Case Design Sheet

1. CASE DESCRIPTION

TITLE: Sensor based maintenance of HVAC equipment

PARTNER	LOCATION	TIME/DURATION
BOC	Poland	2018-now

2. DIGITAL TRANSFORMATION CHALLENGE

2.1. BUSINESS TRANSFORMATION

Modern companies are facing many challenges. Some of them are related to customer or employee-experience, others to cost aspects and now more and more often to eco-friendliness.

Company A is offering Facility Management services for thousands of locations throughout the Europe. Customers of Company A are often retail or production companies as well as service providers (including banks and telecoms).

One of the most important aspects of the Company A offer is maintenance of HVAC (Heating, Ventilation and Air Conditioning) equipment.

Traditionally when the equipment broke customers had to call Company A to order visit of a technician. However, this approach is no longer valid.

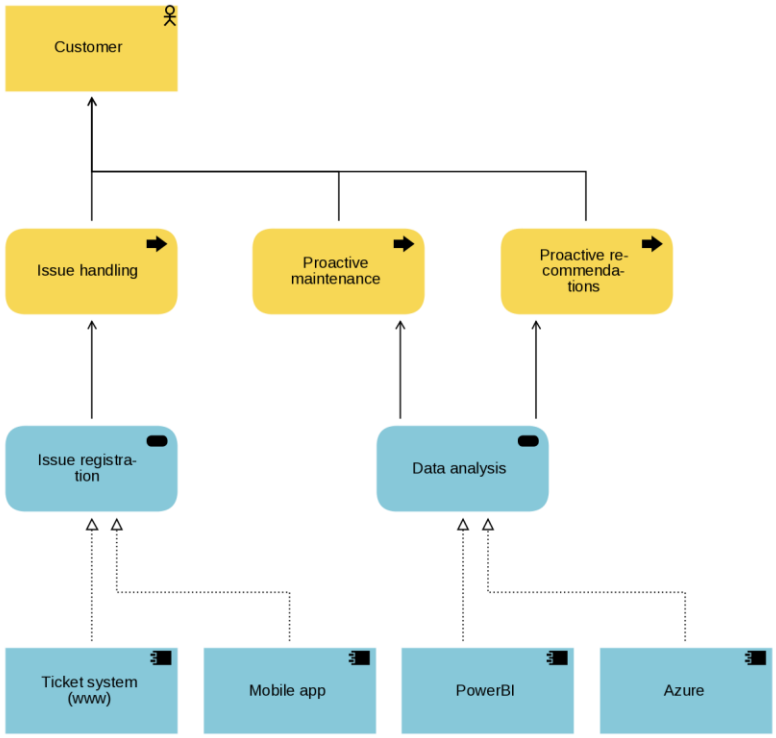
For retail and service companies failure of HVAC can lead to decreased satisfaction of their customers. For all of the sectors it also leads to decreased satisfaction of their employees and sometimes also to tangible losses due to e.g. malfunction of equipment which requires special conditions to operate properly.

Additionally, customers are more demanding and do not accept long waiting times. Since it is not viable to hire excess technicians for situations of unexpected breakdowns at many customers at once Company A had to rethink their approach to make better use of their resources while also offering more value (not to compete on a low-cost basis only).

2.2. CONCEPTUAL TRANSFORMATION

Company A decided to embrace Digital as a new way of operating. They also re-imagined the role they play: from a company providing maintenance to a reliable partner, who can not only make sure HVAC equipment works smoothly, but also on a basis of data from sensors processed by BI (Business Inteligence) and Big Data solutions can act as a trusted advisor helping customers reduce their energy consumption (which both helps them show they are eco-friendly and allows them to save money) and optimize the way HVAC equipment is used. From an internal perspective Company A decided to

move from a reactive to proactive maintenance on a basis of data which allows much better use of skilled technicians.
In order to plan this transformation, they used EAM tool to create ArchiMate diagrams similar to the example below.



2.2. TECHNICAL TRANSFORMATION
From a technical point of view Company A had to develop some new skills. For some years already customers could not only call or send e-mail about problems with equipment but also send ticket via special website provided by Company A.

However experience showed that often those reports are sent too late when equipment is already broken and needs extra work to fix plus they lack details, so that technicians do not have a complete picture of what is going on which requires some more time from their side.

Therefore, in addition to the traditional channels, Company A decided to offer also mobile apps (iOS and Android) which allow customers to report tickets (also with pictures taken with a smartphones) and provide overview to what is happening.

In order to allow proactive approach Company A decided to equip customer locations with mini-servers connecting with sensors linked with the installed equipment. Usage of IoT allows not only to

check basic parameters such as temperature and energy usage, but also vibrations. To use the data from sensors both BI and Big Data is used.

3. SOLUTION

Company A decided to offer their customers extended service where they not only maintenance the equipment, but also offer insights into current usage of the equipment and energy using BI technology via special management dashboards. Big Data analysis allows not only to send technicians before the customer even notices that something may be wrong with the equipment (which lowers costs for Company A, but also increases customer satisfaction since they do not have to deal with disrupted business due to equipment malfunction), but also suggest change of usage in order to avoid wasting energy.

4. KEY SKILLS AND COMPETENCES

- Mobile application development
- BI
- Big Data analysis
- IoT (including IoT security)

5. RESULTS

Company A is still working on extending the described solution, but it has already proved to be very useful. It allowed Company A to grow profit by over 50% in comparison to situation before the implementation started.

Insights provided by Company A allow customers to significantly cut costs of electricity (around 10% on average).

6. CONCLUSIONS AND RECOMMENDATIONS

Experiences of Company A show that better usage of data offers many benefits

- Faster contact with customers via mobile applications which also helps get the needed information before technician shows up at the customer location
- Usage of data from sensors allows proactive actions instead of reactive which lowers costs and increases customer satisfaction
- Data analysis can also help offer value-adding services
- However all such services need to be implemented with security in mind!

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7. REFERENCES

Read also:

- https://www.govtech.com/fs/Company-Invests-Millions-in-Using-Tech-to-Transform-HVAC-Industry.html
- https://azure.microsoft.com/de-de/blog/digital-transformation-with-azure-iot/

8. APPENDICES

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