Application/Software/Service Package-based IS Development

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1 REVIEW (MOBILE TECHNOLOGY IN FIELD OF SERVICE)

In this article the authors describe how to solve the key problems for sales processes in a company by using modern technology. The research approach was to re-engineer the ordering and sales processes of a case company and to shorten the ordering and billing cycles of the company's field sales. To start with the project it was necessary to find a solution of how data generated outside the office could be entered in real time to the Enterprise Resource Planning (ERP) system. The best idea was to use the mobile phones of the employees to deliver the data directly to the ERP system. The research process followed the client-system infrastructure investigated by Baskerville in the year 1999 (see **Figure 1**). It is to mention that the client-system infrastructure investigated by Baskerville (1999) "is the specification and agreement that contributes the research environment". Furthermore, it helps the researchers by specifying actions.

1) Diagnosis

In the diagnosis process it is necessary to define the problems of the current sales processes. The authors describe their diagnosis with the help of a case company Amer Tobacco. Amer's clients are food businesses. Ordering and invoicing is done when the product is delivered with a van. An invoice is written by hand on a carbon

copy paper pad. Twice a week, the sales representatives send their invoices by mail to the Amer office where a secretary enters the invoicing data into an ERP system. The main problems of this process is that it takes some time until the invoices arrive at the office. Furthermore there is a risk of typos when the secretary enters the data into the ERP system.
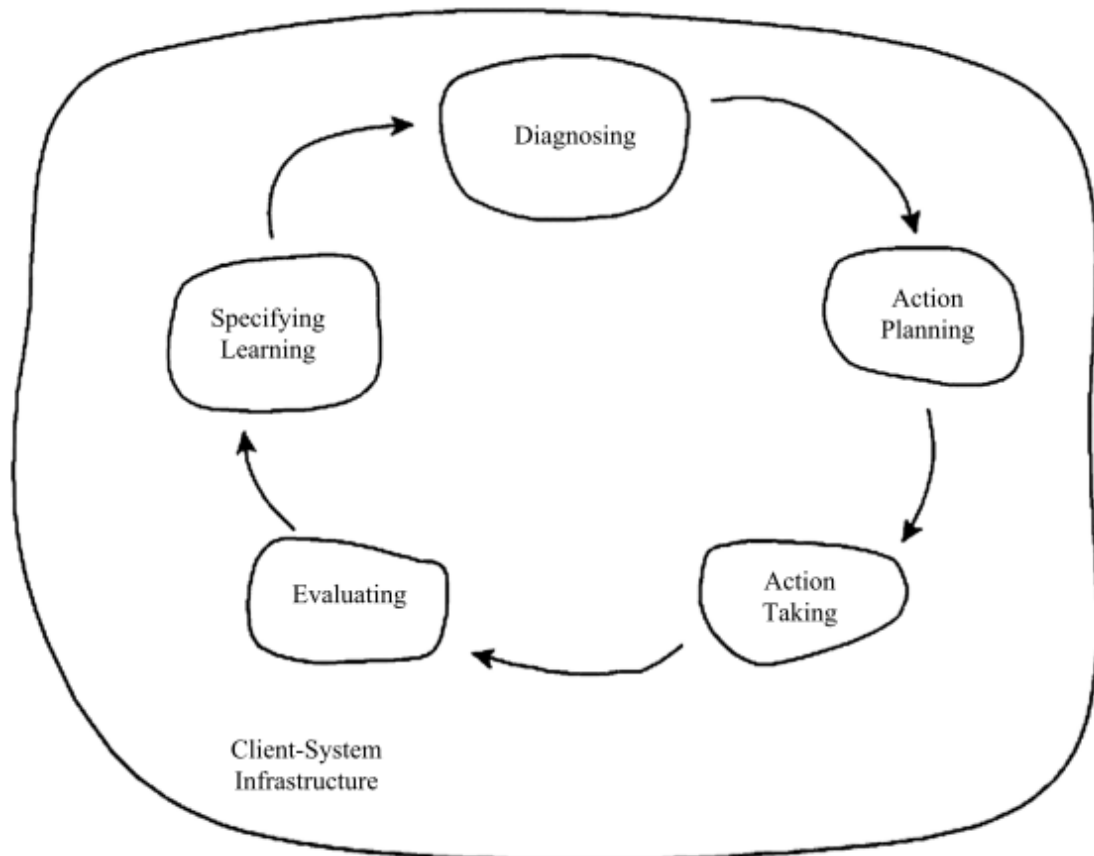

Figure 1. Action research cycle (Baskerville 1999.)

2) Action Planning

The first idea was to transmit the invoice data from the sales representatives to the ERP server by using the Transmission Control Protocol / Internet Protocol (TCP/IP). However it is not secure to transmit data over the public Internet. In addition it would be challenging to develop a user interface that is visible and easy to handle on a screen of a mobile phone. Moreover it would take time for the sales representatives to learn using the software that sends the entered data directly to the server. Finally the researchers decided to use the cellular network to transmit the data from the mobile phone to the server.

3) Action Taking

In this process the researchers describe the development of the mobile field sales system. According to the authors "the decisions were made so that the risks of and learning curve for the new technology were minimized". Amer's solution was to use standard Short Message Service (SMS) over the Global System for Mobile Communication (GSM) network. **Figure 2** illustrates the structure of Amer's new IT solution.
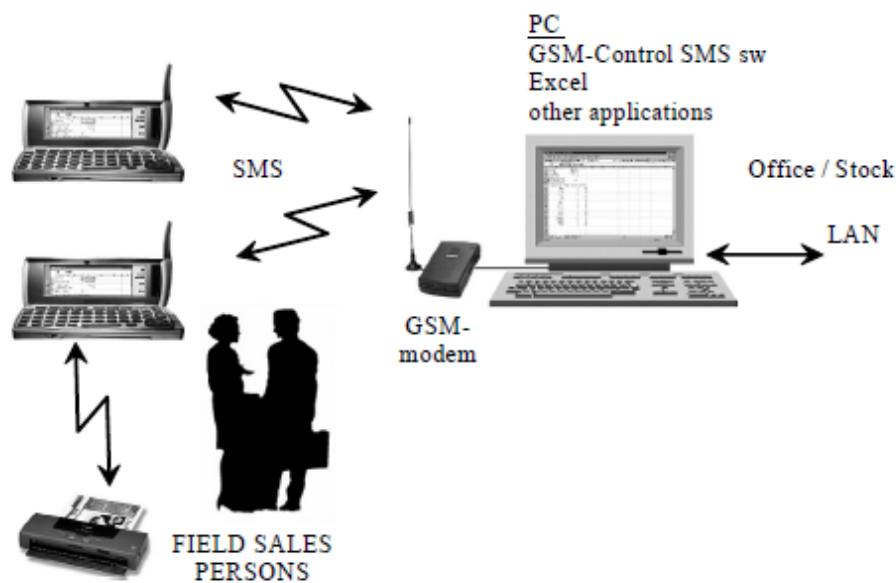

Figure 2. Structure of the mobile Amer IT solution (Rossi & Tuunainen 2007.)

4) Evaluating and Specifying Learning

According to the authors the most essential and critical process was the order-delivery process for the case company. The target of this research was to achieve a better efficiency of invoice documentation. Moreover, this research improved the transparency and overall performance. Especially, the level of the customer service increased a lot. Furthermore, the process flow-time was improved.

(Rossi & Tuunainen 2007.)

2 REVIEW (SEVEN PRINCIPLES FOR SELECTING SOFTWARE PACKAGES)

In this article the authors, Damsgaard and Karlsbjerg (2010), emphasize the "Seven Principles for Selecting Software Packages". According to the authors, most of the developed software is custom made. Some companies implement their software so that it can be sold to multiple customers. This leads to lower development costs and risks. It is "now possible to choose among a proven set of applications". The target of this article is to contribute a set of principles for the selection of software packages.

1) When you buy packaged software you join its network.

Nowadays "the users and producers of a software package constitute a network of parties that share a common interest in its destiny". The members of the network probably do not know each other but they all have to ensure a good evolution of the software package with low investments. An organization joins the network associated with the package when it buys a certain software package. For the organization it is imperative to choose the software package with the best long-term benefits. The distribution of power and the influence inside this particular network depends on the persons who control the software package and its further development.

2) Take a long-term perspective: Look ahead but reason back.

In this principle the authors consider the long-term perspective of software packages. In comparison to the computer industry where the lifespan of software and hardware is no longer than a few years, "the organizational data and the standards that define them are more durable". For that reason, the software package chosen for the organization should belong to the network that "may last a decade or often longer". Shapiro and Varian (1999) mention that it is also important to look ahead but reason back when a standard technology is bought to notice "the network and the evolution process that produced it".

3) When choosing packed software, there is safety in numbers.

Choosing a software package based on the package producer's financial, historical and current success mitigates the perceived risk in purchasing packaged software. In this principle the authors represent the opposite outcomes of a competition between

software packages with two scenarios. One of them is the so called "blind alley" scenario in which an "organization has adopted a package that is losing its market share to competing packages". Damsgaard and Karlsbjerg (2010) use the term "angry orphan" from David (1986) to point out what usually happens after a package looses its market share. David (1986) mentioned that such products are rapidly further developed to win back the market share. There is also a special case where a package that looses the market share capture a niche market network. "It may sustain itself for years - or even perpetually, giving organizations the choice of staying with the incumbent producer or giving them time to look for migration paths toward a standard package with perceived vitality". The other scenario that is introduced is the one-way street scenario. This scenario happens when the organization has only a small choice in upgrading or expanding the software package. Changing the product family is quite expensive and thus not always recommended.

4) Focus on compatibility and be aware of false gold.

Backward compatibility between software systems plays an essential role especially when organizations buy new software. Although software sometimes adheres to a common standard, packages may diverge on some features and thus they are not compatible with each other. Open standards that are not observed by a central institution or authority break down very often. Furthermore the authors claim about false gold by criticizing the own made wireless equipment extensions done by Linksys. Linksys extended the non-proprietary 802.11b protocol so that the throughput was doubled. D-Link added also extensions to the protocol. Thus it is not possible to build a wireless network with D-Link and Linksys devices. Customizing the software is not the best solution since "it could turn out to be false gold". It is expensive and the choices are limited when the software needs to be updated. At the end the authors mention that it is a good way to "review controlling existing customizations in order to determine whether they are needed and if so, to determine if they are supported in the new version and eligible for elimination".

5) Choose a software package with accessible knowledge.

By choosing a custom-built software the company "must carry the entire burden of training and retraining personnel to develop the necessary skills to use the software". However, the use of packages gives the advantage of accessing the knowledge of the package's application and implementation. The authors point out that a problem

occurs when there is an unmet demand for knowledge and skills. For example, there are much less people available that can configure a SAP system than needed. Software producers use various strategies to ensure that there are always some people who are able to use their software. One strategy is to offer "academic versions" of the software package that can be downloaded for free. According to Damsgaard and Karlsbjerg (2010) this principle should be used to "access the available knowledge base for the software package".

6) Choose packaged software with the right type of standardization.

It is also important to achieve a standardization with package based software. In this principle the most common types of standardization are introduced. One of them is the standardization of the user interface. The costs for user training can be reduced by using user interfaces that are similar to others. Another essential type is the standardization of output. The software package should produce an output that can be read by recipient users or software. Furthermore, it is sometimes good to choose the standardization of data structure to ensure backwards and forwards compatibility. It is also recommended to consider the standardization of data interfaces that include interconnectivity and interoperability. "Interoperable information systems are able to communicate during the execution of a particular task". Moreover the standardization of skills plays an essential role, meaning that organizations employ only people with particular eduction or skills.

7) All journeys start with a first step.

The software package market is a market with fast update cycles and various options. When a new software package appears on the market some interested buyers wait to see if the users are satisfied or unsatisfied with the new software package. This strategy may reduce the risk "of investing time and money in a software package which later loses in the market". However, the authors warn the organization not "to fall into the wait-and-see trap" by giving two reasons. One reason is that a product winner can only be determined when organizations buy software. Furthermore, playing an essential role in the selection process helps the organization in finding a software that satisfies their needs. The other reason is that waiting for a software package that perfectly fits can take a long time. Thus it could be possible that after this waiting time the requirements of the software package are not fulfilled anymore. In this principle the authors point out that a perfect match may never be possible.

Damsgaard and Karlsbjerg (2010) recommend to be part of the network associated with this software package to "ensure that special needs are noted and incorporated into the next version of the package".

(Damsgaard & Karlsbjerg 2010.)

3 CONCLUSION

In this report two articles have been reviewed. The objective of the first article "Mobile technology in field customer service" explains how the efficiency in an order-delivery process can be increased by using modern mobile technology. The second reviewed article "Seven Principles for Selecting Software Packages" contains seven essential principles that should be considered when buying a software package for an organization.

4 BIBLIOGRAPHY

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