

Motivation and Empowerment in Process Improvement

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Abstract. Clarity in goals, tasks, and responsibilities empowers employees to undertake an organizational change. Assessing processes prior to process improvement allows high involvement in setting the improvement goals, awareness of the organization's business goals, and understanding the roles and responsibilities in process improvement. This study describes the results of an international survey about goal internalization, motivation, and empowerment in process improvement. The results indicate that process assessment contributes to the goal internalization of process improvement. However, process assessment alone does not contribute extensively to the empowerment and motivation of employees.

Keywords: process improvement, process assessment, goal internalization, motivation, involvement, empowerment.

1 Introduction

A lot of studies have been conducted on process improvement in the last two decades, particularly in the software engineering domain. There are numerous case studies about the success and the key success factors of process improvement [1-7]. Yet over 70% of the process improvement projects fail because of the poor understanding of the competencies, roles, and responsibilities in process improvement activities [8].

In the past 20 years, empowerment has been accepted by a vast majority of enterprises managers and been applied in their practices [9]. Based on Spreitzer [10], there are two contrasting perspectives of empowerment: the relational and the psychological. While the relational perspective views empowerment as an objective top-down process of power, the psychological perspective views empowerment as a subjective phenomenon. The latter is achieved only when a perception of empowerment within the employee is produced. Psychological empowerment has recently received more and more attention because it is believed to be central to many behavioral outcomes sought by practitioners [9].

According to Menon [11], psychological empowerment is a cognitive state characterized by a sense of perceived control, perception of competence and internalization of organization's goals, and objectives. Menon suggests that the internalization of organization's goals captures the energizing property of a worthy cause or exciting vision provided by the organizational leadership. Goal internalization has been related to becoming more motivated in executing ones tasks and in becoming

inspired of organizational goals and the organizational vision [11]. High involvement in decision-making and clarity in goals and responsibilities in processes has also been found to motivate practitioners in process improvement [8, 12-14].

In this study, we would like to find out if goal internalization motivates and inspires employees also in carrying out process improvement. Process improvement initiatives are the means to develop the organization's processes to more effectively meet the organization's business goals. Process assessments are used to find out the capability of the processes to reach these goals [15].

In psychological empowerment, it is believed that the valued goals can be set only as a result of lining the transformational attitudes and beliefs of the employees with the organization's mission and objectives. The effect of the transformational influence is to energize employees to participate in the process of transforming the organization [11]. In other words, high involvement in setting process improvement goals should provide motivation and inspiration in working towards the organization's business goals. This in turn, will lead to higher possibilities of success in process improvement initiatives.

We conducted an international survey among process improvement industry to find out how goal internalization can affect and inspire employees to carry out the change in their organizations. In the following chapters we describe the goals of the study, the design of the survey based on the measurable goal internalization items described by Menon [11], provide the sample description, and the results of the data analyses. We close the paper with possible future works.

2 Research Goals and Methodology

Resistance to organizational change by employees is the major obstacle in reaching success in process improvement. Based on the empowerment studies [11-13], we know that high involvement in setting the improvement goals, awareness of the organization's business goals, and their alignment to the improvement goals motivates employees to carry out and contribute to an organizational change like process improvement.

Process assessment can be seen as a means to involve and grow the awareness of process improvement goals throughout the organization. Process assessment allows revisiting and communicating the organization's business goals to all involved in process improvement, and aligning the goals of process improvement to the organization's business goals. This involvement can, in turn, contribute to the goal internalization and motivation among the employees.

We would like to find out if the organizations who conduct process assessment before starting a process improvement have higher goal internalization than the organizations that do not assess processes before improving them, and thus increase the chances to succeed. Based on empowerment as a result of clarity in the roles and responsibilities in the organization [12], we also look at the allocation of the roles and responsibilities in process improvement and its relation to the goal internalization items.

The research methodology employed in this study was that of a survey research. A survey strategy is of advantage when the research goal is to be predictive about certain outcomes. A survey is an appropriate strategy when the form of research question is "who", "what", "where", "how many" or "how much". As Yin states, the

different research strategies are overlapping and case studies could also be used for this study, although they should preferably be used when the form of the research question is “why” [16].

3 Designing the Survey Questionnaire Based on Goal Internalization Items

Menon describes the construct of goal internalization in five measurable items [11]. These items capture the goal internalization effect leading to being inspired by the organizational goals or organizational vision. As a result of his study where he measured psychological empowerment, Menon concludes that goal internalization is highly correlated with affective organizational commitment and job involvement.

The measurable goal internalization items that Menon used in his study were the following:

1. I am inspired by what we are trying to achieve as an organization
2. I am inspired by the goals of the organization
3. I am enthusiastic about working toward the organization’s objectives
4. I am keen on our doing well as an organization
5. I am enthusiastic about the contribution my work makes to the organization

In our study, we aim to discover if employees become inspired and enthusiastic about goal internalization after being involved in the decision making on what needs to be improved, i.e., in process assessment. We have two sets of questions targeting goal internalization in our survey: the first one addresses it after process improvement and the second one after process assessment itself. In our survey, we set the following measurable items for goal internalization regarding process assessment and improvement, and used a Likert scale from “Strongly Agree” to “Strongly Disagree”, and additional options of “Not Applicable”, and “I don’t know”.

After evaluating/assessing processes, I was enthusiastic about:

1. the organization’s goals
2. working toward the organization’s objectives
3. doing well as an organization
4. the contribution my work makes to the organization
5. aligning my work with the organization’s goals
6. being able to decide myself how to improve my work

After improving processes, I was enthusiastic about:

1. the organization’s goals
2. working toward the organization’s objectives
3. doing well as an organization
4. the contribution my work makes to the organization
5. aligning my work with the organization’s goals
6. improving my own work in my own way

Processes can be improved on different organizational levels with an organization-wide improvement initiative on one end, and improving one’s own way of working by oneself on the other end of the scale. In both of the above-listed categories, the sixth goal internalization item shows the personal improvement approach where one determines by himself what is going to be improved and how, and can therefore be more loosely aligned to the organization’s objectives.

4 Data Collection and Description of the Sample

An online survey was used to collect data from industry about the empowerment and goal internalization in process improvement. Since only the organizations interested and/or experienced in process improvement were targeted, non-probability sampling method was used in this research, more precisely the snowball technique. The request for distributing and responding to the survey was sent to companies, process improvement consultants, researchers, non-profit organizations promoting process improvement worldwide, and to various working groups in ISO/IEC SC7 (International Organization for Standardization subcommittee 7), that develop the international standards on software, systems, and services.

After two months, 50 completed responses were received. Out of the 50 responses, the distribution between software development and IT service providing organizations was almost equal forming more than 50% of all the responses.

Ten responses out of 50 came from organizations providing IT services, nine from software development organizations, and another ten from organizations both developing software and providing IT services. There was one response from an organization that did not categorize into any given business area (Fig. 1).

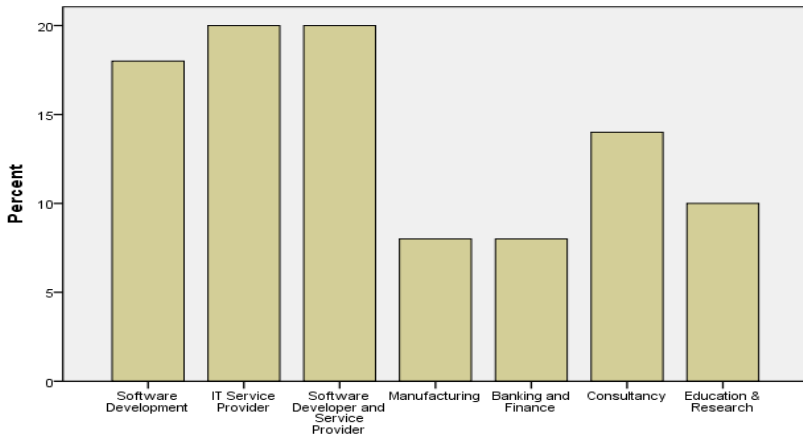


Fig. 1. Core business area of respondents’ organizations

Over half of the responses came from large organizations employing more than 250 employees (62%), 18% from medium-sized organizations employing 50 to 249 employees and 10% from both small (with 9 to 50 employees) and micro (up to 10 employees) organizations.

The responses have the following geographical distribution: 68% of responses came from Europe with Finland being the most active respondent, 16% of responses came from USA, 6% from Canada, 4% from Mexico and Australia, and 2% from Peru. Unfortunately no responses were received from India.

4.1 Conducting Process Assessments

Process assessment allows revisiting organization’s business goals, and involvement of all people related to the processes being improved. In order to know which respondents conducted process assessments, we sought information about different starting points of the process improvements and different ways of measuring process progress.

Table 1 illustrates the responses to the survey question about when process improvements were started. The respondents could select any relevant starting points listed in the table. Table 1, and the following tables in the paper, illustrate the highest values that are being described in the text with a “*”, the number of survey respondents in the table captions as “n”, and the table items in the main text are in *italic* for better readability. Table 1, below, shows that the most popular starting point for process improvements among the survey respondents was, in fact, *conducting a process assessment*. 58% of the respondents started their process improvements after they had conducted a process assessment.

Table 1. Starting point of process improvements (n=50)

At the end of the project or service delivery	After hearing about a better method or tool	After completing a training course, reading a professional textbook or attending a conference	After receiving critical customer survey results	After a process assessment	When management is planning an organizational strategic change	When customer(s) requests it
42%	48%	24%	46%	58%*	44%	34%

As Jones [17] points out, it is not wise to start process improvement if managers do not collect data to demonstrate the progress. There are various ways to measure the progress and Table 2 illustrates how process improvements were measured among the respondents’ organizations.

In almost half of the cases, illustrated in Table 2, process improvements were measured based on *the customer and stakeholder satisfaction, evaluating the achievement of organization’s goals*, and by *measuring personal performance and productivity*. Standard or process model based assessments indicate the strengths and weaknesses of current processes and suggest how to improve them. *Standard or model based process assessments*, or re-assessments if applied for measuring the progress of implemented improvements, were carried out only in 38% of cases. Despite process assessments being the most common starting point for process improvements, the progress is not as often measured by re-assessments. This could be explained as management’s objective to see the benefits of process improvement faster without investing into another process assessment. Thus, there are different

reasons for conducting process assessments: for the input to process improvement when conducted prior to it, and for the measurement of the progress of the already implemented improvements.

Table 2. Measuring process improvements (n=50)

Improvements are not measured	Measuring personal performance and/or productivity	Evaluating the achievement of product or service quality requirements	Evaluating the achievement of project or service performance objectives	Measuring project productivity	Conducting model/standard based process assessments	Evaluating stakeholder/customer satisfaction	Measuring organizational productivity	Evaluating the achievement of organizational goals	Calculating the return on investment to process improvement
8%	46%*	40%	34%	36%	38%	50%*	26%	46%*	10%

In this paper, we address the input and setup of process improvement, and will therefore use only the responses where process assessments were conducted prior to the improvements in the data analyses.

4.2 Goal Internalization

Table 3, below, illustrates the responses to goal internalization of process assessment on the Likert scale. The respondents were most enthusiastic about *working towards the organization’s objectives* after the process assessment (72%). As we predicted, the sixth item – *deciding how to improve my own work in my own way*, addressing

Table 3. Goal internalization in process assessment (n=50)

After evaluating processes/process assessment, I was enthusiastic about:	Strongly agree	Agree	Disagree	Strongly disagree	N/A	Don’t know
the organization’s objective	10%	40%	16%	0%	22%	12%
working towards the organization's objectives	14%*	58%*	8%	0%	12%	8%
doing well as an organization	22%	48%	10%	0%	12%	8%
the contribution my work makes to the organization	18%	46%	14%	0%	18%	4%
aligning my work with the organization's goals	18%	52%	10%	12%	14%	4%
being able to decide myself how to improve my work	20%*	42%*	12%	6%	14%	6%

process assessment on a personal level was the least inspiring after process assessment (62%). The 42% of respondents, who did not start their process improvements by conducting a process assessment, as indicated in Table 1, explains the high number of responses in the “N/A” and “Don’t know” columns.

Table 4 below illustrates the responses to goal internalization of process improvement. Goal internalization after process improvements received slightly higher results than that after process assessment, and remained around 70%. Most of the respondents became enthusiastic about the alignment of the organization’s and process improvement goals (78%), and working towards the organization’s objectives (76%).

Table 4. Goal internalization in process improvement (n=50)

After process improvements, I was enthusiastic about:	Strongly agree	Agree	Disagree	Strongly disagree	N/A	Don’t know
the organization’s objective	24%	48%	18%	2%	4%	4%
working towards the organization’s objectives	24%*	52%*	12%	2%	6%	4%
doing well as an organization	26%	54%	12%	4%	4%	0%
the contribution my work makes to the organization	24%	52%	10%	4%	8%	2%
aligning my work with the organization’s goals	22%*	56%*	12%	0%	8%	2%
improving my own work in my own way	22%	42%	18%	4%	12%	2%

5 Data Analysis

This chapter illustrates the goal internalization results of the received responses – first the goal internalization after process assessment, and then the goal internalization after process improvement are described.

5.1 Goal Internalization after Evaluating Processes

One of the starting points for process improvement is process assessment that allows revisiting organization’s business goals, involves all people related to the processes being assessed and improved. We asked the respondents about their goal internalization after process assessment on a Likert scale. Table 5, below, illustrates two sets of responses – the ones that conducted process assessment prior to process improvement and those who did not.

We can see that the employees who conducted process assessment were only 10.8% more enthusiastic about the goals of the organization than those who did not.

Similarly, the enthusiasm about the contribution that one’s work makes to the organization was 9.9% higher among the respondents that conducted process assessment prior to process improvement (Table 6).

Table 5. Enthusiasm about organization’s objectives after evaluating processes (n=50)

Process improvements were started:	After evaluating processes, I was enthusiastic about the organization’s objectives					
	Strongly agree	Agree	Disagree	Strongly disagree	N/A	Don’t know
after process assessment	4	12	4	0	6	3
without process assessment	1	8	4	0	5	3

Table 6. Enthusiasm about work contribution after evaluating processes (n=50)

Process improvements were started:	After evaluating processes, I was enthusiastic about the contribution my work makes to the organization					
	Strongly agree	Agree	Disagree	Strongly disagree	N/A	Don’t know
after process assessment	5	14	3	0	6	1
without process assessment	4	9	4	0	3	1

Goal internalization is closely related to goal alignment, i.e., in aligning ones goals with the organization’s business goals. Table 7 illustrates that respondents who carried out process assessments were 15.2% more enthusiastic in goal alignment than those who did not start improvements with process assessments.

Table 7. Enthusiasm about goal alignment after evaluating processes (n=50)

Process improvements were started:	After evaluating processes, I was enthusiastic about aligning my work with the organization’s goals					
	Strongly agree	Agree	Disagree	Strongly disagree	N/A	Don’t know
after process assessment	7	15	1	1	4	1
without process assessment	2	11	4	0	3	1

5.2 Goal Internalization after Process Improvement

Tables 3 and 4 indicated that the enthusiasm after process improvement was higher than that after process assessment. Table 8, below, illustrates the goal internalization after process improvement among the respondents who started their process improvement after conducting process assessment, illustrated in the row titled *After process assessment*. The Likert scale is applied to goal internalization items that are *in italic* in the table.

The biggest difference between the respondents who conducted process assessments and those who did not lies in becoming *enthusiastic about the organization’s objectives* (the ones who conducted process assessment were twice as enthusiastic, frequency indicated with “*”), and *doing well as an organization* (the ones who conducted process assessment were 26% more enthusiastic).

Table 8. Goal internalization after process improvement

When did you start process improvements?	Strongly agree	Agree	Disagree	Strongly disagree	N/A	Don't know
	<i>After improving processes I felt enthusiastic about the organization's objectives</i>					
After process assessment	6*	18*	2	0	2	1
Other	6	6	7	1	0	1
	<i>After improving processes I felt enthusiastic about working toward the organization's objectives</i>					
After process assessment	8	14	3	0	3	1
Other	4	12	3	1	0	1
	<i>After improving processes I felt enthusiastic about doing well as an organization</i>					
After process assessment	8*	16*	2	1	2	0
Other	5	11	4	1	0	0
	<i>After improving processes I felt enthusiastic about the contribution my work makes to the organization</i>					
After process assessment	5	15	2	2	4	1
Other	7	11	3	0	0	0
	<i>After improving processes I felt enthusiastic about aligning my work with the organization's goals</i>					
After process assessment	7	16	3	0	3	0
Other	4	12	3	0	1	1
	<i>After improving processes I felt enthusiastic about improving my own work in my own way</i>					
After process assessment	5	11	7	2	4	0
Other	6	10	2	0	2	1

The following figure (Table 9) illustrates the enthusiasm after process improvement *about the organization's objectives* – the respondents who started their process improvements after process assessment were 32.3% more enthusiastic than those who did not.

Table 9. Enthusiasm about organization's objectives after process improvement (n=50)

Process improvements were started:	After improving processes, I felt enthusiastic about the organization's objectives					
	Strongly agree	Agree	Disagree	Strongly disagree	N/A	Don't know
after process assessment	6	18	2	0	2	1
without process assessment	6	6	7	1	0	1

To find out whether clarity in the roles and tasks is getting people more inspired after process improvement, we asked the respondents whether they allocate the roles and responsibilities before the process improvement begins. Table 10 illustrates slightly higher results of goal internalization after process improvement among the respondents who conducted process assessment prior to the improvement.

Respondents were twice more enthusiastic *about the organization's objectives*, and 20% more enthusiastic *about working toward the organization's objectives* when they had allocated process improvement roles and responsibilities.

Table 10. Allocating roles and goal internalization after process improvement

Before process improvement did you:	Strongly agree	Agree	Disagree	Strongly disagree	N/A	Don't know
	<i>After improving processes I felt enthusiastic about the organization's objectives</i>					
Allocate roles and responsibilities	8*	16*	4	0	1	1
Other	4	8	5	1	1	1
	<i>After improving processes I felt enthusiastic about working toward the organization's objectives</i>					
Allocate roles and responsibilities	6*	18*	4	0	1	1
Other	6	8	2	1	2	1
	<i>After improving processes I felt enthusiastic about doing well as an organization</i>					
Allocate roles and responsibilities	8	16	4	1	1	0
Other	5	11	2	1	1	0
	<i>After improving processes I felt enthusiastic about the contribution my work makes to the organization</i>					
Allocate roles and responsibilities	7	16	3	2	1	1
Other	5	10	2	0	3	0
	<i>After improving processes I felt enthusiastic about aligning my work with the organization's goals</i>					
Allocate roles and responsibilities	5	18	4	0	2	1
Other	6	10	2	0	2	0
	<i>After improving processes I felt enthusiastic about improving my own work in my own way</i>					
Allocate roles and responsibilities	4	15	6	2	2	1
Other	7	6	3	0	4	0

6 Conclusions

Goal internalization can affect and inspire employees to carry out the change in their organization. We assumed that process improvements that start with process assessments have higher goal internalization than those that do not, because process assessment can raise awareness of the organization's business goals, and can involve the stakeholders of process improvement. Realizing the possible impact of process assessment on goal internalization and motivation among employees, allows

minimizing the resistance to organizational change once the improvements need to be implemented.

In this study, we presented the data analysis results of an international survey. Among the various ways to evaluate software development, our study indicated that process assessments increase awareness about organization's objectives best as it revisits the organization's business goals. Also, conducting process assessments led to a better alignment of organization's business goals and the goals of process improvement.

Based on Weiss et al. [18], process assessment is a criteria-oriented process where the software practices are measured against external criteria. A goal-oriented process, such as goal/question/metrics paradigm, assesses software development in the context of individual, project, and organizational goals. Weiss et al. argue that goal-orientation helps to reinforce the feeling within each organization that the recommended improvement will create benefit and eliminates much of the resistance to change that comes from long explanation and discussion of the external assessment criteria [18]. Our argument was that process assessment allows revisiting the organization's business goals and increasing the awareness about them. Although the data of the conducted survey supports this argument, additional studies comparing the impact of the goal-oriented and criteria-oriented processes on goal internalization should be conducted.

At the same time, we discovered that the overall goal internalization was higher after process improvement than after process assessment, which means that additional studies should be conducted into the evaluation of the process assessment process. More attention should be paid in process assessments to the awareness of business goals, to their alignment with the process improvement goals, and higher involvement of the employees. Since the results of this paper illustrate descriptive analysis, hypotheses tests will be conducted on the data in the near future. Additional studies will also be conducted to understand the impact of process assessment on motivation, and empowerment of employees contributing to an organizational change.

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