furthermore, the initial period of any business start-up is rarely typified by a final product offering and consolidated market channels. Their real market economic potential may occur after FI-PPP activities have already been formally concluded. Their market uptake may be performed in start-ups with different businesses having owners or partners not involved in the original accelerator funding process. The status of an initiative in April in April 2015 may not the same as its status in April 2015. For this reason we had decided to create a self-assessment tool that can be used to guide FI-Impact - Phase III funded and non-funded SMEs and Entrepreneurs with-in or beyond the accelerator funded group; now, and in the future. FI-Impact is developing a tool to allow a time-differentiated analysis to be carried out by the partners but, more importantly, by the SMEs or Entrepreneurs themselves. FI-Impact is developing an online self-assessment tool to give SMEs and Entrepreneurs the ability to monitor their potential impact and to learn what elements are needed to drive impact and how measurement and evaluation changes that potential.

6.2. Objectives

The self-assessment tool has two specific purposes:

1. **A Learning Tool** for SMEs and Entrepreneurs: to determine strengths and weaknesses through assessing their initiative on several key impact parameters and learn about ways to improve and increase their impact;

2. **A Monitoring Tool** for **the General FI-PPP/FIWARE Community**: to generate insights into strengths and weaknesses of Future Internet Public-Private-

Partnerships (FI PPPs) to detect which aspects of the FIWARE offering offer the highest potential and how initiatives are configured to exploit them.

The self-assessment tool is a living benchmarking tool based on a growing corpus of data points entered directly by the initiatives themselves. KPIs reflect a historical viability model based on good practice taken from literature. This will allow Phase 3 funded projects to (1) compare their potential performance to successful initiatives based on industry proven high-level indicators; (2) see how their initiatives are changing and what effect that may have on their potential; and (3) indicate on any given axis which initiatives have scored the highest in terms of potential and allow them to share their experiences (if willing) with other projects and interested stakeholders. It is intended for learning and providing bottom-up insights into what works and what can be improved, not meant for objective measurement, benchmarking or rating purposes.

6.3. Development of the tool

The self-assessment tool is developed on the basis of the KPIs and analysis framework described earlier in this guidebook. The data analysis framework is derived from ICT start-up business literature industry standard benchmarking indicators, participant data and summarises the general parameters that projects need to achieve sustainable impact. The framework consists of Six General parameters, including:

1) Organisational Profile

2) Exploitation of FIWARE

3) Innovation Focus

4) Market Focus

5) Feasibility

6) Potential benefits and impacts including:

   o Potential user benefits

   o Potential economic impacts

   o Potential social and environmental impacts

Each of the six parameters are turned into separate self-assessment questionnaires, including an explanation of how measurement is performed and why the specific parameter is important to achieve impact.

The parameters 1 to 2 have been extracted from the FI-PPP Mapping template described in Section 2.3.2. The parameters 3 to 6 correspond to the KPIs identified in Section 2.4.

Subsequently the tool will be used to determine best practices and methods for improvement by building on comparative analysis, participant experiences, evaluation reports and FI-Impact and Accelerator project expert views.

6.3.1. Quality control

Initial functionality and results will be evaluated and discussed with tool users and experts, to determine if the tool is:

1) Fit for purpose and able to achieve its goals

2) Usability of the tool

3) Quality of the questions

4) Quality of the results

5) Value for future use and needed improvement

When operational the tool will be offered without charge via the FI-Impact portal at www.fi-impact.eu. The tool will be presented in Future Internet Validation Web-Based Instruments (D4.4.2) in March 2015.

Near the conclusion of Phase III, the self-assessment tool will be used to identify a long list of 50 initiatives for expert review leading to the Success Stories Campaign.

6.4. How the Tool Works

The tool is made up of four distinct web-based sections and a database.

Registration

The self-assessment tool can be used by any organisation via the FI-IMPACT portal. Before starting the self-assessment, Phase III supported owner-managers must answer general questions on their project's characteristics, sector, technological and geographical scope, key activities and objectives. This will enable clustering and data comparison analysis.

Questionnaires

After registering and logging in the initiative owner can answer the questionnaires on each of the eight general parameters. A questionnaire consists of one to seven statements (depending on the parameter), with a predetermined set of answers. Answers may be objective data (where appropriate) or qualitative data, based on a semantic scale (indicatively, High, Medium, Low, None).

The initiative owner chooses the answering option that best fits the current situation of the supported project. Only one answer per statement is possible. To receive the results all questions, must be answered.

Scoring

Having completed all questions, the initiative owner is presented with the project's scores per parameter, and overall score indicating the initiative's readiness to achieve impact. It will also indicates what parts of the supported project might be at risk, what is already secure and focused on maximizing impact.

Improvement

All individual supported project results presented can be compared to other respondents. Where other respondents are willing to be contacted to discuss experiences, hyperlinked contact information to facilitate further bilateral discussion will be provided.

Instructions and Descriptions of the Parameters

Each questionnaire has a hyperlink to a wiki style FAQ page and a brief description of the parameter being discussed. Where appropriate, links to supporting information on the FI-Impact Library will be provided.

Figure 13 Mock Up of Self Assessment tool

By using the self-assessment tool, supported projects are encouraged to measure and self-evaluate their potential and to plan their proposed activities with industry benchmarks in mind. This will not only increase their ability to drive impact, but will also improve the quality of available data, providing management and investors with a comparative framework to evaluate supported projects.

To support future impact measurement, scalability of the tool is very important. The more supported projects, which, assess their potential, the more useful, accurate and valuable the available data becomes. Therefore, initial interaction with as many supported projects and accelerators will be emphasized. Furthermore to ensure lasting value, the online hosting of the self-assessment tool should be continued beyond the end of the FI-Impact project.

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