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Smart Services Assessment for Energy Communities

INITIAL SITUATION

Recent regulations in the German energy industry foster projects related to demand management and the rise of **Smart Energy Communities (SMECs)**. SMECs consist of a group of households with different electric loads and technologies, managing generation and demand in the community.

Different technologies support smart services in SMECs to manage their supply and demand. Information Systems (IS) provides data acquisition infrastructure, algorithms, data reports and user interfaces for visualization and configuration. IS-based smart services could improve a SMECs control system, optimizing production and predicting demands. Investment limitations from local networks require prioritization of these services, based on their potentials and drawbacks.

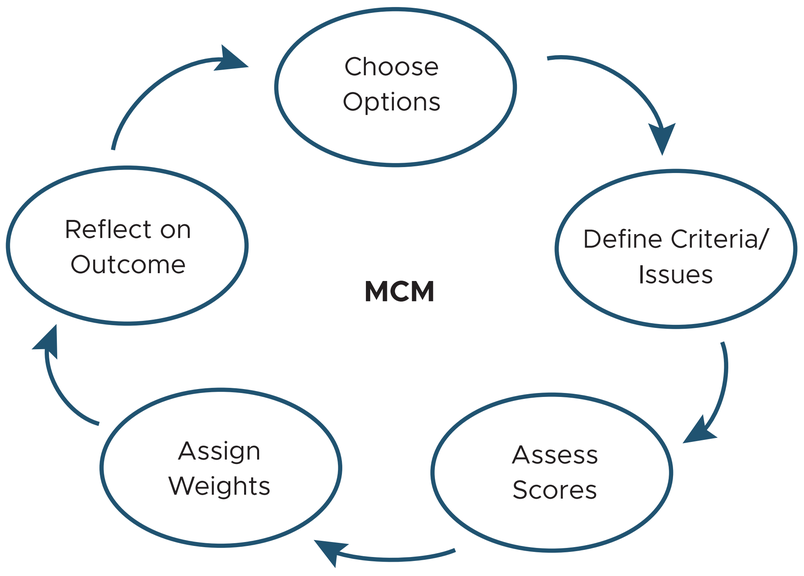

Figure 1 Research Steps from MCM

METHOD

This study used the **Multicriteria Mapping Method (MCM)**, which follows rigorous steps to design the analysis' process and provide relevant insights on technology assessment. Stakeholders assessed eight smart services according to their potential for the communities, taking into consideration different criteria, such as final consumer; external factors; relevance; economic and ecological perspectives.

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RESULTS

Results show a positive view from stakeholders regarding the use of measured data for applications, investment opportunities and optimization of production and consumption, as they foresee a positive scenario for data analysis and insights on consumption. On the contrary, they seemed more skeptical about energy mix selection and peer-to-peer trading, as communities already exist and there is a lack of genuine marketplaces. The stakeholders also mentioned the price-sensitivity of consumers, which might affect the relevance of an energy proof-of-origin.

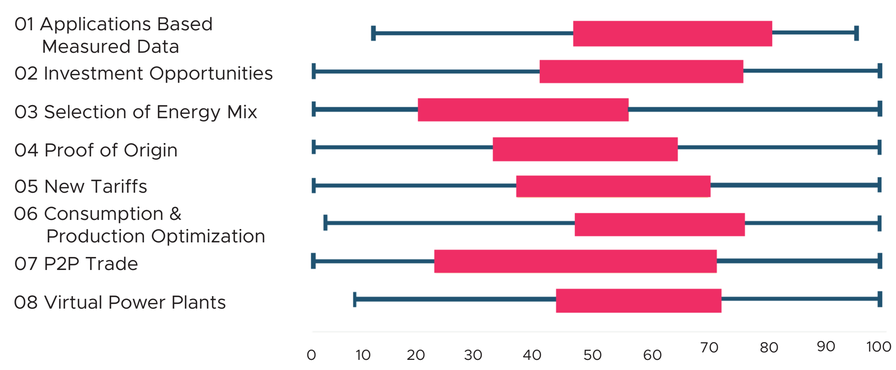

Figure 2 General ranking of options (n=15)

PRACTICAL

This work contributes to the development of future smart services and digital ecosystems platforms in the energy industry by providing insights on prioritization of these services. New IS solutions could focus on the priorities for SMECs by providing systems able to acquire, integrate and analyze data to support optimization of production according to consumption demands, as well as support investments. Consumer data analysis is required to develop such system through customer-centric approaches - expertise from the Social CRM Research Center.