

Communication efficiency in BPM solutions

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ABSTRACT

This paper is the result of our own working experiences at the Fletcher Hotel Group and the Nederlandse Spoorwegen. Experiencing BPM implementation and the effect of communication efficiency from the working ground within those company, triggered us to do the research in this paper. Both companies were included in the case study, and were featured in the questionnaire.

INTRODUCTION

In order to think about organizational processes instead of organizational departments, a change of mind is needed throughout the whole organization (Harrington, 1991)

Harrington states that when the emphasis is on processes, a lot changes with it. He provides some insightful change examples. Instead of blaming employees for task failures, he argues that the process is the problem. He argues for instead of controlling employees, instead, employees should be developed. Also he argues that instead of looking who made an error in a task, one should look to what allowed the error to occur. The last insight is that instead of changing the person in question, one should change the process instead.

It becomes clear that people should be completely involved in the process and not just be some factor that has to be controlled. This also implies that the human factor has to be taken into account when processes are designed.

The goal of Business Process Management (BPM) is to improve the efficiency of business processes, gain competitive advantage and decrease overall costs in many ways (Hung, 2006). In order to use BPM in a successful way, several factors of success can be recognized. The focus of this paper will be on the human impact in process improvement. Hung (2006) states that People Involvement as a concept of BPM is the level of involvement of all members of a business in the decision making and problem solving process. We agree that in order to have a successful process, it is indeed key to have the full agreement and support of the people who actually have to perform the process.

One way to improve business processes is by the automation of communication flows that were previously done with the use of informal communication methods, such as face-to-face, e-mail or telephone. Often though, when a BPM consultant makes a cost-benefit analysis, one uses the time saved by those informal communication methods as cost reduction. Although the BPM system's intention is to automate those informal communication methods, one could argue that because of different human implications the informal requirements will be kept existing, although the BPM system should have replaced those communication flows. This could lead to less cost reduction than expected in the cost-benefit analysis.

To be able to make a decision whether or not to use a BPM solution to improve the efficiency of a task, it is necessary to know whether the current communication efficiency is high or low. When a task is already very efficient, the risk of implementing a BPM solution might be low, but the efficiency improvement would probably also be low.

When successfully implementing a BPM solution in a less communication efficient task, the solution probably will have a greater impact on the communication efficiency of the task. The risk that the BPM solution does not replace all existing communication flows, is high though.

Our focus will be on implementations which were previously 'human to system, system to human' communication flows and are replaced by IT systems. This concept is explained by Zoet et al (2009) as Straight Trough Processing (STP). (Zoet, Schakel, & Ravesteyn, 2009)

In a case study, we will propose a model, and validate the model using a questionnaire which will be answered by different types of organizations. The model is based on the following research question:

How do structuredness and complexity affect communication efficiency and what does this imply for a STP implementation of the task?

The contribution of this research will be a more detailed understanding of communication efficiency as a critical success factor for the success or failure of process improvement. It will provide insight in the effects of communication efficiency with regards to the implementation of a BPM solution.

MODEL CONSTRUCTION

Efficiency in a company can be defined as "the success in producing as large as possible an output from a given set of inputs" (Farrell, 1957). In this paper we speak of the efficiency of automated processes within a company with regards to the amount of inter-personal communication that is necessary. A process is considered efficient if a task is performed – the output – with the least possible inter-personal communication –the input –. This implies no redundant, unnecessary and irrelevant communication should take place during the process.

A reason for inefficient communication is given by (Marchan, Welch and Welch, 1996). It is stated that communication within a company is not necessarily used for task-related purposes. It is possible that this has been the case in the first place, but the communication can also have a personal aspect, such as the individual's desire to maintain his network. This is relevant since the one of the ideas behind automating processes is to reduce (ineffective) communication flows. However, the human aspect is not taken into account within this reasoning. We believe that in this case the communication flows will not decrease as much as has been calculated before automating, since within the calculation the personal aspect of the communication normally is not taken into account. The article by (Marchan, et al., 1996) focuses on less-hierarchical multinationals and it is stated that the role of personal networks is bigger than in more hierarchical companies. We believe that this could be true in general, so the more structured and hierarchical companies will in general have a higher efficiency when it comes to inter-personal communication flows. Therefore we have divided companies into roughly two categories: structured and unstructured companies.

A structured company is a mostly hierarchical company with formal lines of communication. Unstructured companies are more horizontally organized companies with less formal lines of communication.

We also think that the efficiency of communication can be influenced by the complexity of a task in the process. When a task is routine, straightforward, predictable and thus simple, there probably will be no inter-personal communication necessary in the first place.

If a task is unpredictable, uncertain and difficult, the task is more complex to perform. For such a task it is likely that more communication is necessary in the first place, and even if the process is automated, the individual wants to check results or data with another individual, thus not trusting the system itself. Here also the risk of inefficient personal communication applies.

We suggest a model to measure efficiency of a given automated process, based on the efficiency of a the communication. The model is divided into four sections: simple and complex tasks and structured and unstructured companies. We expect that a simple task performed in a structured company will generally be highly efficient. However when a very complex task is carried out in a unstructured company, this will lead to very low efficiency with regards to the communication within this process.

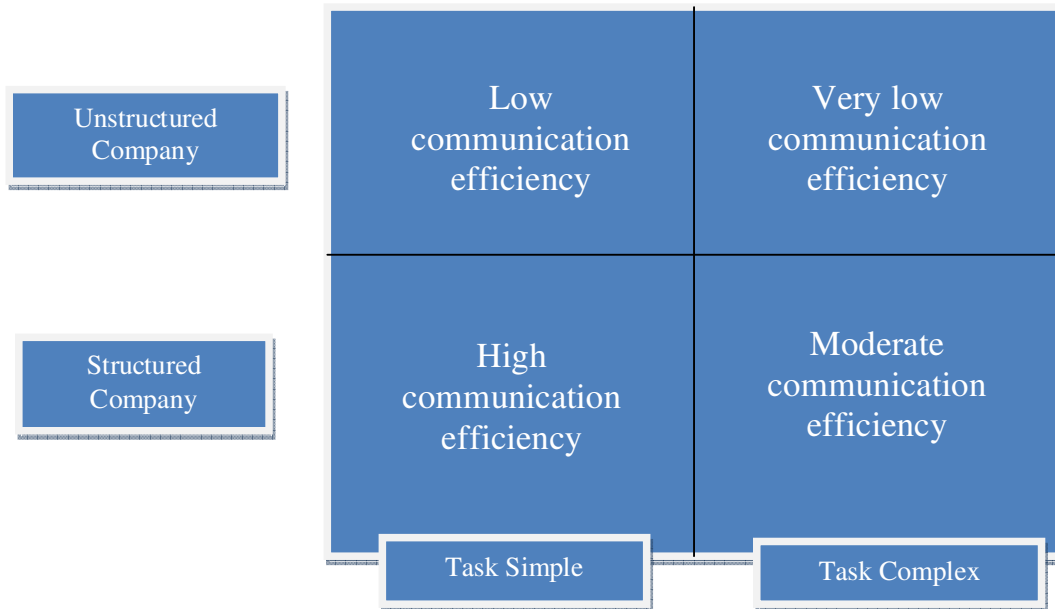


Figure 1: Proposed model

OPERATIONALIZATION

Variables to be operationalized

The variables will be operationalized using a questionnaire in which three medium to large sized companies will participate. The participating companies are of Dutch origin. In two of the companies, namely HMG (Hotel Management Group) and NS (Nederlandse Spoorwegen), the authors of this paper have practical working experience in which they perceived a lower efficiency due to human behavioural aspects.

The questionnaire is filled in by a middle-manager with overview over at least one process that has been taken part of a BPM implementation using the STP concept.

The model shown in Figure 1 has a total of three variables that need to be operationalized:

- Structuredness of company
- Task complexity
- Communication efficiency

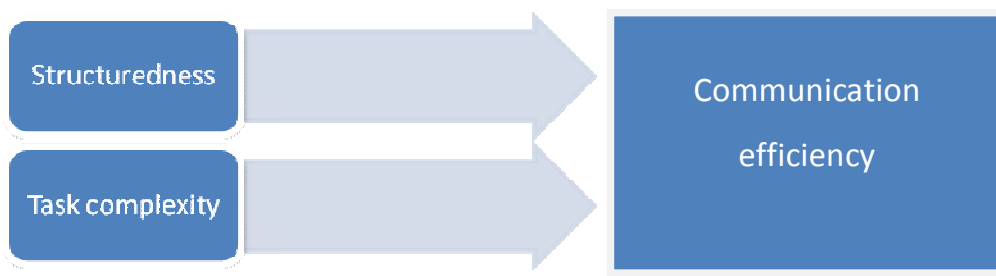


Figure 2: The variables and their relations

Communication complexity

The definition of communication complexity has been subject of many researches, Shaw (1964) relates task complexity to communication saturation, i.e. the more communication channels and messages, the more complex the task. “. Tushman (1978, 1979) takes a much broader look at task complexity, and describes a task complex as “more difficult to solve and complicated to coordinate”. A different perspective on complexity comes from Payne, citing Newel and Simon (1972). He points out that information processing varies with complex tasks and complexity is determined by the number of alternatives and the number of dimensions of information available per alternative, or, the amount of information available per alternative (Wood & Nosek, 1994).

Questionnaire questions regarding communication complexity

Regarding the definitions of the above paragraph, we created 3 tasks that will measure the complexity in our model.

Question 1: How difficult is the task to solve? (scale 1 – 5)

Question 2: Are there many alternative (output) solutions? (scale 1 – 5)

Question 3: How many people are involved in solving the task?

- A) 0-5
- B) 5-10
- C) 10-25
- D) 25-50
- E) 50+

Organizational culture: structured or unstructured

Structuredness, or formalness has also been subject in past studies. Schneider defines formal as “a presentation or written piece that strictly adheres to rules, conventions, and ceremony, and is free of colloquial expressions.” and informal as “a casual discussion, verbal exchange, note, or memorandum that may adhere less strictly to rules and conventions”

Although lots of research has been done in the area of organizational culture, in our model we are just interested in the use of formal and informal communication types within a company (Schneider, 2004).

Questionnaire questions regarding structuredness

Question 1: How hierarchical would you describe the department(s) dealing with the task? (scale 1 – 5)

Question 2: How hierarchical would you describe the company as a whole? (scale 1 – 5)

Question 3: How well (formally) documented is the procedure of solving the task? (scale 1 – 5)

Question 4: How formal would you describe the communication while solving the task? (scale 1 – 5)

Already taking behavioural aspect into account

As stated in the model construction, we believe that when estimating the cost reduction of a BPM implementation, a decrease in cost reduction regarding the personal aspect of the communication is not

taken into account. Whenever a company is not taking the personal aspects into account, this study might be very insightful for those specific companies. To validate the above statement we will include a question asking the participating companies if they do take this aspect into account. If companies do take this aspect into account, this study will still be insightful for valuing the human aspect in a more accurate way.

Communication efficiency

As stated previously, efficiency in a company can be defined as “the success in producing as large as possible an output from a given set of inputs” (Farrell, 1957). With regards to communication efficiency, it can be defined as producing as large as possible output, e.g. the maximum possible transfer of knowledge, giving the set of inputs.

Question 1: Has the process become more efficient during the last five years? (scale 1 – 5)

Question 2: Is the communication within the process efficient compared to related processes from different companies? (scale 1 – 5)

Question 3: To what extent are (automation) improvements possible in order to increase efficiency? (scale 1 – 5)

VALIDATION

In order to validate the proposed framework we did two case studies. The first focuses on Fletcher, which is a hotel chain and the second focuses on the Nederlandse Spoorwegen (NS) which is the Dutch Railway Company. We prepared a questionnaire with the questions described in the previous section.

Fletcher Hotel Group

For Fletcher the questionnaire was filled out by the E-commerce manager.

The task used for research for Fletcher is: *the creation and publishing of prices.*

Nederlandse Spoorwegen

The questionnaire was filled out by one of the team leaders of NS Commerce. The department on which the focus lays, is the inbound Call Center where customers call with all sorts of questions about their contracts.

The task used for research for NS can be described as follows: *the answering of customer's questions with regards to financial aspects of their contracts.*

In the table below the results of the questionnaire are displayed.

	Fletcher Hotel Group	Nederlandse Spoorwegen
1. How difficult is the task to solve? (scale 1 - 5)	4	3
2. Are there many alternative (output) solutions? (scale 1 - 5)	5	4
3. How many people are involved in solving the task?	10-25	25-50
4. How hierarchical would you describe the department(s) dealing with the task? (scale 1 - 5)	2	4
5. How hierarchical would you describe the company as a whole? (scale 1 - 5)	2	5
6. How well (formally) documented is the procedure of solving the task? (scale 1 - 5)	3	4
7. How formal would you describe the communication while solving the task? (scale 1 - 5)	2	5
8. Has the process become more efficient during the last five years? (scale 1 - 5)	1	5
9. Is the communication within the process efficient compared to related processes from different companies? (scale 1 - 5)	2	3
10. To what extent are (automation) improvements possible in order to increase efficiency? (scale 1 - 5)	5	5

Table 1: results of the questionnaire

Drawn from the table, we will get the following overall results:

Task Complexity (question 1 – 3)

Fletcher: High

NS: High

Structuredness (question 4 – 7)

Fletcher: Low

NS: High

So according to our proposed model, we would expect Fletcher to be Low on communication efficiency and NS to be moderate efficient. When we take a look at the last set of questions (8 – 10), this is indeed the case:

Communication Efficiency (question 8 – 10)

Fletcher: Low

NS: Moderate

CONCLUSION AND FURTHER RESEARCH

From this research we can conclude that it is indeed likely that the complexity of a given task and the structuredness of a company influence the efficiency of communication.

The obvious limitation of our research is the fact that we only have been able to carry out two minor case studies. In the future we would like to continue this research in other companies with extended methods, such as a more detailed questionnaire and interviews, in order to revise and validate our proposals.

We believe that our research provides a good starting point for ongoing research on the efficiency of intra-company communication and the improvement hereof. We suggest further in-depth qualitative research with the focus on the human aspect of efficient communication.

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