Executive summary

The current deliverable D2.6 "SYNERGY Framework Architecture including functional, technical and communication specifications v1" reports the preliminary efforts and the produced results of Task 2.4 "Detailed architecture design, protocols and interfaces specifications for Big Data-enabled Energy Services" of WP2 "Use Cases, Business Requirements and Architecture Design". The purpose of this deliverable is to deliver the first version of the overall conceptual architecture of the SYNERGY platform, as well as the early design specifications of the SYNERGY platform's components, building on the use cases and requirements analysis, the regulatory framework analysis and the data landscaping activities in WP2 (as documented in D2.1, D2.3 and D2.5, respectively).

Within this context, the scope of the current deliverable can be described in the following axes:

- **To document the overall conceptual architecture of the SYNERGY platform**. Towards this end, the detailed documentation of the three core layers of the architecture, namely the SYNERGY Cloud Infrastructure, the On-Premise Environments and the SYNERGY Energy Apps Portfolio, is presented, highlighting their core elements and role in the overall architecture. Additionally, the overview of the included data-driven services bundles and energy apps that compose these three layers are presented. In total eight (8) service bundles and thirteen (13) Energy Apps are documented, focusing on their role and overall offerings in the SYNERGY platform. Furthermore, the complete list of components is presented, highlighting their concrete context and positioning within the overall architecture. Finally, the list of roles and users of the SYNERGY platform is defined.
- **To present the detailed SYNERGY platform's workflows.** The platform's workflows present the various functionalities which are offered by the SYNERGY platform from the user's perspective. The workflows, 11 in total, are presented in the form of BPMN diagrams that depict the user's interactions with the SYNERGY platform and how these interactions are internally translated into component's interactions that are combined in order to provide the aspired platform functionalities. The workflows are organised into three main categories, namely the data check-in, the data search and sharing and the data analytics workflows. Under each category the respective platform's functionalities and interactions are presented.
- **To present the detailed design specifications of the SYNERGY platform's components.** The complete list of components of the SYNERGY platform, containing fifty eight (58) components in total, is presented, organised by the three core layers of the architecture. For each layer of

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the platform's architecture, the components are presented based on their involvement in the respective data-driven services bundle or the Energy Apps. For each component, the scope and the role in the platform is elaborated and the list of features that the component offers is presented. Furthermore, the list of addressed SYNERGY requirements of each component is presented accompanied by the list of technologies that will be leveraged for their implementation.

- **To document the mapping between the SYNERGY platform's architecture and two core reference architectures.** In detail, the alignment of the SYNERGY platform's architecture with SGAM and BDVA Reference Architectures is documented, highlighting how the SYNERGY platform's architecture is mapped to the different aspects of these core reference architectures.

The current deliverable presents the first version of the overall conceptual architecture of the SYNERGY platform and the platform's components. However, the design process of the SYNERGY platform's architecture is a continuous process which will last until M24 per the SYNERGY Description of Action. Hence, Task 2.4 will remain active and closely monitor the development activities of the SYNERGY platform in order to collect additional requirements that may arise as a result of performed activities in WP3-WP7 and as a result of the analysis of the feedback that will be collected from the SYNERGY stakeholders. To this end, the updates and refinements that will be introduced will be incorporated and documented in the final version of the current deliverable, namely the deliverable D2.7.

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