sgem
Smart Grids and Energy Markets

Empower Oy - Deliverable for SGEM 2nd financial period Task 6.8

Empower's aims for the second funding period were the following:

- Study how employees and subcontractors can be managed as distributed resources in Smart Grid environment, and
- Study what are the catalysts and anticipated obstacles when new collaborative IT-systems are taken into use in a multi-utility environment.

Our deliverable was to define a concept of employee and subcontractor management as single set of resources. During the second funding period of SGEM, Empower tested different ways of working with several subcontractors. We also did ground pilots to test Tampere University of Technology's research in practice.

The tested concepts included

- In-sourced experts working on special tasks,
- Close partnership with subcontractors, and
- Out-sourced work orders, managed independently by subcontractor.

Next concepts are described in more detail. Benefits and disadvantages are discussed shortly.

In-sourced experts: Single set of distributed resources

One concept that we tested was in-sourced experts in our own teams. The in-sourced experts were part of team and they helped with tasks that demanded special knowledge.

In-sourced model had slight problems, because ways of working differed between our own people and external experts. We believe that this problem can be taken care by making the processes more transparent and explaining what kind of information must be reported. Also work experience plays a big part.

Benefits included faster end-to-end trough put time in tasks. The concept provided to be especially beneficial in tasks where work could be done in batches. During the testing, overall work satisfaction was bit better, because there was less wasted time at the installation sites.

Close partnership with subcontractors on bigger projects

Close partnership with subcontractors was defined as transparency to work loads and amount of free resources. It also included day-to-day communication how projects are proceeding and if there are delays. This way of working was applied on bigger projects, because small work order based tasks were too short to see any benefits from this model.

This model provided good benefits as it increased the visibility how the projects proceed. Daily information flow was faster and more details about the projects was gathered. The downside was that this model depends heavily on IT-systems. IT-systems on the subcontractor side are not necessarily sufficient for this

kind of collaboration. Also some customer's systems can be an obstacle, if the interfaces are not technologically advanced enough to make information flow between systems.

One of the obstacles in this model was that people needed some time to get used to the new systems. We noticed that easy and intuitive user interface helps to soften the learning curve. To increase the motivation, we tried to provide tangible benefits also for the users. This included quick and simple reporting of daily tasks.

Outsourced work orders

We also tried a concept where work orders were completely handled by an external subcontractor. After the ticket arrived, they handled the whole process all the way back to the customer.

In these cases, field engineers or teams received the work orders, which included all the needed information to make the connections on the field. After finishing work, the work orders were checked out to notify customer that the work was completed. In the case that used external subcontractor, the subcontractor used our software platform to make the needed check outs for the work orders.

Subcontractor model provided nice flexibility for really crowded periods of time. It was also usable in geographical areas that had a lot of volatility in the work volumes. This model still needs more work and enhancement, especially in ways how to mitigate risks if work orders are checked out late.

We also tested a model were field engineers from many different areas were handled by centralized shift managers. This has been problematic in the past because local knowledge has been very important aspect in shift manager's duty. However, current map based services help to tackle this problem. In addition to this, also people's skills have to be managed efficiently because shift managers and field engineers might not know each other in this kind of model.

Conclusion

We conclude that many technologies available today, can help to increase transparency between different teams and goals. Still there is much work to be done, so that different technologies can be combined as efficient tool.

As the aim is to control bigger teams efficiently, much more information must be distributed between individuals and teams in future. New software systems can help with this kind of information flow. However, when designing such systems, usability must be given high importance because the amount of new information can easily overwhelm the users if the system has not been designed with care.

We received a lot of positive feedback along with some negative remarks. Negative feedback was concentrated mostly around the bottleneck resources. This gave us lots of new information how to deal with a system that has to be kept in good balance so that it works efficiently.

These demo models were used only for a small amount of time to gather information. In the long run, it can be seen that this kind of systems can increase efficiency and make projects finish faster.

In future the aim is to pull together the best parts of different ways of working. This information can be used to create new kind of service business ecosystem. In the ecosystem there is a need for many

standardized interfaces between contractors and customers. The overall ecosystem can provide a platform and services for customers and contractors.