# INVESTIGATING REASONS FOR RESISTANCE AMONG PROJECT AND GENERAL MANAGERS IN ENTERPRISE RESOURCE PLANNING IMPLEMENTATIONS

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***ABSTRACT***

*Enterprise Resource Planning (ERP) primary goal is to connect all organizational units together under the single data base. It is intended to speed up all the processes and track all the actions easily. To put it simply, it is the central neural system of the organization, helping management to quickly assess the state of every part of the organism and the status of all the processes within it. As such, it should be a readily available solution to all the organizations regardless of their size, for helping them in making the processes efficient. Why are there so many cases of unsuccessful ERP implementation? The main goal of our research project is to make the scientific study and identify the major reasons for resistance to ERP implementation among general and project managers in the organizations that implemented or failed to implement the system. We have undertaken an innovative study approach collecting twenty responses from two focus groups: project managers and general managers. E-mails with specific topics regarding ERP implementations were collected from 10 general managers and ERP project managers of medium-size and large organizations to prepare them for the focus group discussion. A rather limited sample and the following steps were realistically projected and executed to respect the limiting time frames and deadlines of the class.*

**Keywords:** *ERP implementation, project managers, general managers, reasons, resistance*

**JEL:** M15

## 1. INTRODUCTION

ERP business systems are the systems that integrate all aspects of organization and systematically reorganize business processes inside the organization. Usually, ERP Business systems involve a radical organizational change (Kwahk 2006). Implementations of ERP systems can be endless and require full engagement by all departments in the organization. Not a small amount of ERP implementations fail due to resistance of management to accept a new technology and reengineer organizational processes. This sounds surprising bearing in mind the fact that ERP development companies, especially the largest of them such as SAP, are some of the largest growing companies in the world. Obviously, management is enthusiastic when approaching ERP developers as solutions to their non efficient operational practices, but not so enthusiastic when it comes to the support to implementation of such solutions.

ERP systems have different modules including planning, production, quality, finance, sales, and other departments depending on the company, and they connect those departments together. A sudden growth of so many

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ERP developers could define it as one of the most important technologies in the last twenty years. Although considered very important, the failure rate of ERP implementation is very high. As the cost of an ERP implementation project is usually high-for bigger systems that implement SAP for example it can rise to tens of millions-every company would like to feel its benefits quickly. However, this usually does not happen, and implementation can last from a few of months to many years. As a software solution, ERP integrates many business applications that apparently connect all business processes of one company together at one spot, which are readily available to provide management a quick glance into company's current state.

A quality designed functional ERP solution enables data sharing between identified stakeholders in a company. The ERP solution is a mean set of several software solutions integrated into a single applicative unit that continuously monitor all business activities of the company (activities within accounting, purchasing, production, sales, management customer relationship, product lifecycle management, etc.). What makes the quality of ERP applications relevant is that these solutions are based on a unique database which provides unification and functionality in the exchange of data between enterprise users. Namely, when a company begins to develop physically separate organizational units (physically separate jobs) the recommendation is to define business processes and monitoring into a single round information system. The business practice often presents such a situation that different organizational units in the company (accounting, sales, human resources, transportation, etc.) have separate software solutions that are optimized according to their specificities. However, the problem arises in that there is no coherence between these separate software solutions. So it happens that (because the data are recorded in different places over times and in different formats) the staff does not know the current stock for example, the purchasing managers do not have a real picture of their obligations to suppliers, finance department cannot follow debt collection, and many other similar problems. The importance of ERP solutions is that it enables the synthesis and integration software tools that are used in different organizational units in a system that is based on a single database enabling the unification of the functionality in sharing data between organizational units. All organizational units in this case manipulate with the same data, and when someone in the company makes a change to some data, modified data can automatically be seen in all places inside the organizational structure. In this way one organizational unit can always know what to do next, based on the action of other units. All this leads to fewer errors in work and to greater efficiency, saving both money and time to individual stakeholders and the entire organization.

The essence of the implementation of ERP solutions is that a number of unrelated software applications are replaced by a unified software solution which is divided into modules intended for specific requirements of individual business processes within the company. Each organizational unit uses the module or those parts of the module that covers an area of a given organizational unit. In this way, each organizational unit still has a separate software unit, with the difference that their work is reflected in other parts of the system, and data that are created in one organizational part are available in other organizational units through another module or modules in the ERP solution.

The reasons why most companies decide to introduce ERP solutions are:

- Integration of data on financial flows in the company-not a rare situation that

managers of the company run into a few truths when they want the information about the specific issues. Specifically, the finance service shows one data, sales service for example presents different data, and so on. The ERP solution, providing a single database for the enterprises, eliminates the phenomenon, because it creates an entry in which all participated, and all parts of the company are responsible for it;

- Customer data integration - ERP solutions put all customers' data into one place, such as current stock, debts and payments, etc.;
- Standardization and acceleration of business processes - usually today's ERP solutions are able to help in standardizing business processes, saving time and money for the company;
- Unification of information on human resources - the problem is especially emphasized in companies with more employees, where it is necessary to standardize the data to ensure a simple track system. This is extremely important for the finance department example, when it is necessary to monitor employees' production, working hours, and other performance, which all results in pay check.

All these features enable improvement of business efficiency if ERP is successfully implemented. The implementation itself is time consuming and, depending on the complexity of the enterprise, it can take from one to three years. While training employees is one of the most requiring parts, changing their mind set is even more requiring. It was interesting to find out the results on the previous research conducted on this subject.

## 2. ERP SYSTEMS: LITERATURE REVIEW

We started researching the existing literature on ERP implementation with Mendeley database. The initial search resulted in 747938 articles. We certainly needed to limit such a large number for the purpose of this study, so we added additional limitation through Boolean operators; however, the numbers were still exceeding hundreds of thousands. As we suspected, many scientists studied ERP pre-implementation and post-implementation success factors. Due to time limitation we decided to switch to more scholarly databases such as EBSCO and Academic Search Complete-Premiere. Depending on words used, the results ranged from several hundreds to several thousands, but the articles were more relevant to our research questions, and more available. Each of the researchers read approximately twenty articles on the subject, and was allowed to recommend two to four articles for a more detailed review, which we used to support our findings.

The literature reviewed for the study can be classified into two main areas: one related to ERP and the other related to the organizational innovation process of ERP implementation.

### 2.1. ERP systems

In the past, the ERP used to be called Materials Requirements Planning (MRP). The new concept was created by the Gartner group (Dahlen & Elfsson 1999; Keller 1999), and this definition was mostly describing manufacturing firms. According to Koch et al., today ERP integrates all information systems within the organization (1999). Watson and Schneider (1999) closed up "Enterprise Resource Planning (ERP) as a generic term for an integrated enterprise computing system. They define it as integrated, customized, packaged software-based system that handles the majority of an enterprise's system requi-

rements in all functional areas such as finance, human resources, manufacturing, sales and marketing." Many authors used various descriptions for this system but we find Watson and Schneider (1999) descriptive enough for our study.

### 2.2. ERP Adoption: Innovating Organizational Processes

According to Tushman, "the term "innovation" has been used in three different contexts: "an invention", "a new object" (Tushman et al. 1986), and "a process" (Daft 1978)." As Clemens and Row stated, "IT Systems and technologies are not an innovation in themselves (Clemens & Row 1991) and organizations cannot depend on advanced information technologies produce sustainable advantages because of their ready availability to all their competitors at a price (Clemens and Row, 1991; Powell and Dent-Micallef, 1997)." It is innovation process that is created within the organizations during the implementation process of the new technology that is more important than the technology itself (Powell and Dent-Micallef, 1997). As Markus and Tanis stated "ERP adoption is a complex exercise in technology innovation and organizational change management" (2000).

Since introduction of ERP involves two aspects inside the organization - behavior and innovation - and we cannot conduct research on this, it makes sense to cite the entire paragraph from the existing literature: "According to Mohr two theories evolved: the variance theory and the process theory (Mohr 1982). In the variance theory approach the investigator attempts to identify characteristics of the organization, the environment or the factors that lead to organizational adoption of innovations (Dean 1986). While variance theory excels at explaining the variation in the magnitude of certain outcomes, it tends to do not so well when the outcomes are uncertain, as in the case of ERP adoption. By contrast, process theory provides powerful explanations even when necessary causal agents cannot be demonstrated as sufficient for the outcomes to occur."

According to Stephen P. Laughlin, it is during implementation of the packages that most of the headaches arise (Laughlin 1999). He identifies success factors as: motivating business justification, strong internal owner, empowered and influential internal team and management driven change. It is a natural tendency of employees to be comfortable with the status quo. As Umble Elisabeth and Michael (2002) noted: "people fear that the new system would make their jobs more difficult, reduce their importance, or even cost them their jobs. They are also afraid to fail." On the other side, many authors conclude that many failures in ERP implementation projects are caused due to implementation effect on the organization and discuss some failure factors. Laughlin states that ERP fails because an enterprise rejects it. One of the difficulties was the problem in system design that simply did not match the enterprise needs, which causes problems and increases resistance. Companies usually have their own culture (logic) of doing business which simply does not match technological imperatives imposed by the new system. That is why it is very important to choose the system carefully. If the system is created in such a manner that it heavily imposes a new set of rules, which it usually does, it sometimes can directly influence company's competitive edge, in a negative sense, and thus resistance to it can be simply natural resistance of the organism to an intruder. For example, ERP systems are usually generalizing business processes, while some companies actually rely on its customized solutions as part of its strength. Out of the blue, the company is no longer effective in differentiating itself from the competitor because they both are using generic systems. The company that looked for a software solution to unitize its business processes, found itself on a journey of doing

the entire business in a different manner, maybe similar to those of direct competitors. Jumping too fast into existing ERP systems without considering its implication, a company can quickly hit the wall finding the new system suddenly becoming its biggest problem. This results either in wasted effort, time and money, pushing the system integration into success, but crippling the company's important strengths or in system failure. In short, it is most important to plan things right and understand thoroughly the problems that the system is supposed to solve, which is usually fragmentation of the company in utilizing available data on business processes.

After choosing the right system it is utmost important to choose the right project team. An ERP project team is usually composed of a Project Manager and internal organizational team comprised of end users of ERP system, technical (IT) experts, business process experts, internal and external consultants and managers of an organization. Choosing its own team rather than outside consultants ensures that employees will be drawn into problem solving more deeply. According to some authors the biggest difficulty is to change from functional to process oriented work flows that follows the ERP implementation. The responses we received also suggest employees had developed their own functional systems to track and measure their process and resisted change of adapting to the new system due to unfamiliar technology. The problem is that they were taking care of their own process rather than all the processes inside the company that ERP is unifying under one track system. While this is helpful to management to better follow on front line activities, at the same time it can cause erroneous input from one department to spread to other departments too. In smaller companies such mistakes are usually discovered quickly, while in more complex systems they can affect many processes before the root cause is discovered. Consequently, this encourages people to avoid using the system. That is why all application users including the entire management need to accept technology and be trained to understand and use ERP. According to Umble, people should be properly prepared for the significant changes that need to take place (Umble 2002). It is not just a technical project, it requires of people to change (Umble 2002). P. Schneider suggests that there is no right way to implement ERP but that active and engaged leadership is vital (1999). Umble emphasizes that this requires from highly respected individuals to put their reputation at stake and lead the change initiative (Umble 2002). Many other researchers call these individuals "project champions", the term first time used by Schon (1963) referring to successful implementation of technological innovations. Esteves, Pastor and Casanovas investigated the role of project champion during implementation of ERP more thoroughly (2004). They concluded that the project champion is definitely the project sponsor with its ownership and responsibilities to obtain project resources (Esteves et al. 2004). Nah, Zuckweiler, and Lau emphasize in their article commitment to resources and commitment to change (Nah, Zuckweiler & Lau 2003). Through our conversation with both project managers and managing directors, some of them were suggesting that ERP implementation, though successful, does require their constant attention. That left us with the impression that the implementation is a never ending process, which after all, could be considered as failure. According to Mishra, only thirty three percent of ERP implementations end up successfully (Mishra 2004). For a very popular management tool that is considered to improve all business processes inside the organization, this is a very high failure rate. The failure ranges from technical side to behavioral side, all the way to cultural side of the organization. Successful implementation requires constant communication between all departments on a daily basis. If the company is not stable, it is

less likely that the ERP system would bring stability. Most of the companies that we used in our sample were on the good track, and tried to use ERP as additional support to their already successful businesses. Where managers recognize this, it was more likely that the ERP implementation would succeed. Still, they need to clearly communicate their expectations to every department continually, and support it with additional assistance, like additional trainings when necessary. Managers need to listen to employees' feedback, including both approvals and disapprovals. This would lead to better incorporations of additional features into the system when necessary, and at the same time, show management support to implementation. In every phase of the implementation, software developer should be working closely with the company. Servicing the customer is critical at this stage. If not a part of the agreement this is usually time and money consuming for the company, which can cause the management to decrease its interest in the system. This takes us to the main research question of our article.

## 3. RESEARCH DESIGN AND METODOLOGY

The study was conducted using combined qualitative and quantitative methods. Qualitative methodology was conducted in two phases. In the first phase we were using focus group (FG) qualitative methodology. E-mails with specific topics regarding ERP implementations were sent to general managers and project managers in order to prepare for FG discussion. Upon receiving the feedback, we organized the meetings where two members of our team moderated discussion with project managers and other two moderated discussion with general managers. Topics/questions that we asked project managers and general managers to discuss are:

- What is your experience regarding ERP implementation?
- Were there any issues with the finance?
- Describe the steps that you followed while implementing the ERP?
- What were the biggest difficulties that you faced?
- Please describe how people accepted the new technology and business process change that ERP introduced?
- How did you overcome the difficulties?
- Do you think that the ERP is now fully integrated in your company?
- How do employees feel about it now, are they satisfied with it?

These two focus groups are selected because they have the greatest role in ERP implementation projects. Topics (questions) were created in order to receive as much information regarding the reasons for resistance. In the second phase, responses from both FGs were sorted and analyzed. FG discussions included information from different organizations and were not limited to a specific ERP software package. One discussion includes responses from project managers and other from general managers. Each outcome of FG discussion was analyzed by group of two researchers of our group.

## 4. RESEARCH ANALYSIS

As proposed by Srnka and Koeszagi, we used 5 stages blueprint model for qualitative research analysis in order to establish input for quantitative calculations.

In material sourcing stage, researchers were assigned in two categories (each category of two researchers) to conduct FG discussions. Two researchers acted as moderators in each of the discussions. The discussion was moderated in the English language.

In transcription stage, all responses from two FGs were entered in Excel sheets (FG1 and

FG2). Each FG response was examined by two researchers in order to classify the relevant data for future analysis (R_FG1 and R_FG2).

### 4.1. Unitization stage:

During unitization stage the coders were paired and each coder in the group coded all messages in specific FG. Messages were coded in the Excel sheet (R_FG1 and R_FG2). Prior to the initial coding, the group met and discussed in detail the work plan in order to unitize messages.

After we independently unitized the messages and after the first coding round, the following results were obtained (U1).

Table 4.1. Example of agreed unitizing

| | |
|---|---|
| In my opinion the biggest problem in ERP implementation is the lack of support from the top management. Since ERP implementation transforms the way company does business, it is necessary for top management to plan and support those changes. The other problem is inadequate education of top management so they cannot understand how ERP should be integrated in organization overall business and understand the benefits of the new system. Other problem is inaccurate data. Bad data has a negative domino effect on all businesses of acompany. The lack of end user commitment results in their inadequate training, so they do not utilize all of the system capabilities. | In my opinion the biggest problem in ERP implementation is the lack of support from the top management. Since ERP implementation transforms the way company does business it is necessary for top management to plan and support those changes. |
| | The other problem is inadequate education of top management so they cannot understand how ERP should be integrated in organization overall business and understand the benefits of the new system |
| | Other problem is inaccurate data. Bad data has a negative domino effect on all businesses of a company. |
| | The lack of end user commitment results in their inadequate training, so they do not utilize all of the system capabilities. |

Table 4.2. First round coding

| Coders | First round | | Second round | | Third round | |
|---|---|---|---|---|---|---|
| | Number of units O1 and O2 | Guetzkow's U1 | Number of units O1 and O2 | Guetzkow's U2 | Number of units O1 and O2 | Guetzkow's U3 |
| Coder1_PM | 19 | 0.1364 | 22 | 0.0638 | 23 | 0.0000 |
| Coder2_PM | 25 | | 25 | | 23 | |
| Coder1_GM | 20 | 0.0698 | 21 | 0.0455 | 21 | 0.0000 |
| Coder2_GM | 23 | | 23 | | 21 | |

We calculated Guetzkow's U which measures the reliability of the number of units identified by two independent coders in each group (PM and GM). Guetzkow's U1 (PM) equaled 0,1364. In the first round we noticed difference in number of units according to the number of unitized messages so we decided to do correction. During the comparison of every sample of conversation we found that coder O1 had divided the text into 19 units which is a considerably lower number than the number of units of coder O2. The difference was grounded on the fact that coder O1 submitted the units with the same categorization into one unit. Corrections were made in order to split up previously unitized messages by coder 1. The second round finished with O1 = 22 and O2 = 25, and Guetzkow's U2 became 0.0638. At this state coders from the first pair calculated textual consistency for PM which was 88%. We received a satisfactory percentage but due to a small sample we worked with, we decided to do the third round of coding in order to increase quality. The third round of coding resulted in both coders ending with 23 units.

The coders of GM group were somewhat better in coding and they achieved difference of 3 after the first unit of coding. After the second round of coding U2 reached 0.0455 which gave textual consistency of 91%. After

the third round of coding both coders ended with 21 units.

At the end of unitization stage, two groups divided to follow two different FGs ended in the agreement of 23 units for PM group and 21 units for GM group.

### 4.2. Categorization stage

Further, all coders decided to go on with categorization with the aim to retain or update the suggested categorization scheme. *Group PM*: The categories were set according to the main research question in regard to the main reasons for resistance among project managers. However, we have run several preliminary coding rounds before deciding on the final category scheme. The coder number 2 systematically coded all units under the defined categories. After the first coding round the two coders met and compared the categorization. Analysis showed that there are some discrepancies that have an origin in differences in methodology between the two coders.

The final conclusion for PM group: By analyzing the entire process we have concluded that introduction of subcategories is not necessary since we were able to place all kinds of communication under the existing categories. Subcategories would not add value to the categorization work for two reasons: (1) there is already a large number of the main categories for the amount of unitized messages (23) – five, (2) for the sake of simplicity of the research and (3) for time limitations. *Group GM* categorized and at first they also realized that certain categories were not adequately presented. Specifically, category three (Manager Response) was the first 'problematic' category as it had only three responses due to the amount of unitized messages (25).

We all concluded that a much bigger amount of unitized messages will have to be analyzed. Due to time limitations we continued with the set of 5 categories with no need for subcategories. The coders finally formulated the general definitions for the five main categories as follows:

Table 4.3. Main Categories–General Definitions

| |
|---|
| *1. Lack of the organization:*<br>Any internal organizational problem connected to acceptance of ERP. |
| *2. Acceptance Problems:*<br>Problems among end users of applications to adopt or accept the new technology. |
| *3. Manager Response:*<br>Inadequate involvement by managers in terms of ERP project. |
| *4. Implementation difficulties:*<br>Technical difficulties, inadequate training, problems with business process analysis, other related technical issues. |
| *5. Financial Reasons*<br>Support of Top managers in terms of financing implementations, buying all necessary hardware and software, paying suppliers on-time, not enough investments. |

## 5. CALCULATIONS

Using the above defined main categories, the two groups of coders independently assigned a single code to each unit. After this first main coding round, we calculated Cohen's kappa to check inter-coder reliability.

The kappa value used for coding consistency, or check of consistency, provides a certain reliability coefficient for overall categories. With the objective to identify potential issues for coding disagreement we developed the inter-coder consistency matrix and applied it to the main category. Then we used it for calculation of the Cohen's kappa and came up with different results for both groups.

The inter-coder consistency matrix of the PM group is presented in Table 4.1 and the matrix of the PM group is presented in Table 5.1.

Table 5.1. Intercoder Consistency Matrix - Project Managers

| Coder1/Coder2 | Category 1 | Category 2 | Category 3 | Category 4 | Category 5 |
|---|---|---|---|---|---|
| Category 1 - Lack of the organization | 2 | 0 | 1 | 0 | 0 |
| Category 2 - Acceptance Problems | 1 | 5 | 0 | 0 | 1 |
| Category 3 - Manager Response | 0 | 0 | 9 | 0 | 0 |
| Category 4 - Implementation difficulties | 0 | 1 | 0 | 5 | 0 |
| Category 5 - Financial Reasons | 0 | 0 | 0 | 0 | 2 |
| Total | 3 | 6 | 10 | 5 | 3 |
| Agreement (%) | 66 | 83 | 90 | 100 | 66 |

Table 5.2. Intercoder Consistency Matrix - General Managers

| Coder1/Coder2 | Category 1 | Category 2 | Category 3 | Category 4 | Category 5 |
|---|---|---|---|---|---|
| Category 1 - Lack of the organization | 6 | 0 | 0 | 1 | 0 |
| Category 2 - Acceptance Problems | 0 | 10 | 0 | 0 | 0 |
| Category 3 - Manager Response | 1 | 0 | 2 | 0 | 0 |
| Category 4 - Implementation difficulties | 0 | 1 | 0 | 6 | 0 |
| Category 5 - Financial Reasons | 0 | 0 | 1 | 0 | 2 |
| Total | 7 | 11 | 3 | 7 | 2 |
| Agreement (%) | 86 | 91 | 66 | 86 | 100 |

To calculate Cohen's kappa we used the formula suggested by Brennan and Prediger (1981) as follows:

$K= (Pr(a)-Pr(e))/(1-Pr(e))$ where

$Pr(a) =\sum P_{ii}$ and

$Pr(e) = \sum(P_i \times P_i)$

Pr(a) means percentage of agreement and Pr(e) means the probability of random agreement.

Tables 4.3 and 5.1 show calculation of absolute and relative frequencies that we used in order to calculate probability of random agreement. Absolute and relative frequencies for both groups PM and GM are calculated.

In tables 5.2 and 5.3 we calculated the probability that both coders of each group agreed based on the main categories.

Table 5.3. Project Managers

| Coder1/Coder2 | Category 1 | Category 2 | Category 3 | Category 4 | Category 5 | Abs. Freq | Rel. Freq |
|---|---|---|---|---|---|---|---|
| Category 1 - Lack of the organization | 2 | 0 | 1 | 0 | 0 | 3 | 0.115385 |
| Category 2 - Acceptance Problems | 1 | 5 | 0 | 0 | 1 | 6 | 0.230769 |
| Category 3 - Manager Response | 0 | 0 | 9 | 0 | 0 | 9 | 0.346154 |
| Category 4 - Implementation difficulties | 0 | 1 | 0 | 5 | 0 | 6 | 0.230769 |
| Category 5 - Financial Reasons | 0 | 0 | 0 | 0 | 2 | 2 | 0.076923 |
| Absolute Frequencies | 3 | 6 | 10 | 5 | 3 | 26 | |
| Relative Frequencies | 0.1153846 | 0.23076923 | 0.384615385 | 0.19230769 | 0.1153846 | | |

Table 5.4. General Managers

| Coder1/Coder2 | Category 1 | Category 2 | Category 3 | Category 4 | Category 5 | Abs. Freq | Rel. Freq |
|---|---|---|---|---|---|---|---|
| Category 1 - Lack of the organization | 6 | 0 | 0 | 1 | 0 | 7 | 0.233333 |
| Category 2 - Acceptance Problems | 0 | 10 | 0 | 0 | 0 | 10 | 0.333333 |
| Category 3 - Manager Response | 1 | 0 | 2 | 0 | 0 | 3 | 0.100000 |
| Category 4 - Implementation difficulties | 0 | 1 | 0 | 6 | 0 | 7 | 0.233333 |
| Category 5 - Financial Reasons | 0 | 0 | 1 | 0 | 2 | 3 | 0.100000 |
| Absolute Frequencies | 7 | 11 | 3 | 7 | 2 | 30 | |
| Relative Frequencies | 0.2333333 | 0.36666667 | 0.1 | 0.2333333 | 0.36666667 | | |

Table 5.5. Agreement of coders General

| PM | | | | | | |
|---|---|---|---|---|---|---|
| Categories | Freq 1 | Freq 2 | Agreement | 01% | 02% | Prob. of both agree |
| Category 1 - Lack of the organization | 3 | 3 | 2 | 0.66666667 | 0.6666667 | 0.4444444 |
| Category 2 - Acceptance Problems | 6 | 6 | 5 | 0.83333333 | 0.8333333 | 0.6944444 |
| Category 3 - Manager Response | 9 | 10 | 8 | 0.88888889 | 0.8 | 0.7111111 |
| Category 4 - Implementation difficulties | 6 | 5 | 4 | 0.66666667 | 0.8 | 0.5333333 |
| Category 5 - Financial Reasons | 2 | 3 | 2 | 1 | 0.6666667 | 0.6777777 |

Table 5.6. Agreement of coders

| GM | | | | | | |
|---|---|---|---|---|---|---|
| Categories | Freq 1 | Freq 2 | Agreement | 01% | 02% | Prob. of both agree |
| Category 1 - Lack of the organization | 7 | 7 | 6 | 0.85714286 | 0.8571429 | 0.7346939 |
| Category 2 - Acceptance Problems | 10 | 11 | 9 | 0.9 | 0.8181818 | 0.7363636 |
| Category 3 - Manager Response | 3 | 3 | 2 | 0.66666667 | 0.6666667 | 0.4444444 |
| Category 4 - Implementation difficulties | 7 | 7 | 6 | 0.85714286 | 0.8571429 | 0.7346939 |
| Category 5 - Financial Reasons | 3 | 2 | 2 | 0.66666667 | 1 | 0.6666667 |

In terms of PM group, there were issues with category 1. We realized that probability agreement, or the percentage of the agreement, is considerably lower than in other categories. However we left this category due to very low absolute frequencies.

All other categories had satisfactory agreement for both coders in the PM group. For GM group, category 3 had a low agreement percentage also due to a small number of absolute frequencies. We proceeded by calculating final Kappa values for all categories.

Table 5.7. Measuring the level of agreement

| **Project Managers** | |
|---|---|
| Pr(e) | 0.2529586 |
| Pr(a) | 0.7666667 |
| **Kappa Value** (Pr(a)-Pr(e))/(1-Pr(e)) | **0.6876568** |
| **General Managers** | |
| Pr(e) | 0.2477778 |
| Pr(a) | 0.8666667 |
| **Kappa Value** (Pr(a)-Pr(e))/(1-Pr(e)) | **0.8227474** |

In accordance to Landis and Koch who gave the following (Table 4.3) for interpreting κ values, the value of Kappa for Project Managers group reached 0.6876568, which means that coders O1 and O2 reached substantial agreement and the descriptive analysis could be obtained on the given data. Coders O1 and

O2 of the General Managers group reached almost perfect agreement at kappa value of 0.8227474.

Table 5.8. Agreement level explanation

| Kappa value | Interpretation |
|---|---|
| < 0 | No agreement |
| 0.0 — 0.20 | Slight agreement |
| 0.21 — 0.40 | Fair agreement |
| 0.41 — 0.60 | Moderate agreement |
| 0.61 — 0.80 | Substantial agreement |
| 0.81 — 1.00 | Almost perfect agreement |

Since both groups reached at least substantial agreement we decided to proceed with descriptive statistics.

## 6. QUANTITATIVE ANALYSIS

In terms of absolute frequencies of our categories, we used descriptive statistics to display the results of our main categories. Following are the charts of relative frequencies.

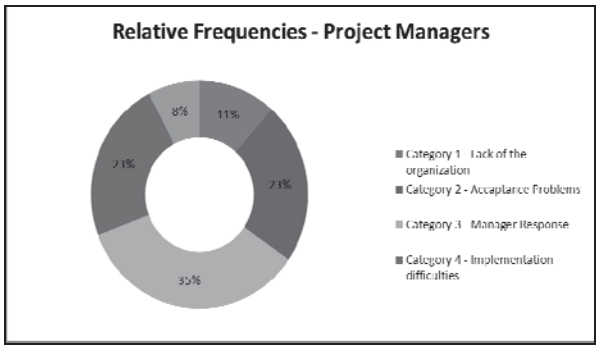


Figure 6.1. Relative frequencies PM

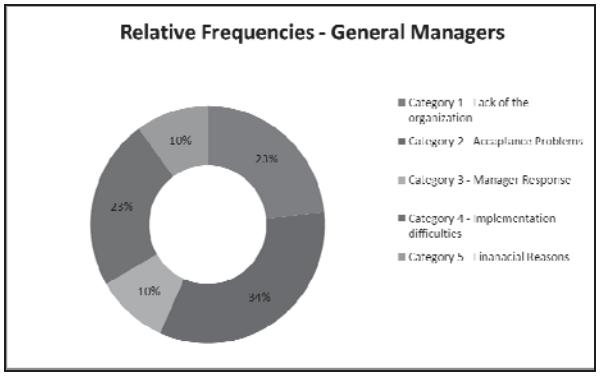


Figure 6.2. Relative frequencies GM

### 6.1. Discussion

Two focus groups (Project Managers and General Managers) were questioned in order to investigate the main reasons for resistance in the organizations that implemented or failed to implement ERP. During our interviews with selected focus groups some managers seemed very pleased to use ERP, others complained about different reasons why they had problems and what their concerns are in terms of ERP implementation projects.

It was interesting to look at different responses from two different organizational positions. However, we focused on the data that led us to the following conclusions by the groups that we identified according to the research question. We came with interesting results among five main reasons for resistance in Project Managers group. Both acceptance problems and implementation difficulties accounted to about 1/5 of the main reasons for resistance, and manager response accounted for 35%. Other two identified reasons (the lack of organization and financial reasons) accounted to the rest of 19 %. Since project managers in our focus group were chosen from the organizations it is a good finding that the major reason for resistance according to project managers comes from 'manager response' area, even though problems in implementation of ERP systems and acceptance by the employees cannot be neglected. According to our category definition, it means that the major reason for resistance among project managers is inadequate involvement by managers in ERP projects.

For General Manager group we found out that 'acceptance problems' gave the biggest influence as the cause to resistance (34%). Implementation problems and the lack of organization accounted to other 46 % of reasons. Implementation difficulties and financial reasons accounted to last 20%.

## 7. CONCLUSION

These finding led us to the conclusion that the main reason for resistance to an ERP project among general managers are potential technology acceptance problems by the employees of an organization and the effects that it will have to organization. Also, implementation problems are a concern which cannot be neglected. On the other hand, project managers believe that the major reason for resistance towards ERP implementations comes from the top management involvement in the whole process of implementation.

Comparing and combining results from both FGs (Project Managers and General Managers) we note that acceptance problems (33.5%) have a huge influence on project managers and general managers to be resistant towards ERP implementation.

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