D9.1 – Action Plan

For months 1 to 6 (Oct 2016 – Mar 2017)

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2.0	W. Behrendt (ed.)	22.12.2016	Transfer of Action Plan from platform to Word
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NIMBLE in a Nutshell

NIMBLE is the collaboration Network for Industry, Manufacturing, Business and Logistics in Europe. It will develop the infrastructure for a cloud-based, Industrie 4.0, Internet-of-things-enabled B2B platform on which European manufacturing firms can register, publish machine-readable catalogs for products and services, search for suitable supply chain partners, negotiate contracts and supply logistics. Participating companies can establish private and secure B2B and M2M information exchange channels to optimise business work flows. The infrastructure will be developed as open source software under an Apache-type, permissive license. The governance model is a federation of platforms for multi-sided trade, with mandatory interoperation functions and optional added-value business functions that can be provided by third parties. This will foster the growth of a net-centric business ecosystem for sustainable innovation and fair competition as envisaged by the Digital Agenda 2020. Prospective NIMBLE providers can take the open source infrastructure and bundle it with sectorial, regional or functional added value services and launch a new platform in the federation. The project started in October 2016 and will last for 36 months.

Executive Summary

This is an administrative deliverable setting out the work of the consortium for the first six months (1st October 2016 to 31st March 2017) of the NIMBLE project. The Action Plan is a live document that is being maintained on the consortium's collaboration platform, at Salzburg Research. This paper version of the document was compiled on 30.12.2016, from the project's collaborative platform that is based on the Confluence Wiki Tool. Only work packages and tasks that are active in the first six months of the project are reported. These are WP1 (Requirements), WP2 (Specifications), WP3 (Core Services), WP6 (Security), WP8 (Dissemination) and Management (WP9).

1 Action Plan for WP1 – Use Case Requirements

Tasks in WP 1

WP1	Use Case Requirements and Collaboration Design
T1.1	White Goods Service Supply Chain - Requirements and Collaboration Design
T1.2	Eco Houses Supply Chain - Requirements and Collaboration Design
T1.3	Textile Manufacturing Supply Chain - Requirements and Collaboration Design
T1.4	Childcare Furniture Supply Chain - Requirements and Collaboration Design
T1.5	Business Models and Collaboration Patterns in Supply Chains

Efforts per task and partner

Partner No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Partner	SRFG	IBM	SRDC	**UB**	LTU	INN	WHR	LIND	PIA	MIC	AID	HOL	BAL	DOM	FEVA	BLAT	ENEA
T1.1			2	1	1		5					3			0		
T1.2				2	1			5					2			3	
T1.3				1	1				6					3			3
T1.4				1	1					6	6				4		
T1.5	3		3	3	4							2					1
TOTAL	**3**	**0**	**5**	**8**	**8**	**0**	**5**	**5**	**6**	**6**	**6**	**5**	**2**	**3**	**4**	**3**	**4**

1.1 Action Plan for T1.1 – White Goods Service Supply Chain

Task 1.1: White Goods Service Supply Chain - Requirements and Collaboration Design - Lead: WHR (use case partner)**; Strongly involved participants and their role:** HOL (product lifecycle management); **Other:** SRDC, UB, LTU

In T1.1, WHR collects requirements of the white goods supply chain use case, such as requirements about: dominant data types specifically used in this sector, types of information and processes, etc. The requirements gathering will be organized via interviews, workshops and surveys targeting the white good sector. SRDC and UB are responsible for summarizing and technically specifying the collected requirements, using information quality dimensions such as requirements accessibility, timeliness, correctness and interpretability. The selection of key requirements will be done through analysis, ranking and re-evaluation of requirements in the use case. The key requirements referring to the white good sector (represented by WHR in NIMBLE) will be summarized in *D1.1*, chapter on *White Goods Service Supply Chain Requirements.* The role of LTU in T1.1 is to provide the requirements consolidation vertically,

for all four use cases in the project, in order to initiate the collaboration design of innovative business models and collaborative patterns (see T1.5, D1.2).

Person months: SRDC: 2; UB: 1; LTU: 1; WHR: 5; HX: 3.

Month 1

Partner	What is planned?	Expected Result
SRDC:	no immediate involvement	n.a.
UB:	provide initial guidance on the requirements methodology	presentation at kick-off, on-line form to be used in requirements gathering
LTU:	provide initial guidance on the requirements methodology	presentation at kick-off, input to on-line form
WHR:	Description of the "as is" process of invoking repair services for customers	"As is" section (business processes) of the D1.1 chapter on the White Goods Use Case
HOL:	Analysis of WHR's "as is" system for supporting repair services for customers	"As is" section (software system) of the D1.1 chapter on the White Goods Use Case Technical input to subchapter D1.1.1

Month 2

Partner	What is planned?	Expected Result
SRDC:	no immediate involvement	
UB:	no immediate involvement	
LTU:	no immediate involvement	
WHR:	a characterisation of the stakeholders that collaborate in the use case scenario. (e.g. the service technicians, the customers and the back offices). We need a "now" and a "then" description.	stakeholder model: current situation planned target situation
HOL:	Technical requirements arising from the delta between current and planned	Technical input to subchapter D1.1.2

Month 3

Partner	What is planned?	Expected Result
SRDC:	Analysis of data interoperation requirements	identifying relevant standards and interoperation tools
UB:	Quality assurance of the requirements gathering process, methodological guidance	good quality draft of subchapters 1-3
LTU:	Specific analysis of collaboration patterns emerging from the description of the use case	research notes in the NIMBLE workspace

WHR:	a description of the IT support that the use case owner and their stakeholders require in order to support the new form of collaboration - this should include any requirement irrespective of whether it is NIMBLE functionality of some corporate system functionality.	Subchapter D1.1.3: IT support required for the use case
HOL:	Technical presentation of functional requirements as stated by the use case stakeholders	Subchapter D1.1.3: IT support required for the use case

Month 4

Partner	What is planned?	Expected Result
SRDC:	Analysis of data interoperation requirements, Analysis w.r.t. data standards that should be used	identifying relevant standards and interoperation tools
UB:	Quality assurance of the requirements gathering process, methodological guidance	good quality draft of subchapters 1-4
LTU:	Specific analysis of collaboration patterns emerging from the description of the use case	research notes in the NIMBLE workspace
WHR:	the separation of concerns: now the use case owner and the stakeholders make an educated guess whether the required functionality needs to be provided by NIMBLE core services, or needs to be made available from other subsystems, to NIMBLE, or has nothing to do with NIMBLE (e.g. a service technician needs to have a driving license and a car in order to get to his customers).	Subchapter D1.1.4: use case requirements expected to be covered by NIMBLE
HOL:	Assistance in the separation of requirements: NIMBLE vs. other Systems	Subchapter D1.1.4: use case requirements expected to be covered by NIMBLE

Month 5

Partner	What is planned?	Expected Result
SRDC:	not involved	n.a.
UB:	Quality assurance of the requirements gathering process, methodological guidance	good quality draft of subchapters 1-5
LTU:	not involved	n.a.

WHR:	formulation of success criteria and measurements procedures for the use case scenarios	Subchapter D1.1.5 (success criteria and validation procedures)
HOL:	technical requirements for testing the successful implementation of the use cases	Subchapter D1.1.5 (success criteria and validation procedures)

Month 6

Partner	What is planned?	Expected Result
SRDC:	Technical QA of D1.1	QA Report / Improvements
UB:	QA: Understandability of D1.1	QA Report / Improvements
LTU:	Finalising summary of collaboration patterns in T1.1	Input to Ch. D1.1.
WHR:	Finalising CH D1.1 on white goods	Ch. D1.1
HOL:	Finalising CH D1.1 on white goods	Ch. D1.1

1.2 Action Plan for T1.2 – Eco Houses Supply Chain

Task 1.2: Eco Houses Supply Chain - Requirements and Collaboration Design - Lead: LIND (use case partner)**; Strongly involved:** BLAT, UB (requirements spec.); **Other:** LTU, BALANCE

T1.2 deals with the eco houses use case, and is led by LIND, who is well established in this sector in Europe. Through interviews, workshops and surveys targeting the eco house manufacturers in EU, and in a strong collaboration with BLAT, UB, LTU and BALANCE, LIND leads the requirements gathering and specification, as required by NIMBLE. Requirements consolidation (in collaboration with LTU) will include all four use case-related tasks of WP1, and will provide the project with new business models and collaboration patterns (accelerators) to be technically described in T1.5 and later on, implemented in T3.4 and T5.7.

Person months: LIND: 2; UB: 1; LTU: 1; BLAT: 5; BAL: 3.

Month 1

Partner	What is planned?	Expected Result
LIND:	Description of the "as is" process	"As is" section (business processes) of the D1.2 chapter on the Eco Houses Use Case
UB:	provide initial guidance on the requirements methodology	presentation at kick-off, on-line form to be used in requirements gathering
LTU:	provide initial guidance on the requirements methodology	presentation at kick-off, input to on-line form
BLAT:	Description of the "as is" process	"As is" section (business processes) of the D1.2 chapter on the Eco Houses Use Case

BAL:	Analysis of Lindbäck/Blatraden's "as is" system	"As is" section (software system) of the D1.2 chapter on the Eco Houses Use Case Technical input to subchapter D1.2.1

Month 2

Partner	What is planned?	Expected Result
LIND:	a characterisation of the stakeholders that collaborate in the use case scenario. (e.g. the builders, the customers and the back offices). We need a "now" and a "then" description	stakeholder model: current situation planned target situation
UB:	no immediate involvement	n.a.
LTU:	no immediate involvement	n.a.
BLAT:	a characterisation of the stakeholders that collaborate in the use case scenario. (e.g. the builders, the customers and the back offices). We need a "now" and a "then" description	stakeholder model: current situation planned target situation
BAL:	Technical requirements arising from the delta between current and planned	Technical input to subchapter D1.2.2

Month 3

Partner	What is planned?	Expected Result
LIND:	a description of the IT support that the use case owner and their stakeholders require in order to support the new form of collaboration - this should include any requirement irrespective of whether it is NIMBLE functionality of some corporate system functionality.	Subchapter D1.2.3: IT support required for the use case
UB:	Quality assurance of the requirements gathering process, methodological guidance	good quality draft of subchapters 1-3
LTU:	Specific analysis of collaboration patterns emerging from the description of the use case	research notes in the NIMBLE workspace
BLAT:	a description of the IT support that the use case owner and their stakeholders require in order to support the new form of collaboration - this should include any requirement irrespective of whether it is NIMBLE functionality of some corporate system functionality	Subchapter D1.2.3: IT support required for the use case
BAL:	Technical presentation of functional requirements as stated by the use case stakeholders	Subchapter D1.2.3: IT support required for the use case

Month 4

Partner	What is planned?	Expected Result
LIND:	the separation of concerns: now the use case owner and the stakeholders make an educated guess whether the required functionality needs to be provided by NIMBLE core services, or needs to be made available from other subsystems, to NIMBLE, or has nothing to do with NIMBLE.	Subchapter D1.2.4: use case requirements expected to be covered by NIMBLE
UB:	Quality assurance of the requirements gathering process, methodological guidance	good quality draft of subchapters 1-4
LTU:	Specific analysis of collaboration patterns emerging from the description of the use case	research notes in the NIMBLE workspace
BLAT:	the separation of concerns: now the use case owner and the stakeholders make an educated guess whether the required functionality needs to be provided by NIMBLE core services, or needs to be made available from other subsystems, to NIMBLE, or has nothing to do with NIMBLE.	Subchapter D1.2.4: use case requirements expected to be covered by NIMBLE
BAL:	Assistance in the separation of requirements: NIMBLE vs. other Systems	Subchapter D1.2.4: use case requirements expected to be covered by NIMBLE

Month 5

Partner	What is planned?	Expected Result
LIND:	formulation of success criteria and measurements procedures for the use case scenarios	Subchapter D1.1.5 (success criteria and validation procedures)
UB:	Quality assurance of the requirements gathering process, methodological guidance	good quality draft of subchapters 1-5
LTU:	not involved	n.a.
BLAT:	formulation of success criteria and measurements procedures for the use case scenarios	Subchapter D1.1.5 (success criteria and validation procedures)
BAL:	technical requirements for testing the successful implementation of the use cases	Subchapter D1.1.5 (success criteria and validation procedures)

Month 6

Partner	What is planned?	Expected Result
LIND:	Finalising CH D1.2 on eco houses	Ch D1.2.
UB:	QA: Understandability of D1.2	QA Report / Improvements
LTU:	Finalising summary of collaboration patterns in T1.1	Input to Ch. D1.1.
BLAT:	Finalising CH D1.2 on eco houses	Ch D1.2.
BAL:	Finalising CH D1.2 on eco houses (technical input)	Ch D1.2.

1.3 Action Plan for T1.3 - Textile Manufacturing

Task 1.3: Textile Manufacturing Supply Chain - Requirements and Collaboration Design - Lead: PIA (use case partner)**; Strongly involved:** DOM, ENEA; **Other:** LTU, UB

In T1.3, PIA leads requirements gathering of the textile supply chain pilot. In addition, T1.3 involves DOM, another use case partner from the textile sector, and ENEA who will work on technical specification of the textile requirements. PIA's use case is explained in more detail in Section 4.1.9 (Subsection: *USE CASE: TEXTILE MANUFACTURING (PIA – DOM)*) discussing business use case, system use case, summarizing *case specific platform requirements*, and anticipated benefits of NIMBLE. The major requirements of the textile use case in NIMBLE will be analysed, technically specified and consolidated to fit the needs of T1.5.

Person months: PIA (6), UB (1), LTU (1), DOM (3), ENEA (3).

Month 1

Partner	What is planned?	Expected Result
PIA:	Description of the "as is" process	"As is" section (business processes) of the D1.3 chapter on the Textile Manufacturing Use Case
UB:	provide initial guidance on the requirements methodology	presentation at kick-off, on-line form to be used in requirements gathering
LTU:	provide initial guidance on the requirements methodology	presentation at kick-off, input to on-line form
DOM:	Description of the "as is" process	"As is" section (business processes) of the D1.3 chapter on the Textile Manufacturing Use Case
ENEA:	Technical specification of requirements	Input to Chapter D1.3 - textile use case requirements

Month 2

Partner	What is planned?	Expected Result
PIA:	a characterisation of the stakeholders that collaborate in the use case scenario. (e.g. the designers, the manufacturer and the back offices). We need a "now" and a "then" description	stakeholder model: current situation planned target situation
UB:	no immediate involvement	n.a.
LTU:	no immediate involvement	n.a.

DOM:	a characterisation of the stakeholders that collaborate in the use case scenario. (e.g. the designers, the manufacturer and the back offices). We need a "now" and a "then" description	stakeholder model: current situation planned target situation
ENEA:	Technical requirements arising from the delta between current and planned	Technical input to subchapter D1.3.2

Month 3

Partner	What is planned?	Expected Result
PIA:	a description of the IT support that the use case owner and their stakeholders require in order to support the new form of collaboration - this should include any requirement irrespective of whether it is NIMBLE functionality of some corporate system functionality.	Subchapter D1.3.3: IT support required for the use case
UB:	Quality assurance of the requirements gathering process, methodological guidance	good quality draft of subchapters 1-3
LTU:	Specific analysis of collaboration patterns emerging from the description of the use case	research notes in the NIMBLE workspace
DOM:	a description of the IT support that the use case owner and their stakeholders require in order to support the new form of collaboration - this should include any requirement irrespective of whether it is NIMBLE functionality of some corporate system functionality	Subchapter D1.3.3: IT support required for the use case
ENEA:	Technical presentation of functional requirements as stated by the use case stakeholders	Subchapter D1.3.3: IT support required for the use case

Month 4

Partner	What is planned?	Expected Result
PIA:	the separation of concerns: now the use case owner and the stakeholders make an educated guess whether the required functionality needs to be provided by NIMBLE core services, or needs to be made available from other subsystems, to NIMBLE, or has nothing to do with NIMBLE.	Subchapter D1.3.4: use case requirements expected to be covered by NIMBLE
UB:	Quality assurance of the requirements gathering process, methodological guidance	good quality draft of subchapters 1-4
LTU:	Specific analysis of collaboration patterns emerging from the description of the use case	research notes in the NIMBLE workspace
DOM:	the separation of concerns: now the use case owner and the stakeholders make an educated guess whether the required	Subchapter D1.3.4: use case requirements expected

	functionality needs to be provided by NIMBLE core services, or needs to be made available from other subsystems, to NIMBLE, or has nothing to do with NIMBLE.	to be covered by NIMBLE
ENEA:	Assistance in the separation of requirements: NIMBLE vs. other Systems	Subchapter D1.3.4: use case requirements expected to be covered by NIMBLE

Month 5

Partner	What is planned?	Expected Result
PIA:	formulation of success criteria and measurements procedures for the use case scenarios	Subchapter D1.3.5 (success criteria and validation procedures)
UB:	Quality assurance of the requirements gathering process, methodological guidance	good quality draft of subchapters 1-5
LTU:	not involved	n.a.
DOM:	formulation of success criteria and measurements procedures for the use case scenarios	Subchapter D1.3.5 (success criteria and validation procedures)
ENEA:	technical requirements for testing the successful implementation of the use cases	Subchapter D1.3.5 (success criteria and validation procedures)

Month 6

Partner	What is planned?	Expected Result
PIA:	Finalising CH D1.3 on textile manufacturing	Ch D1.3.
UB:	QA: Understandability of D1.3	QA Report / Improvements
LTU:	Finalising summary of collaboration patterns in T1.1	Input to Ch. D1.3.
DOM:	Finalising CH D1.3 on textile manufacturing	Ch D1.3.
ENEA:	Finalising CH D1.3 on textile manufacturing (technical input)	Ch D1.3.

1.4 Action Plan for T1.4 – Child Care Furniture Supply Chain

Task 1.4: Childcare Furniture Supply Chain - Requirements and Collaboration Design - Lead: MIC (use case partner); Strongly involved: FEVA, AID; Other: LTU, UB

T1.4 deals with childcare furniture manufacturing. This industry is heavily regulated and the rules may differ from country to country. The design, operations and manufacturing processes related to the particular product from MIC's product catalogue must be adapted to the regulatory requirements of the targeted market. Hence, T1.4 identifies regulatory requirements of the target market, business ecosystem requirements, and requirements on necessary product modifications. Any product modification leads to manufacturing of new product prototypes, which than needs to be tested through certified laboratories, in order to obtain necessary product certifications. T1.4 requires an active collaboration between furniture use

case partners: MIC, FEVA, and AID, as well as LTU and UB who will provide technical specifications of related requirements and based on the consolidation requirements, provide inputs for T1.5 (collaboration patterns and accelerators of the platform; LTU). In addition, T1.4 will involve third party for the logistics (company called MOINVA) in order to cover majority of lifecycle and reach proof-of-concept demonstration and validation in a later phase (through WP4 and WP7)

Person months: MICUNA (6), AiDIMME (6), FEVAMA (4), UB (1), LTU (1).

Month 1

Partner	What is planned?	Expected Result
MICUNA:	Description of the "as is" logistics process	"As is" section (business processes) of the D1.4 chapter on the Furniture Manufacturing Use Case
UB:	provide initial guidance on the requirements methodology	presentation at kick-off, on-line form to be used in requirements gathering
LTU:	provide initial guidance on the requirements methodology	presentation at kick-off, input to on-line form
AIDIMME	Analysis of MICUNA's "as is" system for manufacturing logistics Description of the "as is" process	"As is" section (software system) of the D1.4 chapter on the Furniture Manufacturing Use Case Technical input to subchapter D1.4.1
FEVAMA	Description of the "as is" supply business processes	"As is" section (business processes) of the D1.4 chapter on the Furniture Manufacturing Use Case

Month 2

Partner	What is planned?	Expected Result
MICUNA:	a characterisation of the stakeholders that collaborate in the use case scenario. (e.g. the service technicians, the customers and the back offices). We need a "now" and a "then" description	stakeholder model: current situation planned target situation
UB:	no immediate involvement	n.a.
LTU:	no immediate involvement	n.a.
AIDIMME:	Technical requirements arising from the delta between current and planned Normatives and regulations sources for MICUNA case at Spanish scope Support to characterisation of the stakeholders involved in the furniture scenario	Technical input to subchapter D1.4.2
FEVAMA:	Questionnaires and interviews to different selected stakeholders to gather specifications for NIMBLE platform	stakeholder model: current situation planned target situation

Month 3

Partner	What is planned?	Expected Result
MICUNA:	Consolidate requirements for MICUNA use case from different prespectives (business, technical, ...) in order to support the new form of collaboration - this should include any requirement irrespective of whether it is NIMBLE functionality of some corporate system functionality.	Subchapter D1.1.3: IT support required for the use case
UB:	Quality assurance of the requirements gathering process, methodological guidance	good quality draft of subchapters 1-3
LTU:	Specific analysis of collaboration patterns emerging from the description of the use case	research notes in the NIMBLE workspace
AIDIMME:	Analysis of data interoperation requirements Formalisation of requirements of the furniture use case	identifying relevant standards and interoperation tools
FEVAMA:	Technical presentation of functional requirements as stated by the use case stakeholders	Subchapter D1.1.3: IT support required for the use case

Month 4

Partner	What is planned?	Expected Result
MICUNA:	Analysis of data interoperation requirements, Analysis w.r.t. data standards that should be used	identifying relevant standards and interoperation tools
UB:	Quality assurance of the requirements gathering process, methodological guidance	good quality draft of subchapters 1-4
LTU:	Specific analysis of collaboration patterns emerging from the description of the use case	research notes in the NIMBLE workspace
AIDIMME:	Required functionality needed in MICUNA case against NIMBLE core services, or needs to be made available from other subsystems, to NIMBLE, or has nothing to do with NIMBLE (e.g. a service technician needs to have a driving license and a car in order to get to his customers).	Subchapter D1.1.4: use case requirements expected to be covered by NIMBLE
FEVAMA:	Assistance in the separation of requirements: NIMBLE vs. other Systems	Subchapter D1.1.4: use case requirements expected to be covered by NIMBLE

Month 5

Partner	What is planned?	Expected Result
MICUNA:	not involved	n.a.

UB:	Quality assurance of the requirements gathering process, methodological guidance	good quality draft of subchapters 1-5
LTU:	not involved	n.a.
AIDIMME:	formulation of success criteria and measurements procedures for the use case scenarios	Subchapter D1.1.5 (success criteria and validation procedures)
FEVAMA:	technical requirements for testing the successful implementation of the use cases	Subchapter D1.1.5 (success criteria and validation procedures)

Month 6

Partner	**What is planned?**	**Expected Result**
MICUNA:	Technical QA of D1.1	QA Report / Improvements
UB:	QA: Understandability of D1.1	QA Report / Improvements
LTU:	Finalising summary of collaboration patterns in T1.1	Input to Ch. D1.1.
AIDIMME:	Finalising CH D1.1 on childcare furniture	Ch. D1.1
FEVAMA:	Finalising CH D1.1 on childcare furniture	Ch. D1.1

1.5 Action Plan for T1.5 – Business Models and Collaboration Patterns in Supply Chains

Terms of reference: from the desciption of work:

Task 1.5: Business Models and Collaboration Patterns in Supply Chains - Lead: LTU (technical requirements specification for business model analysis)**; Strongly involved:** SRFG (requirements specification), SRDC (requirements specification), UB (requirements specification); **Other:** HOL, ENEA

Task 1.5 strongly collaborates with the first four tasks of WP1, and through a joint requirements consolidation phase, it creates business models and collaboration patterns for easing and speeding up the use of the NIMBLE platform (e.g. to easy registration process, steep up business transactions and negotiation). T1.5 performs through the following three steps: *Firstly, the key actors* in each of the four use cases will be identified, and interviews will be conducted focusing on existing information exchange flow, and future needs, i.e. internal value creation and capturing in the use cases. The analysis will sum up expectations on value creation and requirements that each actor has on the platform so that an aggregated understanding of business and collaboration models can be achieved. *Secondly, for researching further knowledge about business models and collaboration pattern* in Internet-based supply chains, analysis of the requirements will identify *key mechanisms* impacting on long-term sustainability in the Internet and IoT-based business ecosystem. *Finally, a framework of combined models* (based on consolidated requirements) will be used for exploration and exploitation of the four use cases that will contribute to *identification of new collaboration*

opportunities and conditions as well as development of an action plan for development of *dynamic value creation and capturing*. The action plan will also include *value creation from the social aspects* such as diversity, equality, and environment/ milieu.

Person months: SRFG: 3, SRDC: 3; UB: 3; LTU: 4; HOL: 2; ENEA 1.

Month 1

Partner	What is planned?	Expected Result
SRFG:	Provide initial guidance on the requirements methodology	Presentation at kick-off, on-line form to be used in requirements gathering
SRDC:	Intitial collaboration with UB and SRFG	Initial requirements identification
UB	Pprovide initial guidance on the requirements methodology	Presentation at kick-off, on-line form to be used in requirements gathering
LTU	Provide initial guidance on the requirements methodology	Presentation at kick-off, input to on-line form
HOL	Intitial collaboration with UB and SRFG	Initial requirements identification
ENEA	Intitial collaboration with UB and SRFG	Initial requirements identification

Month 2

Partner	What is planned?	Expected Result
SRFG:	Requirements gathering	Initial requirement list
SRDC:	Collaboration with UB and SRFG	Initial development of Nimble platform based on the initial requirement list
UB	Requirements gathering	Initial requirement list
LTU	Initial collaboration with use cases, starting with Lindbacks Bygg and Blatraden	Initial identification of collaboration patterns
HOL	Collaboration with UB and SRFG	Initial development of Nimble platform based on the initial requirement list
ENEA	Collaboration with UB and SRFG	Initial development of Nimble platform based on the initial requirement list

Month 3

Partner	What is planned?	Expected Result
SRFG:	Quality assurance of the requirements gathering process, methodological guidance	First draft of the aggregated generic requirement list
SRDC:	Collaboration with UB and SRFG	Contribution to first draft of the aggregated generic requirements
UB	Quality assurance of the requirements gathering process, methodological guidance	First draft of the aggregated generic requirement list
LTU	Initial analysis of use case descriptions Design of data collection instruments	Initial identification of various flows in the supply chains

	Outline of D1.2	Template for D1.2
HOL	Collaboration with UB and SRFG	Contribution to first draft of the aggregated generic requirements
ENEA	Collaboration with UB and SRFG	Contribution to first draft of the aggregated generic requirements

Month 4

Partner	What is planned?	Expected Result
SRFG:	Consolidate requirements	Contribution to first draft of the aggregated generic requirements
SRDC:	Collaboration with UB and SRFG	Contribution to first draft of the aggregated generic requirements
UB	Consolidate requirements for all use cases from different perspectives (business, technical, ...)	Good quality draft of consolidated requirements
LTU	Initial analysis of use case descriptions (consolidation of the four use cases) Close collaboration with the four use cases for identification of collaboration patterns and sustainable business model components	Initial identification of various flows in the supply chains research notes in the NIMBLE workspace
HOL	Collaboration with UB and SRFG	Contribution to first draft of the aggregated generic requirements
ENEA	Collaboration with UB and SRFG	Contribution to first draft of the aggregated generic requirements

Month 5

Partner	What is planned?	Expected Result
SRFG:	Work on aggregated requirements for collaboration and business models	Mapping of requirements to collaboration and business models
SRDC:	Discussion partner on aggregated requirements for collaboration and business models in relation to what is technically possible/feasible	n.a
UB	Work on aggregated requirements for collaboration and business models	Mapping of requirements to collaboration and business models
LTU	Analysis and initial findings on collaboration patterns and business models Close collaboration with the four use cases for identification of collaboration patterns and sustainable business model components	Identified factors/components/key drivers for collaboration and business models
HOL	Discussion partner on aggregated requirements for collaboration and business models in relation to what is	n.a

	technically possible/feasible	
ENEA	Discussion partner on aggregated requirements for collaboration and business models in relation to what is technically possible/feasible	n.a

Month 6

Partner	What is planned?	Expected Result
SRFG:	Work on aggregated requirements for collaboration and business models	Input to D1.2
SRDC:	Discussion partner on aggregated requirements for collaboration and business models in relation to what is technically possible/feasible	Identified technical preconditions and possibilities for collaboration and business model
UB	Work on aggregated requirements for collaboration and business models	Input to D1.2
LTU	Close collaboration with the four use cases for identification of collaboration patterns and sustainable business model components Work on aggregated requirements Finalising consolidated analysis of collaboration patterns from T1.1 - T1.4	Draft D1.2 Initial conceptualization of aggregated collaboration and business models
HOL	Discussion partner on aggregated requirements for collaboration and business models in relation to what is technically possible/feasible	Identified technical preconditions and possibilities for collaboration and business model
ENEA	Discussion partner on aggregated requirements for collaboration and business models in relation to what is technically possible/feasible	Identified technical preconditions and possibilities for collaboration and business model

Month 7

Partner	What is planned?	Expected Result
SRFG:	Close collaboration around D1.2	Input to D1.2
SRDC:	n.a	n.a
UB	Close collaboration around D1.2	Input to D1.2
LTU	Consolidated analysis of collaboration patterns and business models from D1.1 (T1.1 - T1.4) Analysis of data collection from the four use cases	Draft D1.2 Input to Prototype for collaborations and business models
HOL	n.a	n.a

ENEA	n.a	n.a

Month 8

Partner	What is planned?	Expected Result
SRFG:	QA: Understandability of D1.2	Input to D1.2
SRDC:	n.a	n.a
UB	QA: Understandability of D1.2	Input to D1.2
LTU	Finalising D1.2 Requirements for Business Models and Collaboration Patterns in Supply Chains. Design of prototype.	A report containing requirements specification for business models and collaboration patterns. Prototype of collaboration and business models.
HOL	n.a	n.a
ENEA	n.a	n.a.

2 WP2 Specification

Task 2.1: Platform Architecture Specification and Component Design - **Lead:** IBM (design of cloud services, data analytics)**; Strongly involved:** SRFG (privacy and security aspects in IoT), SRDC (components for cloud-based collaboration); **Other:** HOL, UB, ENEA

This task designs and specifies the NIMBLE federated architecture, including its core components, the complements (components that can change over time) and the interfaces. Task T2.1 is led by IBM ISRAEL, and they will put special emphasis on specifying the cloud computing architecture and data analytics component. The task leader's work in T2.1 will be complemented by technical experiences of other technical partners: SRFG, SRDC, UB, HOL and ENEA. As discussed in the section on the *Technical concept,* the NIMBLE architecture is based on the IIRA architecture that includes a three-tier implementation pattern: the edge tier, the platform tier and the enterprise tier. Federated collaboration via the NIMBLE platform will be mainly developed on top of existing open source projects, e.g. projects under the Apache permissive open source license.

Effort allocation:

Part. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Ppartici-pant	SRFG	IBM	SRDC	**UB**	LTU	INN	WHR	LIND	PIA	MIC	AID	HOL	BAL	DOM	FEVA	BLAT	ENEA
T2.1	**6**	**12**	**8**	**4**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**5**	**-**	**-**	**-**	**-**	**1**

2.1 Action Plan for T2.1 – Platform Architecture

Month 1

Partner	What is planned?	Expected Result
SRFG	Design components of basic infrastructure for microservices.	Specification of service discovery, central config server, and monitoring services.
IBM	Identification of core platform components	Specification of the initial list of platform components
SRDC	Specification of the high-level flow among the the core services Analysis of existing e-commerce tools	Presented the collaboration idea realized via core services in the kick-off meeting. Report on the capabilities of existing open source tools
UB	Identification of semantic modelling, annotation, and search related microservices	Initial list of semantic modelling, annotation, and search related microservices
HOL	Identification of requirements to integrate components	A list of requirements for components
ENEA	identification of requirements to adapt the Test Bed platform (TeBES) to NIMBLE	a list of requirements for TeBES

Month 2

Partner	What is planned?	Expected Result
SRFG	Extract and design basic set of components required for privacy and security aspects (e.g. UAA, authorisation, logging and monitoring).	Initial specification of privacy and security components.
IBM	Identification of back-end services required by core components	Specification of required back-end services
SRDC	Analysis of working mechanisms of existing e-commerce platforms Identification of adaptation requirements of existing tools towards Identification of possible integration mechanisms with B2B platforms like Amazon	Report on the capabilities of existing open source tools Specification of primary capabilities for Catalog Registry for product/service publishing
UB	Identification of semantic modelling, annotation, and search related microservices	Initial list of semantic modelling, annotation, and search related microservices
HOL	Identification of requirements to integrate components	A list of requirements for components
ENEA	identification of requirements to adapt the Test Bed platform (TeBES) to NIMBLE	a list of requirements for TeBES

Month 3

Partner	What is planned?	Expected Result
SRFG	Define components required for authentication and authorisation based on preliminary security requirements.	Initial specification of user account and authorisation (UAA) components.
IBM	Identification of relationships, dependencies and interfaces among core services	Specifications of relationships between services
SRDC	Analysis of existing open source business process management tools Identification of adaptation requirements of existing open source tools towards registration and B2B collaboration	Specification of primary capabilities for B2B collaboration Specification of primary capabilities for registration/onboarding
UB	Identification of semantic modelling, annotation, and search related microservices	Initial list of semantic modelling, annotation, and search related microservices
HOL	Identifications of requirements to integrate components	A list of requirements for components
ENEA	identification of requirements to adapt the Test Bed platform (TeBES) to NIMBLE	a list of requirements for TeBES (included a couple of use cases)

Month 4

Partner	What is planned?	Expected Result
SRFG	Adapt components according to first feedback from use case requirements.	Adapted component specification adjusted to requirements.
IBM	Identify relationship to reference architectures	Skeleton of the platform architecture based on reference architectures
SRDC	Identification of detailed capabilities of core services based on the requirements gathered	Detailed specification of the core service capabilities
UB	Specification of semantic modelling, annotation, and search related microservices	Initial specification on semantic related microservices
HOL	Design of components for NIMBLE	A set of techincal specifications to integrate components into NIMBLE
ENEA	design of the TeBES wrapper for NIMBLE	a set of technical specifications to integrate TeBES into NIMBLE

Month 5

Partner	What is planned?	Expected Result
SRFG	Extend UAA component specification based on requirements.	UAA specification, which states the basis for the first prototype implementation.
IBM	Consolidation into a first draft architecture	Skeleton of an architecture document
SRDC	Detailed design of individual technical components	Contribution to relationship definitions among system components with respect to connectivity
UB	Specification of semantic modelling, annotation, and search related microservices	Initial specification on semantic related microservices
HOL	Design of components for NIMBLE	A set of techincal specifications to integrate components into NIMBLE
ENEA	design of the TeBES wrapper for NIMBLE	a set of technical specifications to integrate TeBES into NIMBLE

Month 6

Partner	What is planned?	Expected Result
SRFG	Finalise first version of security and privacy components.	Version 1.0 of security and privacy component specification.
IBM	Analyze deployment options based on previous months results	Add deployment section to the draft architecture document
SRDC	Analysis of relevant reference architectures (collaboration with IBM)	Contribution to the overall design considering the relationship to reference architectures
UB	Specification of semantic modelling, annotation, and search related microservices	First version of specification on semantic related components
HOL	Design of components for NIMBLE	A set of techincal specifications to integrate components into NIMBLE
ENEA	Design of the TeBES wrapper for NIMBLE	A set of technical specifications to integrate TeBES into NIMBLE

2.2 Action Plan for T2.2 Semantic Modelling

Task 2.2: Semantic Modelling of Manufacturing Collaboration Assets - Lead: UB (designing semantic mediation for federated collaboration); **Strongly involved**: SRDC; **Other**: SRFG, AID, ENEA

This task designs and specifies the Asset Virtualization component, as a part of Data Management Framework of the NIMBLE platform tier (see Figure: NIMBLE technical architecture aligned with IIRA: edge, platform, and enterprise tier). T2.2 develops data models for repre-

sentation of various types of tangible resources (e.g. products, IoT-enabled devices) and intangible resources (services, production plans, catalogues). For example, in T2.2 we analyse domain-specific ontologies such as AID's furniture ontology, textile ontology (MODA-ML), and other widely used product ontologies to link various data models with each other (e.g. (i) SKOS (Simple Knowledge Organization System) could be used as the thesaurus modelling formalism, (ii) ONTO-PDM ontology is based on STEP-PDM and IEC 62264 standards, and could be used to provide a semantic layer to business, design and manufacturing product-related information, (iii) Manufacturing ontology used in ADACOR architecture and its alignment to DOLCE, (iv) GoodRelation ontology (http://purl.org/goodrelations/), etc.) We will maintain all relevant data elements and their links via the Semantic Metadata Repository (SMDR). In T2.2 we will adapt Semantic Mediator of UB by populating it with initial industry-specific data models.

Effort allocation:

Part. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Participant	SRFG	IBM	SRDC	**UB**	LTU	INN	WHR	LIND	PIA	MIC	AID	HOL	BAL	DOM	FEVA	BLAT	ENEA
T2.2	**3**	**-**	**6**	**9**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**3**

Month 1

Partner	What is planned?	Expected Result
SRFG	Ontology research, developing core (base) ontology for NIMBLE	Creation of core NIMBLE ontology allowing the adoption for the distinct use cases. Basic services (product catalog, negotiation, collaboration) are covered in the core NIMBLE ontology
SRDC	Analysis of standard data models that could be reused in the scope of core services	Presented the standard data models related to company registration process and supply chain collaboration in the kick-off meeting
UB	Literature research with respect to domain-specific ontologies	
AID	Furniture Ontology for catatalogue semantic interpretation Summary of data catalogue structure through ISO standard 10303-236 ISO database schema representation	SRDC is aware of the scope and features of the AIDIMME furniture ontology and the specific database implementation Simple guidelines about data representation using the standard released
ENEA	ONTO-Moda analisys to identify what is available and comparison against UB's mediator	

	requirements	

Month 2

Partner	What is planned?	Expected Result
SRFG	Ontology research, developing core (base) ontology for NIMBLE	
SRDC	Analysis of data models of existing commercial and open source e-commerce platforms Identification of data entities (objects, concepts) included in the initial versions of use cases Identification of initial product/service publishing requirements in the initial versions of use cases	Draft report on the initial set of identified data entities
AID	Analysis of semantic interpretation through furniture ontology Analysis of data catalogue structure selected in order to update/search... products	Product Data catalogue specifications according to furniture specifications Commercial data specifications according to furniture business relationships
UB	Identifying the scope, domain and use cases for entity identification together with other partners	Draft report on the scope as well as related extracted entities
ENEA	ONTO-Moda analisys to identify what is available and what not for integration with UB's mediator	1) Task leader (UB) is aware about OntoModa content 2) a working document highlighting the issues on using ONTO-Moda with the UB's mediator

Month 3

Partner	What is planned?	Expected Result
SRFG	Ontology research, developing core (base) ontology for NIMBLE	
SRDC	Elaborating use-case-specific data needs with respect to B2B registration and B2B collaboration	Specification of B2B concepts and message types required in the use cases
UB	Mapping of identified entities to given ontological standards. Identification of common and missing entities. Work out the details of the amount of Identification of entities from the defined scope Identification and analysis of standard data models to be potentially reused in the area of IOT together with SRFG, IBM with respect to the relevant ontolo-	a working document on entities and reusable IOT related data model for uses cases

	gies and use cases. Consideration of use case specific requirements (WP1)	
AID	Analysis of commercial data (delivery time, ...)	Document on commercial data of interest to the child furniture use case
ENEA	ONTO-Moda analysis to identify what is available and what not for integration with UB's mediator;	a working document highlighting the issues on using ONTO-Moda with the UB's mediator

Month 4

Partner	What is planned?	Expected Result
SRFG	Ontology Research - integrate results from Use Case partners (ENEA, AID, others)	
SRDC	Analysis of existing data models covering the use-case specific data needs identified before	Contribution to the initial draft versions of use-case-specific data models where existing data models are reused as much as possible
UB	Integrate and Harmonize sector specific models based on inputs from partners to support use case and requirements	Draft version of harmonized use case specific models
AID	Consider inputs from industry to refine the data structures (catalogue, transactional) previously defined	Refined version of data structures (catalogue, transactional)
ENEA	Modifications/adaptation of ONTO-Moda ontology to use it with the UB's mediator	requirements for an improved ontology to be used into the NIMBLE mediator

Month 5

Partner	What is planned?	Expected Result
SRFG	Ontology Research - integrate results from Use Case partners (ENEA, AID)	
SRDC	Working further towards finalization of use-case specific data models based on the developments in T2.1	Contribution to use-case specific data models to be reported in D2.2.2
UB	Improve data models to meet requirements from use cases	Improved use case specific data model as input for chapter D2.2.2 (Semantic Models for use cases)
AID	Adaptations if needed of AIDIMME furniture ontology to fit NIMBLE requirements in	Updated version of AIDIMME furniture ontology

	terms of data representation coming from all use cases	
ENEA	Modifications/adaptation of ONTO-Moda ontology to use it with the UB's mediator Identification of key elements inside a general ontology that might be useful to identify the type of process to test when generating Test Cases for the TeBES testing platform	an draft improved ontology to be used into the NIMBLE mediator a way to extract knowledge on the processes specific for contexts (for example the business case of providing textiles as a specific case of a general process of good provision).

Month 6

Partner	What is planned?	Expected Result
SRFG	Ontology Research - integrate results from Use Case partners (ENEA, AID)	Core NIMBLE ontology supporting registration, negotiation, catalog ingestion ...
SRDC	Working on the extensibility of the common data model	Contribution to the common data model considering sector-independent B2B collaboration
UB	Deriving and Harmonizing the common data model at the conceptual level to achieve an upper ontology	Draft common data model as input for chapter D2.2.3 (Extensible Cross-Domain Common Semantic Model)
AID	Adaptations if needed of AIDIMME furniture ontology to fit NIMBLE requirements in terms of data representation coming from all use cases	Updated version of AIDIMME furniture ontology
ENEA	Modifications/adaptation of ONTO-Moda ontology to use it with the UB's mediator Identification of key elements inside a general ontology that might be useful to identify the type of process to test when generating Test Cases for the TeBES testing platform	an improved ontology to be used into the NIMBLE mediator agreement on a way to extract knowledge on the processes specific for contexts (for example the business case of providing textiles as a specific case of a general process of good provision).

2.3 Action Plan for T2.3 – Design of an Open API

Task 2.3 Design of an Open API for the NIMBLE Platform - Lead: IBM (design of cloud services for an Open API); **Strongly involved**: SRDC (design of cloud-based collaboration), HOL (design of product lifecycle management); **Other**: SRFG, UB, AID, BALANCE, DOM, ENEA

Tasks T2.3 designs and specifies an Open API in NIMBLE, which will provide access to all collected data, during all lifecycle phases. Open API will be based on the O-LM – IoT Product LifeCycle Management (PLM) standard (HOL) of the Open Group.

Effort allocation:

Part. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Partici-pant	SRFG	**IBM**	SRDC	UB	LTU	INN	WHR	LIND	PIA	MIC	AID	HOL	BAL	DOM	FEVA	BLAT	ENEA
T2.3	**3**	**4**	**4**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**3**	**2**	**2**	**-**	**-**	**1**

No activities are planned in M01 and M02.

Month 3

Partner	What is planned?	Expected Result
SRFG	Identification of APIs in the basic microservices infrastructure that require Open API specifications. Identification of possible documentation formats for (Open) API specification.	A list of basic services that will be included in the Open API specification, such as configuration service, monitoring service, privacy and security components, etc. A list of possible documentation formats for (Open) API specification (generic vs. use case domain-specific)
IBM	Collaborate with T2.1 on interaction among core services	Clearer understanding of inter-relationships among core services
SRDC	Transforming requirements and design decisions from WP1, T2.1 and T2.2 into detailed API specs	Draft API specs
UB	Identification of necessary semantic interoperability related APIs based on WP1, T2.1 and T2.2	Semantic annotation of draft API specs
AID	Evaluation of main aspects to be considered in the Open API requirements for the furniture use case.	Understanding of the Open API and checking with furniture requirements.
HOL	Identification of the requirements from WP1, T2.1 and T2.2	Clear understanding of the requirements
BAL	Identification of the the Open API requirements for the life cycle management tool	Clear understanding of the basic Open API specification (functionalities)
DOM	Identification of open API requirements for IoT data collection in the textile Business case	Clear understanding of the Open API requirements for IoT data collection in the textile business case.
ENEA	based upon requirements in T2.1 and Ontologies in T2.2, the desgin of the API to integrate TeBES in NIMBLE platform	a set of UML documents to be used to implement the T3.8

Month 4

Partner	What is planned?	Expected Result
SRFG	Specification of the Open API to selected components of the basic microservices designed in T2.1	Documented API Specification that can be used as basis for the implementations in WP3.
IBM	Determine externally visible capabilities of the platform	Specify external APIs for the platform core capabilities
SRDC	Elaborating the APIs to be provided by the core services and services	Initial specification of APIs for the core services
UB	Identification of necessary semantic interoperability related APIs based on WP1, T2.1 and T2.2	Semantic annotation of draft API specs
AID	Evaluation of main aspects to be considered in the Open API requirements for the furniture use case.	Understanding of the Open API and checking with furniture requirements.
HOL	Starting with design of product lifecycle management	First draft of design of product lifecycle management
BAL	Identification of the the Open API requirements for the life cycle management tool	Selection of the functionalities of the Open API for life cycle tool connection
DOM	Evaluation of Open API requirements for the textile use case. (critical/non critical points)	Selection of open API requirements for IoT data collection
ENEA	based upon requirements in T2.1 and Ontologies in T2.2, the desgin of the API to integrate TeBES in NIMBLE platform	a set of UML documents to be used to implement the T3.8

Month 5

Partner	What is planned?	Expected Result
SRFG	Agreement among all partners on a common documentation format for the Open API to be used in NIMBLE for all services available so far.	Sample API documentation, first version of the API doc for the basic microservices.
IBM	Feed forming API into T2.1	Add API plans into the skeleton architecture document
SRDC	Adjustment/further elaboration of the core service APIs based on the improvements on T2.1 and T2.2	Improved core services API specs
UB	Identification of necessary semantic interoperability related APIs based on WP1, T2.1 and T2.2	Semantic annotation of draft API specs
AID	Checking of funcitonalities provided by the Open API.	Results in satisfaction of furniture requirements.

HOL	Indentify how to integrate lifecycle product management into open API	Draft of the integration specs
BAL	Identification of the the Open API requirements for the life cycle management tool	Selection and tests of the functionalities of the Open API for life cycle tool connection
DOM	Design of the data exchange with the open API	Selection of open API requirements for IoT data collection
ENEA	based upon requirements in T2.1 and Ontologies in T2.2, the desgin of the API to integrate TeBES in NIMBLE platform	a set of UML documents to be used to implement the T3.8

Month 6

Partner	**What is planned?**	**Expected Result**
SRFG	Create a publishable documentation of the Open API specification in NIMBLE to be shared with the community outside of the project team.	First release of the NIMBLE Open API specification.
IBM	Design API materialization with the deployment planned	Incorporation into the architecture document
SRDC	Working on documentation modalities (detailed API specs, tutorials, etc.)	API docs targeting the external community
UB	Identification of necessary semantic interoperability related APIs based on WP1, T2.1 and T2.2	Semantic annotation of draft API specs
AID	Validating of functionalities provided by the Open API.	Results in satisfaction of furniture requirements.
HOL	Working on documentation about product lifecycle management	Incorporation of the specs in the architecture
BAL	Identification of the the Open API requirements for the life cycle management tool	Tests of the functionalities of the Open API for life cycle tool connection
DOM	Test, revision and implementation of the design of the data exchange with the open API	Refinement of the understanding of the relationships between PLM and IoT
ENEA	based upon requirements in T2.1 and Ontologies in T2.2, the desgin of the API to integrate TeBES in NIMBLE platform	a set of UML documents to be used to implement the T3.8

2.4 Action Plan for T2.4 – User Experience Design

Task 2.4 User Experience Design for Fast System Adoption - Lead: SRFG (UXD design); **Strongly involved**: IBM (cloud services), SRDC, HOL (PLM design specificities); **Other**: UB, WHR, LIND, PIA, MIC

T2.4 designs and specifies user experiences (UXD) through standard HCI design methods, and adds additional aspects as perceived by users from the use cases. The high adoption rates needed for an Internet platform to become successful, places a strong requirement on its EASE-OF-USE. Our approach to user experience design will be strictly focused on getting manufacturing SMEs with little platform experience on-board, as fast as possible. We will push for the “one-click-to get-it-done” philosophy and we will employ crowdsourcing approaches wherever it is possible to share knowledge, data formats and infrastructures.

Effort allocation:

Part. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Participant	**SRFG**	IBM	SRDC	UB	LTU	INN	WHR	LIND	PIA	MIC	AID	HOL	BAL	DOM	FEVA	BLAT	ENEA
T2.4	**4**	**3**	**3**	**1**	**-**	**-**	**1**	**1**	**1**	**1**	**1**	**3**	**-**	**-**	**1**	**-**	**-**

Preparatory activities

Since T3.7 already starts in M03 and is based on the design and specifications from T2.4 some forerun tasks are required in order to gain early user feedback regarding the core service requirements

Creation of first mock-ups for core services keeping the "one click to get it done" philosophy in mind (registration, adding catalog, search, negotiation, contracting, execution of business transaction) => SRFG, SRDC

Gathering of questions and creative methods regarding core services and collaboration patterns to present to the industrial partners => SRFG, SRDC, UB

Meeting at Lindbäcks 14.12.16 - 16.12.16 for early user feedback => SRFG, BAL, UB, LIND.

Month 6

Partner	What is planned?	Expected Result
SRFG	Evaluation of the first prototypes generated in T3.7 using expert methods (e.g. heuristic evaluation) and user feedback, Creation of questionnaires to present to the use case partners	Design specification for next front-end iteration, Questionnaires to present to the use case partners
IBM	Creation of questionnaires to present to the use case partners	Questionnaires to present to the use case partners
SRDC	Evaluation of the first prototypes generated in T3.7 using user feedback, Creation of questionnaires to present to the use case partners	Design specification for next front-end iteration, Questionnaires to present to the use case partners
UB	Creation of questionnaires to present to the use	Questionnaires to present to

	case partners	the use case partners
WHR	Early feedback on the first prototypes using reporting methods	Bug reports and feature requests
LIND	Early feedback on the first prototypes using reporting methods	Bug reports and feature requests
PIA	Early feedback on the first prototypes using reporting methods	Bug reports and feature requests
MIC	Early feedback on the first prototypes using reporting methods	Bug reports and feature requests
AID	no immediate involvement	-
HOL	Creation of questionnaires to present to the use case partners	Questionnaires to present to the use case partners
FEVA	no immediate involvement	-

3 WP3 Implementation

WP3 Core Business Services for the NIMBLE Platform

T3.1 Core Platform Infrastructure

T3.2 Catalogue Ingestion and Semantic Annotation

T3.3 Product and Service Search Engine and Search Mediator

T3.4 Business process and supply chain negotiation support

T3.5 "Distributed Automation" for Production Data Sharing

T3.6 Lifecycle Data Management and Analytics

T3.7 User Front-End Prototyping for Fast System Adoption

T3.8 Tool for Collaboration Setup and Interoperability Testing

Part. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Partici-pant	SRFG	**IBM**	SRDC	UB	LTU	INN	WHR	LIND	PIA	MIC	AID	HOL	BAL	DOM	FEVA	BLAT	ENEA
T3.1	2	12	3														
T3.2	3		6	3							2						2
T3.3			4	6							2	6					
T3.4	6		10	2													
T3.5				3							2	8		3			
T3.6	3	4		6							2	8	2				
T3.7	6	3	3								2	3	3	3			
T3.8	2	1							1		3	2		1			6
TO-TAL	**22**	**20**	**26**	**20**	**0**	**0**	**0**	**0**	**1**	**0**	**13**	**27**	**5**	**7**	**0**	**0**	**8**

Objectives: WP3 implements the NIMBLE platform infrastructure and its core components supporting catalogue ingestion, search, negotiation, collaboration, and interoperability testing.

Description of Work

Task 3.1 Core Platform Infrastructure - Lead: IBM (implementation of core infrastructure and cloud services)**; Strongly involved:** SRDC (cloud-based collaboration), HOL (PLM); **Other:** SRFG

This task implements the necessary *Cloud Infrastructure* and basic services required for companies to get registered on the NIMBLE collaboration platform. Task T3.1 will be initiated by setting up and configuring the *Cloud Foundry,* which will host all the entities needed for the complete operation of the platform. In the next phase, T3.1 will continue with setting up the *Messaging and Communication Framework,* connecting the platform users with each other through the publish/ subscribe modality based on the technology selection decisions from T2.1. Furthermore, initial version of the *Data Management Framework* will be established by setting up the data management tools required in the use cases in addition to the *Semantic Metadata Repository (SMDR)* from T2.2. On top of this initial structure the registration mechanism will be deployed along with the *Searching and Publishing* functionalities to be delivered in T3.2 and T3.3.

Task 3.2 Catalogue Ingestion and Semantic Annotation - Lead: SRDC (implementation); **Strongly involved:** UB (semantic annotation methods), SRFG (catalogue ingestion); **Other:** AID, ENEA

Before any commercial activity can take place, registered companies need to be able to publish their services and products, which can be then become discoverable on the platform. Products and services offered are normally represented in digital form as catalogues. Output of the task is the *Product and Service Publishing Tool:* digital catalogues become semantically annotated for product and service categories, and the whole information bundle can be published. It also ensures the compliance of publishing processes with UBL and GS1 catalogue profiles, as well as integration with GS1 GDSN. When reaching this stage, a company participating in the platform is registered, visible and has its services or products offered via the NIMBLE collaborative platform.

Task 3.4 Business Process and Supply Chain Negotiation Support - Lead: SRDC (implementation of the *Collaborative Process Modelling Tool*); **Strongly involved:** SRFG (development of the negotiation mechanisms); **Other:** UB

In the first phase, T3.4 develops the *Collaborative Process Modelling Tool* with the goal to realize *Business Process as a Service* model. It will be implemented either by developing the business process modelling functionality from scratch or configuring open-source software that will serve as a cloud service. In the second phase, the *Collaborative Process Modelling Tool* will be supplemented with two functionalities, such as the *negotiation mechanisms* enabling business actors to reach an agreement on data sharing scenarios during the business process execution, and the *matchmaking capabilities* supporting the negotiation process to its closing. The *Collaborative Process Modelling Tool* will become full-fledged, once populated with the business templates in T5.7.

The Negotiation Tool will enable business actors to reach an agreement on data sharing scenarios during the business process execution. *The Matchmaking Tool* will provide the continuation of the negotiation process by recommending alternative business actors with the potential to respond to particular business needs. It will assist business actors in finding suitable partners for their businesses based on various criteria. The *Collaborative Process Modelling Tool* will provide simple templates, as ready-to-run business process constructs for particular supply chain operations, as well as combinations of these steps. In this way, small enterprises will be able to create custom business process templates if predefined templates do not meet their specific needs.

Task 3.5 "Distributed Automation" for Production Data Sharing - Lead: HOL (implementation of data *channel management* for shared data); **Strongly involved:** UB; **Other:** DOM, AID

When a supply chain gets established via the NIMBLE federated platform, the partners may agree on a certain degree of mutual insight into each other's production schedules, and may even share "live" production data. This is a highly sensitive issue for many companies, and the current policy for many firms is to keep production data strictly secret. *NOTE: This project is not about changing the social attitudes of CEOs, but we can provide tools that demonstrate measurable utility for certain supply chain data sharing scenarios. The core idea here is the notion of data channel management for shared data in the supply chain.* Two partners can agree at a fine-granular level about what data they will share with whom and when, and at what level of abstraction or aggregation this data will be exposed. The management of such data channels can then be delegated to software agents that enact the company's data sharing policies as defined.

Task 3.6 Lifecycle Data Management and Analytics - Lead: HOL (implementation of lifecycle data management features); **Strongly involved:** UB (developing analytics for lifecycle data management); **Other participants:** SRFG, IBM, AID, BALANCE

Task T3.6 extends the *Data Management Framework* in NIMBLE, by adding lifecycle data management capabilities. We will improve the results obtained in previous research projects by developing an infrastructure for searching and retrieving of data from all lifecycle phases. On top of this framework, we will deliver customizable visualization services (e.g. location of product parts during the inbound logistics processes) as well as analysis-driven decision making capabilities (e.g. analysis of delivery times in order to assess the performance of a particular supplier).

Task 3.7 User Front-End Prototyping for Fast System Adoption - Lead: SRFG (implementing UX front-ends); **Strongly involved:** IBM (cloud services), SRDC (developing UX-based cloud collaboration); **Other participants:** HOL, AID, BALANCE, DOM

In order to ensure high adoption rates, we must put specific emphasis on user front-ends that accelerate the moving of manufacturing SMEs, from a traditional web presence to a cloud-aware, IoT-enabled business collaboration ecosystem of European proportions. Task T3.7 implements user front-ends based on design and specifications from T2.4.

Task 3.8 Tool for Collaboration Setup and Interoperability Testing - Lead: ENEA (); **Strongly involved:** AID; **Other participants:** SRFG, IBM, PIA, AID, DOM

T3.8 is led by the ENEA group that has an extended experience in interoperability testing for fashion industry (for example, the CEN Validator for WS eBIZ has been supplied by ENEA). In T3.8, ENEA brings to the project their *TeBES (Test Bed Environment for Standard based Interoperability)*, a modular on-line test bed for testing system interoperability and standard conformance. Beyond specification conformance, the system is able to implement complex testing plans as well as interoperability testing across multiple step collaboration. In addition, another testing system, born from the standardised CEN GITB architecture, is fully configurable to implement complex testing plans described through standard based descriptors (TAML language and others). In NIMBLE, this tool (system) will be updated to be delivered as set of open source services fuelled through testing plans automatically generated from business model patterns to facilitate collaboration setting up.

Deliverables (brief description and month of delivery)

D3.1 (M07) Core Platform Infrastructure. A short report with a link to open-source demonstrator (OSD).

D3.2 (M09) Catalogue Ingestion and Semantic Annotation. A short report with a link to OSD.

D3.3 (M10) Product and Service Search Engine and Search Mediator. A short report with a link to OSD.

D3.4 (M12) Supply Chain Negotiation Support. A short report with a link to OSD.

D3.5 (M13) Distributed Automation: Channel Management for Production Data Sharing. A short report with a link to OSD.

D3.6 (M18) Data Analytics. A short report with a link to OSD.

D3.7 (M18) User Front-End Prototype. A short report with a link to OSD.

D3.8 (M18) Tool for Collaboration Setup and Interoperability Testing. A short report with a link to OSD.

3.1 Action Plan for T3.1 – Core Platform Infrastructure

Task 3.1 Core Platform Infrastructure - Lead: IBM (implementation of core infrastructure and cloud services)**; Strongly involved:** SRDC (cloud-based collaboration), HOL (PLM); **Other:** SRFG

This task implements the necessary *Cloud Infrastructure* and basic services required for companies to get registered on the NIMBLE collaboration platform. Task T3.1 will be initiated by setting up and configuring the *Cloud Foundry,* which will host all the entities needed for the complete operation of the platform. In the next phase, T3.1 will continue with setting up the *Messaging and Communication Framework,* connecting the platform users with each other through the publish/ subscribe modality based on the technology selection decisions from T2.1. Furthermore, initial version of the *Data Management Framework* will be established by setting up the data management tools required in the use cases in addition to the *Semantic Metadata Repository (SMDR)* from T2.2. On top of this initial structure the registration mechanism will be deployed along with the *Searching and Publishing* functionalities to be delivered in T3.2 and T3.3.

Effort allocation:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Partici-pant	SRFG	**IBM**	SRDC	UB	LTU	INN	WHR	LIND	PIA	MIC	AID	HOL	BAL	DOM	FEVA	BLAT	ENEA
T3.1	2	12	3														

No implementation activities are planned for the first two months.

Month 3

Partner	What is planned?	Expected Result
SRFG	Core Cloud Services Infrastructure Implementation and Deployment	Implementation of core services available, including: Configuration Service, Service Discovery, Service Logging, Service Monitoring and Gateway Proxy Service. Deployment of the core cloud services to the cloud infrastructure (Bluemix)

IBM	Core services identification in a cloud environment	Deployment plans for the core services
SRDC	Initial set of mock-ups for company registration/onboarding	Initial feedbacks for the for the registration/onboarding mock-ups are gathered from end users

Month 4

Partner	What is planned?	Expected Result
SRFG	Create a first version of the developer documentation for the NIMBLE platform and publish on github.	New (experienced) developers are able to setup their development and test environment from the services available from the NIMBLE github repositories, and deploy new microservices onto the platform.
IBM	Identification of the main flow across core services	Mock-up version of core services flow
SRDC	Implementation of registration services (backend) managing company profiles	Microservices for company registration are implemented and tested

Month 5

Partner	What is planned?	Expected Result
SRFG	Specification of the Messaging and Communication Framework.	Agreement on the technologies used for messaging and communication between the users of the NIMBLE platform
IBM	Specification of initial data and messaging infrastructure (collaborate with SRFG)	Initial deployment of basic data and messaging infrastructure
SRDC	Implementation of services for integrating role/scenario based data from participants	Microservices for data integration are implemented and tested

Month 6

Partner	What is planned?	Expected Result
SRFG	Setup and deployment of the Messaging and Communication Framework	Initial Messaging Functionality is available for the users of the platform.
IBM	prepare the ingestion of additional services by other partners, to the platform	Set up the platform deployment to absorb new services and connections between them
SRDC	Development of user interfaces for registration component	The first release of registration component

3.2 Action Plan for T3.2 – Catalogue Ingestion

Task 3.2 Catalogue Ingestion and Semantic Annotation - Lead: SRDC (implementation); **Strongly involved:** UB (semantic annotation methods), SRFG (catalogue ingestion); **Other:** AID, ENEA

Before any commercial activity can take place, registered companies need to be able to publish their services and products, which can be then become discoverable on the platform. Products and services offered are normally represented in digital form as catalogues. Output of the task is the *Product and Service Publishing Tool:* digital catalogues become semantically annotated for product and service categories, and the whole information bundle can be published. It also ensures the compliance of publishing processes with UBL and GS1 catalogue profiles, as well as integration with GS1 GDSN. When reaching this stage, a company participating in the platform is registered, visible and has its services or products offered via the NIMBLE collaborative platform.

Effort allocation:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Participant	SRFG	IBM	**SRDC**	UB	LTU	INN	WHR	LIND	PIA	MIC	AID	HOL	BAL	DOM	FEVA	BLAT	ENEA
	3		6	3							2						2

There are no activities planned in T3.2 in the first two months.

Month 3

Partner	What is planned?	Expected Result
SRFG	Provision of RDF Triplestore for testing purposes	Possibility to load "NIMBLE" base ontology into triple store and to add resources based on the NIMBLE base ontology
SRDC	Analysis of existing open source e-commerce platforms Initial set of mock-ups for Catalog Registry	A report including capabilities and reuse options of the existing e-commerce tools First feedback for the for the Catalog Registry mock-ups are gathered from end users
UB	Adapting the semantic mediator to deal with the Eco-houses use case	Prototype of semantic mediator
AID	Formalising the Micuna product catalogue structure	Semantic model for furniture products catalogue
ENEA	Analysis of textile catalogues to improve the OntoMODA ontologies	The inclusion in the OntoMODA ontology of a part of relevant concepts that characterize a textile catalogue of products

Month 4

Partner	What is planned?	Expected Result

SRFG	Work on Registration (as pre-requisite), Catalog Ingestion & Catalog Search, joint effort with SRDC, UB & others	Possibility to search for registered partners & provided products & services
SRDC	Implementation of Catalog Registry	If possible, integration of available sector-specific product metadata vocabularies into Catalog Registry
UB	Adapting the semantic mediator to deal with the Eco-houses use case	Prototype of semantic mediator
AID	Formalising the Micuna product catalogue structure	Semantic model for furniture products catalogue
ENEA	Analysis of textile catalogues to improve the OntoMODA ontologies	The inclusion in the OntoMODA ontology of a part of relevant concepts that characterize a textile catalogue of products

Month 5

Partner	**What is planned?**	**Expected Result**
SRFG	Ongoing Work on Registration, Catalog Ingestion	Test environment for Catalog Ingestion & Search
SRDC	Implementation of Catalogue Registry	Testable Catalogue Registry
UB	Adapting the semantic mediator to deal with the childcare furniture use case	Prototype of semantic mediator + 2 product catalogues
AID	Testing the ingestion mechanism with the Micuna product catalogue	Initial validation of the catalogue ingestion services
ENEA	Analysis of textile catalogues to improve the OntoMODA ontologies	The inclusion in the OntoMODA ontology of a part of relevant concepts that characterize a textile catalogue of products

Month 6

Partner	**What is planned?**	**Expected Result**
SRFG	Ongoing Work on Registration, Catalog Ingestion	Prototype supporting catalog ingestion and catalog search
SRDC	Implementation of Catalog Registry	Testable Catalogue Registry
UB	Adapting the semantic mediator	Prototype of semantic mediator + 3 product

	to deal with the textile use case	catalogues
AID	Testing the ingestion mechanism with the Piacenza product catalogue	Initial validation of the catalogue ingestion services
ENEA	Support to the catalogue ingestion tool in annotating concepts present in the textile catalogue	The possibility to annotate a textile catalogue with concepts present in OntoMODA, enabling the catalog search tool in looking inside this type of catalogs.

3.3 Action Plan for T3.3 – Product and Service Search Engine

Part. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Participant	SRFG	**IBM**	SRDC	UB	LTU	INN	WHR	LIND	PIA	MIC	AID	HOL	BAL	DOM	FEVA	BLAT	ENEA
T3.3			4	6							2	6					

Task 3.3 Product and Service Search Engine and Search Mediator - Lead: UB (implementation of semantic search methods); **Strongly involved:** SRDC (implementation), HOL (implementation of semantic mediators for the platform); **Other:** AID

Although the *Catalogue Registry* maintains both *Offline Catalogues* and *Real-Time Catalogues*, T3.3 settings up the first version of the registry addressing only the *Offline Catalogues*. Different modalities of search services, such as keyword-based search, faceted search, semantic search on the registry as well as presentation modules for catalogues will be delivered through intuitive user interfaces. Search services will still be capable of processing structured query inputs represented in different data models.

Month 3

Partner	What is planned?	Expected Result
SRDC	Initial set of mock-ups for search functionalities of Catalog Registry	First feedback for the for the search interfaces are gathered from end users
UB	Identification of needed functionalities for web search and semantic mediator	Initial description of the web search and semantic mediator modules
AID	Identification of resources of Offline catalogues in furniture industry especially considering the scenario.	Description of Offline catalogue resources.
HOL	Acquiring informations about semantic mediators	Early prototype of semantic mediator

Month 4

Partner	What is planned?	Expected Result
SRDC	Configuration of a text-based indexing (Solr, Elastic Search) tool for the Catalog Registry	The indexing tool is configured and available as a service.
UB		
AID	Identification of resources of Offline catalogues in furniture industry especially considering the scenario.	Description of Offline catalogue resources.
HOL		

Month 5

Partner	What is planned?	Expected Result
SRDC	Extending Catalog Registry with the key-word/faceted search capabilities	The indexing tool is connected with Catalog Registry
UB		
AID	Check of search mock-ups.	Results of check of search mock-ups.
HOL		

Month 6

Partner	What is planned?	Expected Result
SRDC	Development of user interfaces for the keyword/faceted search functions	Catalog Registry enhanced with search services is available on the cloud
UB		
AID	First evaluation of search user interfac-es.	Results of preliminary evaluation of search user interfaces.
HOL		

3.4 Action Plan for T3.4 – Business and Supply Chain Support

Task 3.4 Business Process and Supply Chain Negotiation Support - Lead: SRDC (implementation of the *Collaborative Process Modelling Tool*); **Strongly involved:** SRFG (development of the negotiation mechanisms); **Other:** UB

In the first phase, T3.4 develops the *Collaborative Process Modelling Tool* with the goal to realize *Business Process as a Service* model. It will be implemented either by developing the business process modelling functionality from scratch or configuring open-source software that will serve as a cloud service. In the second phase, the *Collaborative Process Modelling*

Tool will be supplemented with two functionalities, such as the *negotiation mechanisms* enabling business actors to reach an agreement on data sharing scenarios during the business process execution, and the *matchmaking capabilities* supporting the negotiation process to its closing. The *Collaborative Process Modelling Tool* will become full-fledged, once populated with the business templates in T5.7.

The Negotiation Tool will enable business actors to reach an agreement on data sharing scenarios during the business process execution. *The Matchmaking Tool* will provide the continuation of the negotiation process by recommending alternative business actors with the potential to respond to particular business needs. It will assist business actors in finding suitable partners for their businesses based on various criteria. The *Collaborative Process Modelling Tool* will provide simple templates, as ready-to-run business process constructs for particular supply chain operations, as well as combinations of these steps. In this way, small enterprises will be able to create custom business process templates if predefined templates do not meet their specific needs.

Effort allocation:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Participant	SRFG	IBM	**SRDC**	UB	LTU	INN	WHR	LIND	PIA	MIC	AID	HOL	BAL	DOM	FEVA	BLAT	ENEA
T3.4	6		10	2													

Month 4

Partner	What is planned?	Expected Result
SRFG	No immediate involvement	
SRDC	Analysis of existing open source business process modelling tools. Initial set of mock-ups for Business Process Modelling Tool	A report including capabilities and reuse options of the existing open source business process modelling tools. First feedback for the for the Business Process Modelling Tool mock-ups are gathered from end users
UB	No immediate involvement	

Month 5

Partner	What is planned?	Expected Result
SRFG	Implementation of negotiation services in the level of service level agreement	-
SRDC	Implementation of Business Process Modelling Tool -	-
UB	No immediate involvement	-

Month 6

Partner	What is planned?	Expected Result
SRFG	Implementation of negotiation services in the level of service level agreement	Software + Documentation
SRDC	Implementation of Business Process Modelling Tool	Software + Documentation
UB	Enhancing negotiation mechanism with match-making services powered by the search services from T3.2	Software + Documentation

3.5 Task 3.5 – Starts in M7

3.6 Task 3.6 – Starts in M7

3.7 Action Plan for T3.7 – User Front-End Prototyping

Efforts planned for T3.7

Part. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Participant	SRFG	**IBM**	SRDC	UB	LTU	INN	WHR	LIND	PIA	MIC	AID	HOL	BAL	DOM	FEVA	BLAT	ENEA
T3.7	6	3	3								2	3	3	3			

From the DOA: Task 3.7 User Front-End Prototyping for Fast System Adoption - Lead: SRFG (implementing UX front-ends); **Strongly involved:** IBM (cloud services), SRDC (developing UX-based cloud collaboration); **Other participants:** HOL, AID, BALANCE, DOM

In order to ensure high adoption rates, we must put specific emphasis on user front-ends that accelerate the moving of manufacturing SMEs, from a traditional web presence to a cloud-aware, IoT-enabled business collaboration ecosystem of European proportions. Task T3.7 implements user front-ends based on design and specifications from T2.4.

Month 3

Partner	What is planned?	Expected Result
SRFG	Iteration of mock-ups for registration, adding catalog, search based on early user feedback from T2.4	Advanced mock-ups for registration, adding catalog, search
IBM	Identification of relevant cloud services based	A list and cost/usage estimation

	on early user feedback from T2.4	of relevant cloud services
SRDC	Iteration of mock-ups for negotiation, contracting, execution of business transaction based on early user feedback from T2.4	Advanced mock-ups for negotiation, contracting, execution of business transaction
AID	Creation of mock-ups for depicting ecological footprints	Basic mock-ups for depicting ecological footprints
HOL	Creation of mock-ups for depicting Product Lifecycle Management data	Basic mock-ups for depicting Product Lifecycle Management data
BAL	no immediate involvement	-
DOM	no immediate involvement	-

Month 4

Partner	What is planned?	Expected Result
SRFG	Feedback to the basic mock-ups created by AID and HOL, Creation of medium fidelity prototypes (using basic HTML/JS and common frameworks, such as jQuery and Bootstrap) for the core services based on the advanced mock-ups from M03	v1 of medium fidelity prototypes for core services
IBM	Identification of overlaps with the microservice infrastructure from T2.1	A list of cloud services with interfaces to the T2.1 infrastructure
SRDC	Feedback to the basic mock-ups created by AID and HOL, Creation of medium fidelity prototypes (using basic HTML/JS and common frameworks, such as jQuery and Bootstrap) for the core services based on the advanced mock-ups from M03	v1 of medium fidelity prototypes for core services
AID	Iteration of mock-ups for depicting ecological footprints based on the feedback by SRFG and SRDC	Advanced mock-ups for depicting ecological footprints
HOL	Iteration of mock-ups for depicting Product Lifecycle Management data based on the feedback by SRFG and SRDC	Advanced mock-ups for depicting Product Lifecycle Management data
BAL	no immediate involvement	-
DOM	no immediate involvement	-

Month 5

Partner	What is planned?	Expected Result
SRFG	Creation of medium fidelity prototypes for the core services (cont'd), Implementation of early reporting methods (bug tracker, mail service or the like)	v2 of medium fidelity prototypes for core services
IBM	Integration of cloud services identified in M04 into the existing prototype	v2 of medium fidelity prototypes for core services

SRDC	Creation of medium fidelity prototypes for the core services (cont'd)	v2 of medium fidelity prototypes for core services
AID	no immediate involvement	-
HOL	no immediate involvement	-
BAL	Creation of workflows for Lifecycle Performance Assessment with regard to the existing services	Basic workflows for Lifecycle Performance Assessment
DOM	Adaption of the advanced mock-ups to the textile use case	Basic mock-ups for the textile use case

Month 6

Partner	**What is planned?**	**Expected Result**
SRFG	Feedback to the basic workflows created by BAL and mock-ups created by DOM, Improvement of medium fidelity prototypes from M05 and connection to existing services where possible (=> high fidelity)	Partially high fidelity prototypes for core services
IBM	Adaption of cloud service according to front-end development	Partially high fidelity prototypes for core services
SRDC	Improvement of medium fidelity prototypes from M05 and connection to existing services where possible (=> high fidelity)	Partially high fidelity prototypes for core services
AID	no immediate involvement	-
HOL	no immediate involvement	-
BAL	Iteration of workflows for Lifecycle Performance Assessment based on feedback by SRFG	Advanced workflows for Lifecycle Performance Assessment
DOM	Iteration of mock-ups for the textile use case based on feedback by SRFG	Advanced mock-ups for the textile use case

3.8 Action Plan for T3.8 – Interoperability Testing Tool

Part. No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Participant	SRFG	**IBM**	SRDC	UB	LTU	INN	WHR	LIND	PIA	MIC	AID	HOL	BAL	DOM	FEVA	BLAT	ENEA
T3.8	2	1							1		3	2		1			6

From the DOA: Task 3.8 Tool for Collaboration Setup and Interoperability Testing - Lead: ENEA (); **Strongly involved:** AID; **Other participants:** SRFG, IBM, PIA, AID, DOM

T3.8 is led by the ENEA group that has an extended experience in interoperability testing for fashion industry (for example, the CEN Validator for WS eBIZ has been supplied by ENEA). In T3.8, ENEA brings to the project their *TeBES (Test Bed Environment for Standard based Interoperability)*, a modular on-line test bed for testing system interoperability and standard conformance. Beyond specification conformance, the system is able to implement complex testing plans as well as interoperability testing across multiple step collaboration. In addition, another testing system, born from the standardised CEN GITB architecture, is fully configurable to implement complex testing plans described through standard based descriptors (TAML language and others). In NIMBLE, this tool (system) will be updated to be delivered as set of open source services fuelled through testing plans automatically generated from business model patterns to facilitate collaboration setting up.

Month 3

Partner	What is planned?	Expected Result
SRFG	Analysing TeBES for integration into NIMBLE	Understanding of the TeBES architecture
IBM	Analysing TeBES for integration into the Cloudfoundry environment	Understanding redesign needs of TeBES
PIA	Developing NIMBLE specific test plans	TeBES test plan for the textile application scenario
AID	Obtain more detailed knowledge about TeBES (Test Bed Environment for Standard based Interoperability) for interoperability testing	Understanding of TeBES as tool to test applications in terms of interoperability
HOL	Co-developing NIMBLE specific test plans for the White Goods use case	Test plan white goods
DOM	Co-developing NIMBLE specific test plans for the White Goods use case	Test plan textile application
ENEA	Collaborate with T2.3 to define the openAPI necessary to offer the test tool services to the NIMBLE community	A set of openAPI specification to be enabled into the TeBES platform

Month 4

Partner	What is planned?	Expected Result
SRFG	Refactoring TeBES for integration into NIMBLE	Refactored TeBES application
IBM	Refactoring TeBES for integration into NIMBLE under Cloudfoundry	Refactored TeBES application ready for use in cloud environments
PIA	Developing NIMBLE specific test plans	TeBES test plan for the textile application scenario
AID	Obtain more detailed knowledge about TeBES	Understanding of TeBES as

	(Test Bed Environment for Standard based Interoperability) for interoperability testing	tool to test applications in terms of interoperability
HOL	Co-developing NIMBLE specific test plans for the White Goods use case	Test plan white goods
DOM	Co-developing NIMBLE specific test plans for the White Goods use case	Test plan textile application
ENEA	Collaborate with T2.3 to define the openAPI necessary to offer the test tool services to the NIMBLE community	A set of openAPI specification to be enabled into the TeBES platform

Month 5

Partner	What is planned?	Expected Result
SRFG	Refactoring TeBES for integration into NIMBLE	Refactored TeBES application
IBM	Refactoring TeBES for integration into NIMBLE under Cloudfoundry	Refactored TeBES application ready for use in cloud environments
PIA	Developing NIMBLE specific test plans	TeBES test plan for the textile application scenario
AID	Analysis of the role of TeBES tool in NIMBLE focusing on pilot applications	Evaluation of the role of TeBES tool and its practical application to pilots
HOL	Co-developing NIMBLE specific test plans for the White Goods use case	Test plan white goods
DOM	Co-developing NIMBLE specific test plans for the White Goods use case	Test plan textile application
ENEA	Definition and development of the interfaces enhancing the integration of the TeBES tool for test bedding into the NIMBLE platform. Identification of the path from a general Business Case (from WP1) to a specific test plan using the general Nimble ontology and the sectorial ontologies	First design of the interfaces

Month 6

Partner	What is planned?	Expected Result
SRFG	No further involvement	n.a.
IBM	No further involvement	n..a
PIA	No further involvement	n.a.
AID	Analysis of the role of TeBES tool in NIMBLE focus-	Evaluation of the role of

	ing on pilot applications	TeBES tool and its practical application to pilots
HOL	No further involvement	n.a.
DOM	No further involvement	n..a
ENEA	Definition and development of the interfaces enhancing the integration of the TeBES tool for test bedding into the NIMBLE platform. Identification of the path from a general Business Case (from WP1) to a specific test plan using the general Nimble ontology and the sectorial ontologies	First design of the interfaces

4 WP6 – Security

Efforts per task and per partner

Part. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Partici-pant	**SRFG**	IBM	SRDC	UB	LTU	INN	WHR	LIND	PIA	MIC	AID	HOL	BAL	DOM	FEVA	BLAT	ENEA
T6.1	2		1			1	1	1	1	1	1	1	1	1	1	1	
T6.2	6	3	2														
T6.3	4		2	4		4											
T6.4	4		4	4		4											
TO-TAL	**16**	**3**	**9**	**8**	**0**	**9**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**

Tasks and deliverables/ from the Description of Work

WP6 Trust, Security, Privacy and Reputation

T6.1 Security and Privacy Requirements

T6.2 Design and Implementation of Security and Privacy for Core Business Services

T6.3 Trust and Reputation Management

T6.4 Information Quality Management Tools

Deliverables (brief description and month of delivery)

D6.1 (M13) Security and Privacy Requirements. A report summarizing privacy and security requirements.

D6.2 (M13) Security and Privacy - Implementation Report. A design and implementation report on privacy and security services.

D6.3 (M17) Trust and Reputation Management in a large scale B2B Platform. A report on trust and management aspects implemented on the platform.

D6.4 (M32) Information Quality Management. A guide book for fostering platform information quality.

4.1 Action Plan for T6.1 – Privacy and Security Requirements

T6.1 "Privacy and Security Requirements", Month 1 - Month 13

(From the DoW) **Task 6.1 starts with the definition of privacy and security requirements of the platform, which are specifically aligned to the four use cases in NIMBLE.** Our method for collecting security and privacy requirements includes analysis of attack vectors, considering the attackers' perspective, and the definition of attack trees. For data privacy, we will specifically cover categories of requirements on (i) privacy based on trust, (ii) privacy based on individual user action/ business transaction over the platform, (iii) privacy based on collaboration with the cloud provider, and (iv) privacy based on collaboration with other collaborative network members (actors). The analysis and selection of security and privacy requirements to be addressed by the platform developers will be jointly in collaboration with the domain-experienced use case partners. A special requirement for NIMBLE will be to implement a fine-granular access control system for the Negotiation Tool to enable platform participants to dynamically share data from the Data Management Framework, as well as data streams across the Messaging and Communication Framework.

Person months:

Partici-pant	SRFG	IBM	SRDC	UB	LTU	INN	WHR	LIND	PIA	MIC	AID	HOL	BAL	DOM	FEVA	BLAT	ENEA
T6.1	2		1			1	1	1	1	1	1	1	1	1	1	1	

Month 1

Partner	What is planned?	Expected Result
SRFG:	support for the requirements methodology in WP1	checking the requirements forms to be used in WP1
SRDC:	no immediate involvement	n.a.
INN:	no immediate involvement	n.a.
WHR:	no immediate involvement	n.a.
LIND:	no immediate involvement	n.a.
PIA:	no immediate involvement	n.a.
MIC:	no immediate involvement	n.a.
AID:	no immediate involvement	n.a.
HOL:	no immediate involvement	n.a.
BAL:	no immediate involvement	n.a.
DOM:	no immediate involvement	n.a.

FEVA:	no immediate involvement	n.a.
BLAT:	no immediate involvement	n.a.

Month 2

Partner	What is planned?	Expected Result
SRFG:	the initial definition of privacy and security requirements based on the draft model of the platform	first collection of privacy and security requirements (based only on the draft model of the platform) getting in touch with the Uni Passau (security partner in the COMPOSE project) getting in touch with the University Pierre and Marie Curie (FR) (partner in the SCISSOR project working on Bayesian support to the security discovery)
SRDC:	initial definition of privacy and security requirements based on draft model of the platform	the first collection of privacy and security requirements (based only on the draft model of the platform) Suat Gönül
INN:	no immediate involvement	n.a.
WHR:	involvement through the respective use case task T1.1	Security requirements from white goods use case
LIND:	involvement through the respective use case task T1.2	Security requirements from eco houses use case
PIA:	involvement through the respective use case task T1.3	Security requirements from textile use case
MIC:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
AID:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
HOL:	involvement through the respective use case task T1.1 and T1.3	Security requirements from white goods use case
BAL:	involvement through the respective use case task T1.2	Security requirements from eco houses use case
DOM:	involvement through the respective use case task T1.3	Security requirements from textiles use case
FEVA:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
BLAT:	involvement through the respective use case task T1.2	Security requirements from eco houses use case

Month 3

Partner	What is planned?	Expected Result
SRFG:	the initial definition of privacy and security requirements based on the first draft model of the platform	the first collection of privacy and security requirements (based only on the draft model of the platform) planning security features of the platform
SRDC:	the initial definition of privacy and security requirements based on the first draft model of the platform	the first collection of privacy and security requirements (based only on the draft model of the platform) planning security features of the platform
INN:	no immediate involvement	n.a.
WHR:	involvement through the respective use case task T1.1	Security requirements from white goods use case
LIND:	involvement through the respective use case task T1.2	Security requirements from eco houses use case
PIA:	involvement through the respective use case task T1.3	Security requirements from textile use case
MIC:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
AID:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
HOL:	involvement through the respective use case task T1.1 and T1.3	Security requirements from white goods use case
BAL:	involvement through the respective use case task T1.2	Security requirements from eco houses use case
DOM:	involvement through the respective use case task T1.3	Security requirements from textiles use case
FEVA:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
BLAT:	involvement through the respective use case task T1.2	Security requirements from eco houses use case

Month 4 (January 2017)

Partner	What is planned?	Expected Result
SRFG:	the initial definition of privacy and security requirements based on the first draft model of the platform	the first collection of privacy and security requirements (based only on the draft model of the platform) SIEM (Security Information and Event

		Management) tool installation planning security features of the platform
SRDC:	the initial definition of privacy and security requirements based on the first draft model of the platform	the first collection of privacy and security requirements (based only on the draft model of the platform) planning security features of the platform
INN:	no immediate involvement	n.a.
WHR:	involvement through the respective use case task T1.1	Security requirements from white goods use case
LIND:	involvement through the respective use case task T1.2	Security requirements from eco houses use case
PIA:	involvement through the respective use case task T1.3	Security requirements from textile use case
MIC:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
AID:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
HOL:	involvement through the respective use case task T1.1 and T1.3	Security requirements from white goods use case
BAL:	involvement through the respective use case task T1.2	Security requirements from eco houses use case
DOM:	involvement through the respective use case task T1.3	Security requirements from textiles use case
FEVA:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
BLAT:	involvement through the respective use case task T1.2	Security requirements from eco houses use case

Month 5

Partner	What is planned?	Expected Result
SRFG:	the initial definition of privacy and security requirements based on the first draft model of the platform	the first collection of privacy and security requirements (from the platform model) planning security features of the platform
SRDC:	the initial definition of privacy and security requirements based on the first draft model of the platform	the first collection of privacy and security requirements (from the platform model) planning security features of the platform

INN:	the initial definition of privacy and security requirements based on the first draft model of the platform	the first collection of privacy and security requirements (from the platform model)
WHR:	involvement through the respective use case task T1.1	Security requirements from white goods use case
LIND:	involvement through the respective use case task T1.2	Security requirements from eco houses use case
PIA:	involvement through the respective use case task T1.3	Security requirements from textile use case
MIC:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
AID:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
HOL:	involvement through the respective use case task T1.1 and T1.3	Security requirements from white goods use case
BAL:	involvement through the respective use case task T1.2	Security requirements from eco houses use case
DOM:	involvement through the respective use case task T1.3	Security requirements from textiles use case
FEVA:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
BLAT:	involvement through the respective use case task T1.2	Security requirements from eco houses use case

Month 6

Partner	What is planned?	Expected Result
SRFG:	analysis of the collections of UC requirements	extracting the security and privacy requirements from the UCs merging the UCs- and platform-related security and privacy requirements planning security features of the platform
SRDC:	analysis of the collections of UC requirements	extracting the security and privacy requirements from the UCs merging the UCs- and platform-related security and privacy requirements planning security features of the platform
INN:	analysis of the collections of UC requirements	extracting the security and privacy requirements from the UCs merging the UCs- and platform-related security and privacy requirements planning security features of the platform
WHR:	involvement through the respective	Security requirements from white goods

	use case task T1.1	use case
LIND:	involvement through the respective use case task T1.2	Security requirements from eco houses use case
PIA:	involvement through the respective use case task T1.3	Security requirements from textile use case
MIC:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
AID:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
HOL:	involvement through the respective use case task T1.1 and T1.3	Security requirements from white goods use case
BAL:	involvement through the respective use case task T1.2	Security requirements from eco houses use case
DOM:	involvement through the respective use case task T1.3	Security requirements from textiles use case
FEVA:	involvement through the respective use case task T1.4	Security requirements from child furniture use case
BLAT:	involvement through the respective use case task T1.2	Security requirements from eco houses use case

4.2 Action Plan for T6.2 – Design and Implementation of Security and Privacy for Core Business Services

Duration of this task: Month 4 - Month 14

(From the DoW) **T6.2 will closely interact with WP3 in developing the core business services platform in NIMBLE. Based on the requirements specified in T6.1, selected privacy and security measures will be implemented, by making use of existing toolsets and libraries as much as possible. This includes e.g. the User Account and Authentication (UAA) from Cloud Foundry. On top of them, the platform-specific authorisation, authentication and the self-service registration procedures will be built.** To achieve a trustable platform, best practices for securing web applications such as those developed by OWASP (see https://www.owasp.org) will be adopted. Furthermore, algorithms such as Identity-Based Encryption (IBE) will contribute to T3.5 for secure data sharing.

Person months: SRFG: 6, IBM: 3, SRDC: 2

Month 4

Partner	What is planned?	Expected Result
SRFG:	planning and designing security features of the platform	security and privacy features designed
SRDC:	planning and designing security features of the platform	security and privacy features designed

IBM:	planning and designing security features of the platform	security and privacy features designed

Month 5

Partner	What is planned?	Expected Result
SRFG:	planning and designing security features of the platform	security and privacy features designed
SRDC:	planning and designing security features of the platform	security and privacy features designed
IBM:	planning and designing security features of the platform	security and privacy features designed

Month 6

Partner	What is planned?	Expected Result
SRFG:	planning and designing security features of the platform	security and privacy features designed
SRDC:	planning and designing security features of the platform	security and privacy features designed
IBM:	planning and designing security features of the platform	security and privacy features designed

4.3 Action Plan for T6.3 – Trust and Reputation Management

(From the DoW) **T6.3 will combine several trust and reputational approaches such as (i) work by INN on trust-based discovery for Web of Things marketplaces (VUGG14) that was explored in COMPOSE, and presented as a topic of interest for the W3C Web of Things Interest Group (task force on Security, Privacy and Resilience)**, and (ii) will explore state-of-the-art GT models for building up reputations for trust or ruthlessness in business. Reputation of the platform itself will be achieved by the use of mature open source software and stable cloud platforms, as well as transparent data management mechanisms (e.g. audit logging). Reputation levels of platform users will be based on platform interaction activity and (bilateral) user rating. The outcomes of T6.3 will be summarized in D6.3, and published as research papers. **Person months: SRFG: 4**, SRDC: 2, UB: 4, INN: 4

Month 6

Partner	What is planned?	Expected Result
SRFG:	designing trust features	the first draft trust models
SRDC:	no immediate involvement	n.a.
UB:	no immediate involvement	n.a.
INN:	designing trust features	Initial trust feature set

5 Work Package 8 - Dissemination

Work Package Leader: Alessio Gugliotta (INN)

WP8 NIMBLE Platform Adoption - Communication - Exploitation

T8.1 Dissemination and Communication Planning, Setup and Management

T8.2 Scientific and Technical Communication

T8.3 Raising Awareness in Open Source Communities

T8.4 AMBASSADOR Programme for Early Adopters and Stakeholders

T8.5 Nimble Platform SEED Programme for Federated Platforms

T8.6 Web Site, Social Media and Strategic PR

T8.7 Innovation, Exploitation and Standardisation

Efforts per task and per partner

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	SRFG	**IBM**	**SRDC**	**UB**	**LTU**	**INN**	**WHR**	**LIND**	**PIA**	**MIC**	**AID**	**HOL**	**BAL**	**DOM**	**FEVA**	**BLAT**	**ENEA**
T8.1	2	1	1			4					1						1
T8.2	3	3	3	3	2	2	1				3	2	2	1	1		2
T8.3	3	2	2			1					1	1					
T8.4	4			1		6	1	1	2	1	2				3		2
T8.5	2			1		6						2					
T8.6	2		1			6									1		
T8.7	2	2	1	1	1	6	1	1	1	1	1	2	1	1	1	1	2

5.1 Action Plan for T8.1 – Dissemination & Communication Management

From the description of work: Task 8.1: Dissemination and Communication Planning, Website Setup and Management - Lead: INN (dissemination); **Strongly involved:** SRFG (project coordination); **Other:** IBM, SRDC, AID, ENEA

T8.1 defines the detailed *Dissemination and Communication Plan* with information and timings for dissemination and exploitation activities. This plan will provide the roadmap for promoting the project results, fostering new platform creation (*Platform SEED Programme*) and driving platform adoption (*AMBASSADOR Programme*). It will set targets for these activities, which will be monitored and evaluated on an annual basis against the key metrics (e.g. number of users, number of expressions of interest, newsletter subscribers, etc.). In addition, a project website with content tailored to different audience including platform users will be published in T8.1. Website analytics will track audience engagement.

5.1.1 T8.1 Action Plan M1 to M6

INN will lead the partners in delivering the Dissemination and Communication Plan by **M02**. Specifically, INN will be responsible to set the document and define all necessary contents to plan the project's dissemination and communication activities. All partners will contribute by including in the plan specific target groups, workshops, events, dissemination channels, etc. according to their specific role in the project and networks.

After M02, once the plan will become operative, INN will supervise all the planned activities (that will be implemented in the other WP8 tasks), monitor the achievement of the report KPIs and will periodically update the plan in order to revise existing and/or include new activities.

In parallell, SFRG and INN wil design and deploy the project website which will be continuosly updated till the end of the project.

The goal at M06 is to have the Dissemination and Communication Plan and the project Web site in place and fully operative.

5.2 Action Plan for T8.2 – Sci & Tec Communication

Task 8.2 Scientific and Technical Communication - Lead: SRFG (project coordination); **Strongly involved:** research partners: IBM, SRDC, UB, AID; **Other participants:** ALL

Task T8.2 fosters the presentation of innovations, technical developments and impacts at target events. It also deals with the publication of findings in peer-reviewed, scientifically sound channels (min. 1 per deliverable).

5.2.1 T8.2 Action Plan M1 to M6

Salzburg Research will coordinate this task and will identify suitable targets. Particularly in the first six months, all partners will contribute to finding appropriate events and publications. As with any R&D project, scientific communication in the first six months can only focus on early findings typically around topics such as requirements and specification. In line with our open access, open source approach we will also make designs and code openly available. For this purpose an open source project has already been set up on github:

https://github.com/nimble-platform

Since security is a specifically important topic for managing a large scale B2B platform, partners will also address the security aspects right from the beginning, setting out challenges that NIMBLE will have to address. Here, an early publication is also planned, pending to acceptance through peer review.

5.3 Action Plan for T8.3 – Awareness in Open Source Communities

Task 8.3 Raising Awareness in Open Source Communities - Lead: SRFG (open source evangelism); **Strongly involved:** IBM, SRDC; **Other participants:** INN, AID, HOL

SRFG, IBM, and SRDC are already active in a number of Apache, Eclipse and Github open source communities and will introduce NIMBLE concepts, specifications and source code to these communities to motivate independent developers to contribute to NIMBLE components.

This is an important activity – experience in other projects has shown that in excess of 100 additional person months can be leveraged over a period of three years; this corresponds to a market equivalent of 1 million € plus the additional networking effects via these developer communities. It is necessary for very good developers to be present in these communities to guide newcomers and to maintain the meritocratic governance of these communities. The other commercial software companies (HOL, BALANCE, DOM) have declared their interest in also becoming active in Open Source, as part of their innovation portfolio.

5.3.1 T8.3 Action Plan M01 to M06

In the first month **M01** all partners will set up tools (e.g. GitHub) for collaborating in open source projects. In addition, the project leader will communicate the open source philosophy to partners in the consortium. For this purpose an open source project has already been set up on github:

https://github.com/nimble-platform

Architectures of open source projects must be designed appropriately in order to attract a large base of contributors. In month two **M02** we will cooperate with stakeholders from task 2.1 and lay the foundation for a software design, which is necessary for successful open source projects. The expected result of month two is a qualitative set of guidelines for developing an open source codebase.

In month three and four **(M03-M04)** we will optimise the project management to be eligible for a large and distributed base of collaborators. This includes issue management, task delegation and inspection of source code quality.

A definite goal of Nimble is the admission to the Apache incubator project, which is a common prerequisite for becoming an official Apache project. Beginning with month four **(M04-M05)** we will prepare the entry path for registering to the incubator program. The goal for month six **M06** is to have at least five leads to potential mentors and to have an in depth understanding of the process of incubation.

5.4 Action Plan for T8.4 – Early Adopters Program AMBASSADOR

Task 8.4 AMBASSADOR Programme for Early Adopters and Stakeholders - Lead: INN (dissemination); **Strongly involved:** SRFG (product management); **Other participants and their role:** UB, WHR, LIND, PIA, MIC, AID, FEVA, ENEA

Creation of communication and support materials that aim to convert platform users into recruiters to fuel growth in user numbers. The AMBASSDOR Programme will create incentives for the users to recruit their own supply chain partner networks, by providing evidence of the benefits of collaborative usage of the platform. The programme will initially be delivered to early adopters (up to 200), mainly through workshops (minimum 2 per use case), and will be complemented with online content, newsletters, social media tools, and specifically created “user support and training area” of the project website. Feedback from this early adopter training will help us refine website content (including toolkits, guides, etc.), resulting in offer-

ing content for converting the platform users into recruiters. KPIs will include quantitative measures (e.g. number of platform user recruitment rates) and qualitative measures based on user feedback. Industry associations and intermediaries with access to business networks and communities will also participate in the early AMBASSADOR Programme encouraging these business networks to further promote the NIMBLE platform.

In order to contribute to the AMBASSADOR programme for early adopters and stakeholders, ENEA will take advantage of its knowledge of a number of initiatives of awareness creation on technologies (the last one is the European *Energy Made to Measure campaign*, promoted by EURATEX with the participation of ENEA as the key partner and coordinator for Italy. This promotion led ENEA to organization of 21 events in Europe -6 in Italy- with more than 300 firms deeply involved.

An adoption update on the T8.4 outcomes will be issued quarterly to the Commission, and a live counter will be established at the website.

5.4.1 T8.4 Action Plan M1 to M6

On the basis of what reported in D8.1 - Dissemination and Communication Plan (due at **M02**, see Task 8.1), the following activities will be carried on in this period:

1- INN in cooperation with the use case partners will start arranging a first series of workshops (at least 1 for each use case, by **M08**), where NIMBLE platform requirements, business models and collaboration patterns will be presented and discussed with potential platform users (engaged in the use case partners' networks) in order to be validated and improved. Reference use and business models and cooperation patterns will be finalised as a main outcome of the workshops.

2- INN with the input from all partners will carry on a continuos community building activity, in order to engage a wide number of stakeholders (Supply Chain Partners, Intermediaries, Innovation Ecosystems, Technology Transfer Agencies, Expert Networks, Industry Associations, Software Developers and Open Source Community, Scientific Community, Other Regional/National/EU Projects). Part of them have been already identified in D8.1, others will be identified in the following months. The idea is to create a shared CRM that can be used to seek relevant organisations for all the project dissemination and communication activities.

5.5 Action Plan for T8.5 – Federated Platforms Programme SEED

Task 8.5 NIMBLE Platform SEED Programme for Federated Platforms - Lead: INN (dissemination); **Strongly involved:** SRFG (product management.); **Other:** IBM**,** SRDC, UB, HOL

The Platform SEED Programme will foster the creation of new platforms for new supply chains, industry sectors or geographies. The SEED Programme will be delivered to intermediaries, and potential platform owners and/or developers. The emphasis is to encourage the creation and success of new platforms rather than the recruitment of users to an existing platform. KPIs will include quantitative measures (e.g. leads pipeline, number of active negotiations, use of tools, etc.) and qualitative measures based on user feedback. The programme will be built around the following elements:

- A roadshow targeted at organisations (minimum of 3 per represented Member State). The content of the programme will include overview of the project, description of core and value-added services, platform demos, use cases highlighting impacts and benefits, presentation of toolkits and launch manual. A roadshow would also include training

workshops on platform use, integration and the AMBASSADOR Programme where appropriate. The roadshow will "piggyback" on other events, conferences or meetings and will also be delivered to single interested contacts.
- A final EU-level end-of-project event with at least 100 invitees from EU and regional level intermediaries, policy-makers etc. This extended version of the roadshow will explore the project in more detail but maintain the emphasis on promoting platform creation and federation.
- Networking, demos and presentations at industry events (especially Hannover 2017, 2018 and 2019).
- Creation of a platform feasibility and impact assessment tool to support the business case for NIMBLE.
- NIMBLE platform launch guide, which will take potential platform developers through every step from concept to launch.
- Training for business consultants, advisors and other intermediary reps on how to promote and use of the tools, write business plans and obtain funding for platform development (as part of the roadshow or separately, according to demand)
- The consortium will use this methodology to produce at least one joint business plan for the post-funding exploitation of the project, possibly setting up a joint venture between several partners for the commercial roll out of the NIMBLE platform.

5.5.1 T8.5. Action Plan M01 to M06

In this period, the main objective is to specify the type of activities to be implemented in the programme and report them in D8.1 Dissemination and Communication Plan (by **M02**). The actual SEED programme activities will start later in the project.

5.6 Action Plan for T8.6 – Social Media and Strategic PR

Task 8.6 Social Media and Strategic PR - Lead: INN (dissemination); **Strongly involved participants:** SRFG (project coordinator); **Other participants:** SRDC, FEVA

Alongside the materials and campaigns at the heart of the AMBASSADOR and SEED Programmes, the project will also engage in more general, less targeted communication activities that will also support the project's dissemination and exploitation by promoting the work and results to a wider audience:

- The project's brand (logo, visual identity, key messages, etc.) will help to maintain consistency in all aspects of the project's communications and support wider recognition of the project.
- Social media activity to promote awareness and interest in a wide range of organisations and businesses.
- Strategic PR (articles in national, local and trade press) and a standard project press kit
- Communications will be evaluated using standard metrics and web analytics

This task will have no written report except summaries in the annual management reports. The actual activity will happen in the Web, in social and in traditional media.

5.6.1 T8.6. Action Plan M01 to M06

In this period, the task will focus on identifying and then set up the reference digital channels of the project, with a particular focus on Social Media. The selected digital channels will be

reported in D8.1 Dissemination and Communication Plan (by **M02**) and then activated by INN in the following month.

In addition, SFRG and INN, with the input from all partners will draft and develop the project's brand material to be used for dissemination activities. This includes: logo and templates for presentations and press releases.

Finally, with the involvement of all partners, a commercial name for the NIMBLE platform will be discussed and a final decision taken by **M04**.

5.7 Action Plan for T8.7 – Innovation, Exploitation & Standards

Task 8.7 Innovation, Exploitation and Standardisation - Lead: INN (Innovation management, see *Section 3.2.1: Management structure and decision making*); **Strongly involved participants and their role:** SRFG (product management), HOL (standardization activities); **Other participants:** IBM, SRDC, UB, LTU, WHR, LIND, PIA, MIC, AID, BALANCE, DOM, FEVA, BLAT, ENEA

This task will continuously analyse the market and develop possible business cases, identifying success factors, drivers and market opportunities for the successful introduction of the project products into the pan-European manufacturing, IoT and ICT markets. The task will catalogue innovative, protectable and patentable results from the project. Means for legal protection will include: copyright, patents, utility models and industrial secret. A technology watch will be carried out permanently, collecting the IPs that could interfere with the project and bringing to discussions any IP consideration. Furthermore, this task will manage the business indicators for the identified innovation, assessing spin-off planning for spill-over opportunities. This task will be performed in a strong collaboration between the *Product Manager* (SRFG, Georg Güntner) and the *Innovation Manager* (INN, Alessio Gugliotta). T8.7 will issue an annual update to the Consortium's exploitation plans.

5.7.1 . T8.7. Action Plan M01 to M06

From the exploitation perspective, INN and SFRG will start collecting the business cases that will be enabled by the platform, in order to draft the actual project product and/or services and then to identify its reference market and the existing players.

From the innovation perspective, INN will set up the means to seek and report the potential innovations will emerge from the project activities. The identified innovations will be then analysed by INN and further discussed with involved partners, in order to identify the most suitable path(s) to create value out of the innovation (e.g. business plan development, patenting, creation of a spin-off, etc.). It is not expected to identify relevant innovations by M06. However, this will be a continuous activity that will last till the end of the project.

A similar approach will be implemented for the standardisation activities.

6 Work Package 9 – Project Management

The action plan for project management is fully covered by the articles of the Grant Agreement and by the Description of the Action.