Project Acronym:	FlexiGrid
Project Full Name:	Enabling flexibility for future distribution grid – FlexiGrid
Grant Agreement:	No 864048
Project Duration:	3,5 years (starting 1 November 2019)

Deliverable 1.1

Work Breakdown Structure

Work Package:	WP1 Project Management
Task:	T1.1 Project Coordination
Lead Beneficiary:	IMCG
Due Date:	31/12/2019 (MXX)
Submission Date:	09/04/2020 (MXX)
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Version History

Version	Date	Modifications made by
1	20 Nov 2019	Work Package Leaders Outcomes and WP Interactions
2	18 Dec 2019	Kick-Off Meeting Outcomes sealing Activity Groups
3	20 Feb 2020	Amendments to the Activity Groups
4	11 Mar 2020	Final Consolidated Document for final review
5	02 April 2020	Reviewed Final Version

List of abbreviations

Abbreviation	Definition
Flexigrid	Enabling flexibility for future distribution grid – FlexiGrid
GDPR	General Data Protection Regulation
PMO	Project Management Office
RASCI	**R**esponsibility, **A**ccountability, **S**upport, **C**onsulted and **I**nformed
T	Task
WP	Work package

Executive Summary

Deliverable D1.1 Work breakdown structure, is part of Task T1.1 Project Coordination and is written as part of WP1 Project Coordination, where IMCG is project coordinator.

The Work Package Breakdown Structure is designed into a comprehensive Project Plan. The purpose of the work breakdown structure is

- To maximise the final project outcomes, smoothen collaboration among tasks and WP activities, and avoiding any overlapping
- To help project management activities both at the PMO level and at the Work Package Leaders level as they need to interact throughout the delivery and their tasks have interfaces with each other.

The methodology takes a bottom-up and then a top-down approach to bring together the tasks and deliverables and align them to the project's objectives and drive impact.

Bottom-up: In the sense that we have made sure to capture all the perceived requirements of task and work-package level interaction in an effort to construct the biggest sense of collaboration between the partners. In the construction of this system, the project coordinator, IMCG, involved the Work Package Leaders in a 2-day workshop on 19-20 November 2019. This level is also about the work-packages and tasks being resolved to a more granular manner.

Top-down: The project coordinator and team have worked also from the top-down. During the Kick-Off meeting of the project (on 17-18 December 2019) all partners worked on linking the project partners and their activities to the Project's Objectives, and consequently on developing Activity Groups that define how Tasks interact towards achieving common interests.

.

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Project Workbook (Objectives mapping, Gantt, People)

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1.0 Introduction

FlexiGrid will demonstrate cutting-edge technologies and innovative flexible markets enabled by advanced cross-platforms for local energy exchanges and providing flexibility to distribution system operators in order to ensure a secure, stable and affordable operations of electrical distribution grids for de-carbonising energy systems with high shares of renewables (up to and beyond 100%). By leveraging digital, smart grid technologies, IoT, blockchain, FlexiGrid will provide a transparent data management platform by broadcasting real-time information on the conditions of the network to optimise the observability of the grid and market functioning.

The project's geographical coverage, with four test sites in Bulgaria, Sweden, Switzerland, and Turkey, allows validating solutions in multiple market conditions, and ensures post project scalability, knowledge transfer, scaling and replication. The key demonstration activities include i) grid monitoring, control and flexibility intervention; ii) local energy exchanges and provision of grid services; iii) blockchain based energy exchange and provision of grid services; iv) flexibility measures and grid services provided by local energy storage, Power to Gas, Vehicle to Grid, and local renewable resources. It is the first time that small and medium size DSOs show interest to test innovative tools and solutions. The project is strengthened by collaborating with Canada and backed by financial institutions to ensure successful commercial paths of innovative solutions.

In this Deliverable, the Project Coordinator sought to achieve two very important elements for a healthy project, namely ownership by the various partners and people involved, and alignment of the delivery with the mandate (or project objectives.) For the first part, a Bottom-Up approach was used starting with a 2-day Work Package Leaders workshop that took place one month before the Kick-Off Meeting. For the second part, a Top-Down approach took the outcomes of the Work Package Leaders workshop to define an organisation for the project that would naturally align the delivery with the Project Objectives and promote cross-work-package collaboration.

Note that there are GDPR considerations about this part of the Deliverable and to this extent the European Commission should restrict this particular part as "Confidential" – meaning accessible only for members of the consortium and the European Commission services.

2.0 Methodology

The methodology employed in this deliverable had two stages, and in each stage employed a large degree of interaction with all the parties involved: the partners and the people that would participate in the delivery.

2.1 Stage 1 – Preparatory (Bottom-Up)

The PMO started with a Work Package Leaders Meeting that took place one month before the Kick-Off Meeting in order to give the leaders ample time to organise people around delivery ahead of the start of the project. The objective at this stage was Bottom-Up alignment, and thus to have the people who are accountable for the delivery to take the tasks and deliverable agreed upon in the Grant Agreement are build consensus that this is fit for purpose for the Project's Objectives, and if not cause discussion around what needs to be changed:

- The focus on impact was underlined, and agreed to be measurable against the Objectives of the project;
- The accountable and responsible persons for delivery were identified and agreed upon;
- The basic interaction between work packages were identified and captured in the form of which support is required from others, and how they also supported the others;
- The workshop as part of WP1 (Project Coordination), was intended to start everybody around a common mindset to deliver on three aspects Design(WP2,3), Real Life Demos(WP4 to WP8) and Impact (WP9,10)

At the end of the workshop, the Work Package Leaders agreed to work on refining the work conducted in advance of the Kick-Off Meeting, and to do so on a shared Excel-based workbook (attached in Annex) which:

- In Sheet "Objectives" connects the Specific Objectives of the Work Packages to the Project Objectives, to the Milestones and Deliverables and to how they are linked to other Work Pacakages;
- In Sheet "Gantt++" outlines the Tasks, Deliverables and Milestones, identifies the persons Accountable and Responsible, details the interactions with other Work Package tasks both in terms of what each supports and is supported by, and also puts the delivery on a regular Gantt-style timeline.
- In Sheet "Address Book" lists all the people involved with the Work Package interactions they will have individually, and gives the contact details to facilitate contact between Work Package participants and Leaders.

Throughout the identification of roles in this project we will use the RASCI model. A **RASCI** is a form of responsibility assignment matrix organisation. It describes the participation by various roles in completing tasks or deliverables for a project or business process. It stands for **R**esponsibility, **A**ccountability, **S**upport, **C**onsulted and **I**nformed – every deliverable has to have only one person who is accountable for its quality, and only one person responsible for its delivery. Several people can support the delivery, while others can be either consulted to build better quality and more widely stakeholder-accepted deliverables or simply informed at designated milestones.

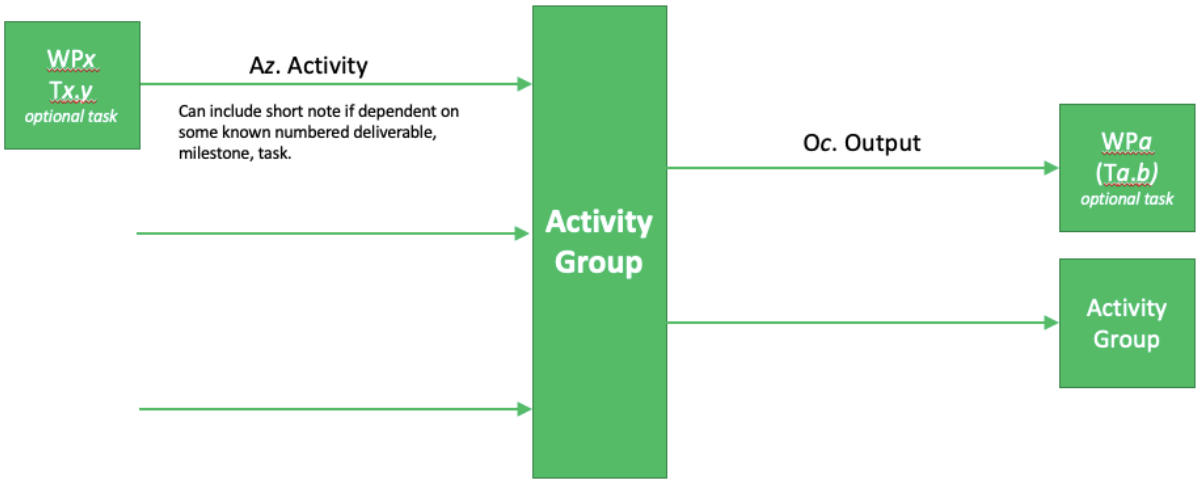
2.2 Stage 2 – Kick-Off (Top-Down)

At this stage, we started off with a pre-thought Objectives Mapping and Gantt Chart and the objective was to ensure that everybody is aligned around that for delivery. And that everybody could still shape the delivery by participating in the organisation of the Work Package collaboration layer (which we call Activity Groups and describe below).

As a means of aligning everybody around a common objective we discussed: **What defines flexible grid services innovation as a result of FlexiGrid?** This served as a hook to the Project Objectives, and the Specific Objectives of the Work Packages. And to thus to clarify to the people participating in the project which Work Packages they would expect to find working to deliver on specific Project Objectives.

This step allowed the PMO to then define with the team a number of possible **Activity Groups**. Activity Groups cut across Work Package structures and define sprints of activity with common short to medium objectives to which several Work Packages (and thus project partners) contribute. The aim is that the WP tasks are performed with a Project Objective(s) perspective.

The team worked on narrowing down which Activity Groups to start working on, how this organizational structure would help Work Package Leaders' and Project outcomes and which partners and people would be active in them. The Activity Groups were defined in terms of the interactions in the format of the figure below:



3.0 Results

3.1 Bottom-Up Approach

The Bottom-Up Approach is an effort to construct the biggest sense of collaboration between all the partners in the project. This level is also about the work packages, WPs, and tasks being resolved to a more granular manner. It also clarifies who is involved in which part of the project, since the project coordination team wanted to create a culture of knowing exactly who to contact about which granular part of the project and thus creating the means for having a well-connected team.

The approach started during a 2-day workshop with the work package leaders in Gothenburg, Sweden in November 2019. The work package leaders were subsequently given the time necessary to complete the information online, also continuing their collaboration to arrive to a consensus about the perceived requirements of task and work-package level interaction.

The deliverables of this were the following (each of them presented as Annex in Excel format):

1. An elaborate form of the usual **Gantt Chart**. This chart shows the **Tasks**, the respective **Deliverables**, the **Milestones** and then uses the **RASCI** model to draw clarity on the roles of the highest people involved those Accountable and those Responsible. For the support functions, the project coordination team has been unable to at this early stage identify all people who will support, but WP1 has identified consortium partners in many instances, and this information will continue to mature, and will normally be maintained by the person responsible.

2. To support the RASCI WP1 also have the **Address Book** with contact details of every person and their self-declared interest in several Work Packages. The latter can be a support tool to work package leaders who want to look up who expressed specific interest in their project, and thus build deeper relationships of support, consult and inform.

3. A **Review Table of Deliverables** was developed starting from a download from the European Commission's SyGMa information system. A RASCI section was added to it and Responsible and Accountable persons were filled by the Project Management Office – and the rest left as a non-mandatory tool for use by those Responsible if they wish to keep records in the central system.
    - The Review Table of Deliverables will be maintained up-to-date by the Project Management Office and be annexed to regular project reporting.
    - The Review Table of Deliverables will also be used also as per Review Process in the Project Handbook

3.2 Top-Down Approach

The Top-Down approach was a second-stage of the analysis, not a separate process, and it was undertaken during the Kick-Off Meeting:

1. The Project Management Office facilitated a group discussion about "What defines flexible grid services innovation", and how especially this would be understood in the context of our expectations from the FlexiGrid project. This discussion will be a continued debate serving to

reinforce the interaction required to have a joint-up delivery.

2. Every work package leader was given the time to present their work-package using a structured format which focused on
    - **Why** (WP Specific Objectives, and a score for how much the WP intends to impact each of the five Project Objectives);
    - **What** (Transforming each of the Specific Objectives to Activities, Deliverables and Milestones. And thus validating the Gantt Chart in terms of also a top-down system) and confirming the interactions with other WPs.

3. An analysis of how much the WP intends to impact each of the five Project Objectives led to an understanding of common *raison d'etre* between the parties, as represented by Table 1, and thus four possible Activity Groups handing each of Project Objectives 1 and 5 (together), 2, 3 and 4.

IMCG

Work Package Basic Ex-Ante Impact Analysis

17/12/2019

Project Objective	WP Impact (1..3) as per Kick-Off Presentations										Total Impact	
	WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	WP9	WP10	30	
1. To develop an integrated architecture	3	1	2	3	2	1	2	1	0	1	16	53,3%
2. To define, test, deploy and demonstrate markets and market mechanisms	3	3	3	2	1	3	3	3	0	1	22	73,3%
3. To drive cooperation between distribution system operators (DSOs), Transmission system operators (TSOs), consumers and generators	3	2	2	1	2	3	3	3	0	3	22	73,3%
4. To deploy smart grid technologies	3	1	3	1	3	2	2	2	3	2	22	73,3%
5. To enable future technical and commercial innovation	3	3	2	3	2	2	3	2	3	3	26	86,7%
108	15	10	12	10	10	11	13	11	6	10		
	13,9%	9,3%	11,1%	9,3%	9,3%	10,2%	12,0%	10,2%	5,6%	9,3%		

Table 1 – Work Package basic Ex-Ante Impact Framework

4. The work package leader had a focus session between them alone, and they took the floor again to discuss this link between their WPs and the overall project objectives. For each project objective, the WP-leaders answered the following three questions:
    - What does the objective mean to you in terms of delivering towards flexible grid services?
    - Can you give a good example?
    - What will your WP do to deliver the impact you desire in terms of this project objective?

   The WP-leaders pitched to the other WP-leaders and caused discussion and the project coordination team **captured the considerations upon which there were clear consensus.** The **WP-leaders could also take notes that would guide them in their interactions with other WP-leaders**. WP1 then presented the findings to the larger group of all the persons involved in the project. This can be summarised as per Table 2 below.

Project Objective	Impact(*)			Considerations
5. To enable future technical and commercial innovation	2,4,7,9	3,5,6,8		i. Does Flexible have a strong business case? *(And so one that addresses tomorrow's pain points.)*
2. To define, test, deploy and demonstrate markets + market mechanisms	2,3,6,7, 8	4		
3. To drive cooperation between DSOs, TSOs, consumers and generators	6,7,8	2,3,5	4	ii. Climate Change awareness and Cost Efficiency are main drivers
1. To develop an integrated architecture	4	3,5,7		iii. What "state of the art" will be needed in the platform?
4. To deploy smart grid technologies	3,5,9	6,7,8	2,4	iv. What subset of flexible and grid services is interesting to us?

Table 2 – Work Packages relationship with overall Project Objectives

5. The first Activity Groups were decided upon as virtual organisational units which would help the people in the project and the WP-leadership work together, rather than in WP silos. They are designed to define sprints of activity with common short to medium objectives to which several project partners contribute, and thus to cause WP tasks to be performed with a project objective(s) perspective. The first 'sprints' are of nine months and then revisited, and the Activity Groups are led by WP Leads to ensure WPs remain relevant across the project. It was also agreed that since this is an innovative management approach, it will be revised as required.

   Table 3 shows the Activity Groups as agreed by the persons at the Kick-Off meeting.

DSO Needs Analysis	State of the Art Platform	Market Systems
Chair: David Steen	**Chair: Carmen Oana**	**Chair: Hjalmar Pihl**
Involving Work Packages:		
WP 1 – IMCG (Lena Holmberg) WP 4 – Siveco (Gabriela Vlaicu) ⟷ WP 5, 6 – Chalmers (David Steen) ⟷ WP 8 – OEDAS (Burak Çakirer) WP 4, **7, 8,** 9 – Entra (Teodor Bobochikov)	WP 3 – TU/e (Phuong Nguyen) ⟷ WP 4 – Siveco (Carmen Oana) WP 5 – Chalmers (Ioannis Bouloumpasis) WP 7 – Emax (Thong Vu Van) WP 8 – OEDAS (Burak Çakirer) – *spokesperson that carries from "DSO Needs Analysis"* *WP 8 – T4E (Safak Baykal)* WP 9 – IMCG (Ulrika Wahlström)	WP 1 – IMCG (Magnus Andersson) WP 2 – RISE (Hjalmar Phil and Joni Rossi) WP 5 – Chalmers (Tuan Le) WP 3 – LIST (Daniel Koster) WP 4, **7, 8,** 9 – Entra (Teodor Bobochikov)

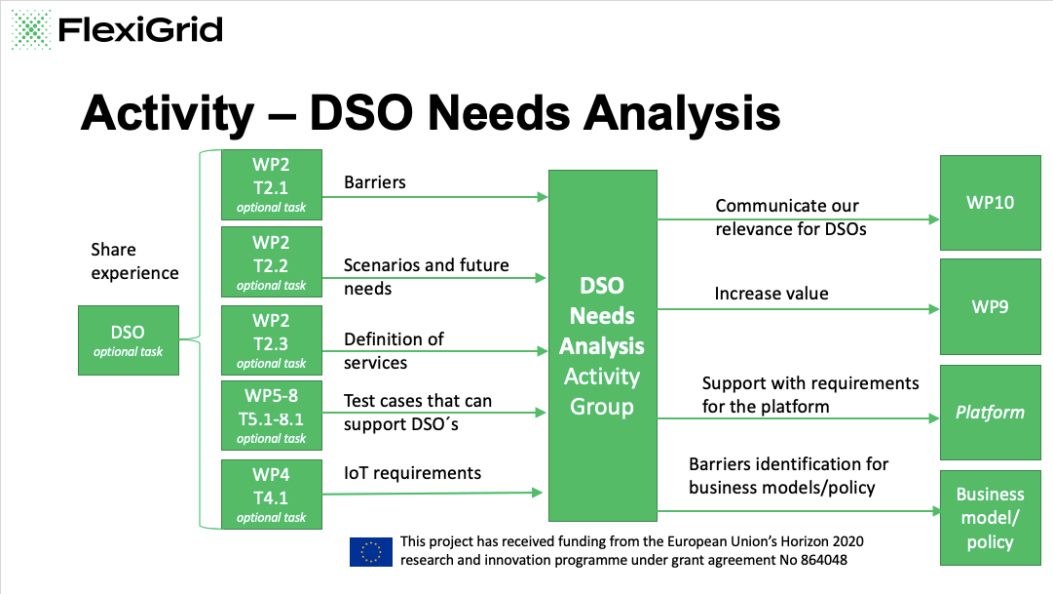
Table 3 – Activity Groups as Discussed at the Kick-Off Meeting

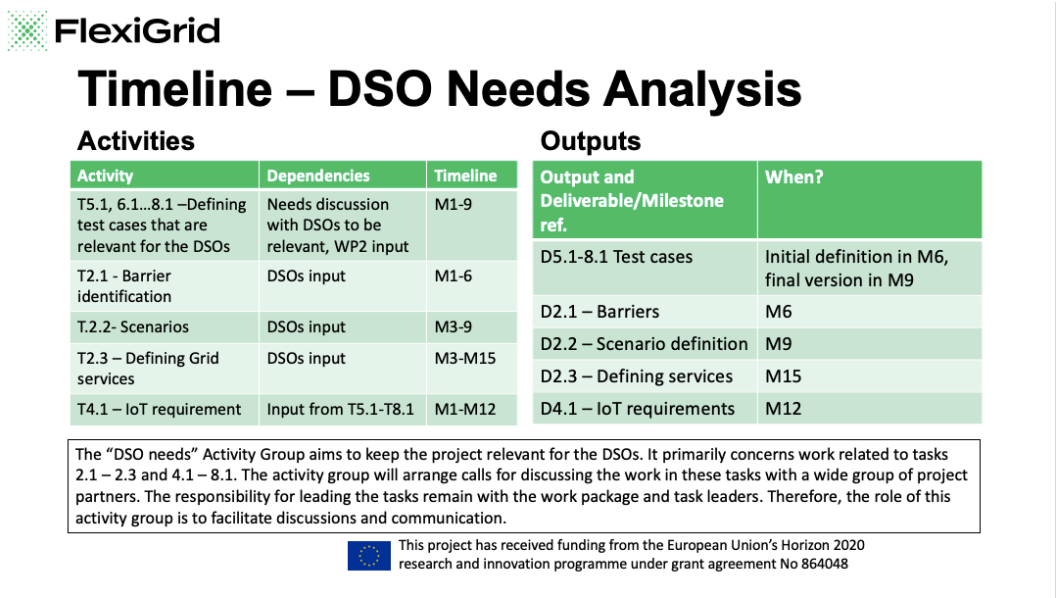
6. The definitions of the nuts and bolts of the **Activity Groups** are in fact the main deliverable of the Top-Down Approach. This is presented in the Powerpoint presentation which is attach in Annex – particularly on Slides 20 – 30.

- **DSO Needs Analysis** is led by David Steen from Chalmers (who is also responsible for the delivery on WP6) – Slides 22-24
- **State of the Art Platform** is led by Carmen Oana from SIMAVI (who is also responsible and accountable for the delivery on WP4) – Slides 25-27
- **Market Systems** (comprising aspects of Business Models and Policy/Regulation) is led by Hjalmar Pihl (later to be taken over by Wenche Tobiasson), both from RISE (who is also responsible for the delivery on WP2) – Slides 29-30

More specifically, the Activity Groups were defined as follows:

3.2.1 DSO Needs Analysis

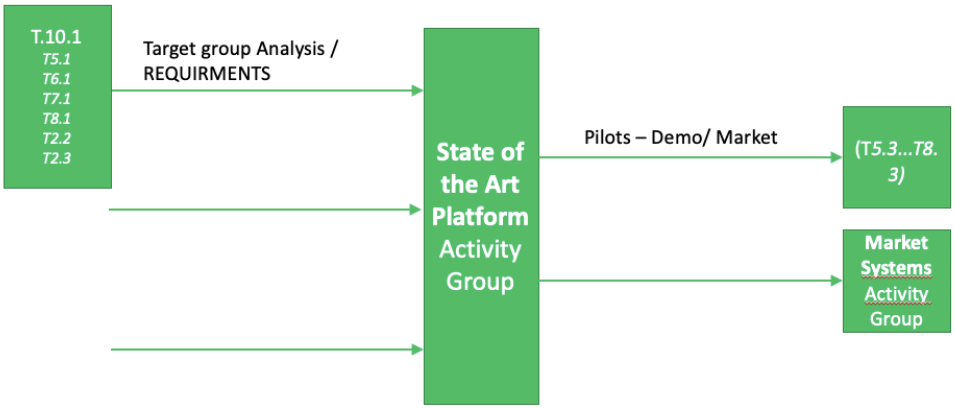




3.2.2 State of the Art Platform

FlexiGrid

Activity – State of the Art Platform



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FlexiGrid

Timeline – State of the Art Platform

Activities

Activity	Dependencies	Timeline
Collecting the Requirments and build the architecture concept	T2,2/2.3/5.1…8.1/D10.1 (Indirectlly will be used WP3)	M9/M12/M2

Outputs

Output and Deliverable/Milestone ref.	When?
D2.2, D2.3, D5.1….D8.1/D9.2/D10.3 D4.1/D4.2	M12

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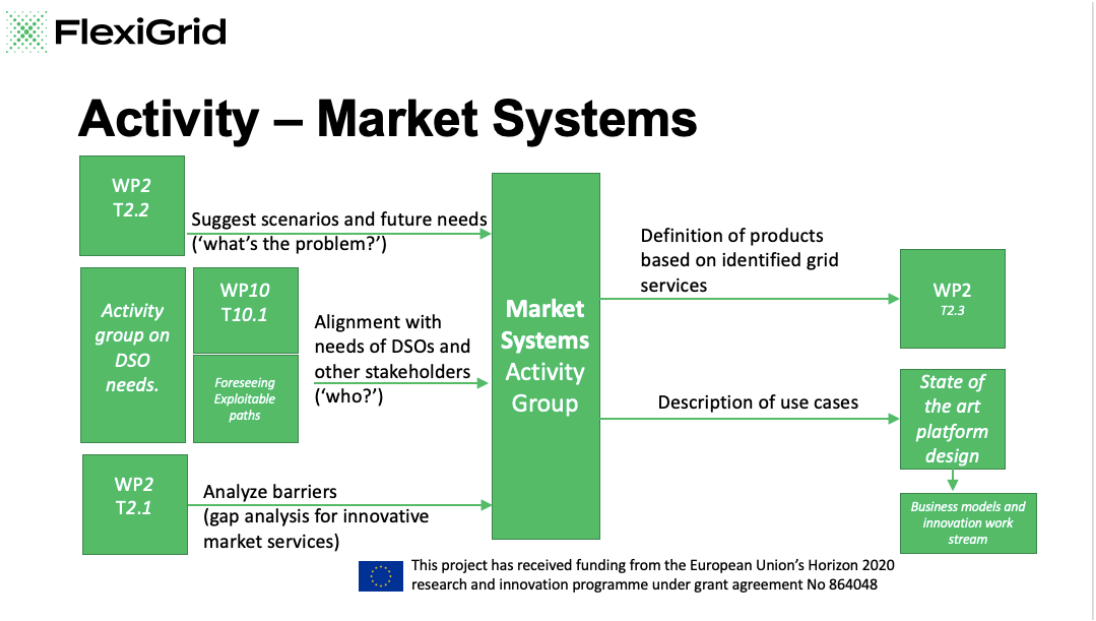
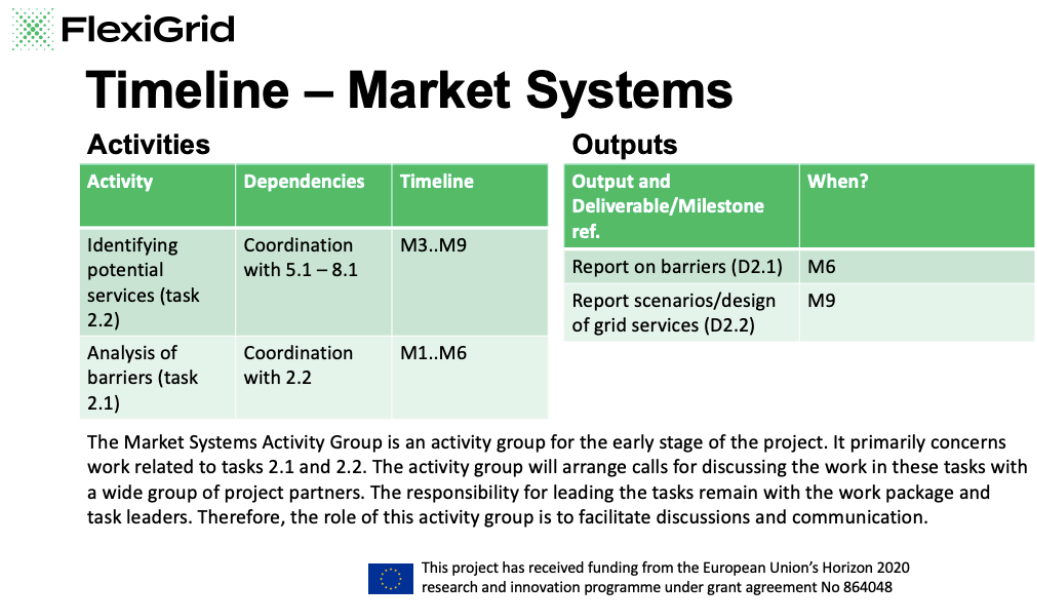
3.2.3 Market Systems





4.0 Conclusions

The design of the Activity Groups was initially produced during the Kick-Off Workshop, with three separate teams having 1 hour to develop the first take and the leader then presented them. Following the December 2019 Kick-Off Meeting, the Action Group Leads were asked to:

- to ensure that all those concerned understood and agreed the 'Activity' flowchart that they developed for each of the Activity Groups during the Kick-Off workshop
- to ensure that these corresponded to the detail in the presentations of the Work Packages for which they have detailed Power point slides from the Kick-Off Meeting; and
- to validate this with the people concerned and ensure they have cross-WP buy-in from the respective of the concerned WP-leaders

As a result, some Activity Group Leads expressed concern that this layer of management would introduce unnecessary redundancy and administrative burden. Discussions alleviated this discussion by clarifying that the management layer remained only the work-packages (where the "What" of the project is defined), and that the Activity Groups defined only "How" these "Whats" come together to service the five common and overall project objectives.

The Activity Group Leads also wanted to revise the way the tasks were connected on the slides that were produced during the workshop – to this extent the slides 22-24 and 29-30 are revisions of the originals, and were communicated following a clarification workshop which the Project Management Office ran in Gothenburg on the 20 February 2020.

The Activity Groups are now functional and the results of their operation will be first collectively assessed during the first meeting of the team in September. In the meantime a Work Package Leaders workshop is organised for April 2020 and will be tackling progress and improvements to the system.

Flexi-Grid Objectives/WP Matrix

09/04/2020

Project Objectives

1. To develop an integrated architecture
2. To define, test, deploy and demonstrate markets and market mechanisms
3. To drive cooperation between distribution system operators (DSOs), Transmission system operators (TSOs), consumers and generators
4. To deploy smart grid technologies
5. To enable future technical and commercial innovation

#	Specific Objective (the WHY?)	Links to Project Objectives	Milestones & Deliverable (what do we show?)	
WPx.Oy	**X.y Sub-objectives** *()*	*Map WP objectives with Project objectives - Just write the Project Objective number from above*	*List Milestones* ***and*** *applicable Deliverables from WP description, mapped against an objective. If a deliverable is towards more than one objective, it can be listed more than once, but even better it can be broken into sub-deliverables.*	
			#	*Title*
WP1.1	Follow-up and support day-to-day operation, organising project functions and meetings	All (this is a support WP)		All (this is a support WP)
WP1.2	Establish efficient coordination and communication between partners and the EC project officer	All (this is a support WP)		All (this is a support WP)
WP1.3	Establish and coordinate Situation Analysis team and the dynamic reference groups	All (this is a support WP)		All (this is a support WP)
WP1.4	Manage financial and administrative aspects of the FLEXI-GRID project	All (this is a support WP)		All (this is a support WP)
WP2.1	Define scenarios and needs for local energy exchange and provisions of grid services by local customers.	2, 3, 5	D2.1	Report on barriers for adoption of innovative market design
			D2.2	Report scenarios/design of grid services for local markets
			M3	Flexible market design for energy exchange and grid services
WP2.2	Design local energy market options for energy exchange and provision of grid services with centralised and peer to peer technologies.	2, 3	M4	Completing the initial phase to specify on use cases and technical solutions for all the test sites
			D2.3	Local market designs for energy exchange and grid services
WP2.3	Develop a self-adaptive and automated market structure for energy exchange and provision of grid services based on actual grid condition and flexibility estimation.	2, 3	M6	Completing the development phase of technical solutions from WP2-4 to integrate in all the test sites WP5-8
			D2.3	Local market designs for energy exchange and grid services
WP2.4	Develop business models for stakeholders and propose policy framework for adoption to enable market for flexibility, including cooperation with other system operators in each of the above, in particular TSOs, by developing protocols that improve integration of wholesale and retail markets	2, 3, 5	M6	Completing the development phase of technical solutions from WP2-4 to integrate in all the test sites WP5-8
			D2.4	Policy framework/ business models enabling flexibility markets
			M9	Business models developed and validated for solutions

WPx.Oy	**X.y Sub-objectives** *()*	*Map WP objectives with Project objectives - Just write the Project Objective number from above*	*List Milestones* ***and*** *applicable Deliverables from WP description, mapped against an objective. If a deliverable is towards more than one objective, it can be listed more than once, but even better it can be broken into sub-deliverables.*	
WP3	To optimise observability of grid states by leveraging edge-to-cloud computing, and to implement risk assessments for the DSOs	2, 4, 1, 3, 5	M4, 5, 6, 7	
WP3.1	Network observability and risk assessment	2, 4	M4	Completing initial phase
WP3.2	Grid reconfiguration and fault-initiated islanding	3	M4, 6	Completing development phase
WP3.3	Process design for flexibility procurement and dispatch	2	M5	Flexible trading platform
WP3.4	Quantification of availability and certainty for various flexibility resources	1,4,5	M5	-
WP3.6	Optimal allocation and dispatch of flexibility services	3	M5, 6	Title of Deliverable D1.3
WP4.1	To provide a common framework for the integration of a platform and existing components	1	M4	Completing the initial phase to specify on use cases and technical solution for all the test sites
		1	D4.1	Requirments specification document
		1	D4.2	System architecture document
WP4.2	To deliver a set of visualisation tool & services for energy stakeholders and prosumers	2,3	M4	Completing the developments phase of technical solution from WP2-4 to integrate in all tests sites
		1,2,3	D4.3	Complete Flexi-Grid IoT Platform
WP4.3	To deploy an IOT platform based on energy management system	1,2,3	M6	Completing the developments phase of technical solution from WP2-4 to integrate in all tests sites WP5-8
		1,2,3	M7	Completing the execution phase of all demonstration activities
		1,2,3	D4.3	Complete Flexi-Grid IoT Platform
		1,2,3	D4.5	Flexi - Grid Integration Report
		1,2,3	D4.6	Flexi - Grid Platdorm assesment and testing report
WP4.4	To deliver a communication platform that will be used to assure the communication flow with the end-users and other stakeholders	1,2,3	M6	Completing the developments phase of technical solution from WP2-4 to integrate in all tests sites
		1,2,3	M7	Completing the execution phase of all demonstration activities
		1,2,3	M7	Completing the evaluation and assesments phase of all demonstration activities
		1,2,3	D4.4	Complete Flexi-Grid Communication Platform
WP5.1	Demonstration of smart grid technologies for optimal observability and higher automation	4,5	D5.3	Demonstration of grid monitoring, control and flexibility supported by IoT, using Chalmers site
			M6	Completing the development phase of technical solutions from to integrate in all the test sites
			M7	Completing the execution phase of all demonstration activities
WP5.2	Digitalise DSO grids (IoT platform, advanced measurements analytics etc.)	1	D5.2	Demonstration site preparation and integration of the system
			M6	Completing the development phase of technical solutions from to integrate in all the test sites
WP5.3	Facilitate local markets, improve grid resilience and renewable penetration	2,4,5	D5.3	Demonstration of grid monitoring, control and flexibility supported by IoT, using Chalmers site
			M7	Completing the execution phase of all demonstration activities

WPx.Oy	**X.y Sub-objectives** *()*	*Map WP objectives with Project objectives - Just write the Project Objective number from above*	*List Milestones* ***and*** *applicable Deliverables from WP description, mapped against an objective. If a deliverable is towards more than one objective, it can be listed more than once, but even better it can be broken into sub-deliverables.*	
WP5.4	Enable end-users active participation in local markets increasing self-consumption	3,5	D5.4	Results evaluation and gained experience
			M8	Completing the evaluation and assessment phase of all demonstrations
WP5.5	Demonstrate close-to-real-time flexibility & real-time clustering of virtual distribution grids	1,4,5	D5.3	Demonstration of grid monitoring, control and flexibility supported by IoT, using Chalmers site
			M5	Flexible trading platform operational (initial version)
			M7	Completing the execution phase of all demonstration activities
WP5.6	Define the test cases and the technical requirements	2	D5.1	Test cases and technical requirements definition
			M4	Completing the initial phase to specify on use cases and technical solutions for all the test sites
WP5.7	Evaluate the results of the demonstration activities	5	D5.4	Results evaluation and gained experience
			M8	Completing the evaluation and assessment phase of all demonstrations
WP6.1	Define the test cases and the technical requirements (Months 1-6)	2	M4	Completing the initial phase to specify on use cases and technical solutions for all the test sites
			D6.1	Definition of test cases and technical requirements
WP6.2	Preparation of demonstration site (Months 7-24)	1,2,4,5	M6	Completing the development phase of technical solutions from to integrate in all the test sites
			D6.2	Demonstration site preparation and integration of the system
WP6.3	Demonstrate the flexible market design that can seamlessly transit between energy and grid service trade. (Months 25-36)	2	M5	Flexible trading platform operational (initial version)
			M7	Completing the execution phase of all demonstration activities
			D6.3	Demonstration of the local energy market with IoT platform
WP6.4	Demonstrate the benefits for the active consumers and prosumers in exchange of energy and flexibilities.	2,3	M5	Flexible trading platform operational (initial version)
			M7	Completing the execution phase of all demonstration activities
			D6.3	Demonstration of the local energy market with IoT platform
WP7.1	To demonstrate a DSO-consumer flexibility market platform for *local grid congestion and voltage management* that includes P2P, IoT and blockchain-based technology	1, 2, 3, 4	D7.2, D7.3	
WP7.2	Enable end-users/grid users to become active and participate in local energy and service markets.	2	D7.1	
WP7.3	Optimise costs for DSO's and prosumers and create a revenue stream by offering local flexibility to the DSO.	5	D7.2, D7.3	

WPx.Oy	**X.y Sub-objectives** *()*	*Map WP objectives with Project objectives - Just write the Project Objective number from above*	*List Milestones* ***and*** *applicable Deliverables from WP description, mapped against an objective. If a deliverable is towards more than one objective, it can be listed more than once, but even better it can be broken into sub-deliverables.*	
WP7.4	Evaluate different business cases	5	D7.4	
WP7.5	Review the added-value provided for both DSO's and prosumers.	5	D7.4	
WP8.1	Demonstrate: Enable The flexibility measures and electricity grid services by battery storage, electric vehicles vehicle-to-grid (V2G) and power-to-gas solutions.	1,2,3,4,5	M7 M8	Completing the initial phase to specify on use cases and technical solutions for all the test sites Assessment of the solutions performance against set KPI's (part of D5.3, D6.3, D7.3, D8.3
WP8.2	Demonstrate: Lower uncertanities and leverage distributed energy sources by performing real time control in line with EV charging infrastructure and power to gas facilities.	1,2,3,4	M7 M8	Completing the initial phase to specify on use cases and technical solutions for all the test sites Assessment of the solutions performance against set KPI's (part of D5.3, D6.3, D7.3, D8.3
WP8.3	Demonstrate: Improve coordination with Renewable production by introducing a dynamic tariff for EV user.	1,2,3,5	M7 M8	Completing the initial phase to specify on use cases and technical solutions for all the test sites Assessment of the solutions performance against set KPI's (part of D5.3, D6.3, D7.3, D8.3
WP8.4	Demonstrate: Minimise energy losses (AC/DC conversion) for EV Charging by Energy Storage Applications	2,5	M7 M8	Completing the initial phase to specify on use cases and technical solutions for all the test sites Assessment of the solutions performance against set KPI's (part of D5.3, D6.3, D7.3, D8.3
WP9.1	SECURE OWNERSHIP: Intellectual assets framework: identification of new knowledge, implementation of IP policy	5	D9.1	IP Policy, assessment and operations (M4, IMCG)
WP9.2	SECURE EXPLOITATION: Exploitation of project findings and solutions together with InnoEnergy	4,5	D9.2	Planned and agreed pre-market developments of solutions (M42, IMCG)
			MS12	Agreed and financed development processes (at least 2/3... (agreed projects for next stage, completion presented in D9.2)
WP9.3	IDENTIFY INNOVATION BARRIERS: DSO innovation barriers & innovation capacity	5	D9.3	Analysis of barriers for innovation for implementation of future grids (M36, RISE)
WP9.4	IDENTIFY BUSINESS MODELS: Adjustable and verified sustainable business models of project's DSOs	4, 5	D9.4	Assessed and adjusted pre-kit business models for project's DSOs (M36, IMCG)
			MS9	Business models developed and validated for solutions (positive evaluation by DSOs, part of D9.4)
WP9.5	VALIDATION OF BUSINESS MODELS: Bankability and financial instruments	5	D9.5	Financial Toolbox (M24, IMCG)
			MS11	Financial instruments developed and validated (financial instruments/lenders preliminary accepted investment memorandums (part of D9.5)
WP9.6	SECURING ADVANCEMENT OF BANKABLE BMs AND FINANCIAL INSTRUMENTS: Capacity-based activities	5	D9.6	Capacity-based activities; BM, Financial instruments and engagements
			MS10	Support regulators and supportive bodies (support ISGAN, EDSO etc with policy changes, part of D9.6)

WPx.Oy	**X.y Sub-objectives** *()*	*Map WP objectives with Project objectives - Just write the Project Objective number from above*	*List Milestones* ***and*** *applicable Deliverables from WP description, mapped against an objective. If a deliverable is towards more than one objective, it can be listed more than once, but even better it can be broken into sub-deliverables.*	
WP10.1	To get DSOs (in general) to understand the affordable integrated solutions developed by FLEXI-GRID and to influence them to engage and be willing to adapt.	3	D10.1-3/M2	Target group analysis, Communication strategy, Website and social channels /Communication channels ready, month 3, web and social channels established
WP10.2	Support DSOs at the demonstration site to get local consumers engaged.	3	D10.1-3/M2	Target group analysis, Communication strategy, Website and social channels /Communication channels ready, month 3, web and social channels established
WP10.3	Support implementation of changes of legislation needed for the integrated solutions to be rolled out	5	D10.1-3/M2	Target group analysis, Communication strategy, Website and social channels /Communication channels ready, month 3, web and social channels established
WP10.4	Support investment banks with information about the bankable business models of FLEXI-GRID	5	D10.1-3/M2,	Target group analysis, Communication strategy, Website and social channels /Communication channels ready, month 3, web and social channels established,
			M11	
EXAMPLE ONLY				

Work Package Impact Analysis

09/04/2020

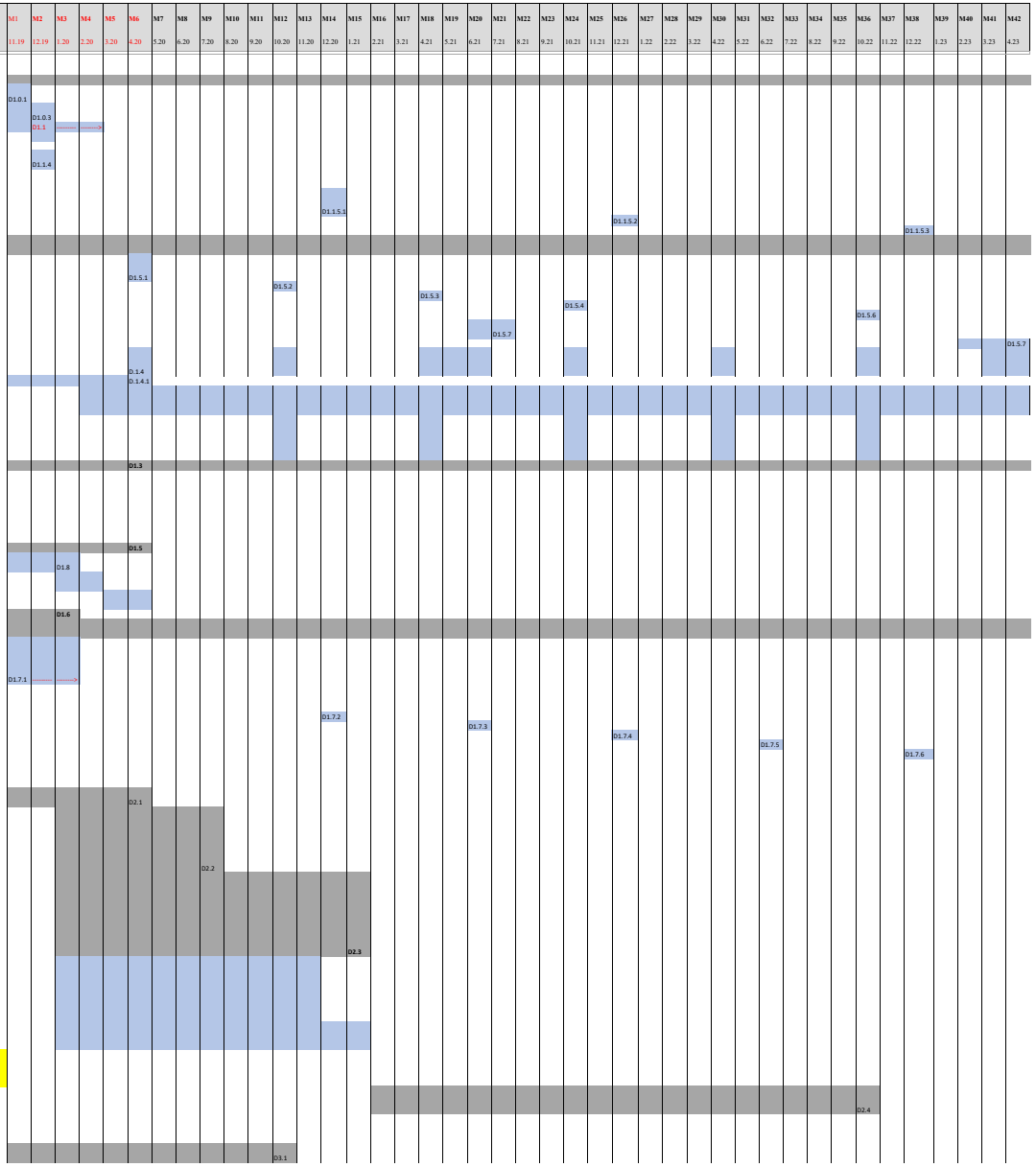
Project Objective	WP Impact (1..3) as per Kick-Off Presentations										Total Impact	
	WP1	**WP2**	**WP3**	**WP4**	**WP5**	**WP6**	**WP7**	**WP8**	**WP9**	**WP10**	**30**	
1. To develop an integrated architecture	3	1	2	3	2	1	2	1	0	1	16	53,3%
2. To define, test, deploy and demonstrate markets and market mechanisms	3	3	3	2	1	3	3	3	0	1	22	73,3%
3. To drive cooperation between distribution system operators (DSOs), Transmission system operators (TSOs), consumers and generators	3	2	2	1	2	3	3	3	0	3	22	73,3%
4. To deploy smart grid technologies	3	1	3	1	3	2	2	2	3	2	22	73,3%
5. To enable future technical and commercial innovation	3	3	2	3	2	2	3	2	3	3	26	86,7%
108	15	10	12	10	10	11	13	11	6	10		
	13,9%	9,3%	11,1%	9,3%	9,3%	10,2%	12,0%	10,2%	5,6%	9,3%		

Flexi-Grid Gantt Chart

IMCG

09/04/2020

Task (How?)		Deliverable		Milestone Relatsionship	Responsibility			Work Package Interactions	
WPx.Ty	Title	WPx.Dy	Title	Milestone Ref?	Accountable Partner	Person Accountable	Person Responsible	Task supports a WP (Task Ref?)	Task needs support from another (Ref?)
Work Package 1: PROJECT MANAGEMENT									
Task 1.1	**Project coordination**				**IMCG**	**Magnus Andersson**	**Derrick Pisani**		
Task 1.1.1	Preparation for Work Package Leaders Workshop (19-20 Nov 2019)	D1.0.1	Work Package Leaders Workshop		IMCG		Magnus Andersson		
Task 1.1.2	Preparation for Kick-Off Meeting (16 Dec 2019)	D1.0.3	Kick Off Meeting		IMCG		Magnus Andersson		
Task 1.1.3	Work Package analysis	D1.1	Work Breakdown Structure		IMCG		Derrick Pisani		
		D1.2	Project Handbook (Month 4)						
Task 1.2	**Financial Management**				**IMCG**	**Magnus Andersson**	**Kristina Lindholm**		
Task 1.2.1	Establish Financial/Economical Reporting Routines and Templates	D1.1.1	Financial/Economical Reporting Templates (Month 2)		IMCG		Kristina Lindholm		
		D1.1.2	Financial/Economical Reporting Routine (as below)		IMCG		Kristina Lindholm		
Task 1.2.1	Implement the quarterly financial/econonomical reporting routine	D1.1.3.1	Financial report 1 (December 2020)		IMCG		Kristina Lindholm		
		D1.1.3.2	Financial report 2 (December 2021)		IMCG		Kristina Lindholm		
		D1.1.3.3	Financial report 3 (December 2022)		IMCG		Kristina Lindholm		
Task 1.3	**Project monitoring, quality control and risk management**				**IMCG**	**Magnus Andersson**	**Derrick Pisani**		
Task 1.3.1	Coordinate the preparation of periodic Technical Progress Reports to the EC (every 6 months)	D1.1.4.1	Technical Progress Report 1 (April 2020)		IMCG		Derrick Pisani		
		D1.1.4.2	Technical Progress Report 2 (October 2020)		IMCG		Derrick Pisani		
		D1.1.4.3	Technical Progress Report 3 (April 2021)		IMCG		Derrick Pisani		
		D1.1.4.4	Technical Progress Report 4 (October 2021)		IMCG		Derrick Pisani		
		D1.1.4.5	Technical Progress Report 6 (October 2022)		IMCG		Derrick Pisani		
Task 1.3.2	Coordinate the preparation of Mid-Term (7/21) and Final (4/23) Reports	D1.1.5	Mid-term Report (July 2021)		IMCG		Derrick Pisani		
		D1.1.6	Final Report (April 2023)		IMCG		Derrick Pisani		
Task 1.3.2	Extract Section 3.2.3 f(Critical Risks for implementation) and develop into a Risk Management Plan	D1.4	Risk Management Plan		IMCG		Derrick Pisani		D1.4
Task 1.3.3	Prepare a Risk Register	D1.4.1	Risk Register		IMCG		Derrick Pisani		D1.4.1
Task 1.3.4	Keep the Risk Register up-to-date and always attach copy to the regular progress reports.				IMCG		Derrick Pisani		
Task 1.3.4.1	Anticipation and assessment of risks and project deviations in order to implement and apply contingency measures and conflict resolution procedures	D1.3.2	Updates to the Risk Management Plan (matches Technical Progress Report timeline in Deliverable D1.5)		IMCG		Derrick Pisani		
Task 1.4	**Situation Analysis**	**D1.3**	**Situation Analysis**		**RISE**	**Magnus Brolin**			**D1.3**
Task 1.4.1	Advise project management based on external events affecting the sector	D1.3.1	Regular reports as required		**RISE**		Joni Rossi		
Task 1.4.2	Run reference groups	D1.3.2	Reference groups notes/reports (as required)		**RISE**		Joni Rossi		
Task 1.4.3	Team will analyse external events and will develop recommendations to project management for alignment and adjustment.				**IMCG**		Magnus Andersson		
Task 1.5	**Data Management Planning**	**D1.5**	**Data Management Plan**		**SIMAVI**	Carmen Oana	Simona Bica		**D1.5**
Task 1.5.1	Handling of research data during and after the project.	D1.8	Open Release Data Pilot (ORDP)		SIMAVI	Carmen Oana	Simona Bica	Input data from Chalmers, E max, OEADS	
Task 1.5.2	Establish the methodology & standards will be applied.				SIMAVI	Carmen Oana	Simona Bica		
Task 1.5.3	Establish the data which will be curated / preserved				SIMAVI	Carmen Oana	Simona Bica		
Task 1.6	**Consortium Gender Equality Analysis**	**D1.6**	**Consortium Gender Equality Analysis**		**IMCG**		**Lena Holmberg**	CTH (Genie project)	
Task 1.7	**Coordination with NESTNet**	**D1.7**	**Coordination Agreement activity development**		**CTH**	Tuan Le		CTH	
Task 1.7.1	Engage with NESTNet stakeholder and establish detailed terms of cooperation	D1.7.1	FLEXI-GRID and NESTNet Coordnation Agreement Up-dated	M1 (month 2)	CTH	Tuan Le	Tuan Le	**All task leaders that collaborate with NESTNet** (RISE, CTH, TU/e, HES, EMAX, SIV, IMCG)	**All task leaders that collaborate with NESTNet** (RISE, CTH, TU/e, HES, EMAX, SIV, IMCG)
Task 1.7.2	Periodical updates (every 6 months) to the list of 'collaboration activities' in the Coordination Agreement		SEVERAL DELIVERABLES BELOW:		CTH	Tuan Le	Tuan Le		
		D1.7.2	Collaboration update 2 (December 2020)						
		D1.7.3	Collaboration update 3 (June 2021)						
		D1.7.4	Collaboration update 4 (December 2021)						
		D1.7.5	Collaboration update 5 (June 2022)						
		D1.7.6	Technical Progress Report 6 (December 2021)						
Work Package 2: Grid services and market designs, regulation and business models									
Task 2.1	**Analysis of barriers for adoption of innovative market design**	**D2.1**	**Report on barriers for adoption of innovative market design (Month 6)**		**RISE**	**Magnus Brolin**	**Hjalmar Phil**		**Input/data collection from EMAX, CTH, IMCG, EP, GE, OEDAS, ESR, SIV and AH (the latter added in Jan 2020 review)**
Task 2.2	**Scenarios, product design of grid services for local energy markets**	**D2.2**	**Report on scenarios, product design of grid services for local energy markets (Month 9)**	**M4 (month 12)**	**CTH**	**Tuan Le**	**Ioannis Bouloumpasis**	Market and service related WPs **(WP6, WP7 and WP8) (CTH, EMAX, HES)**	**1. Input from WP6, WP7 and WP8 (CTH, EMAX, HES)** about what they will demonstrate to coordinate scenarios and products. 2. Input from UNITED-GRID project **(RISE & CTH) – EXTERNAL PROJECT!!** 3. **Input from DSOs (AH, GE. EP, OEDAS, ESR)** to identify needs, customer opportunities and "products".
Task 2.3	**Local market designs for energy exchange and grid services**	**D2.3**	**Local market designs for energy exchange and grid services (Month 15)**	**M3 (month 9)**	**CTH**	**Tuan Le**	**Mohammad Ali Fotouhi Ghazvini**	Market and service related WPs **(WP6, WP7 and WP8) (CTH, EMAX, HES)**	**1. Input from WP6, WP7 and WP8 (CTH, EMAX, HES)** about what they will demonstrate to coordinate scenarios and products. 2. Input from UNITED-GRID project **(RISE & CTH) – EXTERNAL PROJECT!!** 3. Input from FED project **(AH, RISE & CTH) – EXTERNAL PROJECT!!** **4. Input from SIV**for identification of technical platform requirements
Task 2.3.1	Local peer-to-pool market for energy trading and grid services				CTH	Tuan Le	Mohammad Ali Fotouhi Ghazvini	Market and service related WPs **(WP6, WP7 and WP8) (CTH, EMAX, HES)**	**1. Input from WP6, WP7 and WP8 (CTH, EMAX, HES)** about what they will demonstrate to coordinate scenarios and products. 2. Input from UNITED-GRID project **(RISE & CTH) – EXTERNAL PROJECT!!** 3. Input from FED project **(AH, RISE & CTH) – EXTERNAL PROJECT!!**
Task 2.3.2	Peer to peer technologies for energy exchange and provision of grid services		Report on peer to peer technologies for energy exchange and provision of grid services		TUS	Valeri Mladenov	Vesselin Chobanov		1. Input from EMAX, DSO, CTH 2. INTERRFACE project
Task 2.3.3	Self-adaptive market structure for energy exchange and provision of grid services based on actual grid condition from the DSO		A chapter of self-adaptive market structure		LIST	Daniel Koster, LIST postoc	Phuong Nguyen		
Task 2.4	**Policy framework and business models for adoption to enable markets for flexibility**	**D2.4**	**Policy framework/ business models enabling flexibility markets (Month 36)**		**RISE**	**Magnus Brolin**	**Wenche Tobiasson**		**Input from all partners with knowledge of National Policy and Regulation.**
Work Package 3: Integrated process for observability, flexibility determination and dispatch									
Task 3.1	**Network observability and risk assessment**	**D3.1**	**Report on network observability and risk assessment**	**M4 (month 12)**	**TU/e**	**Minh-Quan Tran**	**Phuong Nguyen**		**LIST, CTH, TU/S, EMAX**



Task (How?)		Deliverable		Milestone Relataionship	Responsibility			Work Package Interactions		Timeline (M0–M42)
Task 3.2	Grid reconfiguration and fault-initiated islanding	D3.2	Report on grid reconfiguration and fault-initiated islanding	M6 (month 36)	TU/e	Minh-Quan Tran	Phuong Nguyen		LIST, CTH, TU/S	M15: D3.2
Task 3.3	Process design for flexibility procurement and dispatch	D3.3	Process design for flexibility procurement and dispatch	M1 (month 12)	LIST	LIST postdoc	Phuong Nguyen		CTH, EMAX	M12: D3.3
Task 3.4	Quantification of availability and certainty for various flexibility resources	D3.4	Quantification of availability and certainty for various flexibility resources	M5 (month 18)	LIST	LIST postdoc	Phuong Nguyen		TU/S, EMAX	M18: D3.4
Task 3.5	Optimal allocation and dispatch of flexibility services	D3.5	Optimal allocation framework for dispatching flexibility	M5 (month 24)	TU/e	Minh-Quan Tran	Phuong Nguyen		LIST, CTH, IMCG, RISE	M24: D3.5
Work Package 4: Cross-functional Platform integration and Communication Platform										
Task 4.1	System architecture	D4.1	Requirments specifications doc		SIMAVI	Carmen Oana	Gabi Vlaicu	The output of this task will be used for **WP 5, 6, 7, 8**. The requirments for the pilot infrastucture. **T5.2, T6.2, T7.2, T8.2**	**Input from WP2, WP5, WP6, WP7, WP8** related to the user story and specific requirments received from the pilots **the following WP's - 2, 5, 6, 7, 8** related to the technical and functional specs for the modules which will be integrated in the IOT platform: Siveco identified the following app which will be integrated in the IOT platform: **In this phase we need from WP's the SDK from <u>all partners</u> and also the integartion specs - these means that each partner will deliver the API's specs.**	M8: D4.1
		D4.2	System Architecture Document		SIMAVI	Carmen Oana	Iacob Crucianu			M8: D4.2
Task 4.2	Cross-functional platform development	D4.3	Complete Flexi Grid IOT Platform		SIMAVI	Carmen Oana	Iacob Crucianu			M18: D4.3
Task 4.3	FLEXI GRID User-Interface Applications and Visualization services				SIMAVI	Carmen Oana	Iacob Crucianu			
Task 4.4	FLEXI-GRID Cross-functional platform Security Access Control				SIMAVI	Carmen Oana	Iacob Crucianu	The output will be used for the following **WP's - 2, 5, 6, 7, 8 in Task 5.3, Task 6.3, Task 7.3 and Task 8.3**		
Task 4.5	FLEXI-GRID Communication platform for the end-users	D4.4	Complete Flexi Grid Communication Platform		SIMAVI	Carmen Oana	Gabi Vlaicu			M18: D4.4
Task 4.6	Integration of FLEXI GRID Framework Components	D4.5	Flexi Grid Integration Report		SIMAVI	Carmen Oana	Iacob Crucianu		**In order to finalize this task we need input from the pilots- test reports based on test plan. Input regarding the issues identified during the testing phase.**	M24: D4.5
Task 4.7	Testing and Assessment of FLEXI GRID Framework Components	D4.6	Flexi Grid Platform assesment and testing report		SIMAVI	Carmen Oana	Gabi Vlaicu	The output will be used for the following **WP's - 2, 5, 6, 7, 8 in Task 5.4, Task 6.4, Task 7.4 and Task 8.4**	**In order to finalize this task we need input from the pilots- test reports based on test plan. Input regarding the issues identified during the testing phase.**	M30: D4.6
Work Package 5: Demonstration of grid monitoring, control and flexibility intervention										
Task 5.1	Technical requirements and defining test cases	D5.1	Test cases and technical requirements definition	M4 (month 12)	CTH	Tuan Le	Ioannis Bouloumpasis	1.**WP3** about CTH campus specifications" 2.**Task 4.1** about system architecture	**1. Input from WP3 (TU/e)** (algorithms. Grid reconfiguation, observability, flexibility). Discuss with TU/e about grid clustering algorithms. **2. Information from WP4 - Task 4.1** about communication protocols and IoT inteface requirements	M6: D5.1
Task 5.2	Demonstration preparation and system integration	D5.2	Demonstration site preparation and integration of the system	M6 (month 30 or 24 from CTH)	AH	Per Löveryd	Per Löveryd	Information from test site preparation to **WP4**.	**Input required from WP4 - Task 4.2 and Task 4.3** about the delivery of the platform and the integration of the user-interface	M24: D5.2
Task 5.3	Demonstration of grid monitoring, control and flexibility supported by IoT	D5.3	Demonstration of grid monitoring, control and flexibility supported by IoT, using Chalmers site	M7 (month 36)	AH	Per Löveryd	Per Löveryd	N/A	1. Developed tools from **WP3.** 2. IoT platfrom integrated in CTH demo-site **(from WP4).**	M36: D5.3
Task 5.4	Assessment, evaluation, and lessons learnt	D5.4	Results evaluation and gained experience	M8 (month42)	CTH	Tuan Le	Ioannis Bouloumpasis	1. Output to **WP 9 Task 9.2 and Task 9.4** 2. Result dissemination **to all project DSOs (including AH)**	N/A	M42: D5.4
Work Package 6: Demonstration of a local energy market for exchange of energy and grid services-										
Task 6.1	Technical requirements and defining test cases	D6.1	Definition of test cases and technical requirements	M4 (month 12)	CTH	Tuan Le	David Steen	1.**WP2** about CTH campus specifications 2.**WP4 Task 4.1** about system architecture	**1. Discussion with Ericsson (EXTERNAL!)** about possibility to use code from FED project. **2. Coordinate with WP4 (SIVECO)**if code from FED will be used or they make new from the beginning and providing them with the local marcet structure (Chalmers) and with tecnical information about interface of hardware (AH).	M6: D6.1
Task 6.2	Demonstration preparation and system integration	D6.2	Demonstration site preparation and integration of the system	M5 (month 18) M6 (month 30 or 24 from CTH	AH	Per Löveryd	Per Löveryd	Information from test site preparation to **WP4**.	**1. Input from WP4 Task 4.2 and Task 4.3** about the delivery of the platform and the integration of the user-interface. **2. To do:** Description of practical work and preparation/buying of technical parts required for the implementation	M24: D6.2
Task 6.3	Demonstration of centralised energy market by IoT	D6.3	Demonstration of the local energy market with IoT platform	M7 (month 36)	AH	Per Löveryd	Per Löveryd	Provide practical experience that could be useful for **WP2 Task 2.4**	1. Developed market framework from **WP2 Task 2.3** 2. IoT platfrom integrated in CTH demo-site **(from WP4)**	M36: D6.3
Task 6.4	Assessment, evaluation, and lessons learnt	D6.4	Results evaluation and gained experience	M8 (month42)	CTH	Tuan Le	David Steen	1. Output to **WP9 Task 9.2 and Task 9.4** 2. Result dissemination **to all project DSOs (including AH)**	N/A	M42: D6.4
Work Package 7: Demonstration of P2P energy transactions based on blockchain technology						**Thong Vu Van**				
Task 7.1	**System Architecture and framework development, including security access control**		**D7.1 System Architecture and framework, including security access control**	M4 (month 12)	**EMAX**	Thong Vu Van	Siddhesh Gandhi			M12: D7.1
	Architecture Design: components, sub-components, interfaces and connections with external interfaces		Develop user needs and technical requirements for the P2P platform, including development of the **architecture** that connects it to the IoT platform. The privacy by design approach adopted by the IoT platform will be extended to the P2P platform. The grid is modelled as a graph of peer nodes (i.e. Prosumers, DSOs, and other interested stakeholders such as TSOs, retailers, aggregators) able to coordinate through a blockchain based infrastructure to support fully decentralised energy demand and generation matching to ensure stable grid operation. Here each prosumer features smart appliances connected to IoT interface and input layers which register the aggregated monitoring data regarding energy production or energy consumption in blocks as a part of ledger. Smart contract and smart billing systems are further enhanced.			Thong Vu Van	Siddhesh Gandhi	1. **WP2, WP9, WP10**: Define user needs, make a survey to small and medium DSOs, regulators, and relevant stakeholders; similar platforms 2. **WP2**: parameters, market logic and capacity of transaction capability to be considered when setting up the local peer to peer market platform 3. **WP4:** development of the architecture that connects it to the IoT platform; templates of use cases, user story		
Task 7.1.1	Functional / technical specifications: high-level dependencies, detailed constraints, and compatibility with standards. The technical requirements also include parameters, market logic and capacity of transaction capability to be considered when setting up the local peer to peer market platform.					Thong Vu Van	Siddhesh Gandhi	**WP4:** setting up platform **WP4:** Platform development experiences		
Task 7.1.2	Detailed functional description, including communication requirements with peers and the IoT platform					Thong Vu Van	Siddhesh Gandhi	**WP4:** API connection		
Task 7.1.3	Data and information requirements and specification of algorithms. Mapping of information flows, including detailed assessment of EU and national legal frameworks relating to data privacy. Design of appropriate authorisation services.					Thong Vu Van	Siddhesh Gandhi	**WP4:** Data related matter		
Task 7.1.4										

	Task (How?)		Deliverable	Milestone Relatainship	Responsibility			Work Package Interactions		M0	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42
Task 7.2	**Functional development to minimum viable produc**		**D7.2 Minimum viable product**	(month 24)	EMAX	Siddhesh Gandhi	Peteris Ancans																											D7.2																
	A 3-phase approach will be pursued to enhance a prototype for flexibility market with blockchain based contracts, as follows: (a) development of a custom prototype where basic use cases can be simulated and where market players are invited to test, (b) evolution to a Minimal Viable Product (MVP), capturing the fundamental functions and architecture of the platform and (c) initiation of a continuous growth cycle by checking the use cases of the different players (DER, Prosumers, and DSO), the transparency in data and control and by validating the correctness of transactions (in the market/procurement process) and the transaction capacity, automatic level and speeds of market/procurement process. The user interface will be developed to allow information flows and consumer interaction. Data interfaces between participants will be developed. Functional / technical		Develop a local peer-to-peer DSO flexibility platform based on the prototype developed within the INTERFACE project, enhancing by connecting smart appliances via the IoT interface and deploying DR programs via blockchain based smart contracts.																																														
Task 7.2.1						Siddhesh Gandhi	Peteris Ancans																																													
Task 7.2.2	Develop functionality using AGILE integration cycles.					Siddhesh Gandhi	Peteris Ancans	**WP4:** development																																												
Task 7.2.3	Implement data links to IoT platform and MVP users.					Siddhesh Gandhi	Peteris Ancans	**WP4:** API connection																																											
Task 7.2.4	Develop test scenarios and deploy MVP into test environment and adjust based on user feedback.					Siddhesh Gandhi	Peteris Ancans	**WP2:** testing scenarios																																											
Task 7.3	**Demonstration of a community-based P2P platform**		**D7.3 Peer-to-peer marketplace demonstration**	(month 36)	EMAX	Thong Vu Van	Lavjit Singh																																						D7.3						
	Functional development to enable MVP scaling.		This task will deploy the MVP into a large test environment for full validation of the MVP. Several tests of the applicable clearing software modules will be performed, in realistic circumstances, in parallel with currently operating mechanism taking into consideration local market maturity. The test is also focus on validation of smart contract and smart billing systems, measure automation and accuracy level. It will evaluate the success of the P2P platform based on user acceptance and impact on grid-related parameters (congestion, voltage, flexibility).			Thong Vu Van	Lavjit Singh	**WP4, WP9:** scalability matter																																											
Task 7.3.1	Develop test plan. Test cases will be developed where prosumers will be provided with information on - and prediction of - their energy usage and consumption patterns.					Thong Vu Van	Lavjit Singh																																													
Task 7.3.2	Implement system within test environment, identify issues, develop action plan, rectify issues					Thong Vu Van	Lavjit Singh																																												
Task 7.3.3	Detailed evaluation against platform objectives.					Thong Vu Van	Lavjit Singh																																												
Task 7.3.4	**Evaluation, scaling and assessment**		**D7.4 Peer-to-peer marketplace demonstration: final evaluation report and lessons learnt**	(month 42)	EMAX	Thong Vu Van	Lavjit Singh																																												
Task 7.4	to showcase clear added value of business use cases and demonstrated implementation for prosumers, DSO and TSO in societal, economic or environmental terms		An impact and scalability assessment will be conducted as part of the lessons learnt activities, reviewing the potential for scalability of the demonstration to other markets in Europe. The impact and scalability assessment will provide be an input to WP9. Evaluation results will be exchange			Thong Vu Van	Lavjit Singh	**WP9:** business use case, business models																																												
Task 7.4.1	to showcase improvements in transparency and accountability while respecting privacy and/or anonymity (Decentralization and governance)					Thong Vu Van	Lavjit Singh	**WP4:** check about privacy issue																																												
Task 7.4.2	to demonstrate automated buying, selling, and scheduling of transactions capability via smart contracts integrating prosumer and consumer preferences; to validate efficiency of transactions and market/procurement					Thong Vu Van	Lavjit Singh																																											
Task 7.4.3	usability and inclusiveness					Thong Vu Van	Lavjit Singh																																												
Task 7.4.4	cost-efficiency, scalability, security, and sustainability					Thong Vu Van	Lavjit Singh	**WP9**																																											
Task 7.4.5																																																
Work Package 8: Demonstration of flexibility measures and electricity grid services provided by local energy storage and Evs					OEDAS	Ural Halaçoğlu																																											
Task 8.1	**Technical requirements, demonstration preparation, and defining test cases**	D8.1	**Technical requirements Document**	**M4 (month 12)**	HES	HES: OEDAS: Ural Halaçoğlu	HES: OEDAS: İ.Can Taştan	**WP2**	WP2,WP3,WP4													D8.1																												
Task 8.1.0	Defining test areas and current status of equipments																																															
Task 8.1.1	Definition of test cases	D8.1.1	Prelimenary report on tests cases and requirements (Month 6)																																													
Task 8.1.2	Definition of techical requirements			**M4 (month 12)**																																											
Task 8.1.3	Demonstration site equipment will ve installed or checked																																														
Task 8.1.4	Collectable datasets will be determined																																														
Task 8.2	**System integration**	D8.2	**System Integration Document**	**M6**	OEDAS	Gürkan Dökümcügil	OEDAS: Elif Şenyurek HES:	**WP7,WP6,WP4**	WP2,WP3,WP4																									D8.2																
Task 8.3	**Demonstration of flexibility measures and electricity grid services provided by local energy storage and Evs**	D8.3	**Demonstration Progress Report**	**M7**	OEDAS	Ural Halaçoğlu	OEDAS: İbrahim Can Taştan HES:		WP2,WP3,WP4																																							D8.3						
Task 8.4	**Assessment, evaluation and lessons learnt**	D8.4	**Demonstration final evaluation and lessons learnt report**	**M8**	HES			**WP 9 - WP 10**																																											D8.4
Work Package 9: Barriers to innovation, Exploitation and deployment, Financial instruments						Ulrika Wahlstrom																																												
Task 9.1	**Intellectual assets framework: identification of new knowledge, implementation of IP policy and intelligence**	D9.1	**IP Policy, assessment and operations**		IMCG	Ulrika Wahlstrom	Frida Barrett		**Supported by WP2:** **From all partners:** Will need information from the pathwaywork developed in WP2. **From TU/e, CTH,EMAX, SIV, RISE, AH, EPRES, GE, OEDAS, SC, HES-SO, ESR, T4E, LIST:** Will need you to identify at start of project the right people (i.e. Legal Dept, or Innovation Dept, owner rights or Intellectual Property) who will answer questions in writing regarding intellectual assets framework, identification of knew knowledge, implementation of IP policy and intelligence (months 1-4). Purpose to know who owns what in the project, also in the future, data etc.																																														
Task 9.2	**Exploitation of project findings and solutions together with InnoEnergy**	D9.2	**Planned and agreed pre-market developments of solutions**		IMCG	Ulrika Wahlstrom	Ulrika Wahlstrom		**Supported by WP2: From TU/e, CTH,EMAX, SIV, RISE, SC, HES, T4E, LIST:** engage with WP2 and get business modelling support fromWP3-8. (month 7-42) **From TU/e, RISE, IMCG, RISE, CTH, EMAX, SIV, SC, HES, TU4e:** Will look into different obstacles to innovation that the DSO are facing, (month 7-42)																																														D9.2
Task 9.3	**DSO's Innovation barriers and innovation capacity**	D9.3	**Analysis of barriers for innovation for implementation of future grids**		RISE	Magnus Brolin	Magnus Brolin		**Supported by WP2 (Task 2.1): Will need to work with RISE, IMCG, AH, EP, GE, OEDAS,ESR:** Adjust and verify Sustainable Business Models of the project's DSO's. (months 7-36)																																														D9.3

	Task (How?)		Deliverable	Milestone Relatsionship	Responsibility			Work Package Interactions
Task 9.4	**Adjustable and verified Sustainable Business Models of project DSOs**	D9.4	**Assessed and adjusted pre-kit Business models for project's DSOs**		IMCG	Ulrika Wahlstrom	Frida Barrett	**Supported by WP2 (Business Models) and WP4, WP5, WP6, WP7, WP8 (demonstration activities):** Will need to work with EMAX, SIV, RISE, AH EP,GE, OEDAS,HES,ESR. (months 7-42)
Task 9.5	**Bankability and Financial instruments**	D9.5	**Financial Toolbox**		IMCG	Ulrika Wahlstrom	Johan Emanuel	**Need support from AH, EP, GE, OEDAS, ESR** (months 7-42)
Task 9.6	**Capacity based Activities**	D9.6	**Mission Based activities: BM, Fin Instruments & engagements**		IMCG	Ulrika Wahlstrom	Ulrika Wahlstrom	**Need to wotk with AH, EP, GE, OEDAS:** To secure the continous advancement regarding bankable business model and financial instruments. (months 7-42)
Work Package 10: Communication, Engagement & Dissemination						Mats Tiborn		
Task 10.1	**Up-dated Target-Group Analysis**	D10.1	**Target-Group Analysis**	M2 (month 3)	IMCG	Mats Tiborn	Mats Tiborn	**Need to work with all WP leads and key people from all Partners:** 1. Need to establish a network of key stakeholders and key notes on what comms are valuable to them. 2. Need info about DSOs around Europe from those with greatest knowledge. Need concrete knoweldge of what gets the right people at the DSOs interested in our work (both the DSOs of the project and those outside, but with potential interest in it.)
Task 10.2	**Communication Strategy**	D10.2	**Communication Strategy incl. Activity plan, boiler plate, templates**		IMCG	Mats Tiborn	Mats Tiborn	**Need to work with best strategic communications resources at each partner:**These will be the key collaborators for the duration of the project.
Task 10.3	**Execute the Communication Strategy**	D10.3	**Web and social channels established**		IMCG	Mats Tiborn	Mats Tiborn	**Need to work with best strategic communications resources at each partner:**These will be the key collaborators for the duration of the project.
Task 10.4	**Mission based activities for capacity building**	D10.4	**Summary of mission-based activities capacity building**		IMCG	Mats Tiborn	Mats Tiborn	**Need to work with best lobbying resources at each partner:**These will be the key collaborators for the duration of the project.
Work Package 11: Ethics						Mats Tiborn		
Task 11.1.1	The procedures and criteria that will be used to identify/recruit research participants must be submitted as a deliverable.	D11.1	**H - Requirement No. 1**		CTH	Tuan Le		
Task 11.1.2	The informed consent procedures that will be implemented for the participation of humans must be submitted as a deliverable.				CTH	Tuan Le		
Task 11.1.3	Templates of the informed consent/assent forms and information sheets (in language and terms intelligible to the participants) must be submitted as a deliverable.				CTH	Tuan Le		
Task 11.2.1	In case activities undertaken in non-EU countries raise ethics issues, the applicants must ensure that the research conducted outside the EU is legal in at least one EU Member State. This must be submitted as a deliverable.	D11.2	**NEC - Requirement No. 2**		CTH	Tuan Le		
Task 11.3.1	The beneficiary must confirm that all of the data they intend to process is relevant and limited to the purposes of the research project (in accordance with the 'data minimisation 'principle).				CTH	Tuan Le		
Task 11.3.2	A description of the technical and organisational measures that will be implemented to safeguard the rights and freedoms of the data subjects/research participants must be submitted as a deliverable.	D11.3	**POPD - Requirement No. 3**		CTH	Tuan Le		
Task 11.3.3	In case personal data are transferred from the EU to a non-EU country or international organisation, confirmation that such transfers are in accordance with Chapter V of the General Data Protection Regulation 2016/679, must be submitted as a deliverable.				CTH	Tuan Le		
Task 11.3.4	In case personal data are transferred from a non-EU country to the EU (or another third state), confirmation that such transfers comply with the laws of the country in which the data was collected must be submitted as a deliverable.				CTH	Tuan Le		
Task 11.3.5	Detailed information on the informed consent procedures in regard to data processing must be kept on file.				CTH	Tuan Le		
Task 11.3.6	Data Processing Agreement/Addendum (or equivalent) with data processors - including relevant assessment of the controls of third party who store or process personal data - must be kept on file.				CTH	Tuan Le		

	M0	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42
Task 9.4																																					D9.4						
Task 9.5																									D9.5																		
Task 9.6																																											D9.6
Task 10.1			D10.1																																								
Task 10.2					D10.2																																						
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Task 11.3.4																																											
Task 11.3.5																																											
Task 11.3.6							D11.3																																				

Deliverables, Ethics, DMP, Other Reports for Project 864048

Deliverables, Ethics, DMP, Other Reports													RASCI				
WP No	Del Rel. No	Del No	Title	Description	Lead Beneficiary	Nature	Dissemination Level	Est. Del. Date (annex I)	Rev. Due Date	Receipt Date	Approval Date	Status	Responsible	Accountable	Supporting **(As per detail in Gantt COL:"J")**	Consulted	Informed
WP01	D1.7	D51	Coordination Agreement activity development	D1.7 Coordination Agreement activity development. The report will set an a	CTH	Report	Public	30 Nov 2019		31-Jan-20		Submitted	Anh Tuan Le	Magnus Andersson			
WP01	D1.1	D45	Work breakdown structure	In D1.1 a detailed Project Management Plan with a Gantt chart and a Work	IMCG	Report	Public	31 Dec 2019		09-Apr-20		Pending	Magnus Andersson	Magnus Andersson			
WP10	D10.1	D41	Target-Group Analysis	D10.1, Up-dated Target-Group Analysis serving as a basis for the Commur	IMCG	Report	Public	31 Dec 2019		16-Mar-20		Pending	Mats Tiborn	Mats Tiborn			
WP01	D1.6	D50	Consortium Gender Equality Analysis	In D1.6, the Consortium Gender Equality Report will set the aims for the FL	IMCG	Report	Public	31 Jan 2020		31-Jan-20		Submitted	Lena Holmberg	Magnus Andersson			
WP01	D1.8	D52	ORDP	The D1.8 corresponds to activities within Task1.5	SIMAVI	ORDP: Open Research Data Pilot	Confidential	31 Jan 2020		22-Mar-20		Pending	Carmen Oana	Magnus Andersson			
WP01	D1.2	D46	Project Handbook incl. quality Plan Document	In D1.2 the FLEXI-GRID Project Handbook incl. quality Plan Document will	IMCG	Report	Confidential	29 Feb 2020		20-Feb-20		Submitted	Magnus Andersson	Magnus Andersson			
WP09	D9.1	D35	IP Policy, assessment and operations	D9.1, IP Policy assessment and operations deliverable contains FLEXI-GR	IMCG	Report	Public	29 Feb 2020		09-Mar-20		Submitted	Frida Barrett	Ulrika Wahlström			
WP10	D10.2	D42	Communication Strategy incl. Activity plan, boiler plate, templates	D10.2, Report including Communication strategy and an activity plan for ef	IMCG	Report	Public	29 Feb 2020		23-Mar-20		Pending	Mats Tiborn	Mats Tiborn			
WP01	D1.3	D47	Situation analysis	In D1.3 a Routines and structures for the situation analysis team will be set	RISE	Report	Public	30 Apr 2020				Pending	Joni Rossi	Magnus Andersson			
WP01	D1.4	D48	Risk management plan	In D1.4 the PMO plan for the FLEXI-GRID risk management will be explain	IMCG	Report	Public	30 Apr 2020				Pending	Annki Edström	Magnus Andersson			
WP01	D1.5	D49	Data management plan	In D1.5, the FLEXI-GRID Data management structure during- and beyond t	SIMAVI	Report	Public	30 Apr 2020				Pending	Carmen Oana	Magnus Andersson			
WP02	D2.1	D4	Report on barriers for adoption of innovative market design	In D2.1 the barriers for the development of flexibility markets will be identifi	RISE	Report	Public	30 Apr 2020				Pending	Wenche Tobiasson	Magnus Brolin			
WP05	D5.1	D19	Test cases and technical requirements definition	In D5.1 the technical requirements and the defined test cases regarding the	CTH	Report	Confidential	30 Apr 2020				Pending	Ioannis Bouloumpasis	Anh Tuan Le			
WP06	D6.1	D23	Definition of test cases and technical requirements	In D6.1 the technical requirements and the defined test cases regarding the	CTH	Report	Confidential	30 Apr 2020				Pending	David Steen	Anh Tuan Le			
WP11	D11.1	D1	H - Requirement No. 1	2.1. The procedures and criteria that will be used to identify/recruit researc	CTH	Ethics	Confidential	30 Apr 2020				Pending	???	Anh Tuan Le			
WP11	D11.3	D3	POPD - Requirement No. 3	4.4 The beneficiary must confirm that all of the data they intend to proces	CTH	Ethics	Confidential	30 Apr 2020				Pending	???	Anh Tuan Le			
WP04	D4.1	D13	Requirements specification document	In D4.1 the requirements of the high-level design of the individual compone	SIMAVI	Report	Confidential	30 Jun 2020				Pending	Carmen Oana	Carmen Oana			
WP04	D4.2	D14	System Architecture document	In D4.2 the design of the system architecture will be described. The main c	SIMAVI	Other	Confidential	30 Jun 2020				Pending	Carmen Oana	Carmen Oana			
WP11	D11.2	D2	NEC - Requirement No. 2	6.1. In case activities undertaken in non-EU countries raise ethics issues,	CTH	Ethics	Confidential	30 Jun 2020				Pending	???	Anh Tuan Le			
WP02	D2.2	D5	Report on scenarios, product design of grid services for local energy marke	In D2.2 a literature review of the existing scenarios on the design of local m	CTH	Report	Public	31 Jul 2020				Pending	Magnus Brolin	Anh Tuan Le			
WP03	D3.1	D8	Report on network observability and risk assessment	In D3.1 a report on the network observability and risk assessment will be pr	TU/e	Report	Public	31 Oct 2020				Pending	Minh-Quan Tran	Phuong Nguyen			
WP03	D3.3	D10	Process design for flexibility procurement and dispatch	In D3.3 a report on the process design for flexibility procurement and dispa	TU/e	Report	Public	31 Oct 2020				Pending	Minh-Quan Tran	Phuong Nguyen			
WP07	D7.1	D27	System Architecture and framework, including security access control	In D7.1 the architecture of the system and the developed framework, includ	EMAX	Report	Confidential	31 Oct 2020				Pending	Thong Vu Van	Thong Vu Van			
WP08	D8.1	D31	Technical requirements Document	In D8.1 the technical requirement regarding and the defined test cases for t	OEDAS	Report	Public	31 Oct 2020				Pending	Ural Halacoglu	Ural Halacoglu			
WP02	D2.3	D6	Local market designs for energy exchange and grid services	In D2.3 the local market designs for energy exchange and grid services will	CTH	Report	Public	31 Jan 2021				Pending	Magnus Brolin	Anh Tuan Le			
WP03	D3.2	D9	Report on grid reconfiguration and fault-initiated islanding	In D3.2 a report on grid reconfiguration and fault-initiated islanding will be p	LIST	Report	Public	31 Jan 2021				Pending	LIST postdoc??	Phuong Nguyen			
WP03	D3.4	D11	Report on quantification of flexibility	In D3.4 a report on how to quantify the availability and certainty of various f	LIST	Report	Public	30 Apr 2021				Pending	LIST postdoc??	Phuong Nguyen			
WP04	D4.3	D15	Complete FLEXI-GRID IoT Platform	In D4.3 the IoT platform employed in the FLEXI-GRID project will be descri	SIMAVI	data sets, microdata, etc	Confidential	30 Apr 2021				Pending	Carmen Oana	Carmen Oana			
WP04	D4.4	D16	Complete FLEXI-GRID communication Platform	In D4.4 the FLEXI-GRID communication platform for the end users will be c	SIMAVI	data sets, microdata, etc	Confidential	30 Apr 2021				Pending	Carmen Oana	Carmen Oana			
WP03	D3.5	D12	Optimal allocation framework for dispatching flexibility	In D3.5 a study regarding the optimal allocation and dispatching of flexibility	TU/e	Report	Public	31 Oct 2021				Pending	Minh-Quan Tran	Phuong Nguyen			
WP04	D4.5	D17	FLEXI-GRID Integration report	In D4.5 the integration of FLEXI-GRID framework components will be desc	SIMAVI	Report	Confidential	31 Oct 2021				Pending	Carmen Oana	Carmen Oana			
WP05	D5.2	D20	Demonstration site preparation and integration of the system	In D5.2 the preparation of Chalmers demo-site for the effective grid monito	CTH	Report	Confidential	31 Oct 2021				Pending	Ioannis Bouloumpasis	Anh Tuan Le			
WP06	D6.2	D24	Demonstration site preparation	In D6.2 the preparation of Chalmers demo-site for the effective operation o	AH	Report	Confidential	31 Oct 2021				Pending	Per Löveryd	Anh Tuan Le			
WP07	D7.2	D28	Minimum viable product	In D7.2 the functional development to the minimum viable product will be d	EMAX	data sets, microdata, etc	Confidential	31 Oct 2021				Pending	Thong Vu Van	Thong Vu Van			
WP08	D8.2	D32	System Integration Document	In D8.2 the successful procedure toward the integration of the required fun	OEDAS	Report	Public	31 Oct 2021				Pending	Ural Halacoglu	Ural Halacoglu			
WP09	D9.5	D39	Financial Toolbox	D9.5 Financial Toolbox with a set of financial tools and instruments for flex	IMCG	Report	Public	31 Oct 2021				Pending	???	Ulrika Wahlström			
WP04	D4.6	D18	FLEXI-GRID Platform assessment & testing report	In D4.6 the testing and assessment procedure of FLEXI-GRID framework c	SIMAVI	Report	Confidential	30 Apr 2022				Pending	Carmen Oana	Carmen Oana			
WP02	D2.4	D7	Policy framework and business models for adoption to enable markets for f	In D2.4 the current situation on flexibility markets in the project member co	RISE	Report	Public	31 Oct 2022				Pending	Wenche Tobiasson	Magnus Brolin			
WP05	D5.3	D21	Demonstration of grid monitoring, control and flexibility supported by IoT	In D5.3 a report regarding the description of the demonstration of grid mon	CTH	Report	Confidential	31 Oct 2022				Pending	Ioannis Bouloumpasis	Anh Tuan Le			
WP06	D6.3	D25	Demonstration of the local energy market with IoT platform	In D6.3 a report about the results of a centralized local market for energy a	AH	Report	Confidential	31 Oct 2022				Pending	Per Löveryd	Per Löveryd			
WP07	D7.3	D29	Peer-to-peer marketplace demonstration	In D7.3 the demonstration of a community-based P2P platform will be pres	EMAX	data sets, microdata, etc	Confidential	31 Oct 2022				Pending	Thong Vu Van	Thong Vu Van			
WP08	D8.3	D33	Demonstration progress report	In D8.3 the results of the demonstration of flexibility measures and electrici	OEDAS	Report	Public	31 Oct 2022				Pending	Ural Halacoglu	Ural Halacoglu			
WP09	D9.3	D37	Analysis of barriers for innovation for implementation of future grids	D9.3 presents the report on barriers for implementation of future grids as w	RISE	Report	Public	31 Oct 2022				Pending	Wenche Tobiasson	Ulrika Wahlström			
WP09	D9.4	D38	Assessed and adjusted pre-kit Business models for project's DSOs	D9.4 report on future grid business models for project's DSOs. D9.4 Corres	IMCG	Report	Public	31 Oct 2022				Pending	???	Ulrika Wahlström			
WP10	D10.3	D43	Websites and social channels	D10.3, Project web site in operation. D10.4 corresponds to activities within	RISE	Other	Public	31 Oct 2022				Pending	Mats Tiborn	Mats Tiborn			
WP10	D10.4	D44	Summary of mission-based activities capacity building	D10.4 Report describing the results from workshops, joint seminars and kn	IMCG	Report	Public	31 Oct 2022				Pending	Mats Tiborn	Mats Tiborn			
WP05	D5.4	D22	Results evaluation and gained experience	In D5.4 the evaluation of the demonstration results regarding grid monitorin	CTH	Report	Confidential	30 Apr 2023				Pending	Ioannis Bouloumpasis	Anh Tuan Le			
WP06	D6.4	D26	Results evaluation	In D6.4 the evaluation of the demonstration regarding the operation of a loc	CTH	Report	Confidential	30 Apr 2023				Pending	David Steen	Anh Tuan Le			
WP07	D7.4	D30	Peer-to-peer marketplace demonstration: final evaluation report and lesson	In D7.4 the evaluation of the demonstration regarding the P2P marketplace	EMAX	Report	Confidential	30 Apr 2023				Pending	Thong Vu Van	Thong Vu Van			
WP08	D8.4	D34	Demonstration final evaluation and lessons learnt report	In D8.4 the evaluation of the results of the performed demonstration will be	OEDAS	Report	Public	30 Apr 2023				Pending	Ural Halacoglu	Ural Halacoglu			
WP09	D9.2	D36	Planned and agreed pre-market developments of solutions	D9.2, Planned and agreed pre-market developments of solutions. For the s	IMCG	Other	Confidential	30 Apr 2023				Pending	???	Ulrika Wahlström			
WP09	D9.6	D40	Mission Based activities: BM, Fin Instruments & engagements	D9.6, Report describing the results from workshops, joint seminars and wh	IMCG	Report	Public	30 Apr 2023				Pending	???	Ulrika Wahlström			

RASCI KEY

NOTE: Confidential means only for members of the consortium (including the Commission Services)

(R)esponsible: ONLY ONE PERSON. Responsible for the action to completion as agreed with the Approver
(A)pproves: ONLY ONE PERSON. Ensures pre-requisites are in places for Action to be succesful. Delegates action to those responsible and those supporting, approves is accountable for the delivery.
(S)upports: Any resource allocated to support those responsible.
(C)onsulted: Person/s whose opinions are sought in dialogue with those Approving and Responsible
(I)nformed: Those who must be kept up to date on progress. As a minimum, when actions start and finish.

Flexi-Grid Risk Register

FlexiGrid

09/04/2020

Status key;
GREEN - Progress in Hand
AMBER - Needs attention
RED - Serious risk. Needs immediate attention.

Category Project/ External	#	Status (red/amber/green/closed)	Impact 1-5 (5=hightest)	Risk/Issue Description	Date of Report	Work Packages Concerned	Reported by (email addess) CHOOSE FROM DROPDOWN	Assigned to (email addess) CHOOSE FROM DROPDOWN	Target resolution date	Progress/resolution update (with date)
Project	1	CLOSED	5	Changes in consortium members: Due to some reason, one or more partners will not be able to continue to join the project. This could lead to delays in project implementation or even failure to deliver some of the project deliverables.	Application Stage	WP11	magnus.andersson@imcg.se	magnus.andersson@imcg.se	Not material	Not material
Project	2	AMBER	3	Delays compared with the project plan: This refers to the case when the required project activities take longer time than what planned in the project initially. This could lead to delays in reaching project goals/milestones according to the defined plan.	Application Stage	WP11	magnus.andersson@imcg.se	magnus.andersson@imcg.se	10.04.2020	All WP deliverables are now coming in line. The deadlines for initial deliverables were very ambitious considering there was Christmas in the middle, and a need to get people from many partners to work together.
Project	3	GREEN	4	Shortage of personnel of project partners: This happens when the project partner is unable to allocate enough researcher-time for the project activities. This could make it difficult or even impossible to develop certain project tasks.	Application Stage	WP11	magnus.andersson@imcg.se	magnus.andersson@imcg.se	Not material	Not material
Project	4	GREEN	4	Budget risks: This concerns the possibility that the cost to carry out the project activities exceeds the allocated budget of the project. This could lead to problems of carrying out the project tasks as signed with EC.	Application Stage	WP11	magnus.andersson@imcg.se	magnus.andersson@imcg.se	Not material	Not material
Project	5	GREEN	5	End-user engagement. The project fails to engage end- user in Change agents. This could lead to reduced interest of the local communities.	Application Stage	WP10, WP11, WP9	magnus.andersson@imcg.se	magnus.andersson@imcg.se	Not material	Not material
Project	6	GREEN	5	Insufficient exploitation of results. The project fails in reaching the ambitious objective to secure resources to take 2/3 of sustainable potential innovations to the next level beyond project termination. This could lead to reduced future impact of results.	Application Stage	WP10, WP11, WP9	magnus.andersson@imcg.se	magnus.andersson@imcg.se	Not material	Not material
Project	7	GREEN	4	Investment risk in test- sites hard- and software. This could lead to not constraints in functionality in demonstration activities.	Application Stage	WP11, WP2, WP3, WP4	magnus.andersson@imcg.se	magnus.andersson@imcg.se	Not material	Not material
Project	8	GREEN	3	Data collection and measurement: This risk involves insufficient grid data from e.g. DSOs or measurement data from the demonstration facilities in the project. This could lead to delay in project execution.	Application Stage	WP3, WP4, WP5, WP6, WP7, WP8	magnus.andersson@imcg.se	magnus.andersson@imcg.se	Not material	Not material
Project	9	GREEN	3	Delay in models development: Developments of models can face unexpected delay due to model complexities, algorithms, etc. This can cause serious delay in the project execution.	Application Stage	WP3, WP4, WP5, WP6, WP7, WP8	magnus.andersson@imcg.se	magnus.andersson@imcg.se	Not material	Not material
Project	10	GREEN	3	Delay in development of demonstration facilities: This concerns the practical work that is required to set up demonstration facilities for the project.	Application Stage	WP11, WP3, WP4, WP5, WP6, WP7	magnus.andersson@imcg.se	magnus.andersson@imcg.se	Not material	Not material
Project	11	GREEN	5	Technical difficulties by a project partner: This concerns the probability that a project partner is not able to carry out project tasks as agreed. This could delay the project as well as affect the objectives of all WPs that the partner is involved in.	Application Stage	WP11, WP3, WP4	magnus.andersson@imcg.se	magnus.andersson@imcg.se	Not material	Not material
Project	12	AMBER	2	The Amendment request is taking long to finalise. Partners depend on its completion to regularise their timeline.	21/02/2020		magnus.andersson@imcg.se	annki.edstrom@imcg.se	31/03/2020	Meeting with EC Project Officer 25/02/2020; Updated to Annki (complete); awaiting final decision from Project Coordinator on one aspect.

Project/ External		(red/amber/green/closed)	(5=hightest)			Concerned	CHOOSE FROM DROPDOWN	CHOOSE FROM DROPDOWN	date	
External	13	RED	5	COVID-19 disruptions due to lock-downs and thus restrictions of mobility are affecting productivity (people not at their workplace) and quality (those who are normally working on-site or together, now restricted to working from home and communicating electronically.) The disruptions do not have an understood timeline.	18/03/2020		magnus.andersson@imcg.se	magnus.andersson@imcg.se	UNKNOWN	Reassuring email sent along with followup on WBS, reinforcing timelines and work method.

FlexiGrid

Work Package 1
Project Coordination (Activity Groups sub-task)

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FlexiGrid

KICK-OFF MEETING

GOTHENBURG 16-18 December 2019

Derrick Pisani

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FlexiGrid

Define…

What we will be known to have done together to impact the market of flexible grids.

Day 2 Workshop

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FlexiGrid

Method

- What defines flexible grid services innovation as a result of FlexiGrid?
- Who else is impacting the Project Objectives that are close to our reason to be here?
- What are their reasons to be here
  - What are their specific objectives?
  - How do they interact with you?

(Basis of the answers above is the Excel Workbook)

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FlexiGrid

What defines flexible grid services innovation as a result of FlexiGrid?

Some discussion questions which will help answer this:

- What does flexible mean?
- What do grid services mean?
- What can be achieved today to promote the idea?
- What would make flexible grid services the solution to the decarbonisation of grid services (over the alternatives)?
- Which part of the above can we concretely achieve in this project? Work is so interesting that we can leave some for tomorrow (and others.)

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FlexiGrid

Who else is impacting the Project Objectives?

- Work Package Basic Ex-Ante Impact Analysis
  - Take each objective that is your reason to be here
  - Those who want to impact it strongest will pitch 2 min to cause the thinking to kick-off
  - Is there one activity group or more that kicks off from this?

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FlexiGrid

What are their reasons to be here?

- Flexi-Grid Objectives/WP Matrix
- Analyse the sub-tasks of the WPs that you noted connections with:
  - either because you have heard from previous slide
  - or because the links are in columns F..O
- How will these define the work of the Activity Groups
  - Do we need to change them?
  - Can these help us define the work of the Activity Groups?

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FlexiGrid

First results from Day 2…

The challenge, key considerations for success, links with the project

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FlexiGrid

The Challenge

- **Proving the business case…**

- Is Flexibility the solution of choice for
  - Solving the decarbonisation challenge? Why?
  - DSOs to invest in? And if yes/no what are the competing alternatives?

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FlexiGrid

Activity Groups

- To work together, not in WP silos
- Activity Groups
  - Define sprints of activity with common short to medium objectives to which several project partners contribute.
  - And thus bring WP tasks to be performed with Project Objective(s) perspective.
- On Day 2 we used the Method defined above to define the challenge, key considerations for success, and how these link to the **FlexiGrid** project.

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FlexiGrid

IMCG

Work Package Basic Ex-Ante Impact Analysis

17/12/2019

Project Objective	WP Impact (1..3) as per Kick-Off Presentations										Total Impact	
	WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	WP9	WP10	30	
1. To develop an integrated architecture	3	1	2	3	2	1	2	1	0	1	16	53,3%
2. To define, test, deploy and demonstrate markets and market mechanisms	3	3	3	2	1	3	3	3	0	1	22	73,3%
3. To drive cooperation between distribution system operators (DSOs), Transmission system operators (TSOs), consumers and generators	3	2	2	1	2	3	3	3	0	3	22	73,3%
4. To deploy smart grid technologies	3	1	3	1	3	2	2	2	3	2	22	73,3%
5. To enable future technical and commercial innovation	3	3	2	3	2	2	3	2	3	3	26	86,7%
108	15	10	12	10	10	11	13	11	6	10		
	13,9%	9,3%	11,1%	9,3%	9,3%	10,2%	12,0%	10,2%	5,6%	9,3%		

4

2

3

1

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FlexiGrid

Method

- For each Project Objective, we asked the Leaders of the WPs that wish to cause the greatest impact the following three questions:
  - What does the objective mean to you in terms of delivering towards flexible grid services?
  - Can you give a good example?
  - What will your WP do to deliver the impact you desire in terms of this project objective?
- The Leaders pitched to the other Leaders and caused discussion and we **captured the considerations upon which there was clear consensus.**
- The **Leaders could take notes that would guide them in their interactions with other Leaders**.
- We presented the findings to the larger group, and will take the **findings as input to design the Activity Groups**.

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FlexiGrid

Structuring Future Work

The Activity Groups: Scope and Timeline

Day 3 Workshop

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FlexiGrid

Who cares about impacting what?

Project Objective	Impact(*) 			Considerations
5. To enable future technical and commercial innovation	2,4,7,9	3,5,6,8		i. Does Flexible have a strong business case? *(And so one that addresses tomorrow's pain points.)*
2. To define, test, deploy and demonstrate markets + market mechanisms	2,3,6,7, 8	4		
3. To drive cooperation between DSOs, TSOs, consumers and generators	6,7,8	2,3,5	4	ii. Climate Change awareness and Cost Efficiency are main drivers
1. To develop an integrated architecture	4	3,5,7		iii. What "state of the art" will be needed in the platform?
4. To deploy smart grid technologies	3,5,9	6,7,8	2,4	iv. What subset of flexible and grid services is interesting to us?

(*) WPs 1 and 10 are facilitating WPs and so impact across all project objectives.

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FlexiGrid

First Take on Activity Groups

- Drawn on basis of considerations
- Will work for 9months and then be revisited
- Will be led by WP Leads to make WPs relevant across the project (note slide 11 which shows how WPs link to Project Objectives)
- Next session will test the idea of four initial Activity Groups, plan the activities and if need be modify the list of Activity Groups to make them effective.

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FlexiGrid

Developing the Activity Group Content

- Take the Flexi-Grid Objectives/WP Matrix
  - First 10 mins with PM to complete it for some WPs where data still missing.
- Then we break off into defined Activity Groups that will each:
  1. Analyse the sub-tasks of the WPs that are included within:
     - Use the notes you took during WP Leads presentations (Day 2) especially re interactions
     - Be guided by the Objectives/WP Matrix: **sub-tasks** and **links to other WPs** (that are in columns F..O)
  2. How will this define the work of the Activity Groups
     1. Are the Activity Groups suggested fit-for-purpose. If not sub-divide.
     2. How do we plan work ahead for next 9 months, next year, the project?

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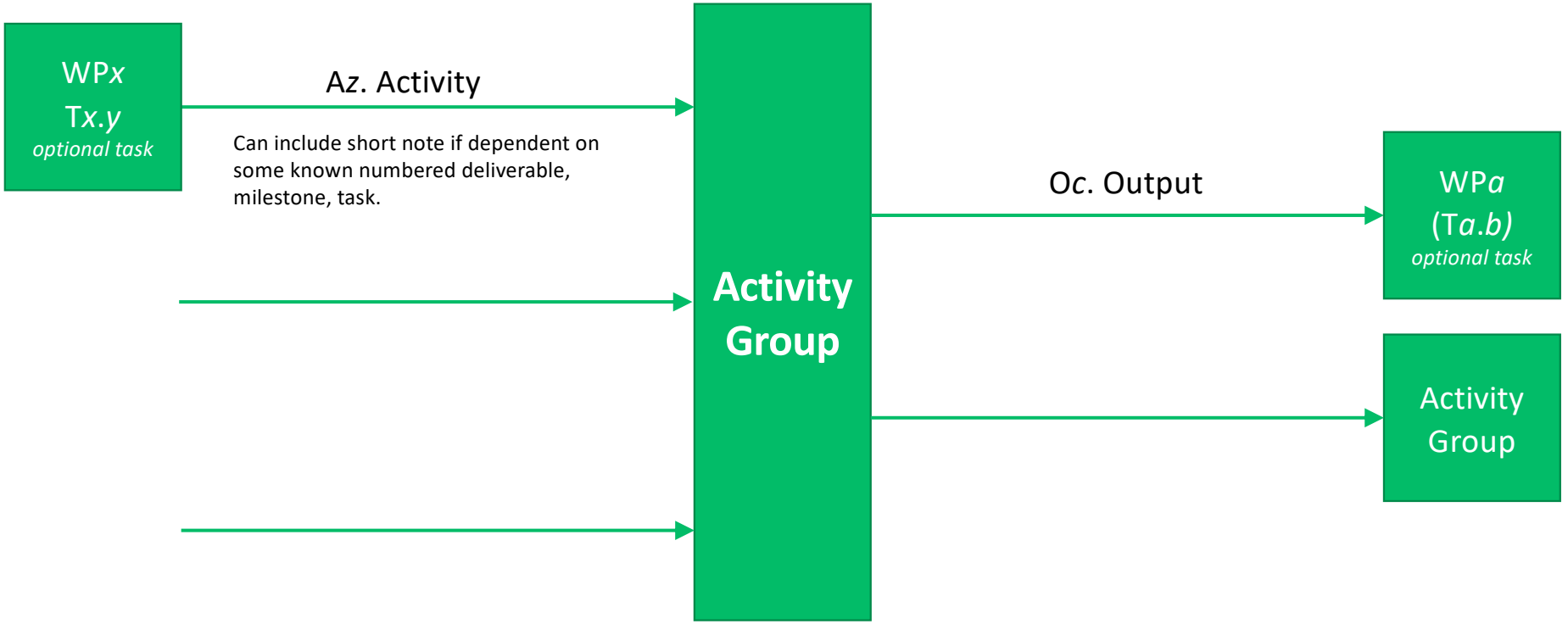
FlexiGrid

Results desired… Slide 1 (Activity)



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FlexiGrid

Results desired… Slide 2 (Timeline)

Activities

Activity	Dependencies	Timeline (mx..my)
Az – Bla bla	…	m1..m2

Outputs

Output and D/M ref.	When?
Oc – Bla bla (Deliverable, Milestone reference in brackets)	m1

2 Slides, each with a table similar to above.

Activities and timelines must match Tasks in Gantt Chart.
If they don't we will amend the Gantt Chart.

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FlexiGrid

Activity Groups (Draft list… agree?)

1. **DSO Needs Analysis**
   - Must at least define “Flexibility” and “Grid Support Services”
   - Must start from definition coming from RISE (Joni?) and if need be help improve it.
   - Must define needs for today and tomorrow
2. **State of the Art Platform Design** and relationship to what we want to deliver over the grid (so link to 1 above)
3. **Market Systems**, as initial parent for:
   - **Business Models** (Cost Effective, Business Sense) Rethink?
   - **Policy** (Climate Change context, Regulatory, etc…)

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FlexiGrid

Activity Groups

Results from the Workshop

Day 3 Workshop

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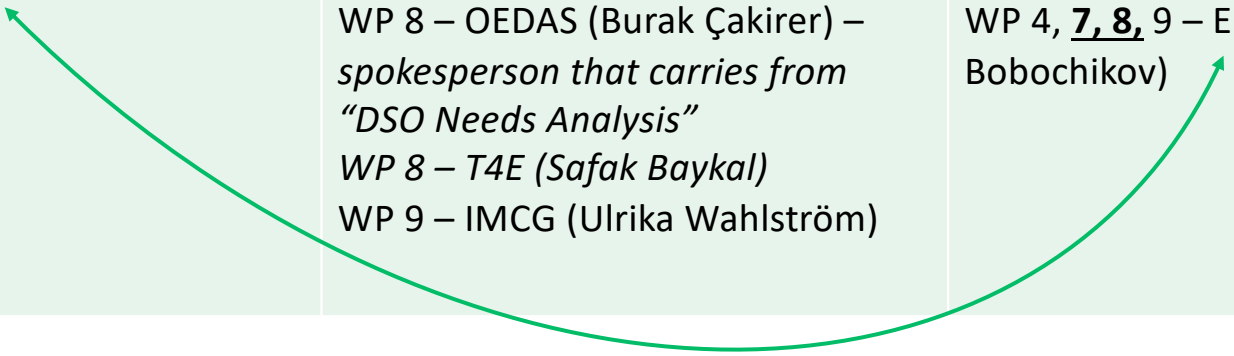
FlexiGrid

Activity Groups

DSO Needs Analysis	State of the Art Platform	Market Systems
Chair: David Steen	**Chair: Carmen Oana**	**Chair: Hjalmar Pihl**
Involving Work Packages:		
WP 1 – IMCG (Lena Holmberg) WP 4 – Siveco (Gabriela Vlaicu) ⟷ WP 5, 6 – Chalmers (David Steen) ⟷ WP 8 – OEDAS (Burak Çakirer) WP 4, **7, 8,** 9 – Entra (Teodor Bobochikov)	WP 3 – TU/e (Phuong Nguyen) ⟷ WP 4 – Siveco (Carmen Oana) WP 5 – Chalmers (Ioannis Bouloumpasis) WP 7 – Emax (Thong Vu Van) WP 8 – OEDAS (Burak Çakirer) – *spokesperson that carries from "DSO Needs Analysis"* *WP 8 – T4E (Safak Baykal)* WP 9 – IMCG (Ulrika Wahlström)	WP 1 – IMCG (Magnus Andersson) WP 2 – RISE (Hjalmar Phil and Joni Rossi) WP 5 – Chalmers (Tuan Le) WP 3 – LIST (Daniel Koster) WP 4, **7, 8,** 9 – Entra (Teodor Bobochikov)



FlexiGrid

DSO Needs Analysis

Activity Group Presentation on **Results Desired**

Day 3 Workshop

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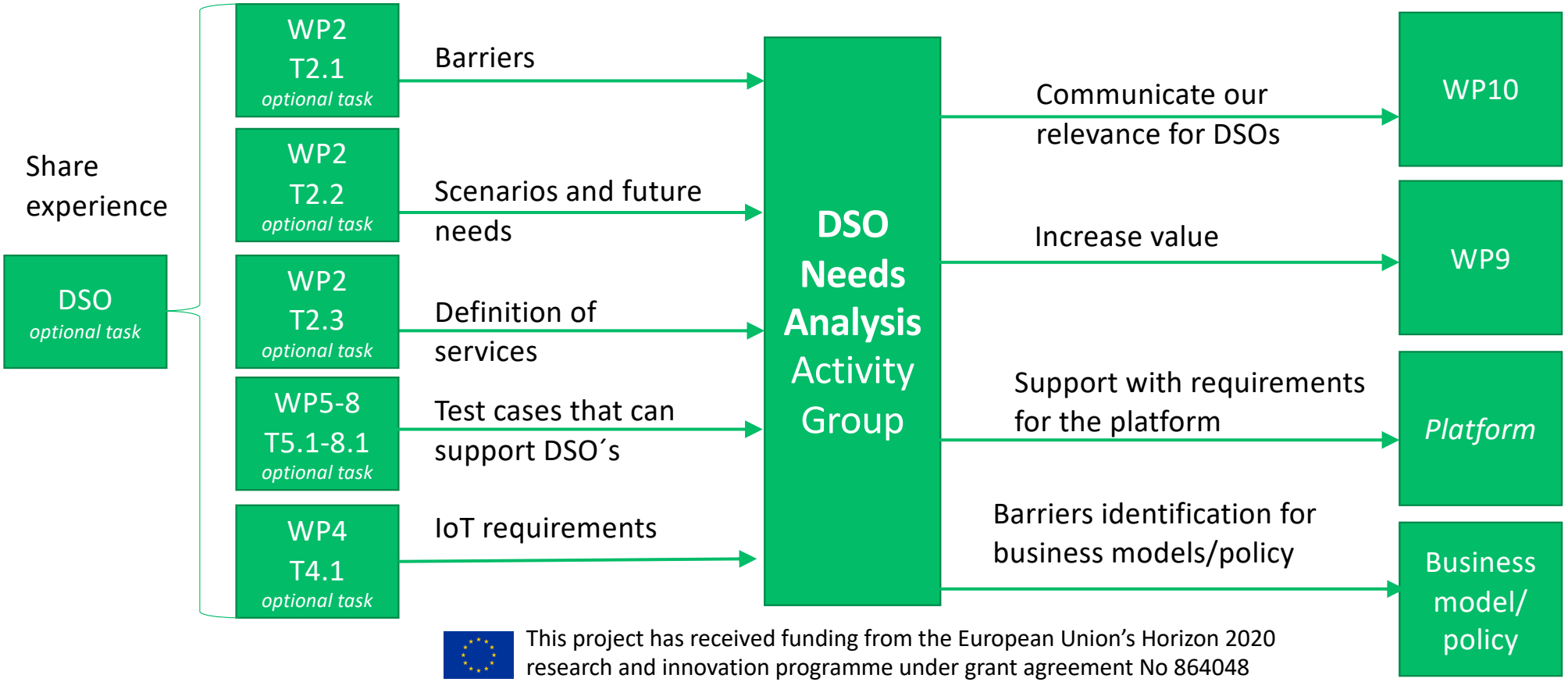
FlexiGrid

Activity – DSO Needs Analysis



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FlexiGrid

Timeline – DSO Needs Analysis

Activities

Activity	Dependencies	Timeline
T5.1, 6.1…8.1 –Defining test cases that are relevant for the DSOs	Needs discussion with DSOs to be relevant, WP2 input	M1-9
T2.1 - Barrier identification	DSOs input	M1-6
T.2.2- Scenarios	DSOs input	M3-9
T2.3 – Defining Grid services	DSOs input	M3-M15
T4.1 – IoT requirement	Input from T5.1-T8.1	M1-M12

Outputs

Output and Deliverable/Milestone ref.	When?
D5.1-8.1 Test cases	Initial definition in M6, final version in M9
D2.1 – Barriers	M6
D2.2 – Scenario definition	M9
D2.3 – Defining services	M15
D4.1 – IoT requirements	M12

The “DSO needs” Activity Group aims to keep the project relevant for the DSOs. It primarily concerns work related to tasks 2.1 – 2.3 and 4.1 – 8.1. The activity group will arrange calls for discussing the work in these tasks with a wide group of project partners. The responsibility for leading the tasks remain with the work package and task leaders. Therefore, the role of this activity group is to facilitate discussions and communication.

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FlexiGrid

State of the Art Platform

Activity Group Presentation on **Results Desired**

Day 3 Workshop

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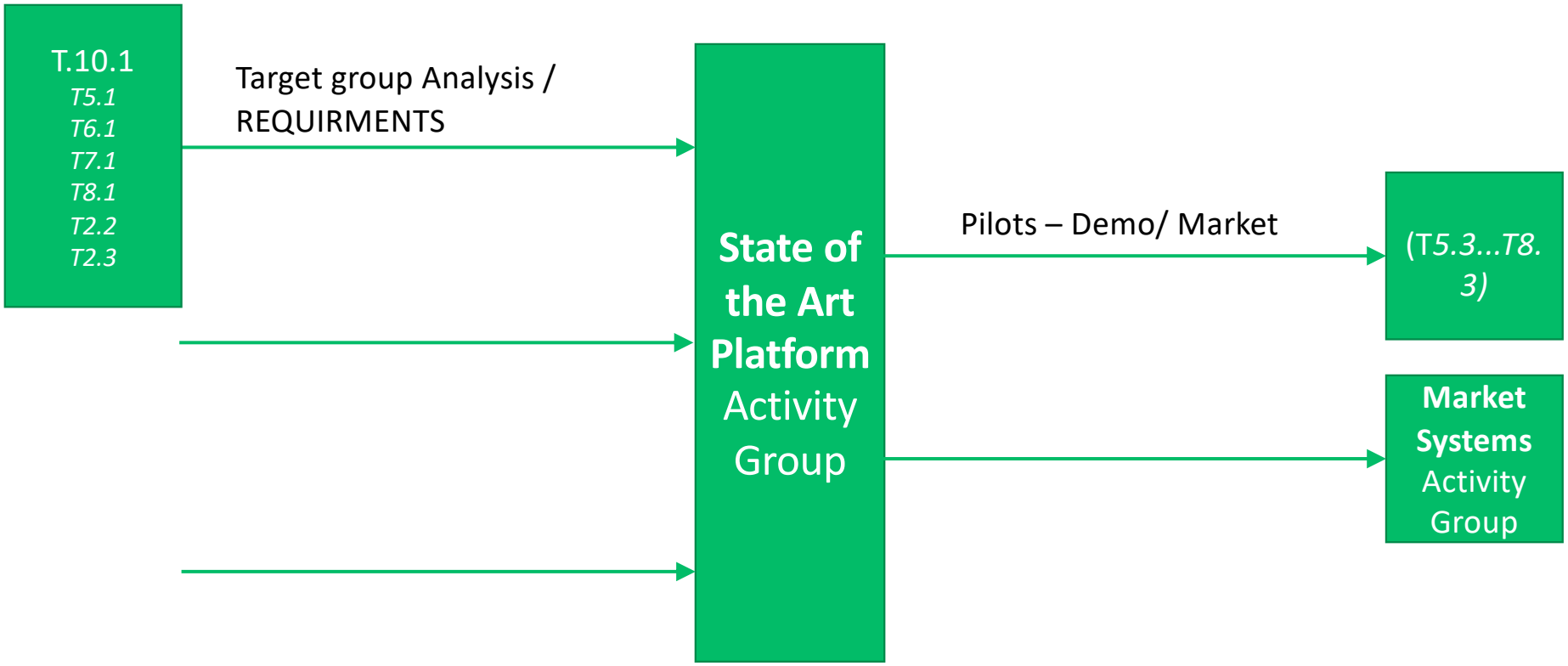
FlexiGrid

Activity – State of the Art Platform



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FlexiGrid

Timeline – State of the Art Platform

Activities

Activity	Dependencies	Timeline
Collecting the Requirments and build the architecture concept	T2,2/2.3/5.1...8.1/D10.1 (Indirectlly will be used WP3)	M9/M12/M2

Outputs

Output and Deliverable/Milestone ref.	When?
D2.2, D2.3, D5.1....D8.1/D9.2/D10.3 D4.1/D4.2	M12

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FlexiGrid

Market Systems

Activity Group Presentation on **Results Desired**

Day 3 Workshop

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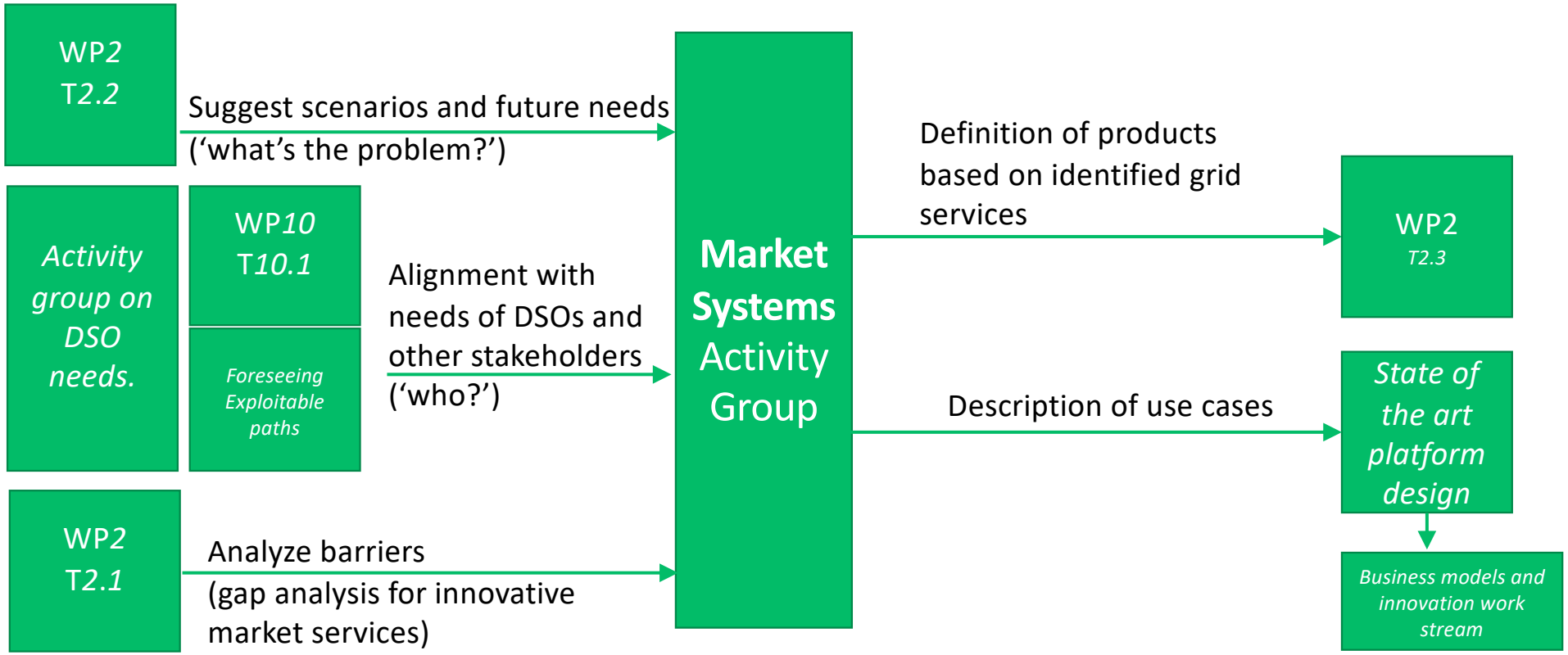
FlexiGrid

Activity – Market Systems



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FlexiGrid

Timeline – Market Systems

Activities

Activity	Dependencies	Timeline
Identifying potential services (task 2.2)	Coordination with 5.1 – 8.1	M3..M9
Analysis of barriers (task 2.1)	Coordination with 2.2	M1..M6

Outputs

Output and Deliverable/Milestone ref.	When?
Report on barriers (D2.1)	M6
Report scenarios/design of grid services (D2.2)	M9

The Market Systems Activity Group is an activity group for the early stage of the project. It primarily concerns work related to tasks 2.1 and 2.2. The activity group will arrange calls for discussing the work in these tasks with a wide group of project partners. The responsibility for leading the tasks remain with the work package and task leaders. Therefore, the role of this activity group is to facilitate discussions and communication.

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FlexiGrid

Thank-you

Further questions for **FLEX-GRID**
Work Package 1

may be addressed to Magnus Andersson

magnus.andersson@imcg.se

IMCG

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