04 October 2023 | GRIFOn

WP11: From OneNet demonstrators to EU wide implementation of coordinated market schemes and interoperable platforms for standardized system products

T11.5: Business model analysis of OneNet solutions

WP leader: Comillas Pontifical University

Task leader: Comillas Pontifical University

Core partners: **Comillas, VITO, RWTH, Eredes, UFD, UBE, EDSO, ENTSO-E,UoA,IDAE**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 957739

Agenda

- Overview of activities
- Results
- Next steps

Task 11.5: Overview of activities

Main objective: assessment of the business models (BM) for the Use Cases in the project.

Subtasks:

- T11.5.1. Review of the relevant BM assessment methodologies and selection of the most appropriate one
- T11.5.2. Definition and description of the Business Models within BUCs in OneNet: the specific BMs to analyse, associated with the BUCs in the Project, are identified, and their main features are described. BMs are mapped to cover the main stakeholders in flexibility markets.
- T11.5.3. Interaction with clusters: to draw information used for BM definition, description and analysis
- T11.5.4. Assessment of the BMs defined: considering the regional context and according to the methodology previously selected

Task 11.5: Overview of activities

Main objective: assessment of the business models (BM) for the Use Cases in the project.

Main Subtasks:

T11.5.1. Review of the relevant BM assessment methodologies and selection of the most appropriate one

T11.5.2. Definition and description of the Business Models within BUCs in OneNet

T11.5.3. Interaction with clusters

T11.5.4. Assessment of the BMs defined (considering the regional context)

Subtask	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38
11.5.1																			
11.5.2																			
11.5.3																			
11.5.4																			

Current Time

Task 11.5: Results → description of the methodology applied

- Methodology for the description of BMs: Osterwalder's Canvas
  - Description of the main BM features along certain dimensions: Value Proposition, Value Creation and Delivery, and Value Capture
- Methodology for the definition of each BM: identification of the role that this BM should focus on
  - One BM per BUC, while covering all the relevant roles in flexibility markets, and having several BMs focused on the main roles
- Each BM has been assessed according to three dimensions:
  - Compatibility of this BM with the regulation in place in the corresponding country
  - Strategy for the engagement of critical stakeholders (high power over the implementation of BM but low interest in it)
  - Comparison of BMs focused on same stakeholder but implemented within different countries

Task 11.5 Results: definition of BMs

- One BM per BUC, focused on one relevant role within the latter, if possible
- Trying to have several BMs focusing on the most relevant roles related to the implementation of flexibility markets

Demonstrator	Business use case (BUC)	Central actor considered in the corresponding business model (BM)
Czech	EACL-CZ-01	Aggregator
	EACL-CZ-02	Distribution System Operator
Cypriot	SOCL-CY-01	Aggregator
	SOCL-CY-02	Distribution System Operator
French	WECL-FR-01	Distributed Energy Resources
	WECL-FR-02	Transmission System Operator
Greek	SOCL-GR-01	Distribution System Operator
	SOCL-GR-02	Weather Forecast Provider
Hungarian	EACL-HU-02	Flexibility Service Provider

Task 11.5 Results: definition of BMs

Demonstrator	Business use case (BUC)	Central actor considered in the corresponding business model (BM)
Northern	NOCL-01	Flexibility Platform Operator
Portuguese	WECL-PT-01	Flexibility Service Provider
	WECL-PT-02	Transmission System Operator
	WECL-PT-03	Market Operator (Technical)
Slovenian	EACL-SL-01	Flexibility Service Provider
	EACL-SL-02	Market Operator
Polish	EACL-PL-01	Metered Data Collector
	EACL-PL-02	Optimization Operator
	EACL-PL-03	Flexibility Platform Operator
	EACL-PL-04	Transmission System Operator
Spanish	WECL-ES-01	Market Operator
	WECL-ES-02	Distributed Energy Resource

Task 11.5 results: regulatory barriers to BM implementation

Type of Barrier	Subtype of Barrier	Description
Lack of relevant regulation	Non existence of Local FM	Not possible to implement most BMs if flexibility markets do not exist (SP, PT (for other than balancing), LV(NO), GR, CY, PL(only integrated sched. process for CM and Balancing), CZ, SL)
	Main roles in flexibility markets not defined	- Independent Aggregator (SP, LV(NO), CZ, HU(exist but regulation for them is being further defined)) - Independent Market Operator (SP, NO, GR, CZ, SL, HU) - Flexibility Register Operator (NO) - Optimization Operator (NO)
	Lack of regulation on key aspects of market functioning	- Relationship among Aggregator, BRP, and Supplier: compensations (NO, GR, PL) - CBA for non-investment options (flexibility) (PT) - Financial compensations for flexibility provision (between FSPs and SO) (NO, GR, CY) - Appropriate flexibility pricing schemes: joint vs. separate (NO, SL(separate pricing), HU(separate)) - Measurement of flexibility available and provided: baselining, observability (SP, PT, GR, CY) - Cost allocation rules across services and SOs (NO) - TSO/DSO coordination (prequalification, registration, product definition, data exchange between markets) (SP, NO, GR)

Task 11.5 results: regulatory barriers to BM implementation

Type of Barrier	Subtype of Barrier	Description
Lack of relevant regulation	Lack of regulation on key aspects of market functioning	- Integration into European markets: product harmonization to the extent that is reasonable (NO) vs. product differentiation to cover the system needs for each service - Submetering and other metering constraints, and harmonization (SP, PT, NO, GR) - Access to data on consumers and other stakeholders (privacy, cybersecurity, third party access) (NO, CZ, SL) - Data management harmonization across stakeholders responsible for this and markets (NO, GR) - Mixed (load and generation) flexibility portfolios (SP) - Balancing Responsibility aggregation (at portfolio level) (GR) - Demand participation in flexibility markets (GR (other than balancing))

Task 11.5 results: regulatory barriers to BM implementation

Type of Barrier	Subtype of Barrier	Description
Lack of economic incentives to procure flexibility	Lack of appropriate remuneration schemes	- Capex vs. Totex (SP) - Specific schemes for risky investments in immature/innovative technologies (PT)
Lack of additional schemes for mobilization of flexibility	Lack of appropriate pricing schemes	- Appropriate network pricing schemes (SP, GR, PL, CZ, SL) - Energy pricing: Time varying, Dynamic… (GR, PL, CZ, SL) - Coordination between these and flexibility markets is needed (SP, GR, PL, CZ, SL)
Ownership and/or operation of DERs by the SOs	Reduced market liquidity or flexibility portfolio	- Allowing ownership/operation of DERs could discourage participation in markets (NO (some coutries), HU(for storage)) - Not allowing it could limit flexibility options to address system needs (SP, NO (some countries), GR, PL, CZ, SL, HU(for generation))
Barriers to the participation of (small) agents	Reduced market liquidity and agent discrimination	- Constraints on small agent participation (NO, CY, PL, CZ, SL(TSO services)) - Additional costs (like transaction ones) for agents in local flexibility markets (NO, PL(for BRPs)) - Disproportionate costs for small agents (NO, PL) - Controllability requirements (NO, CZ, SL(TSO services))
Access to data	Market power in access to metering data	Incumbent restricts access of newcomers to data required for flexibility provision (SP, GR, PL, CZ, SL)

Task 11.5 results: engagement of critical stakeholders

Type of Critical Stakeholder	Measures to implement
National regulatory authorities and governments	• Providing comprehensive information on costs and benefits of implementation of the solution concerned for the system, the citizen, and society as a whole (also in dedicated meetings) • Support the implementation of Regulatory Sandboxes to gather evidence of these benefits and costs in a controlled environment • Provide them with advise on regulation conducive to the wide use of flexibility markets
Local associations of consumers, authorities, or interest groups	• Providing conprehensive information, through various well functioning communication channels, on local benefits of flexibility provision and its advantages over undertaking alternative, traditional, investments • Advocating the implementation of regulation conducive to the wide use of flexibility solutions in the BM

Task 11.5 results: engagement of critical stakeholders

Type of Critical Stakeholder	Measures to implement
BRPs, Retailers	• Appropriate compensation mechanisms for imbalances • Defining clear regulation on the relationship among them and aggregators • Foster competition in retailing and flexibility provision to encourage their participation in the solution • Deployment of Smart meters and settlement based on measures from them
TSOs/DSOs	• Remuneration schemes considering also operation costs and not only investment ones • Providing information on all types of benefits they would get from solutions, also involving increase in security • Consider the application of compensation schemes, if needed

Task 11.5 results: engagement of critical stakeholders

Type of Critical Stakeholder	Measures to implement
Small FSPs	• Decreasing their costs and burden of participating in flexibility markets • Limiting entry barriers and providing measures to overcome them (aggregation) • Make them aware of the benefits they will get from these solutions (all FSPs) • Deploying Smart Meters • Implementing clear regulation on the remuneration of flexibility provision
Sectorial Associations	Showing the benefits to them of the solutions proposed
Conventional and large generation / utilities	• Showing them the benefits they would get out of their participation in flexib. markets • Mandating the provision of flexibility by RES based generators as well • Advocate implementation of compensation or incentive mechanisms

Task 11.5 results: engagement of critical stakeholders

Type of Critical Stakeholder	Measures to implement
Large Industrial Consumers	• Provide comprehensive information on the benefits they could get • Promote the implementation of flexibility solutions tailored to their needs

Task 11.5 results: impact of context on role played by stakeholders

Stakeholder	Impact of Context
TSO	BUCs and BMs emphasize the activities that the TSO may need to engage in with different stakeholders, always playing the same role as procurer of flexibility services: • Other TSOs or DSOs for coordination and definition of relevant products • FSPs for proving their ability to deliver the service concerned (Balancing, or others)
MO	• All BUCs and BMs highlight the role of the MO as provider of the means to match the flexibility needs and offers, also providing the results of this match • They focus on two different flexibility services to address either the system operational needs or long term planning ones
FSPs	• The role played by FSPs is common to all BUCs. • However, the use made of the flexibility provided differs by BUC: operational issues or proactive planning. • In some specific contexts (BUCs), the importance of coordination among areas (SOs) for flexibility provision is emphasized

Task 11.5 results: impact of context on role played by stakeholders

Stakeholder	Impact of Context
DSO	• The central role played by the DSO is common to all the BUCs: determination of the required flexibility and procurement of it through market means • One BUC/BM highlights the relevance of the acquisition of appropriate information (weather forecasts) to determine flexibility needs • Different flexibility services are considered (voltage control, congestion management)
Aggregator	• Both BMs discuss the same role of the Aggregator as manager of the provision of flexibility to the system by a portfolio of resources • But in one BUC the role of a trading platform in the flexibility market is emphasized, while the other focuses on direct interaction of Aggregator with SO ➔ both are possible • The flexibility services delivered differ by BUC (CM vs. Balancing)
FPO	• One BUC focuses on operational role of platform within the flexibility market, while the other focuses on processes increasing the efficiency of the functioning of the platform and enlarging its functionality • Different partnerships are needed in each (1. market stakeholders vs. 2. IT developers, researchers and policy markers)

Task 11.5: Next steps

- Quantitative assessment of flexibility markets: Conducting a full-fledged quantitative assessment of the net social welfare created by the BMs and the profitability of their implementation for the main stakeholders involved was not possible
  - Instead, some estimates of the benefits of the implementation of flexibility markets are being collected from documents reporting on the analyses conducted in previous projects

Thank You

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