Future Internet Business Acceleration Programme for 3D Printing Services in Europe

Guide for Applicants

FABulous Open Call 3

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1 INTRODUCTION

The FABulous project, currently active under the Seventh Framework programme of the European Community for research, technological development and demonstration activities contributing to the creation of the European research area and to innovation (2007-2013), calls for project proposals for its third Open Call.

This **Guide for Applicants** presents a brief overview of the context and approach of the FABulous acceleration program and details all the information needed to guide you in preparing a proposal for FABulous 4.0 Open Call 3. It provides instructions on structuring and submitting your proposal as well as information on the eligibility and evaluation criteria.

1.1 Overview of FI-PPP

The Future Internet Public-Private Partnership Programme (FI-PPP) is an industry-led and user-driven innovation programme with a focus on Europe, forming part of the EU's Seventh Framework Programme (FP7). The total investment by industry and the public sector is 500 million euro (including 300 million euro European Commission contribution). The programme is founded on the vision of a sustainable economy and an inclusive society in Europe and its main aims are to:

- Increase the effectiveness of business processes and of the operation of infrastructures supporting applications in sectors such as transport, health, or energy;
- Derive possible innovative business models in these sectors, strengthening the competitive position of European industry in domains like telecommunication, mobile devices, software and service industries, content providers and media[1].

FI-PPP applies an industry-driven, holistic approach encompassing R&D on network and communication infrastructures, devices, software, services and media technologies while at the same time promotes their experimentation and validation in real application contexts, bringing together demand and supply and involving users early in the research lifecycle.

The FI-PPP programme is performed in three phases from 2011 to 2016 each of which has specific goals and objectives:

- **Phase I**: establishing the technology foundation, defining "use case scenarios" in different industry sectors, making an inventory of available (public) infrastructures via capacity building, and programme support;
- **Phase II**: developing use case pilots and platforms and setting up infrastructures;
- **Phase III**: expansion of the use cases by developing applications and services and expansion of the technology foundation[2].

FIWARE is the cornerstone project of the FI-PPP, aiming to build an open Core Platform of the Future Internet. The FIWARE platform will dramatically increase Europe's Information and Communications Technology competitiveness by introducing an innovative infrastructure

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[1] Future Internet Public-Private Partnership: Work Programme 2011-2013

[2] http://ec.europa.eu/digital-agenda/en/future-internet-public-private-partnership

that enables cost-effective creation and delivery of versatile digital services, high quality of service and security guarantees.[3]

FIWARE will deliver a novel service infrastructure, building upon Generic Enablers, which offer reusable and commonly shared functions making it easier to develop Future Internet Applications in multiple sectors. The **FIWARE Catalogue** provides information, documentation and tools you need as a developer to start using a Generic Enabler Implementation[4].

FIWARE Lab is a working instance of FIWARE, enabling developers to setup the basic virtual infrastructure needed to run applications that make use of the APIs provided by FIWARE Generic Enablers.[5]

FIWARE Accelerate is a Future Internet Accelerator Program comprising 16 Future Internet Accelerators (of which FABulous is part) in different areas of application. In total the programme has a budget of 80 million euros for direct funding, mentoring and networking to create innovative Internet-based applications and services building on FIWARE technologies.

The FI-PPP covers a wide scope of **usage areas** through a set of **use case projects** that make use of the FIWARE platform in setting up trials of advanced Future-Internet-based services and domain specific applications, also referred to as Specific Enablers (SE). Some examples of FI-PPP usage areas and use case projects are presented below:

Transport, logistics and agri-food	*Social connected TV, mobile city services, and video games*	*Manufacturing*
• FINEST (Phase 1) • SmartAgriFood (Phase 1) • FIspace (Phase 2)	• FI-CONTENT (Phase 1) • FI-CONTENT 2 (Phase 2)	• FITMAN (Phase 2)

1.2 Overview of FABulous project

FABulous started in September 2014 and has a total duration of 28 months. The total funds to be distributed correspond to 5.44 million Euro.

So far, FABulous issued 2 Open Calls selecting 80 startups to develop business prototypes and applications.

FABulous is now launching its third and last Open Call targeting startups, SMEs and web entrepreneurs, _aiming to fund innovative ideas related to 3D Printing and Digital Fabrication_ that make use of FIWARE technologies.

FABulous project aims at creating and supporting a FI-service ecosystem for 3D printing (3DP) technologies that bridges the gap between ICT, Creative and Manufacturing

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[3] http://www.fiware.org/about/

[4] http://catalogue.fiware.org/

[5] https://account.lab.fi-ware.org/

Industries. FABulous promotes the use and adoption of the FI-PPP Core Platform, building upon the FIWARE technology, i.e. FIWARE Generic Enablers (GEs), Specific Enablers (SEs) and domain specific platforms, in particular FITMAN, and FIcontent.

FABulous will act as the European 3D printing accelerator aiming to nurture the business innovation and web-entrepreneurship ecosystem for 3D printing in Europe, bringing together FIWARE assets, infrastructures and investors with innovators and entrepreneurs in the field of design, manufacturing, logistics and content-based services. FABulous aims at leveraging support services and capacities towards web entrepreneurs and business innovators in the field of 3D printing digital businesses.

2 OBJECTIVES OF THE CALL

The call aims to fund any service / application or product under the concept of 3D Printing for Digital Manufacturing for all kinds of sectors virtual and physical related to additive manufacturing.

FABulous Open Call 3 aims at leveraging startups, SMEs and web entrepreneurs to develop services / applications with a clear societal and economic value for 3D printing.

In order to develop these services / applications, applicants shall build upon the FIWARE technology and may also use case projects of FI-PPP (i.e. FIWARE Generic Enablers, Specific Enablers and/or domain specific platforms) in order to address challenges extracted from real life digital manufacturing business cases. FABulous will enable SMEs and web-entrepreneurs to trial their innovative services in collaboration with creative and industrial communities. This will contribute to FABulous' overall objective of establishing solutions that help connecting ICT advanced services to Future Internet services with a particular focus on 3D Printing.

Applicants are therefore encouraged to navigate through the FIWARE assets (FIWARE GEs catalogue and Use Cases SEs catalogues) and explore the ones best matching their project ideas. For example, the GE: 3D-UI-XML3D[6] could be a relevant FIWARE asset to be utilised in 3D printing projects. Use Case projects such as FITMAN[7], and FIcontent[8] could provide more options related to 3D printing domain (in terms of technology to be used). The projects to be selected for funding under FABulous Open Call 3 shall liaise with these projects and incorporate developed components and solutions and possibly also services provided by these.

Annex III presents an overview of FITMAN and FIcontent technologies dedicated to manufacturing, and media and content respectively. Information is given on the platforms and respective SEs of each project.

Applicants are encouraged to incorporate / build on the FITMAN and FIcontent technologies for the development of the 3D printing applications and services. However, their use is not

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[6] http://catalogue.fiware.org/enablers/3d-ui-xml3d

[7] http://www.fitman-fi.eu/

[8] http://mediafi.org/

mandatory – as already mentioned, applicants shall make use of any FIWARE technology best matching their 3D printing related project ideas.

2.1 Innovation for 3D Printing and Digital Fabrication

FABulous welcomes innovative services and applications that provide innovative business propositions in very diverse application sectors such as:

- Industry 4.0 and ICT for manufacturing
- Consumer Goods & Lifestyle
- Textile
- Jewellery
- Art & Design (Fashion, Architecture, etc…)
- Aerospace, Automotive Manufacturing (metals, plastics, multi-material) & Engineering
- Bio & Healthcare
- Architecture
- Food
- **Any other**

All proposals will be evaluated in equal terms.

Applicants will have to present sound proposals for solutions based on the Generic and Specific Enablers (GEs and SEs) provided by FIWARE as well as sound business considerations. The solutions, products and applications developed shall - above all - be sustainable and applicable in real business life. Applicants will have to already present at their proposals the market potential of the FABulous 4.0 service / application they plan to develop.

2.2 General conditions of the call

FABulous Open Call 3 aims at funding **20** projects to enter the accelerator.

The projects will be technically monitored by the **FABulous Assessment and Labelling Panel supported by external mentors.** The panel will consist of 10 members combining both external experts and FABulous consortium members.

During the 4 months acceleration, both Business Model (BM) validation and prototype building and BM re-validation with prototype will be part of the process. Business Model Canvas (BMC) validation will be iterative. Other activities include demo days, match-making, finding investors, etc.

2.3 Available funding

FABulous total funds to be distributed correspond to 5.44 million Euro.

FABulous already funded 80 startups to develop prototypes services and /or applications and 20 of them startups are still being accelerated.

FABulous will support 100% of the project costs up to 30.000€ for the selected projects under Open Call 3.

2.3.1 Activities to be funded
Table 1 below presents a list of the activities eligible for funding.

Table 1: Activities to be funded

Activities	Project
Personnel Costs	✓
Travel expenses	✓
Software licenses	✓
Equipment Costs	✓
Partnering costs to collaborate with Experimental Industrial Manufacturing partners	✓
Total funding per project	**30.000 €**

Also please note that applicants do not have to present in their proposals any description of their planned budget allocation in the execution of their projects.

3 ELIGIBILITY CRITERIA

Applicants may only receive funding via the FABulous project if they are eligible to receive funding under the rules of the Seventh Framework Programme (FP7).

FABulous specifically targets at startups, web entrepreneurs and Small and Medium-sized Enterprises (SMEs). Regarding SMEs, our consortium follows the definition as provided in the Commission Recommendation 2003/361/EC[9]. Concerning web entrepreneurs, FABulous will apply the following definition: web entrepreneurs are operators of an internet-based business. Thus, they constitute a specific category of entrepreneurs who create new digital services and products that use the web as an indispensable component of their business.

Overall, FABulous Open Call 3 targets the three following categories:

- SME (established with more than 2 years of activity).
- Established Web Entrepreneurs (2-3 years of activity)
- Emerging Web-Entrepreneurs & Start-ups (less than 2 years of activity)

FABulous equally targets newly established web entrepreneurs / startups and already established SMEs wishing to introduce new business lines within their organisation.

SMEs and web entrepreneurs must be legally established in one of the following countries in order to be eligible for funding:

- **An EU Member State**: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.
- **A FP7 Associated country**: Albania, Bosnia and Herzegovina, Faroe Islands, FYROM, Iceland, Israel, Liechtenstein, Moldova, Montenegro, Norway, Serbia, Switzerland, Turkey.

In addition to these conditions, anyone applying for funding under FABulous 4.0 Open Call 3 must take into account the following conditions:

- Submit proposals individually: one proposal submitted by a single entity or individual.
- **If a team, a team leader or a company is or has already been part of FABulous (SML1 or SML2) or any other FIWARE Acceleration program, they will not be able to submit a proposal and therefore will not be evaluated nor selected**.
- Not having been approved for funding under any other FIWARE Accelerator: proposals may only receive funding once via Open Calls organised by FIWARE Accelerators.

In case any of these conditions applies, the proposal will be excluded from funding under FABulous Open Call 3.

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[9] 'SMEs' mean micro, small and medium-sized enterprises within the meaning of Recommendation 2003/361/EC in the version of 6 May 2003. You may also consult the SME user guide:
http://ec.europa.eu/enterprise/policies/sme/files/sme_definition/sme_user_guide_en.pdf

4 PREPARATION AND SUBMISSION OF PROPOSALS

This section provides information on the preparation and submission processes to be followed by the applicants in order to participate in FABulous 4.0 Open Call 3.

4.1   One stage submission

Proposals are submitted in a single stage; Annex I provides a technical proposal template. Applicants are kindly requested to read very carefully and respect the instructions provided in the template of the technical proposal. Proposals shall explain the general concept and objectives of the project, the FIWARE technology that will be utilised, the market impact of the project, as well as describe in detail the implementation plan of the project.

4.2   Proposal language

Proposals must be submitted in English. Proposals submitted in any other language will be excluded.

4.3   Submission of proposals

Proposals prepared according to the instructions provided above, shall be submitted electronically at the FABulous Evaluation Management System (EMS) platform (https://fabulous.ems-carsa.com/user/registration). Applicants are advised to start the application process in advance (e.g. creating an account and entering their organisation's data) in order to be familiarised with the FABulous EMS platform. Applicants will have the possibility to submit new versions of their proposals as many times as they wish before the call closure. Only the last version submitted before the deadline will be considered in the evaluation.

Please note that only proposals submitted via FABulous EMS platform will be eligible for evaluation. Proposals reaching FABulous project or any member of the consortium in any other way will be considered as "not submitted", and will not be considered in the evaluation process.

Proposals must be submitted by the closing time and date of the call (**28.06.2016 at 17h00 Brussels time**). Proposals failing to meet this deadline and not submitted via the FABulous EMS platform will be considered as NOT VALID and excluded from evaluation.

An acknowledgement of receipt will be sent out via email to all successfully submitted proposals as soon as possible after the closure of the call. However, this receipt will not be a proof that the proposal is eligible for evaluation.

5 PROPOSAL EVALUATION AND SELECTION

5.1   Eligibility checking

Once the call is closed, all received proposals will be checked with regard to the eligibility criteria as explained in **section 3 Eligibility criteria** of the present document. Proposals meeting the eligibility criteria will be considered in the evaluation process.

5.2   Evaluation criteria

The ranking of selected projects will be created assessing:

1) Soundness of service concept and innovation capacity;
2) Use of FIWARE technology (GEs, SEs and domain specific platforms);
3) Impact and market readiness;
4) Quality of project team.

Evaluation scores will be awarded for each of the criteria. Each criterion will be scored out of 5 and decimal numbers can be given. Annex II provides a sample of the evaluation form to be used during the evaluation process. Furthermore, the activities proposed should respect fundamental ethical principles, including those reflected in the Charter of Fundamental Rights of the European Union. In case fundamental ethical principles are identified as part of a proposal, during the evaluation process, FABulous will take all the appropriate measures in order to confront with the situation[10].

5.3   Evaluation process

FABulous will evaluate proposals received in the light of the criteria as presented in Annex II of this document. The evaluation will be carried out with the assistance of independent - to the applicants and the consortium - experts. The experts will be individuals with experience in the fields of innovation linked to this Open Call and also with the highest level of knowledge. The selected experts will sign a declaration of confidentiality concerning the evaluation process and the content of the proposals they evaluate. They will also declare their absence of any conflict of interest for the assigned tasks.

Each proposal will be evaluated by two evaluators. Each evaluator will record his/her individual opinion on each proposal using the attached evaluation form. They will then communicate in order to reach consensus on the quality of each proposal. The result of that agreement (comments and scores) will be reflected on the Evaluation Summary Report (ESR), which will be signed by both. Once ESRs of all proposals are gathered, all experts will have a final meeting in order to collectively rank all the proposals and create a shortlist of those which will finally receive funding. If two or more proposals are tied with the same overall score, priority will be given as illustrated in Table 2 below. The third and fourth

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[10] For more details on ethical principles please refer to the Regulation (EC) No 1906/2006 of the European Parliament and of the Council of 18 December 2006 Article 43 "Preservation of European competitiveness and ethical principles"

criterion will have a threshold of 4, while for the first and second a threshold of 3 will apply. This means the team will be the most important criterion and Impact/market second.

The overall threshold, applying to the sum of the four individual scores, will be 15.

Table 2: Ranking in case of equal scoring and thresholds

Criterion	Priority if ex-aequo	Threshold
Soundness of service concept and innovation capacity	4	3
Use of FIWARE technology	3	3
Impact and market readiness	2	4
Quality of team	1	4

As also illustrated in the table above, the criterion of the use of FIWARE technology is also important and a condition for funding. Applicants are advised to check the questions published on https://www.fi-ware.org/fiware-usage-questionnaire to understand what type of questions evaluators could ask and answer themselves when reading applicant's responses to this section. In this sense, questions to measure usage of FIWARE by a given application are grouped within the following chapters:

1. Data/Media Context Management
2. Connection to the Internet of things
3. Application/Data delivery
4. Advanced web-based user interface
5. Advanced middleware
6. Robotics
7. Security
8. Cloud infrastructure

5.4   Selection process

Using the results provided by the consensus evaluation report, the highest scoring proposals will be selected. It may be concluded that even the highest scoring proposal is of inadequate quality, in which case it will make no selection. This conclusion is obligatory if all the proposals fall below the threshold scores given on the attached evaluation form (Annex II).

Based on the results of the evaluation, FABulous will officially approve the selection of the sub-granted applicants and will submit it to the European Commission. Upon approval by the

EC, the process for negotiating and signing the sub-grant agreement will be initiated with the selected applicants.

All applicants, successful as well as unsuccessful ones, will receive a notice on the outcome of the evaluation and their ESRs.

Once the Open Call evaluation is finalised, representatives of the selected proposals will be invited to sign a Sub-grant Agreement. During the Sub-grant Agreement signing process, the selected applicants will have to provide all relevant documentation concerning their legal and financial status[11], as well as any amendments in their technical proposals according to the comments received by the evaluators during the evaluation process, if applicable.

Figure 1 below illustrates the project evaluation and selection process.
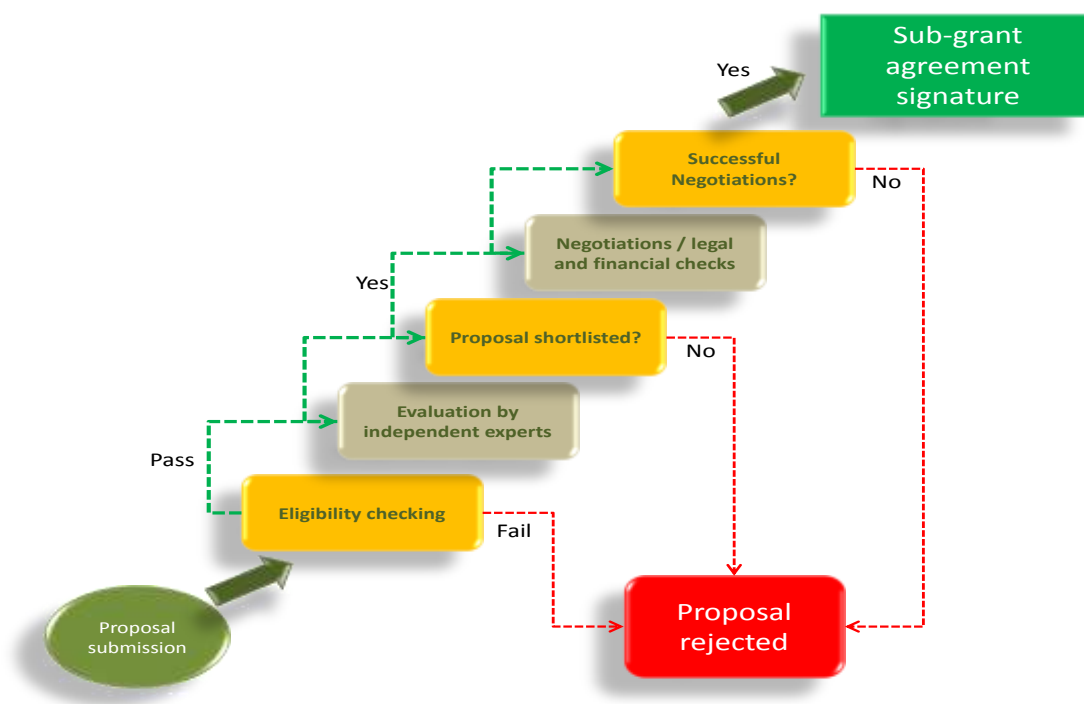

Figure 1: Evaluation and Selection process

5.5   Project duration

The selected projects will enter the FABulous accelerator for 4 months. The projects will start on the 1st of September 2016 and end on the 31st of December 2016.

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[11] For a detailed list regarding the documentation to be provided by the applicants in the negotiation process, please see FP7 verification rules: http://ec.europa.eu/research/participants/data/ref/fp7/100581/fp7-verification-rules_EN.pdf

6 SUPPORT TO APPLICANTS

6.1 FABulous Help Desk

Applicants may contact FABulous Help desk (https://fabulous.ems-carsa.com/user/helpdesk) should they wish to receive further information on the FABulous Open Call content and conditions, or any IT related issues when using the FABulous EMS platform. Applicants are advised to consult the Frequently Asked Questions document before contacting FABulous Helpdesk.

Should the applicants wish to receive any specific information on FIWARE technology and conditions, they may contact FIWARE directly via http://www.fiware.org/contact-us/.

Should the applicants wish to receive further information on FITMAN technologies, they are advised to contact FITMAN via fitman-support@txtgroup.com

Should the applicants wish to receive further information on the platforms and the respective SEs of FIcontent, they are advised to visit http://mediafi.org/. Specific contact details are available under each platform and respective SEs.

PROJECT PARTNERS

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ANNEXES

I TECHNICAL PROPOSAL TEMPLATE

Attached you may find a template to be used for the preparation of your technical proposal. Please note that you will be asked to upload a PDF version of your proposal at the FABulous EMS platform.

II SAMPLE EVALUATION FORM

Proposals will be evaluated in line with the European Commission 'Rules on Submission of Proposals and the Related Evaluation, Selection and Award Procedures'[12], augmented to favour the FIWARE take-up aimed by objective FI.ICT-2013.1.8. For each of the four criteria described below, evaluation scores will be awarded (without scoring the sub-criteria). Each criterion will be scored out of 5. The threshold for the third and the last criterion will be 4 while for the first and the second the threshold will be 3. The overall threshold, applying to the sum of the four individual scores, will be 15. In case of equal scoring, priority will be given as follows: 1st priority: criterion 4; 2nd priority: criterion 3; 3rd priority: criterion 2; 4th priority: criterion 1.

Score transcription:

The scores indicate the following with respect to the criterion under examination:

0 - The proposal fails to address the criterion under examination or cannot be judged due to missing or incomplete information.

1 – **Poor.** The criterion is addressed in an inadequate manner, or there are serious inherent weaknesses.

2 - **Fair**. While the proposal broadly addresses the criterion, there are significant weaknesses.

3 - **Good**. The proposal addresses the criterion well, although improvements would be necessary.

4 - **Very good**. The proposal addresses the criterion very well, although certain improvements are still possible.

5 - **Excellent.** The proposal successfully addresses all relevant aspects of the criterion in question. Any shortcomings are minor.

Criteria to be scored	Sub-criteria	Score
1. Soundness of service concept and innovation capacity	– Soundness of concept, and quality of objectives – Innovation capacity of the application / service to be developed – Quality and effectiveness of the technical methodology	
2. Use of FIWARE technology	– Use of the FIWARE technology (GEs, SEs and domain specific platforms) in the proposed project: extent and justification	
3. Impact and market readiness	– Impact related to the objectives of FABulous Open Call 3	

	– Impact on spreading the FIWARE ecosystem – Potential impact on industry, including the improvement of the innovation capacity – Market readiness, including applications in real business life	
4. Quality of project team.	– Quality and relevant experience of the project team members	
Total Score		

Ethical issues	Does this proposal contain ethical issues that may need further attention?	YES / NO

I declare that, to the best of my knowledge, I have no direct or indirect conflict of interest in the evaluation of this proposal.

Name	
Signature	
Date	

III USE CASES SPECIFIC INFORMATION

III.1 FITMAN

The FITMAN project is about Future Internet Technologies for MANufacturing industries. Its mission is to provide the FI-PPP Core Platform with 10 industry-led use case trials in the domains of Smart, Digital and Virtual Factories of the Future.

FITMAN has 10 trials (4 conducted by Large Enterprises, 6 by SMEs) that test and assess the suitability, openness and flexibility of FI-WARE Generic Enablers while contributing to the STEEP (social-technological-economical-environmental-political) sustainability of EU Manufacturing Industries. The use case trials belong to several manufacturing sectors such as automotive, aeronautics, white goods, furniture, textile/clothing, LED lighting, plastic, construction, and manufacturing assets management.

FITMAN delivers 3 platforms, 15 Specific Enablers and a Verification and Validation Framework. It also provides a Phase III Package, which provides FITMAN technical and non-technical assets as well as support services.

III.1.1 Specific Enablers

FITMAN provides 15 Specific Enablers (SEs), each of which is currently used in multiple FITMAN trials. These SEs cover a wide range of domains within IT for manufacturing, from management of virtualised assets to dynamic complex event processing and semantic matching. Several SEs are relevant to 3D printing, including the 3DScan SE (for image analysis, visualisation and management) and the 3D Web Viewer SE (for collaborative editing of 3D virtual scenes).

Details of all 15 SEs, including documentation, terms and conditions, and download information can be found at: http://catalogue.fitman.atosresearch.eu/

III.1.2   FITMAN Platforms (FIWARE Technologies)

FITMAN Smart Factory Platform

The Smart Factory Baseline Platform is displayed below. This representation highlights connection and collaboration between components. When deployed in the context of some specific Trial experimentation, the baseline Platform will be enhanced by FITMAN Specific Enablers and by Trial Specific Components, resulting in a Trial Platform which fully supports the implementation of the target FITMAN business processes.

As the diagram shows, two distinct logical blocks are defined, which reflect the architecture of the FIWARE Internet of Things Services Enablement chapter:

- The Backend: GEs that are typically deployed on the cloud
- The Gateway: GEs that are typically deployed on local premises - i.e., in proximity to devices
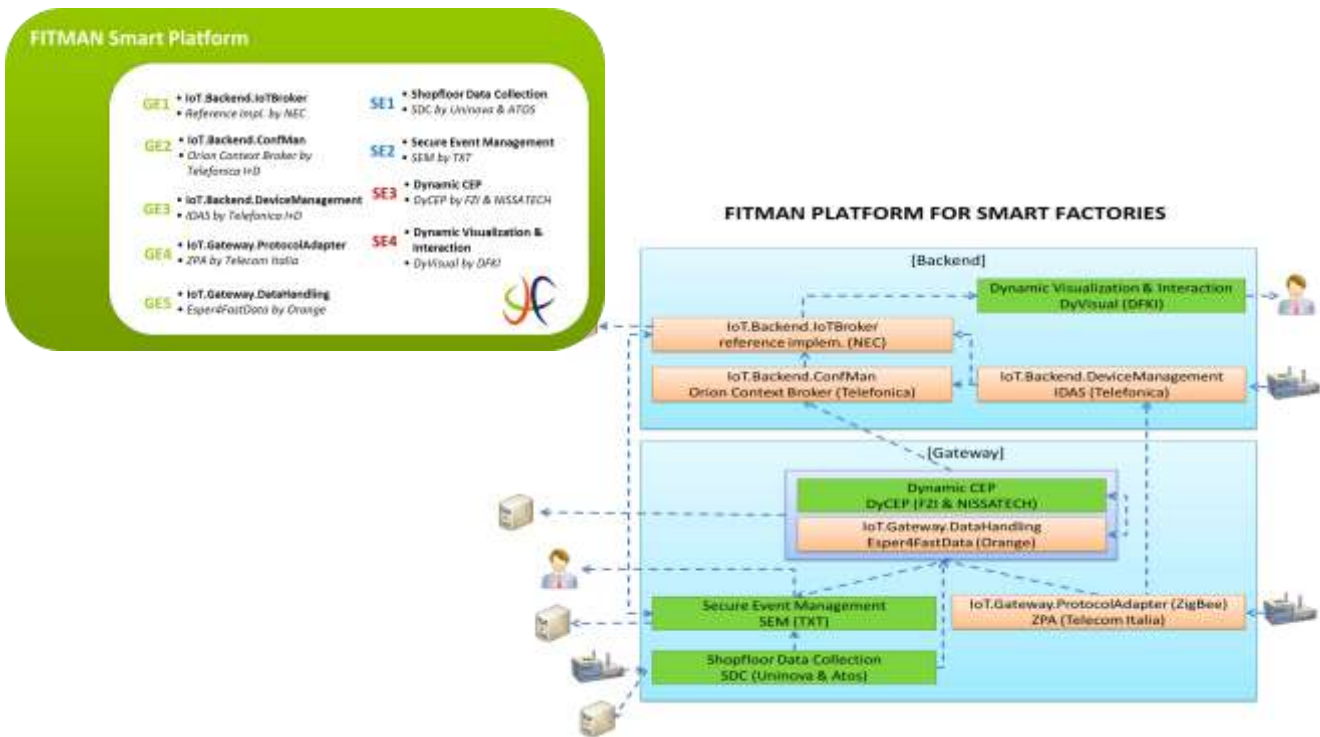
FITMAN Digital Factory Platform

The Digital Factory Baseline Platform resulting from the GE selection is displayed below. This representation highlights connection and collaboration between components. When deployed in the context of some specific Trial experiment, the baseline Platform will be enhanced by FITMAN Specific Enablers and by Trial Specific Components, resulting in a Trial Platform which fully supports the implementation of the target FITMAN business processes.
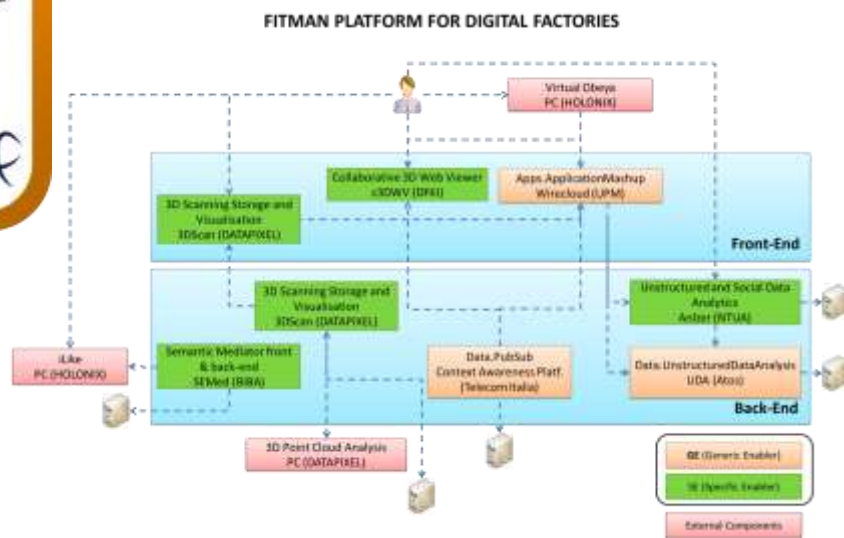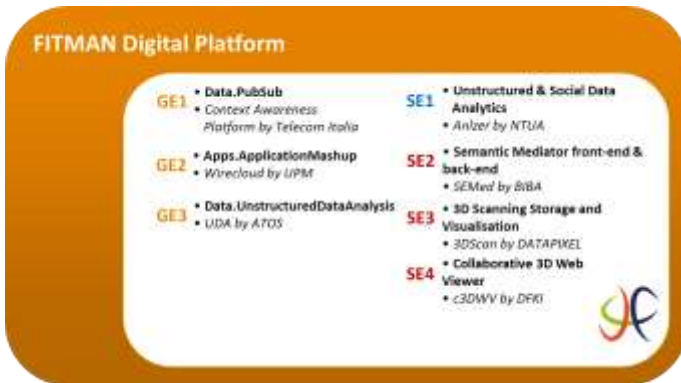
FITMAN Virtual Factory Platform

The Virtual Factory Baseline Platform resulting from the GE selection is displayed below. This representation highlights connection and collaboration between components. When deployed in the context of some specific Trial experiment, the baseline Platform will be enhanced by FITMAN Specific Enablers and by Trial Specific Components, resulting in a Trial Platform which fully supports the implementation of the target FITMAN business processes.
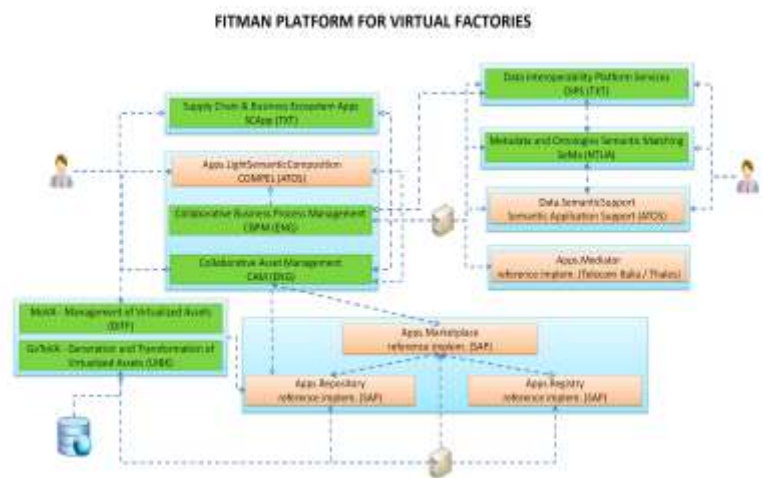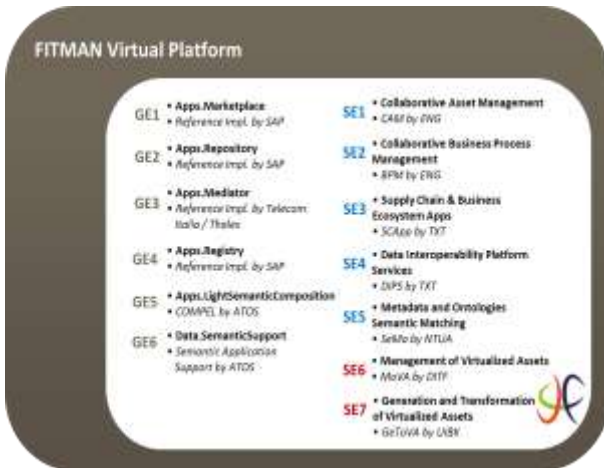
Further information on FITMAN

The following link provides further information on FITMAN architecture, Verification and Validation method, Terms and Conditions of the FITMAN SEs and platforms etc.: http://www.fitman-fi.eu/phase-iii-package/information-for-phase-iii-bidders. Applicants can have access to public versions of the project deliverables and specifically the ones relating to the three platforms (namely D4.1: FITMAN System for Smart Factory; D5.1 FITMAN System for Digital Factory; D6.1 FITMAN System for Virtual Factory) including examples in their usability and potential by registering in FITMAN's website.

Should the applicants wish to receive further information on FITMAN technologies, they are advised to contact FITMAN via fitman-support@txtgroup.com

IV FICONTENT

FIcontent offers open platforms for SMEs and developers to create applications and services in the areas of social connected TV, smart city services, and pervasive games. Innovative SMEs and developers can develop cutting-edge applications using FIcontent open platforms in these three main areas. Each of the three FIcontent platform offers a collection of Specific Enablers which come with a brief description, documentation, conditions of use and point of contact for technical or Terms & Conditions related queries. The platforms description and related SEs are available at http://mediafi.org/open-platforms/.

Applicants are encouraged to navigate through the three platforms and relevant SEs in order to explore possible use of them in their project proposals. Below we provide examples of two SEs (Pervasive games platform) that could be used for 3D printing related projects.

IV.1 SE: Augmented Reality (AR) – Marker Tracking

All Augmented Reality SEs provide various tracking methods to enable augmented reality applications. The Marker Tracking SE utilises AR markers to retrieve camera pose information through Xflow. This extends the GE: XML3D with the capabilities to apply the matching transformation to 3D scene content and render them onto respective markers in a web-based environment. The Marker Tracking SE follows the declarative approach of XML3D and is real-time capable.

IV.2 SE: Reality Mixer – Reflection Mapping

All visually-oriented SEs of the Reality Mixer group measure camera properties and adapt the virtual objects to fit to the camera image background visually. The Reflection Mapping SE utilises a light probe to extract a sphere map from the camera image, which contains the environmental lighting conditions. This sphere map will be used to apply an appropriate lighting model to rendered virtual objects. Thus, the additional virtual objects are incorporated into the resulting image in a very seamless fashion leading to a more realistic experience of mixed reality applications.

Further information on FIcontent

Should the applicants wish to receive further information on the platforms and the respective SEs, they are advised to visit FIcontent website via http://mediafi.org/. Specific contact details are available under each platform and respective SEs.