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BAHCESEHIR UNIVERSITY

BUSINESS PROCESS IMPROVEMENT: AN APPLICATION FOR CALL CENTRE OPERATIONS

MASTER THESIS

NESİME DENİZ EROL

İSTANBUL, 2015

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This is to certify that we have read this thesis and we find it fully adequate in scope, quality and content, as a thesis for the degree of Master of Arts.

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ABSTRACT

BUSINESS PROCESS IMPROVEMENT: AN APPLICATION FOR CALL CENTRE OPERATIONS

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This thesis investigates the business process reengineering methods for call centres and presents a modified approach that contains BPR and BPI steps together. In this thesis a case study in the after sales process of a call centre company in Turkey is discussed to define the eight steps of a modified approach. It also provides an important roadmap for Business Process Reengineering initiatives in other companies which have a call centre.

Keywords: Business Process Reengineering, Business Process Improvement, Service Operations, Call Centre, Case Study

OZET

İŞ SÜREÇLERİ GELİŞİMİ: ÇAĞRI MERKEZİ OPERASYONLARI İÇİN UYGULAMA

Nesime Deniz Erol
Endüstri Mühendisliği
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Bu tez çağrı merkezleri için değişim mühendisliği metotlarını araştırmaktadır ve bu kapsamda değişim mühendisliği ve süreç geliştirmenin adımlarını içeren farklı bir model sunmuştur. Bu modele ait sekiz adım tanımlanırken Türkiye'deki bir çağrı merkezinin satış sonrası süreçlerini içeren bir uygulama kullanılmıştır. Bu yanı ile çağrı merkezi olan firmalar için bu tez, değişim mühendisliği uygulamaları için bir yol haritası niteliğindedir.

Keywords: Değişim Mühendisliği, İş Süreçlerinin Geliştirilemesi, Hizmet Operasyonları, Çağrı Merkezi, Örnek Olay İncelemesi.

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ABBREVIATIONS

ACD : Automatic Call Distributer

BPI : Business Process Improvement

BPR : Business Process Reengineering

CAGR : Compound Annual Grow Rate

CRM : Customer Relationship Management

CTI : Computer Telephony Integration

IDEF : Integrated Definition Method

IT : Information Technology

IVR : Interactive Voice Response

PIT : Process Improvement Team

SMS : Short Message Service

1. INTRODUCTION

Business Process Reengineering is the business concept which started in the 1990's. Until this time there were many articles and case studies about different combinations of Business Process Reengineering in different industries, most of them emphasize manufacturing application over service operation. Business Process Reengineering implementation in service operations focuses on health, public and finance sectors which have a large market share, which are older than other operations in the service sector. In this paper business process reengineering approach in the after sales process of a call centre company in Turkey is examined in order to add a different service sector implementation to the literature.

Call centres are important mediums that convey the 'voice of the customer' to the company; as they record expectations, requests, requirements and complaints of the customer. When we highlight the fact that many independent companies have their call centres today; this study not only includes stages of reengineering applications in call centre; but also provides an important guideline for using call centres as a medium to designate the business process reengineering route map of the company itself.

In light of this information, a modified approach which is an integration of BPR and BPI has been created. This paper explains a conception framework of a process model of business process reengineering by using a call centre as a tool and is organized as follows:

First, a brief explanation of BPR is given and its relevance to call centres. Then in the research methodology stage; many steps of reengineering are followed while multi-staged innovations are also taken into consideration and evaluated by means of BPI. Finally a case study, which was carried out, is presented to provide an understanding of the modified approach.

2. LITERATURE REVIEW

Lots of definitions have been made about BPR, since its announcement by Hammer and Champy in 1993. Business Process Reengineering is radically redesigning and rethinking the business process, making radical improvements (Hammer and Stanton 1995). Carr and Johansson (1995) defined Business Process Reengineering as a temple which stands on three columns named 'process focus', 'radical change', 'dramatic improvement'. BPR concerns the fundamental rethinking and radical redesign of business process to obtain dramatic and sustained improvements in quality, cost, service, lead time, flexibility and innovation (Gunasekaran and Kobu, 2002). Kumar and Bhatia (2012) use five words to explain BPR ,which are 'fundamental', 'radical', 'dramatic', 'change' and 'process'.

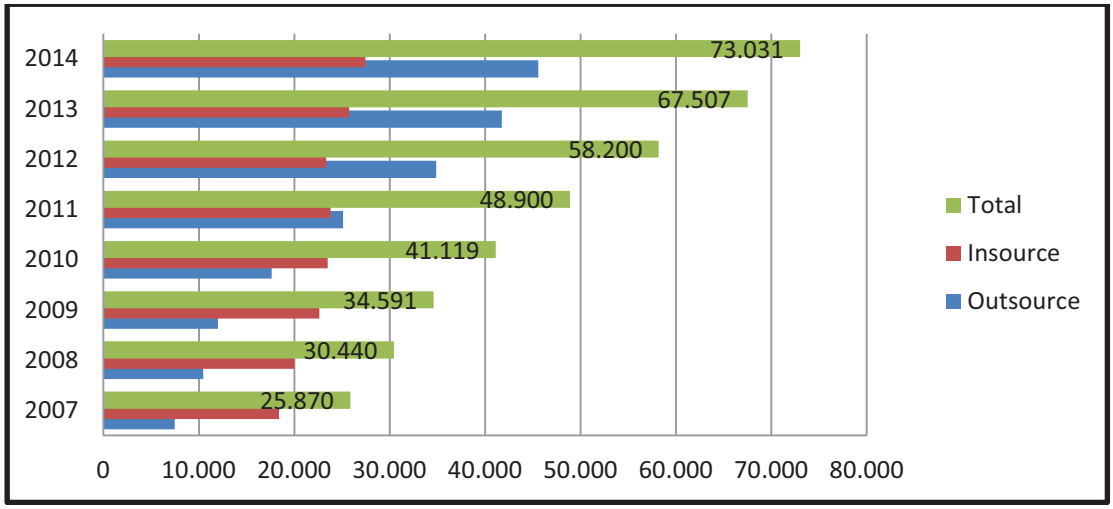
Many approaches give a competitive edge to companies. However, BPR was created for this. In the beginning of the 1990's competitiveness became more important and then Hammer and Champy (1993), who developed the BPR approach, said; companies, which have the best performance, eliminate the others from the market because the best price, the highest quality or the best service served by anyone has become a standard for the others in a very short time. "Appropriate" isn't enough anymore (Hammer and Champy, 1994). Goksoy, et al. (2012) emphasized that in today's highly competitive and constantly changing market place, in order to operate successfully, it is certain for companies to give up old fashion ways of doing business adjust to changes in their environment so BPR became the most popular change management approaches and took great attention from practitioners and academicians and has also become commonplace among companies. Also Carr and Johanson (1995, p. 7) said; "In short, BPR is about competitiveness, that is the first driver, the company's competitive position.".

The Turkish Call Centre Sector is a dynamic competitive market. In the Turkish Call Centres Association (2011), the worldwide call centre market size was estimated at 380 Mililon dollars in 2013. There were 124.000 call centres, 9.000.000 seats and 11.000.000 agents in 2011 and these numbers were estimated to grow to 150.000 call centres, 9.600.000 seats and 12.000.000 agents in 2013. Considering the world average the ratio

of number of agents per person isn't enough according to the population in Turkey. There is one customer representative for each 200 persons abroad this number is 1000 in Turkey which means the Turkish call centre market has five times the growing potential.

Also, according to Figure 1.1, the number of ready-to-use seats was estimated to grow from 67.500 to 73.000 by the end of 2014 which means it will increase by 8 percent according to 2013.

Figure 1.1: The number of ready-to-use seat in Turkey



Sources: Turkish Call Centres Association, (2014) Turkish Call Centre Sector Research

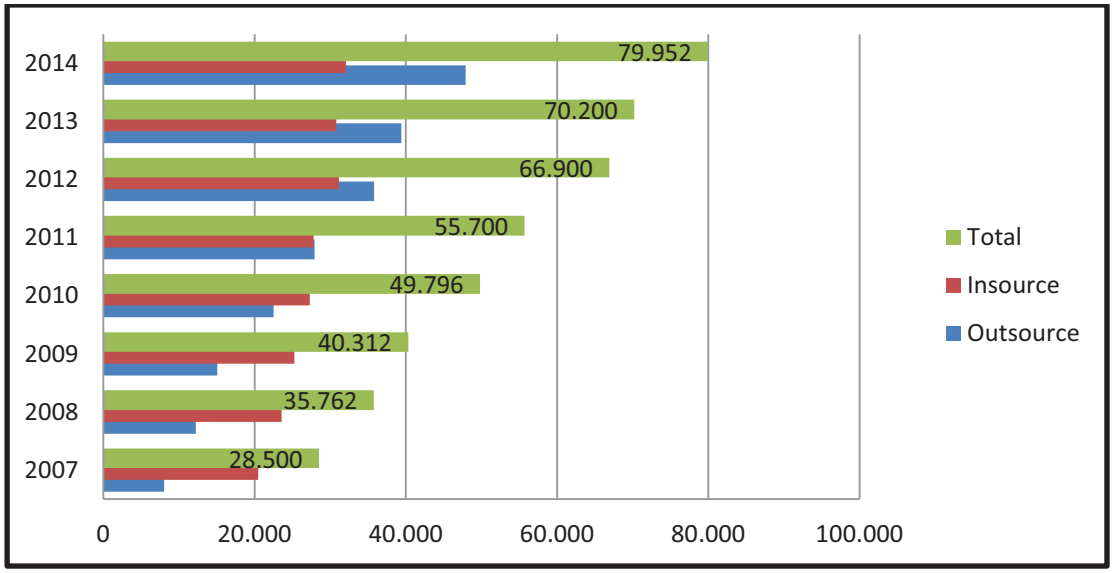
In addition the agent numbers, which were 70.200 in 2013, were estimated to increase to 80.000 by the end of 2014. In which case 8.500 agents were hired by outsources call centre companies in the last 1 year in as can be seen Figure 1.2.

According to these numbers, the Turkish Call Center sector is expected to grow by 10 percent in terms of agent employment ratio. According to 5-year future forecasts; this growth is expected to continue with an approximate 15 percent CAGR ratio. In view of this, call centres in Turkey, which are fast competing in a growing market that implement BPR, will have superior results.

Hammer and Champy stated; apart from being an integral part of all reengineering studies, information technology is a fundamental catalyst for application of reengineering on business processes. (Hammer and Champy, 1993). Esbenshade et al. (2014) said that BPR uses technology to eliminate unneeded activities and dramatically reorganizing core

processes. For instance Kumar and Rahman (2014) use RFID technology for tracking linens with the integration of RFID technology in the operation, a higher level of the customer satisfaction and process efficiency were succeed.

Figure 1.2: The number of call centre agent in Turkey



Sources: Turkish Call Centres Association, (2014) Turkish Call Centre Sector Research

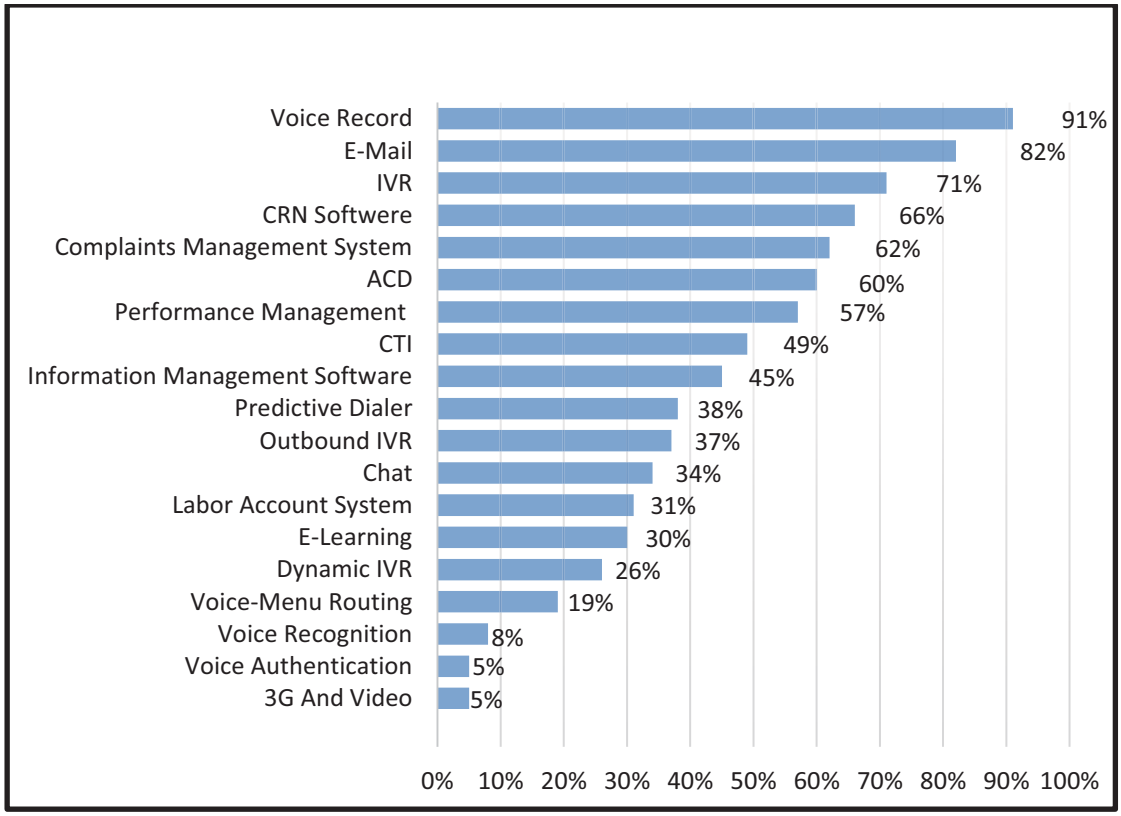
When evaluated inside this perspective, companies that are able to designate correct processes and realize these processes by means of information technologies, will surely acquire more effective results in terms of reengineering. Call centres are included in the branch of service sectors that utilize technology in an intense manner. Technologies that have been used by Call Centres in Turkey throughout 2014 can be seen in Figure 1.3 Therefore, as can be seen in Figure 3.1; 66 percent of call centres in Turkey use a CRM which they have coded on their own or acquired by means of outsourcing. In short; benefiting from information technologies, the most fundamental catalyst of reengineering, is a crucially important criteria for success in reengineering applications of call centres.

The most fundamental problem of reengineering is acquisition of customer demand. Li et al. (2013, p. 635) explained this situation that;

> *In the 21st century enterprises are finding themselves in a complex and increasingly competitive market. With the rapid development of the modern science and technology, the core of the booming new economy has been regard as fulfilment of customer's need.*

The study that has been performed by Hammer and Champy in 1993 has revealed that most of the companies that have successfully reengineered one or multiple processes in a radical manner managed to do so by asking themselves "why do we do, what we do?".

Figure 1.3: Technologies used in Turkey Call Centre in 2014



Sources: Turkish Call Centres Association, (2014) Turkish Call Centre Sector Research

Similarly, when they have asked the same question to other companies; they have discovered that most of the work that the personnel had been doing had in fact very little to do with meeting customer demands. Therefore, they established the reengineering procedure according to these observations. Additionally, Hammer and Champy's (1993) following statements mark the importance of the customer in reengineering procedures;

i. Now the customer is the superior side, not the seller. Now, the customer side determines what it wants, when it wants, how it wants it, how much it'll pay and how it'll pay.
ii. Each customer, whether it's a consumer or an industrial company, requires a unique and customized treatment. Customers request products that meet their genuine

requirements, delivery schedules that are in line with their production plans or working hours, and payment terms according to their financial planning.

iii. The most important truth that companies with a mass market growth mind-set find difficult to accept is the fact that each customer is important. If you lose a customer today, a new one may not emerge tomorrow.

iv. People who take part in this process only look towards themselves, their own unit, or upwards, towards their boss. Yet, they fail to look outside, towards the customer.

v. Reengineering defines the act of looking towards the procedures that are required for creating a product or a service that provides an added value for the customer from scratch and leaving the previously defined procedures behind.

vi. The customer is a far more important source of information than comparing the importance of various processes against each other. The company can determine the subjects that customers pay the most attention to.

vii. Customer side of the process is the best place that reengineering team can refer to, for the purpose of understanding the process.

viii. As the most fundamental purpose of re-designing the process is creating a process that meets customer requirements in a more satisfactory manner, it's crucial for the team to designate these requirements thoroughly.

In short, reengineering is a discipline which enables companies to get rid of unnecessary business flows and focus customer requests only for preserving the competitive stance of the Company in the market. Carr and Johansson only used the information that has been acquired directly from the customer when designating core business processes of reengineering; and named this information as the 'voice of the customer'. Also Carr and Johansson added (1995, p. 115);

> *Because core business process by definition connect with customers-as opposed to supporting processes, which can be completely internal-it is important to obtain meaningful customer input before deciding which processes to reengineer. We call this listening to the "voice of the customer".*

As can also be seen in Figure 1.3; 91 percent of call centres use voice recording systems which enable the company to record the customer experience. Additionally, all incoming calls are grouped according to their title classification and stored accordingly. When the issue is taken into consideration through this perspective; it's easy to designate the

requirements and requests of the customer for a call centre. In other words; 'voice of the customer' is the call centre itself. Also, it's easier for a call centre to designate the process to be reengineered when compared to other sectors. In fact; when it is considered that many products and services have genuine call centres for themselves; it can be said that investigating call centre results of relevant products or services will surely provide beneficial results especially in terms of determining the process which will be subjected to reengineering before the reengineering procedure is started.

Since Hammer and Champy (1993), different researchers have put forward various models for implementing BPR. For instance Narasimhan and Jayaram (1998) proposed three major phases for implementation of BPR in service operation. These are assessment, design and implementation planning. Wu (2002) proposed an integrative view to implement BPR projects with a strategic aspect. His theoretical framework constitutes three steps, identify corporate strategies, select strategic paths for BPR with IT application and implement BPR. According to Kuhil (2013), generally BPR methods are designed to gain management commitment, select a cross-functional reengineering team, identify the process to be reengineered, understand and redesign the chosen process, and implement the new process. Yaghini et al. (2012), reviewed six different frameworks and they decided to use Process Regeneration Method Framework to reengineer locomotive operation process. Process Regeneration Method Framework designed by Kettinger et al. (2000) has 8 main steps, which are discover re-generation opportunities, identify IT levers, select process, document existing process, uncover pathologies, explore alternative process designs, design new process, design IT architecture. Rinaldi et al. (2015) carried out a BPR study in a public administration of Italy and exploit a slightly modified approach, which includes five phases; preparing for reengineering, analysis of the AS IS process and critically identification, data collection, development of the simulation model, designed of the TO-BE process.

BPR does not have to stand alone, it is possible to find references where BPR is used with alongside another approach. Zellner (2011) pointed out that BPR became a part of the mainstream of BPI and it is related to improvement of business process like "business process redesign", "core process redesign", "business restricting", "continuous

improvement process" and "six sigma". Bhaskar and Singh (2014) touched on similarities between TQM and BPR, and uttered that both focus on the definition and operation of business process to produce products and services. Also Kumar and Tyagi (2014) underlined that TQM and BPR are the most preferred methods used by the organizations for process improvement and added that organizations achieve greater result by implementation of integration and the current use of these two process improvement methodologies. Wastell et al (1994) described a flexible and extensible methodological framework (called PADM) ,which is an eclectic methodology, for BPR and has been influenced by number of methodological approach. Lee and Chuah (2001) referred that CPI, BPR and BPB are three aspects of process improvement strategies and activities generally being adopted by todays's organizations and created SUPER which can satisfy three types of requirements with reengineering, continuous improvement and benchmarking from various business process and the time of selecting the improvement strategy is saved.

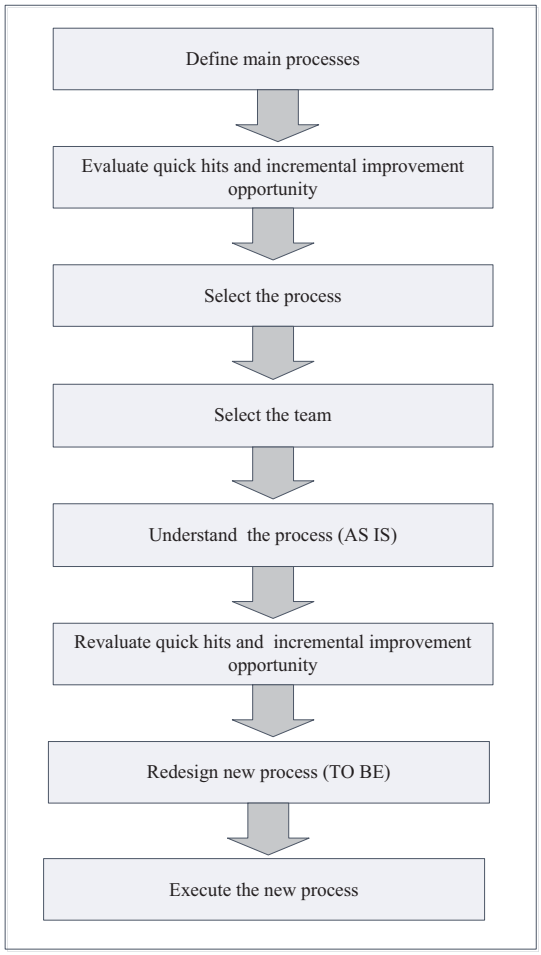
Hammer and Champy (1993) stated that the definition of reengineering shall always include four keywords; namely "fundamental, radical, astonishing and procedural". As important performance spikes are required to be acquired as a result of reengineering applications; all former systems shall be kept aside and each element of every procedure shall be reviewed accordingly with sufficient time. When we take harsh competitive conditions and rapid movement requirements of the call centre industry into consideration; reengineering works may take a long time for call centres, even though, they will provide important performance spikes as a result. Therefore, it is beneficial not to ignore multi-staged innovations that are realized under the scope of BPI, during the reengineering studies performed for call centre.

According to this information the modified approach which contains BPR working with BPI to shorten the time limit has been created. The eight steps of this modified approach are explained in this paper.

3. RESEARCH METHODOLOGY

Generally, BPR procedure includes four phases; select the team, select the process, redesign process, execute the process improvement. In this study, I use a slightly modified approach, which consists of BPR and BPI steps and use call centers records to define the process that has priority for reengineering implementation. The approach used is depicted in Figure 3.1 and explained below.

Figure 3.1: The modified approach



3.1 PHASE ONE: DEFINE MAIN PROCESSES

The main objective of this section is to determine what a company does and why it does it. In this sense, the following two fundamental questions are sought answers;

i. How do we do our work?
ii. What value do we provide for the customer?

Processes are the work that companies do (Hammer and Champy, 1993). Therefore, it is useful for depicting how work has been done to form process maps showing the relationship between the main processes to how it is done. After completing process maps that shows the main process, a list of benefits and commitment of the company, which is presented to the customer, has been formed. The basic objective of this list, particularly the change, is for our customer to choose our products and services. The list should be able to respond to the following questions in parallel with the sales strategy;

i. Who: Who is your customer?
ii. Why: Why does/is the customer buy/buying from you?
iii. How: How do I sell the product?
iv. Where: Which channel do I sell?
iii. When: Is customer ready for buying?

In this point, it may come to mind that this phase may not be required for the companies which have already prepared the process maps and values provided to the customer. As Hammer and Champy (1993) stated, reengineering means to start over from scratch. Under any circumstances, starting over is a core condition for reengineering.

3.2 PHASE TWO: EVALUATE QUICK HITS AND INCREMENTAL IMROVEMENT OPPORTUNITY

In this phase, where the main process of the company and the benefits for the customer are evaluated, we can get the development opportunity that cannot be evaluated within the scope of reengineering. These kinds of revision and developments in the standard phases of reengineering should be disregarded because the main argument of reengineering is not doing what has been done today in a better way. The important thing

for reengineering is how we would like to organize our work in accordance with the today's market and technology requests: as stated by Hammer and Champy (1993). They also stated that how people and companies conducted the business in the past is not the business of reengineering.

Even if it is this way in theory, as previously mentioned, it is unfeasible not to benefit from the opportunity that is determined strictly adhering to the reengineering in the global market where velocity and competition is very high. In addition, reengineering work is time consuming and there is an opportunity cost for the company not benefiting from the development of today's opportunities. In this sense, development opportunities should be considered in terms of the cost benefit perspective. For example; we should consider the rolling out of these improvements by taking into account the additional benefits over the resource cost required for implementation of the developments until reengineering work is completed.

Development opportunities are considered quick hits or incremental improvement according to their contents. These two topics are more like the definition under the BPI topic. We shall address the differences between reengineering and business process improvement before moving to the next phase:

These two concepts have been so intertwined that; many resources that deal with reengineering have also included comparisons of reengineering and business process improvement. In his article, titled as "structured evaluation of business process improvement approaches"; Zellner (2011) have asserted that the interest towards Business Process Improvement has begun to increase just after Business Process Reengineering has gained more popularity; and defined BPR as a follow-up concept of BPI. To differentiate these two terms, he has identified BPR as a radical improvement while identifying BPI as an incremental improvement. Additionally, he has referred to presence of "subset of redesign" in both concepts when addressing to the intertwined structure of these two concepts. In Short, according to Zellner (2011) BPI and BPR are very close and similar concepts that try to achieve a common goal, which is generally affiliated with redesign (radical, incremental) and respectively, improvement of business. On the other hand; Aras (2005) pointed described this situation by stating that; Business

Process Improvement of incremental improvements (BPI) and Business Process Redesign, where the spike of achievement is acquired by means of improvements, can be intertwined, or kept obsolete from each other in different resources. Despite the difference of scope and context, the process is improved by means of these methods. These are not alternatives for each other, as these are different methods of improvement that are used according to requirements, company philosophy and choices of the higher management. Shin and Donald (2002) defined reengineering as a subtitle of process development. According to Shin and Donald (2002, p. 2):

> *Process management includes three subtitles, which also includes reengineering;*
>
> *i.* ***Quick Hits*** *These are typically low risk, easily achievable efforts that provide immediate payback opportunities (typically within a few months)*
> *ii.* ***Incremental Improvement*** *This focuses on closing small performance gaps, delivers small degrees of change that achieve small but meaningful business results.*
> *iii.* ***Reengineering*** *This demonstrates breakthrough thinking and aims for dramatic business results. Unlike quick hits and incremental improvement, reengineering is a form of organizational change characterized by dramatic process transformation.*

To sum up, in this phase the development, which is normally disregarded during BPR implementation is evaluated by benefit cost perspective and implemented according to the results.

3.3 PHASE THREE: SELECT THE TEAM

The BPR team consists of people who directly contribute to the implementation of reengineering within the company. Hammer and Champy (1993) stated that choosing the people to be included in the reengineering team and the methods of organization are the most important factors in the success of the study.

It may be thought that why such an important factor is in the third step of this study. The reason is; reengineering team is divided into two sections in this study;

i. Permanent Part: This is the team that follows up the reengineering studies from the first day of implementation.
ii. Temporary Part: This is the team that is a part of the study for a temporary time.

It is apparent who will be included in the permanent part and there is no selection for it. This team is stable from the first day of the reengineering work. The second is the temporary part, which is specified after the process selection.

i. The permanent team consists of the executive members that decide on the implementation of the reengineering. In permanent team, at least two executive managers (General Manager, shareholder, CFO, CEO...) should be included. In addition to these people, there must be a reengineering team leader, who is directly responsible for the work, and follows up each step from the beginning of the reengineering implementation. If available, this person should be the head of the business development or quality department of the company, or one of the executive managers. All the phases expressed beforehand, should be rolled out by this reengineering team.
ii. The temporary team consists of the people who are included in the team for a period of time according to the requirements of the work. They are included in the team upon determination of the process to be implemented for the reengineering.

In BPR theory a team is gathered and is regularly included in the studies, it will be questioned why this study was started with a team composed of the administration and why a team was not gathered with the people who were included in the process. It is explained with the following two reasons why the application is this way:

i. Reengineering studies require long running efforts. People who are included in the process management should be taken from the current jobs during these studies and directly engaged in these studies. Hammer and Champy (1993) emphasized that the members need to stay in the reengineering teams at least until the first pilot application starts and they can only do this if they give up their current jobs and organizations. Although this approach seems to have a meaning in theory, it is not practical because of the cost it will cause in small and medium scale companies. It is almost impossible to allocate such a resource especially nowadays when profitability is extremely low.
ii. In the studies concerning the identification the current study of the process (AS-IS) so that reengineering can take place, the purpose is to take a picture of the status

quo without creating any effects as much as possible. As a basic comparison, when you tell people you will take their picture, all of them will want to be dressed in the most appropriate and proper way, damaging their spontaneity. This will therefore cause studies to deviate from the aim.

To sum up, it is necessary to create a team first in the studies concerning the process management. However, it can be seen in practice that the fact that the team is composed of those who have not been assigned in the company previously has a more positive impact on the identification of the status quo during the process identification period. Otherwise, the current people mistake the status quo with the fear of losing their jobs. For this reason the faulty identifications are internalized. It provides a more effective result to include the people who participate in the process to be identified, instead of gathering a team externally.

3.4 PHASE FOUR: SELECT THE PROCESS

Designating the processes that will be subjected to reengineering is highly crucial in terms of the reengineering practice. Hammer and Champy (1993) stated that, regardless of its size or nature, a company can never apply reengineering to multiple major processes at once. Therefore; according to Hammer and Champy (1993) companies utilize three criteria when applying reengineering;

1. **Dysfunction:** Which processes are in the deepest trouble
2. **Importance:** Which processes have the greatest impact on the company's customers
3. **Feasibility:** Which of the company's processes are at the moment most susceptible to successful redesign

In this section, it tries to find which process should be applied reengineering in the framework of the 3 criteria of Hammer and Champy.

3.4.1 Dysfunction

First of these criteria is the inability to conduct the relevant work. Hammer and Champy (1993) named these processes involving uncompleted failed tasks at which the task could

not be completed, as “broken processes" and defined broken processes as such: these processes are mostly the ones which the management is already aware of; especially when it has been considered that the tasks in this processes could not be completed. As a rule, people are aware of the processes in a company which require reengineering, usually the symptoms are too apparent to miss (Hammer and Champy, 1993).

As it can be understood from the definition, broken processes firstly come out at the defining main process of the reengineering. If a company determines a broken process in this phase, it should not move to the next phase of the implementation before looking at these two criteria, instead, sub process of this main process should be reevaluated in accordance with the second and third criteria. Note that, limiting the scope is a factor that significantly affects the success of the reengineering implementation.

3.4.2 Importance

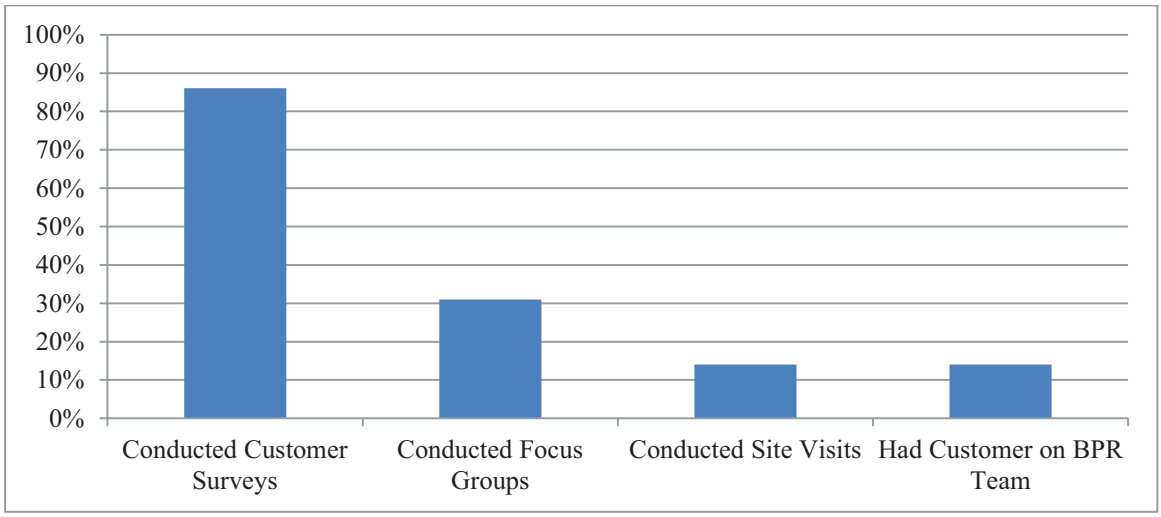
The second concept defined by Hammer and Champy (1993) as weightiness emphasizes the direct effect on the customer. In determining which process is important for customer, the most important source is customer. Carr and Johansson (1995, p. 115) expressed about how this information is provided in their book What Work and What Doesn’t in the Reengineering Process. (Figure 3.2)

> *You can obtain customer input in a number of ways. It’s important to use techniques that allow you to actually hear customer’s articulate reasoning for decision they make and for the needs and desires they profess.*
>
> *Eighty- two percent of our survey respondents conducted customer surveys. Additionally, 31 percent conducted focus groups and 14 percent went on sire visit, as shown in Fig. 4-4. Fourteen percent even had customers on their BPR teams…*

Different methods have been used to specify information stated as “voice of the customer” by Carr and Johansson (1995) and weightiness as Hammer and Champy (1993). Call centers are important communication channel where you can communicate with customer directly and have their demands, requests and desires, in other worlds; it is “voice of the customer" as underlined in the introduction. For that reason, while we evaluate weightiness criteria in this phase, records which come to call center should be evaluated with Pareto analysis. Since the word customer does not mention only external

customer, it is useful to weigh the topics in the Pareto analysis according to the financial value generation priority to consider the internal customer satisfaction, as well.

Figure 3.2: Figure 4-4 use of customer information



Source: Carr and Johansson (1995), What Work and What Doesn't in the Reengineering Process, Coopers & Lybrand, United States of America, USA

3.4.3 Feasibility

The third and last criteria on that specified by the Hammer and Champy (1993) for the process selection is practicability. Practicability contains reevaluation of reengineering implementation to be selected over the factors such as time and cost. For example, selecting a wide scope of process may affect the success of the reengineering in a negative way or a company cannot manage reengineering activity that requires a substantial amount of investment cost.

For that reason, the practicability topic should be considered not only in process selection but also in every phase. For example, even if a company has a broken process in the defining main process phase, reevaluating the sub processes of the broken process with weightiness criteria aims to enhance practicability by narrowing down the scope. In this scope, practicability within the decision-making mechanism should be considered in each phase of reengineering.

3.5 PHASE FIVE: UNDERSTAND THE PROCESS

The main objective of this process is to analyze the process that decided to be implemented reengineering in a detailed way. Wastell et al. (1994, pp. 6-7) call this phase as Baseline Process Capture and Representation and define as follows;

> *Having selected a process for redesign and defined it in broad terms, it is then necessary to model the process in considerable detail. Modeling involves constructing a graphical representation of the process. The term "modeling" is an unfortunate one, however, as it fallaciously suggests the idea of literal description, that processes have a simple, objective existence and that they may be passively and directly portrayed much as an artist paints a bowl of fruit, or perhaps more aptly as a photographer takes a picture…*
>
> *Process modeling is a critical part of BPR as it is in systems analysis in general, where modeling techniques, such as the ubiquitous dataflow diagram, play a central role. Process modeling is a complex hermeneutic process which involves talking to users, trying to understand their point of view, drawing pictures, checking, correcting, and examining preconceptions and so on.*

As you can understand from the definition, the temporary team that was mentioned previously starts to work in this phase and information is collected as to the current process by holding meetings with this team or on-the-job observations. After on-the-job observations and meetings have been completed, it is passed on to AS-IS phase where process maps of the existing process is generated. AS-IS concept and its objectives are defined as follows under the "understand the process" topic of the SUPER Methodology of Chuah (2001, p. 692)

> *Problems or process weaknesses may come from a few small tasks within the process. Process mapping is an effective way to chart the process sequence of each task (AS-IS model). However, the PIT need not spend excessive time on the micro level of the process tasks or activities as a clear understanding of the process and the flow with the four objectives below is often enough for the later analysis:*
>
> - *provide the organization with a common understanding of the process;*
> - *establish a performance baseline at the process's activity level from which to measure improvement;*
> - *identify problem areas and non-value-added activities that need to be changed or eliminated, such as excessive hand-offs, reviews, rework, and queuing time; and*
> - *Understand exactly what will be changed and who will be affected when moving from the current process to a new process.*

To sum up, in this process where existing process tried to be better understood, a process flow map of the existing process (AS-IS model) is prepared by holding meetings with the people responsible for the process and conducting on-the-job trainings. Following the

preparation of the process flow map, it is important to prepare a document explaining this map. This document should involve the following steps;

i. Purpose: The purpose of the job is explained in this part.
ii. Case Study: A case study is chosen within the company to detail the job in question.
iii. People in Charge: The level of personnel in charge of the related process is determined.
iv. Application: In this stage, the workflow is explained with the help of associating it with the numbers of the shapes in the figure step by step.
v. Related Documents: The reference documents concerning the process flow, if available, used within the company are specified.
vi. Impacted Financial Values: This part includes the determination of the financial values impacted by the related process within the company.
vii. Determinations: This part includes all determinations that can be considered within the scope of quick hits, incremental improvement and reengineering specified during the AS-IS study of the process or at the following meetings.

3.6 PHASE SIX: REEVALUATE QUICK HITS AND INCREMENTAL IMPROVEMENT OPPORTUNITY

Quick hits and incremental improvement opportunities may be captured that may be evaluated in the scope of the reengineering as it is in the previous phases during the AS-IS work. This phase aims to roll out development opportunities revealed after the AS-IS work by evaluating them in the scope of the benefit-cost perspective.

3.7 PHASE SEVEN: REDESIGN NEW PROCESS (TO BE)

In this phase, decisions have to be made on how the new process will be designed by use of the analysis in the AS-IS part. While designing the new process, the IT team should be included in the temporary team to take advantage of the information technologies.

As Hammer and Champy (1993) stated, information technology is the enabler of reengineering. Similarly, Eke et al. (2014) expressed that IT is essential enabler for

reengineering and there is no reengineering sample without the help of reengineering. The followings are the samples in which IT is enabler for BPR (Bhaskar and Sing, 2014, p. 37);

> ***a) Shared databases:*** *Availing information in many places simultaneously. Work can thus be performed simultaneously, rather than sequentially, as it was before shared databases.*
>
> ***b) Telecommunication networks:*** *These allow organizations to be centralized and decentralized, at the same time. Telecommunication networks enable branch offices to access information and thus are more empowered and serve customers better while still enabling organizations to maintain central control of operations.*
>
> ***c) Decision support tools:*** *These knowledge management tools allow decision-making to be a part of everybody's job.*
>
> ***d) Wireless data communication and portable computers:*** *Allowing field personnel to work office independently.*
>
> ***e) Automatic identification and tracking technology:*** *Such technology enables remote tracking of assets thus resolving the need to establish where the assets are located.*

While there is an important relation between IT and BPR, it will be useful to state that IT will be considered in the phase of redesigning the process not in the first phases; although IT has important effect on reengineering, reengineering does not mean automation as stated by the Hammer and Champy (1993) "don't automate, obligate". Automating existing process by using IT without designing, is not reengineering. Similarly, Njonjo (2014) stated that reengineering should not be confused with automation of existing processes and directly benefiting from the IT without any change in the way of work will create failure of BPR. Even if IT is important for reengineering work, it is included in the project until this phase.

Following the meeting held with the addition of the IT team, a new agreed process map is generated (TO BE)

3.8 PHASE EIGHT: EXECUTE THE NEW PROCESS

This is the process that new processes execute. TO-BE process is executed according to the plan generated in case of requirements.

4. CASE STUDY

This section demonstrates a practical case application of the modified approach that was explained previous chapter.

4.1 BACKGROUND

Tempo conducts credit-card sales of telephone credits to customers over the telephone using the call centre of one of the 3 largest GSM companies of the world in Turkey. The Company entered telecommunication sector in 2001 with its own unique business model. Under the scope of this aforesaid business model, the Company detects the pre-paid lines of the GSM Company by using a special technique and reaches out to customers to promote its special campaigns and market its annual subscription options by means of SMS and external calling activities.

From 2001 to 2008, the Company continued to grow due to several facts such as having a young and dynamic staff, high sales experience of company employees and ability to act as a 24/7 point of sale over a single call centre including the aforesaid GSM Company itself in the Turkish market.

In 2008, the Company noticed that the profits for the relevant year did not show any increase, despite the successful work that had been performed for earning new customers. The company had been tracking sales and pre-sales data in a continuous manner and had revised this data according to changing conditions. Therefore, the Company thought the reason behind this insufficient earnings ratio to be the complaint management activities that are handled by the Back Office department. The Back Office department was observed to have a very little follow-up ratio and an excessive growth rate when compared with the overall company growth. For this reason, the Company decided to apply reengineering to these processes.

4.2 DEFINING MAIN PROCESSES

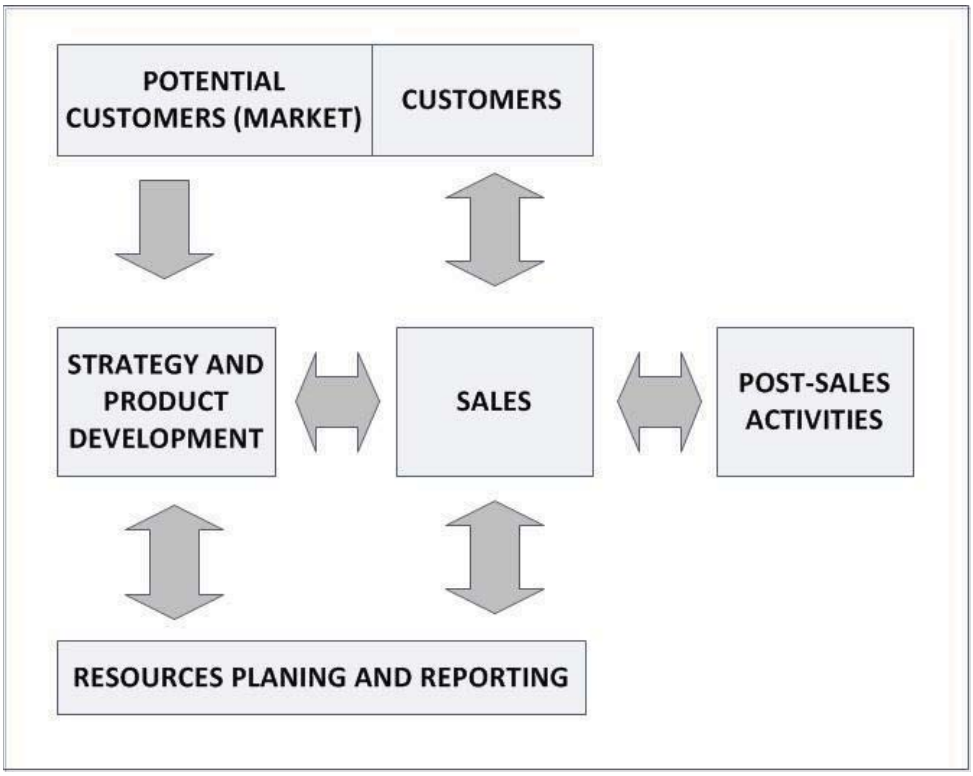
As mentioned before that the “broken process” approach will use for selection of the process which is going to reengineered. When we look through this perspective; we can say that for Tempo; “broken processes” are post-sales procedures and therefore these procedures shall be given priority during reengineering. On the other hand, processes shall be defined at first, before being named as "broken process". At this point; it can be easily said that reengineering is included in process management discipline in a conceptual manner.

For example, according to Hammer and Champy (1993) the main subject of reengineering is processes, not organizations. Therefore, Hammer and Champy (1993) asserts that businesses shall apply reengineering on the work that are performed by the staff, rather than the division itself, which or course may be sales or production units. In short, there is no reengineering if there is no process. A process management shall be provided in the company which is subjected to reengineering. Process maps that indicate the business flow shall at least be provided if the process management vision isn't available.

Additionally, all processes are interconnected activities. In order to be able to see the big picture; it is crucial to understand the processes that will be applied to reengineering as an addition to all other processes, customers, responsible officers and purposes that are related to subjected process.

Accordingly, even though broken processes are very clear and apparent for Tempo, a series of interviews and meetings were performed throughout the Company to track the on-going operations and designate the current framework in a better manner. This initial study has of course provided an important contribution for acquiring the actual answer to the proposed question of Hammer and Champy (1993) "Why we do, what we do?"; as this is the most important acknowledgement in terms of reengineering. Following the initial study; a simplified version of a high-level process map involving telephone credit sale process of the Company has been created as can be seen in Figure 4.1.

Figure 4.1: Process map for the telephone credit sales business



As a result of the study that was performed, the main business process for the telephone credit sales business of Tempo were determined to be; strategy and product development, sales, post-sales activities, resource planning and reporting.

Since then under the scope of strategy and product development procedure, the Company detects prepaid customer lines of the GSM Operator by means of its own methods. After detecting these pre-paid lines, the Company creates and promotes sales campaigns and sends SMS texts to customers about its services according to current market requirements and sales activities. When conducting these activities, the Company uses the information acquired from the sales, marketing and reporting departments.

After designating the targeted customer group for the campaign, planning and reporting process determines the forecasts about the expected customer turnover for these SMSs, and creates a resource plan according to acquired forecast ratios. Similarly, designated campaign acts as an input for sale. According to this information, the Company prepares

relevant scripts and conducts subscription and/or credit sale to customers who call the call centre.

Customers, who have purchased credits or subscriptions, file their complaints over the call centre. Customer complaints also act as an input for call centre complaint settlement procedure. The complaints that have been received are evaluated by the Back Office department and resolved accordingly. This information flows over the same call centre that has realized the sale to the customer.

Following the designation of the main process; benefits and warranties that have been provided to the customer by the Company can be listed as follows;

i. The call of the customer over any line that is provided by the affiliated Company is completely free of charge. In other words, the Customer is able to purchase credits for his/her pre-paid line, even if the line has insufficient credits to realize any other call.
ii. Credits can be purchased by credit card on a 24/7 basis from anywhere, anytime.
iii. If the Customer becomes a subscriber, he is not required to pay any additional fee for adding credits to the pre-paid line. If not, the customer is required to pay an additional service fee for each credit loading operation.
iv. Likewise, if the Customer subscribes, additional options such as benefiting from subscriber only-campaigns, winning credit points and acquiring free credits in return of these points are provided to the customer.
v. All of the information that has been shared by the Customer will be protected under the confidentiality terms.

4.3 EVALUATION OF QUICK HITS AND INCREMENTAL OPPORTUNITIES AFTER DEFINING MAIN PROCESSES

During the “defining main process” period, the five findings that are acquired through the perspective of "quick hits" and "incremental improvement" are as stated below:

Finding One: During the initial studies, multiple calls are listed and 3 main reasons are designated as the main reasons of customer calls.

i. Credit Purchase Requests: Calls that have been performed by subscribed or non-subscribed customers of the company to purchase credits for their pre-paid lines.
ii. Complaints: Complaints and requests of customers who have used the services of the Company.
iii. Information: Customers who want to receive information about the promotional campaigns via SMSs.

These studies have revealed that a series of incidents during which the customer forwards his complaint to the employee who performed the previous sale to that customer. As a result, it was discovered that, customer dissatisfaction had risen and customer complaints were not recorded from time to time. After this finding, it was suggested that the Company provide another number for customer complaints. Company officials refused and wanted to keep all incoming flow through a single number, which is already known by their customers.

Finding Two: The Company fetches a majority of its income from the membership fees. It is therefore highly critical values for the company that the customers who call the call centre after the SMS have been sent are registered in the system and turned into potential customers (Registration/Transaction) and the registered customers are transformed into members (Member/Registration). Naturally, the values concerning the registration of a customer who has just called in the service and then the start of the service membership for an annual fee vary among customer representatives.

Moreover, it has been determined that the company transfers the withheld numbers calling the call centre to private customer representatives for whom there is a low sales expectation due to the calls of different content from such calls.

In the light of these two findings, the flow applied by the company for the calls from withheld numbers has been also recommended for registered and unregistered customers. The company has leaned towards this recommendation; however, the first trials could be performed in mid-January 2009 due to a series of technical changes that required the connection of the customer database with the central database. The pre-and post-values of the company regarding this change are given in Table 4.1.

Table 4.1: The statement for processing volume for month 2008-2009

Date	Total Transaction	Total Registration	Total Member	Registration /Transaction	Member /Registration
July 2007	108,666	8,471	5,098	7.80%	60.18%
August 2007	113,727	10,474	6,353	9.21%	60.65%
September 2007	97,945	7,967	4,525	8.13%	56.80%
October 2007	112,572	7,231	4,411	6.42%	61.00%
November 2007	102,522	8,032	4,920	7.83%	61.25%
December 2007	109,136	6,585	4,118	6.03%	62.54%
January 2008	103,481	7,660	4,529	7.40%	59.13%
February 2008	110,263	16,058	10,239	14.56%	63.76%
March 2008	*120,487*	*19,420*	*12,589*	*16.12%*	*64.82%*

As can be seen in the table. the average of Registration/Transaction ratio had been 7.55 percent including January while it almost doubled by February in which the development went live completely. The increase in Member/Registration ratio was not in high amounts. The changes made by this company on the membership fee and the campaign content in the related period have affected this situation.

Finding Three: Even if a registered customer calls the centre from the number registered in the system. the system cannot detect this number. and hence. the customer informs about his registered number on the phone and this detail is entered on the screen by the customer representative. In the investigations. it has been found that the system run in such way and has broken down as a result of technical changes due to the lack of a testing process and feedback.

Consequently. the technical malfunction has been quickly corrected and it has been ensured that the registered customer numbers are captured and shown on the screen automatically. The gain of the company as a result of this change is given in Table 4.2.

As seen in Table 4.2 average 7 seconds are lost for receiving the number from the customer correctly and completely at once and average 10 seconds in case of a failure

once. A monthly loss of 1.39 customers will be avoided as a result that the number is automatically captured by the system.

Table 4.2: Lost calculation of registration activity

Average Total Registered Customer Call For Month	*98,544.00*
Error Ratio (Forecasted)	*10%*
Average Handling Time For Correct Insert (Sec)	*7.00*
Average Handling Time For Incorrect Insert (Sec)	*10.00*
Total Time For Insert (Min)	*11,989.52*
1 Customer Rep. Efficient Time For A Month (Min)	*8,640.00*
*** Under assumption of 75 percent efficiency**	
Customer Rep Lost	*1.39*

In addition. the call cost is not reflected on the customers for the service provided by the company; that is. all call costs are covered by the company. As a result of this development. the company saved a monthly call cost of 11.989 minutes. an annual cost of 143.868.000 minutes.

Finding Four: While registering a new costumer. after all details (address. password details) are received from the customer for security purposes. the TR ID number given by the customer is inquired on a private service and the name-last name information is confirmed. In case the name-last name information given by the customer does not comply with the credit card details. the registration process is cancelled for the security purposes.

As can be seen in the figure. all details received for a customer whose TR ID number and the identity details in the system conflict cause a waste of time. Receiving the address details of a customer takes 30 seconds on average. 27 percent of the incoming new registration calls are cancelled because the credit card and identity details conflict. Table 4.3.

Accordingly. an annual call cost of 16.541 minutes as well as a monthly loss of 0.16 customers is suffered due to this workflow. A workflow in which an identity authentication is performed in the new registration flow has been recommended for the

company and the company has put this recommendation into practice rapidly in the related month.

Table 4.3: Lost calculation of credit card activity

Average Total Registration Call For Month	*10,210.89*
Unconfirmed Customer Ratio	*27%*
Average Handling Time For Insert (Sec)	*30.00*
Total Time For Insert (Min)	*1,378.47*
1 Customer Rep. Efficient Time For A Month (Min)	*8,640.00*
*** Under assumption of %75 efficiency**	
Customer Rep Lost	*0.16*

Finding Five: The company holds weekly meetings called "sales meeting" in which the top management participates and evaluate how many of the incoming calls have been turned into registration and membership in these meetings. The management makes decisions after evaluating the changes in these numbers.

Similarly. the KPI values that are evaluated at the sales meetings are the only values used by the company to monitor the performance of customer representatives and reward them. The KPI topics evaluated by the company at the sales meetings are as follows:

i. **Registration/Total Transaction:** The percentage of total transaction turning into registered subscribers.
ii. **Member/Registration:** The percentage of total registered subscribers turning into members.
iii. **Number of Instalment Transactions/Total Sales Number:** The percentage that shows how much of the total sales were in instalments. The company earns an additional fee for the instalment sales. The longer the instalments are. the more the company earns.

As can be understood. almost all these values are KPIs concerning the sales. In short. data related to other activities than the sales of the company are not evaluated.

It is a highly frequent situation that companies constantly evaluate only their finance and sales data and allocate high amounts of resources for the analysis and presentation of

these data. However. depending only on these data causes companies to ignore the opportunities or threats (Aras. 2005). Aras (2005) added;

> *Dr. Deming (1986) criticized the focus on this type of measurement as 'management just by using the apparent signs. taking known or unknown signs a little into consideration or not at all'. Tracking of the financial performance and the sales volume is not wrong but not enough either*

Within this scope. the name of weekly sales meetings held by the company has been revised as the review meeting. The meeting agenda has been added with the review of topics within the scope of process enhancement in the first phase because new topics to be evaluated in addition to the sales KPIs would be under the process enhancement and the process management.

As mentioned before. the abovementioned 5 topics are the findings identified in a prestudy performed to take a quick look at the company. These findings are developments that can be applied within a few months and do not have dramatic consequences as stated in the definitions of quick hits and incremental improvement under the process enhancement. When all these pre-analyses are examined. the most important one of 5 topics is the change in the name and content of the sales meetings which is a proof that company's top management is also ready for a change. Aras (2005) stated that the most important subject in the reengineering of the processes is the support of the top management and emphasized that each study on the process should be backed by the top management or a committee responsible for the management of the processes.

4.4 SELECT TEAM

After the pre-analysis performed to acquire information about the general activities of the company. it was decided that it was time for the next step in which the aftersales activities considered to be broken processes are examined in order to reengineer. However. one should answer the question “Who will reengineer?” by Hammer and Champy (1994). in other words. it is necessary to gather a reengineering team.

In this study. special denotations such as leader. process owner. reengineering team. administration committee and reengineering tsar and the content of the task. all being in theory. were not specified and the team was composed of the board members. the general

director. the director of sales-marketing and the business development specialist specifically hired for this project. In the application stage after the AS-IS study of the process to be reengineered. the director of the team in charge of aftersales activities and the IT teams were included in the study.

4.5 SELECT PROCESSES

We have stated that the broken processes at Tempo are related to the aftersales activities because of certain symptoms at the beginning of the study. The aftersales activities are mainly run by a department called Back Office. As a result of the studies and on-the-job observations performed with the personnel and team leader of Back Office. 15 different processes were identified:

i. Membership Objection
ii. Cargo Delivery
iii. Objection for Automatic Adding
iv. Registration Merge
v. Faulty Telephone Credits Adding
vi. Objection for Instalment Transaction
vii. Registration Cancel Request
viii. Bank Statement Request
ix. Repeated Draw
x. Fraud Registration
xi. Lost Voucher
xii. Transaction List Request
xiii. Bill Request
xiv. Service Cost Objection
xv. Limit Increase

To decide which of these processes that was reduced to 15 will be reengineered; Hammer and Champy (1993) used the significance or the effect on the external customer as a second criterion following the broken processes and stated that customers are the most

Table 4.4: Transaction volume of the aftersales activities in year 2009

Transaction Type	Membership Objection	Cargo Delivery	Objection for Automatic Adding	Registration Merge	Faulty Telephone Credits Adding	Objection for Instalment Transaction	Registration Cancel Request	Bank Statement Request	Repeated Draw	Fraud Registration	Lost Voucher	Transaction List Request	Bill Request	Service Cost Objection	Limit Increase		Others	Total
January-09	2198	249	346	8	152	210	103	54	55	1	15	10	8	1	0		128	3538
February-09	2124	572	284	5	132	154	88	75	58	11	3	9	4	0	0		67	3586
March-09	2639	662	295	98	174	162	89	81	76	52	1	10	6	0	1		97	4443
April-09	2061	720	135	273	146	112	82	77	62	111	10	3	2	0	1		60	3855
May-09	1830	835	134	241	139	90	108	70	45	102	17	8	6	0	1		56	3682
June-09	1619	832	230	148	163	83	97	63	44	53	12	7	5	1	0		116	3473
July-09	2396	611	177	126	162	57	101	78	86	65	15	10	7	14	1		146	4052
August-09	2777	264	60	140	125	87	68	61	48	43	8	4	2	4	3		170	3864
September-09	2542	248	88	207	93	89	46	57	92	45	335	6	1	2	1		173	4025
October-09	3286	155	78	222	68	87	35	65	62	55	12	9	7	0	0		110	4251
November-09	3841	157	69	118	114	86	32	73	80	51	8	3	5	12	0		85	4734
December-09	2192	32	29	34	43	33	42	36	26	10	3	3	4	7	0		52	2546
Volume of Transaction	29505	5337	1925	1620	1511	1250	891	790	734	599	439	82	57	41	8		1260	46049
Percentage	64,07%	11,59%	4,18%	3,52%	3,28%	2,71%	1,93%	1,72%	1,59%	1,30%	0,95%	0,18%	0,12%	0,09%	0,02%		2,74%	100,00%

important information sources for identifying these processes. Narasimhan and Jayaram (1998) named the processes that should be primarily applied as “core process” and associated the tracking of the transaction volume for identifying these processes with the customers. saying “Processing volume was an appropriate measure to consider in identifying core processes because it correlates highly with customer encounters”. Based on this approach. Table 4.4 was formed to show the transaction volume of the aftersales activities in year 2009.

As can be seen. membership objection is the transaction with the highest rate (64.07%) among 15 transactions. It has been decided a coefficient to be specified concerning the processes that directly affect the income in identifying the process to be reengineered due to company's financial concerns such as income loss in spite of this high rate. Within this

scope. the processes directly affecting the income were given 3 points. those indirectly affecting the income 2 points and those having very little affect 1 point. Table 4.5.

Table 4.5: Income rate of transaction

Transaction Type	Income Relation Index
Membership Objection	3
Cargo Delivery	1
Objection for Automatic Adding	2
Registration Merge	3
Faulty Telephone Credits Adding	3
Objection for Installment Transaction	3
Registration Cancel Request	2
Bank Statement Request	1
Repeated Draw	1
Fraud Registration	2
Lost Voucher	1
Transaction List Request	1
Bill Request	1
Service Cost Objection	1
Limit Increase	3

Table 4.6 is the new table generated with multiplying customer's processing volume and income point after giving points based on the income relation.

Table 4.6: New transaction volume

Transaction Type	Income Relation Index	Volume of Transaction	New Volume
Membership Objection	3	29505	88515
Cargo Delivery	1	5337	5337
Objection for Automatic Adding	3	1925	5775
Registration Merge	3	1620	4860
Faulty Telephone Credits Adding	2	1511	3022
Objection for Installment Transaction	3	1250	3750
Registration Cancel Request	2	891	1782
Bank Statement Request	2	790	1580
Repeated Draw	1	734	734
Fraud Registration	1	599	599
Lost Voucher	1	439	439
Transaction List Request	1	82	82
Bill Request	1	57	57
Service Cost Objection	1	41	41
Limit Increase	3	8	24

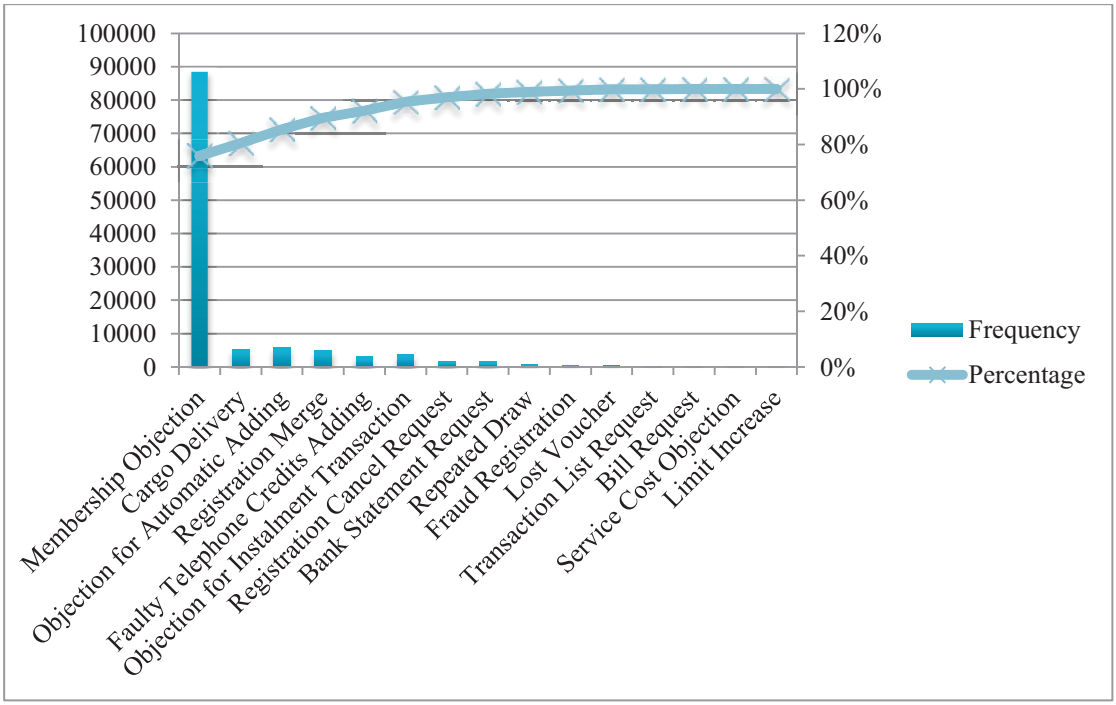
According to this table. the following distribution is obtained when the percentage has been reworked.

Chuah. (2001) utilized the Pareto Chart in identifying the critical problems that cause low product quality. Talib et al. (2011) explained Pareto Analysis that;

> *Pareto analysis is a relatively simple methodology that is used when trying to determine which tasks or factors in an organization will have the most impact (Cervone. 2009). It ranks the data/factors in the descending order from the highest frequency of occurrences to the lowest frequency of occurrences. The total frequency is summed to 100 percent.*

Within this scope. membership objection is the topic about which customers complain most in the distribution in which the income impact is ignored with 67.07 percent . in the distribution in which the income impact is taken into consideration with 75.92 percent (Figure 4.2). Therefore. it has been decided the reengineering to be applied to this process primarily.

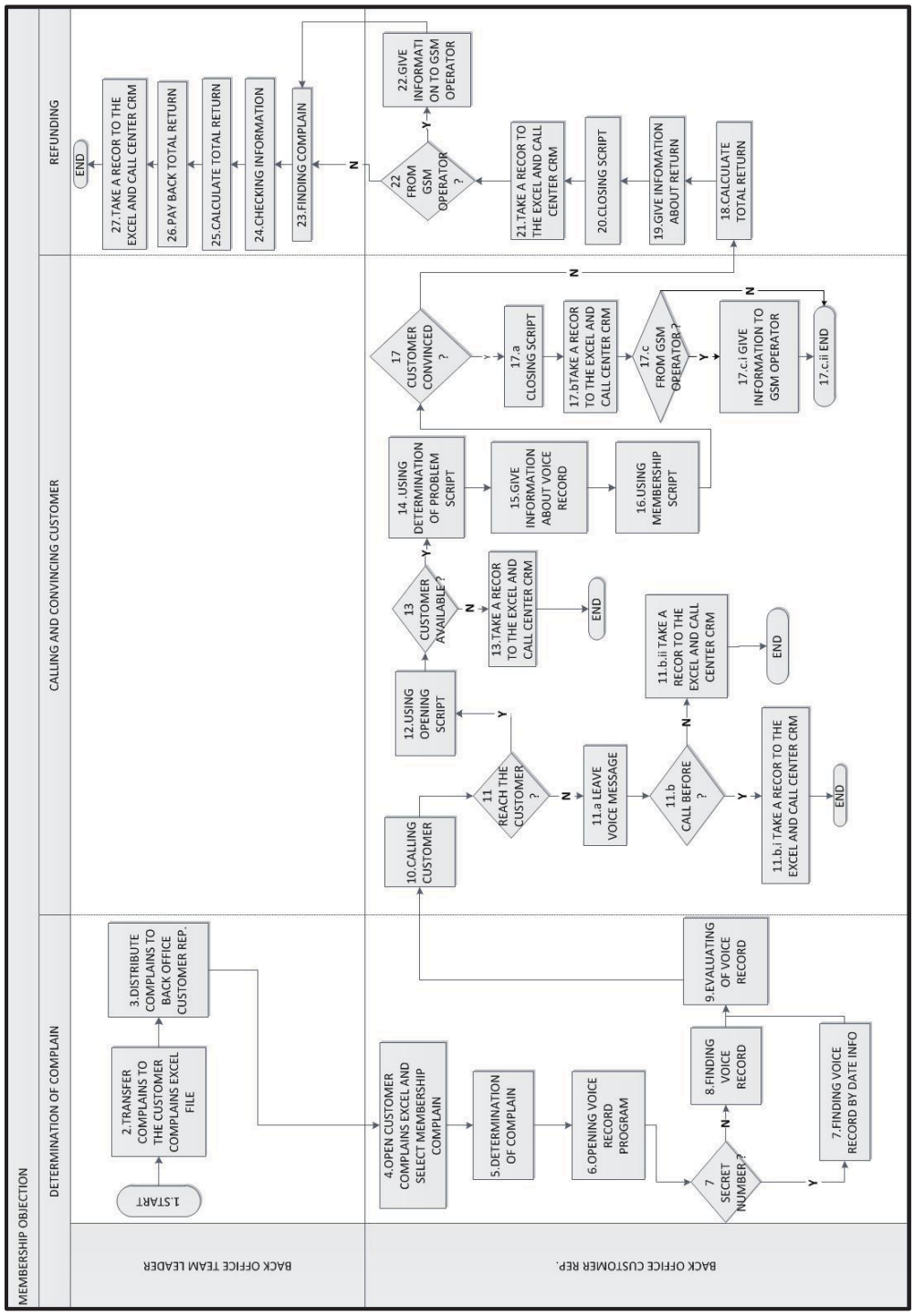
Figure 4.2: Pareto Chart



4.6 UNDERSTANDING THE MEMBERSHIP OBJECTION PROCESS

To have a better understanding of Membership Objection flow. the AS-IS study that shows the status quo is given in Figure 4.3

Figure 4.3: Process map of membership objection (AS-IS)



The AS-IS study has taken 4 months to take shape. and during this period on-the-job observations. short meetings with the teams doing the job have been made and the calls through which the customer relayed their membership complains have been listened to.

In the figure on the left. the level of personnel is specified who is in charge of the job. The process is divided into different subdivisions. These show the steps of related process. In other words. when looked from an upper level. the process proceeds as follows:

i. Identification the reason of the objection
ii. Calling and convincing the customer
iii. Informing the customer about the return details and recording the details.

The review document prepared after the completion of the figure is composed of 7 parts.

i. Purpose: The purpose of this document is to define the methods. authority and responsibilities in case of a complaint by a customer for the subscription fee.

ii. Case Study: The Customer have not understand that the Customer Representative told that the subscription fee is YTL 6 multiplied by 3. and have called the service and requested his subscription to be cancelled after examining his bank statement.

iii. People in Charge:

Back Office Team Leader

Back Office Customer Representative

iv. Application:

1. The Back Office Team Leader selects all complaints sent to his mailbox.
2. He transfers all selected customer complaints to the Subscriber Problems Excel File.
3. He distributes the customer complaints he has just transferred to the Back Office Customer Representatives.

4. The Back Office Customer Representative selects the complaint of subscription objection received from the Customer Representative of the Call Centre or the Customer Services of the GSM Operator in the Subscriber Complain Excel File.
5. The Back Office Customer Representative writes down the customer number if the subscription objection has come from the Customer Representative. the phone number and name-last name if it has come from the Customer Services of the GSM Operator. He opens up the process list in the CRM software and identifies the subscription process. He writes down the details of this process; date. time. phone number (if withheld number. the name of the Customer Representative who made the process) to find the voice records.
6. The Back Office Customer Representative opens the software in which the voice record is kept.
7. If the customer made the call from a secret number. the Back Office Customer Representative enters the date and the timeframe in which the customer made the call into the system. He identifies the record without a number in the system. If there are multiple records without a number in the system. the process is identified by listening to the voice of the Customer Representative.
8. If the customer has not made the call from a secret number. the Back Office Customer Representative enters the date of call and the phone number of the customer into the voice record system and identifies the voice record.
9. The Back Office Customer Representative evaluates the voice record in accordance with the script “Remind subscription if the customer states that the annual subscription fee has been collected from his credit card beyond his knowledge.” If the Customer Representative has relayed all the information within the script “Remind subscription if the customer states that the annual subscription fee has been collected from his credit card beyond his knowledge” to the customer completely and intelligibly. he is evaluated to be “right”. and “wrong” in the contrary cases.
10. The Back Office Customer Representative calls customer's number specified in the message if available; if not. he calls customer's numbers registered in the system.

11. In case the customer cannot be reached.
    a. The Back Office Customer Representative leaves a voice message for the customer if possible.
    b. If the customer has been called before.
        i. The Back Office Customer Representative enters the note into customer's registry in the CRM software that it should be transferred to the Back Office if the customer calls again. And the process is ended.
        ii. If the customer has not been called before. the Back Office Customer Representative enters the information that the customer could not be reached into the subscriber problems file. And the process is ended.
12. If the customer is reached. the Back Office Customer Representative makes the opening speech in accordance with the script “Greet and introduce yourself if the customer states that the annual subscription fee has been collected from his credit card beyond his knowledge.”

13. If the customer is not available. the Back Office Customer Representative learns when the customer will be available and ends the process.

14. If the customer is available. the Back Office Customer Representative receives the information from the customer about his complaint in accordance with the script “Focus on the problem if the customer states that the annual subscription fee has been collected from his credit card beyond his knowledge.”

15. The Back Office Customer Representative provides the customer with the information about the voice record in accordance with the script “Focus on the problem if the customer states that the annual subscription fee has been collected from his credit card beyond his knowledge.”

16. The Back Office Customer Representative relays the subscription details to the customer completely and intelligibly in accordance with the script “Remind subscription if the customer states that the annual subscription fee has been collected from his credit card beyond his knowledge.”

17. If the customer has decided to continue his subscription.

a. The Back Office Customer Representative makes the closing speech that suits the customer.
b. The Back Office Customer Representative enters the information that the customer has been persuaded into the subscriber problems file and the customer registry in the CRM software.
c. If the objection has come from the Customer Services of the GSM operator.
    i. The Back Office Customer Representative texts a message saying that the complaint has been resolved to the Customer Services of the GSM Operator.
    ii. If the objection has not come. the process is ended.

18. If the customer has not been able to be persuaded. the Back Office Customer Representative calculates the amount to be refunded to the customer. He calculates the amount to be refunded by subtracting the sum of 20 telephone credits bestowed for the new subscription and the service costs which have emerged from the transactions made by the customer after subscription and have not been collected from the amount of the subscription fee to be refunded.

19. The Back Office Customer Representative provides the customer with the information about the amount to be refunded in accordance with the script "Refund the subscription fee if the customer states that the annual subscription fee has been collected from his credit card beyond his knowledge."

20. The Back Office Customer Representative makes the closing speech that suits the customer.

21. The Back Office Customer Representative enters the information that a refund will be made to the customer into the subscriber complains file and the customer registry in the CRM software.

22. If the objection has come from the Customer Services of the GSM Operator. the Back Office Customer Representative texts a message saying that the objection has been resolved to Vodafone Customer Services.

23. The Back Office Customer Representative finds the complaint for which the refund will be made among the Subscriber Problems File.

24. He opens up the process list in the CRM software and identifies the subscription process.

25. He recalculates the amount to be refunded.

26. He opens the virtual POS screen and refunds the amount to the customer.

27. The Back Office Customer Representative enters the information that the refund has been made to the customer into the subscriber comlains file and the customer registry in the CRM software.

v. Related Documents:

- **a.** Workflow: Subscription Objection Workflow
- **b.** Script: If the customer states that the annual subscription fee has been collected from his credit card beyond his knowledge
- **c.** Information Document: Definitions

vi. Impacted Financial Values:

Premium Calculations for the Customer Representative

vii. Findings:

Finding 1: The subscription objection by the customer comes to the shared mailbox of the Back Office under the topic of subscriber complaint after the call centre as in all other customer complaint request. The Back Office Customer Representative obtains the incoming complaints from the mailbox periodically and transfers it into an excel file. and divides the excel file into small parts to send to Back Office customer representatives. It has been determined that the following problems are caused by this flow:

i. The waste of time during the transfer of incoming complaints to excel file.
ii. Repeated calls to the customer by different customer representatives about the same topic due to errors experienced during the transfer and the assignment.
iii. Lack of prioritizing based on the topic since all requests come under the same topic.

iv. Senior CRs cannot be assigned since all requests come under the same topic.
v. The file is not suitable for preparing a report since there are no standard problem topics.

Finding 2: A flow has not been specified if customer's call subject to the objection cannot be found in the system by the Back Office Customer Representative.

Finding 3: In case the call has come from a withheld number. the Back Office Customer Representative has to identify the voice of Customer Representative to find the voice record. and so. this causes a serious waste of time.

Finding 4: If the customer is not available. time is determined to make the recall. However. the Back Office Customer Representative cannot track the call because the time is transferred to the excel files. It has been determined that the following problems are caused by this flow:

i. The persuasion rate decreases if the customer is called on a date other than the specified one.
ii. When the subscriber complaint excel file at the Back Office is examined. the customers who have not been called even though they have been given with an appointment have been identified. It has also been found that some customers create a different complaint. making an expenditure objection request at the banks because they have not been called back.

Finding 5: If the calls made by the Back Office Customer Representative could not reach the customer. information on this will not come to the CRM screen quickly. It has been found that the customer calls the call centre again. and a new registration is made within this period.

Finding 6: The notes written down by the Back Office Customer Representative in the CRM software get lost over time due to the features of the software. This causes the following problems:

i. Decrease in the levels of customer satisfaction because of repeating subscription offers to the customers who have specified that they do not want any.

ii. Customers constantly sticking under the limit although they have the right to go above the daily credit loading limit.

Finding 7: In the cases where the customer could not be persuaded. the Back Office Customer Representative manually calculates the amount to be refunded and relays this information to the customer. After this information has been shared with the customer. the call is ended since the Back Office Customer Representative has no authority to refund and the refund processes is transferred to the Back Office Team Leader. It has been determined that the following problems are caused by this flow:

i. The subscription cannot be cancelled without defining the refund process. This causes that the amount to be refunded changes if the customer benefits from the service again until the refund process is completed.
ii. The refund process lengthens out since the refunds are made by the Back Office Team Leader and this causes the customer to call the service again.
iii. There are errors occurring because the refund amount is not calculated automatically by the system and the Back Office Team Leader recalculates all refunds.
iv. Since the screens through which the refund will be made to the customer are direct POS screens. this poses a risk for the company.

4.7 EVALUATING QUICK HITS AND INCREMENTAL IMPROVEMENT OPPORTUNITY

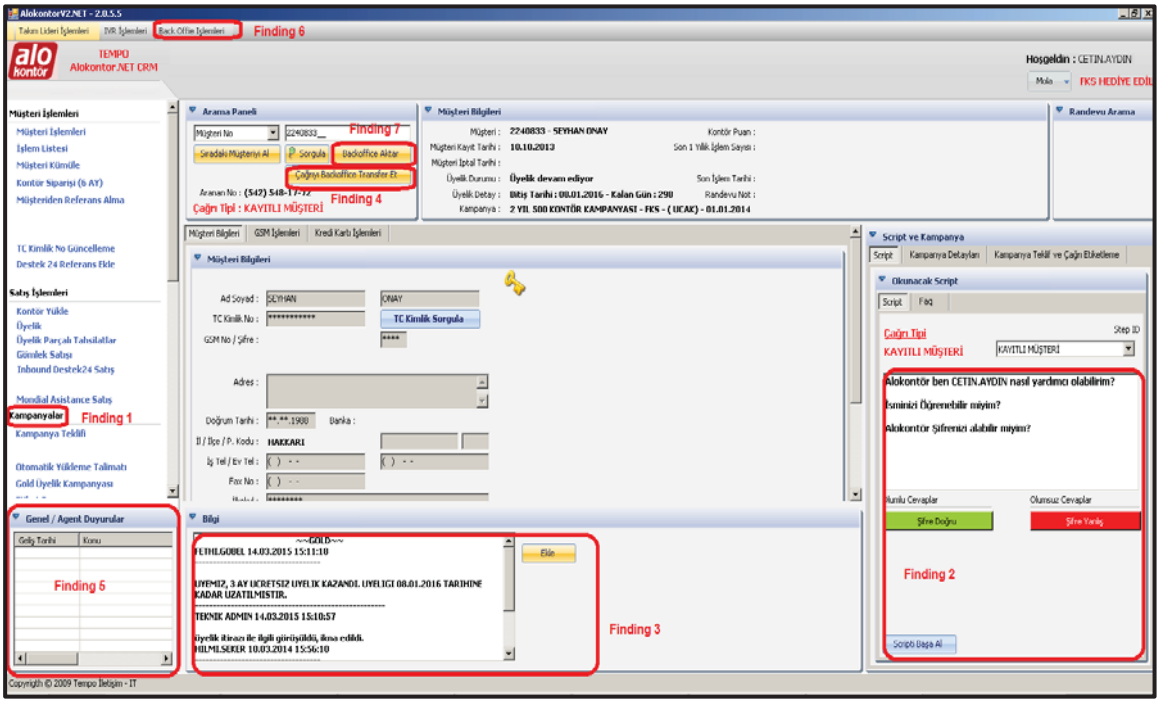
The company has decided to look for ready technologies that will help this new flow realized to be able to make good time. While the search for appropriate technologies has been continuing. it has also been decided that the CRM of the call centre will be rewritten primarily with the internal software source due to the following findings obtained for the CRMs used by the call centre during the review. Figure 4.4 shows Alokontör CRM screenshot that illustrate those findings.

Finding 1: The Company constantly changes the campaigns to increase the sales of telephone credits and subscription. These changes are managed via the codes within the software. and the changes not only takes too long but also cause errors that are reflected

on the customer in case the new interventions are necessary. For example. when the aftersales customer complaints are examined. it has been found that the 20 telephone credits that have been promised to the customers as a gift could not be loaded to every customer. and therefore the number of the objections for subscriptions has increased. As a result. it has been decided that a campaign module running independently on CRM will be used as can be seen Figure 4.4.

Finding 2: The scripts used by the customer representatives in the sales of subscription and telephone credits are manually distributed to the customer representatives; it has been found that they make mistakes because the old versions of the scripts even though there have been some revisions on them. It has been decided that the scripts will be embedded into the CRM software to avoid this problem. In addition. it has been aimed that the error will be minimized with the script displayed on the screen on each new step the customer representative takes as can be seen Figure 4.4.

Figure 4.4: Alokontör CRM screenshot shows finding 1.2.3.4.5.6.7



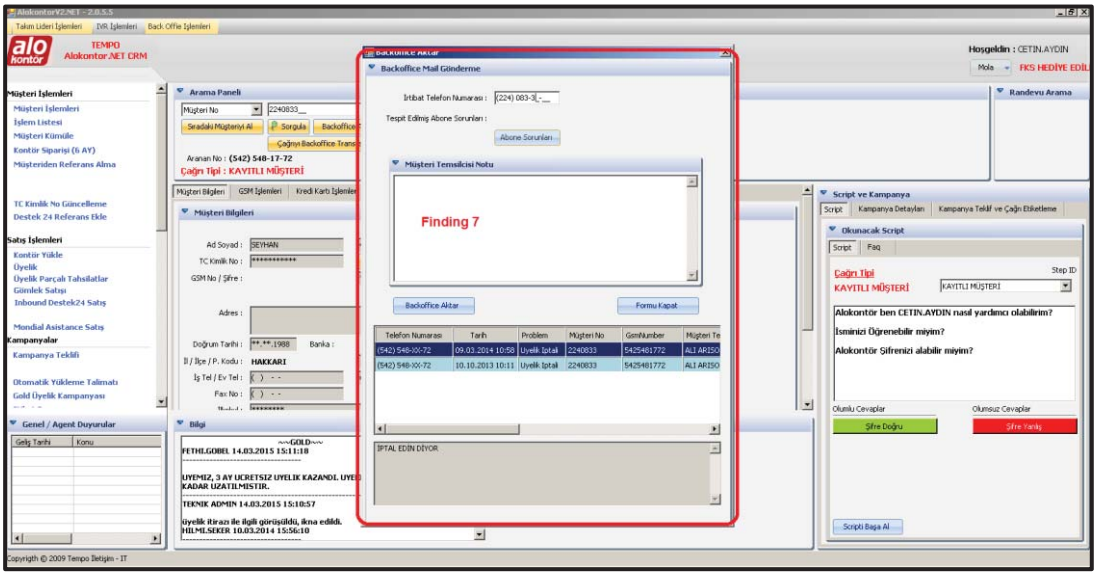
Source: Tempo Alokontör.NET CRM

Finding 3: It has been found that the notes written down on the screen specific to the customer by the customer representatives of the back office and the call centre get lost in

the system over time. Therefore. the note screen has been redesigned to be able to move upwards and downwards.

Finding 4: It has been found that a new complaint record is entered for the customers calling the call centre to file complaints because there is no special numbers for those who file a complaint. and the customer is called back too late because this record is lost among other records. Based on this finding. in Figure 4.4 a button has been added to the new CRM to directly steer the customer call to the Back Office.

Figure 4.5: Alokontör CRM screenshot represent finding 7: sending mail



Source: Tempo Alokontör.NET CRM

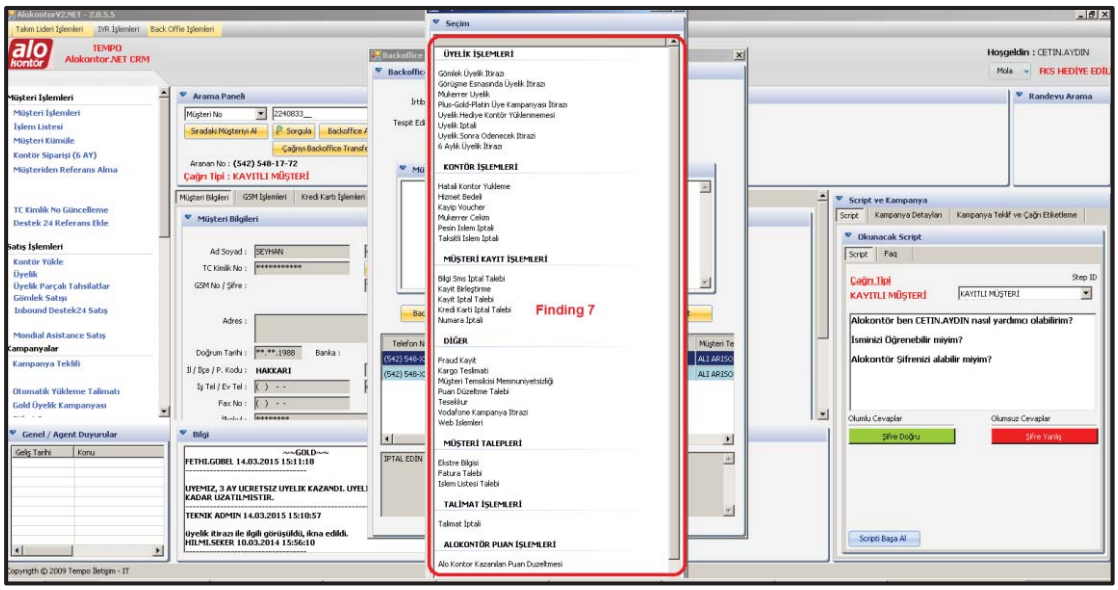
Finding 5: It has been found that the customer have been provided with incorrect or incomplete information due to instantaneous system errors or because the announcements could not be noticed during the shift change or the intensity of the business. Based on this finding. an instantaneous announcement module has been added to the new CRM as can be seen in Figure 4.4.

Finding 6: It has been found that the customer representative of the call centre cannot track at what stage the customer complaint assigned to the back office is. Based on this finding. a window has been added to the new CRM screen on which they can track the processes made by the back office. This window is activated with the back office software in Figure 4.4.

Finding 7: It has been found that the customer complaints coming to the call centre are transferred to the Back Office via CRM under a single topic and the customer representative of the call centre cannot track the process made by the Back Office as of this stage. Based on this finding. a new "transfer" button (Figure 4.5) has been added to the new CRM to send the complaints to the back office under the specified standard topics. (Figure 4.6)

The screenshots of the new call centre CRM written based of the aforementioned findings and the representation of the related findings with their numbers are shown in Figure 4.4.

Figure 4.6: Alokontör CRM secreenshut represent finding 7: secreenshots for choosing customer complains

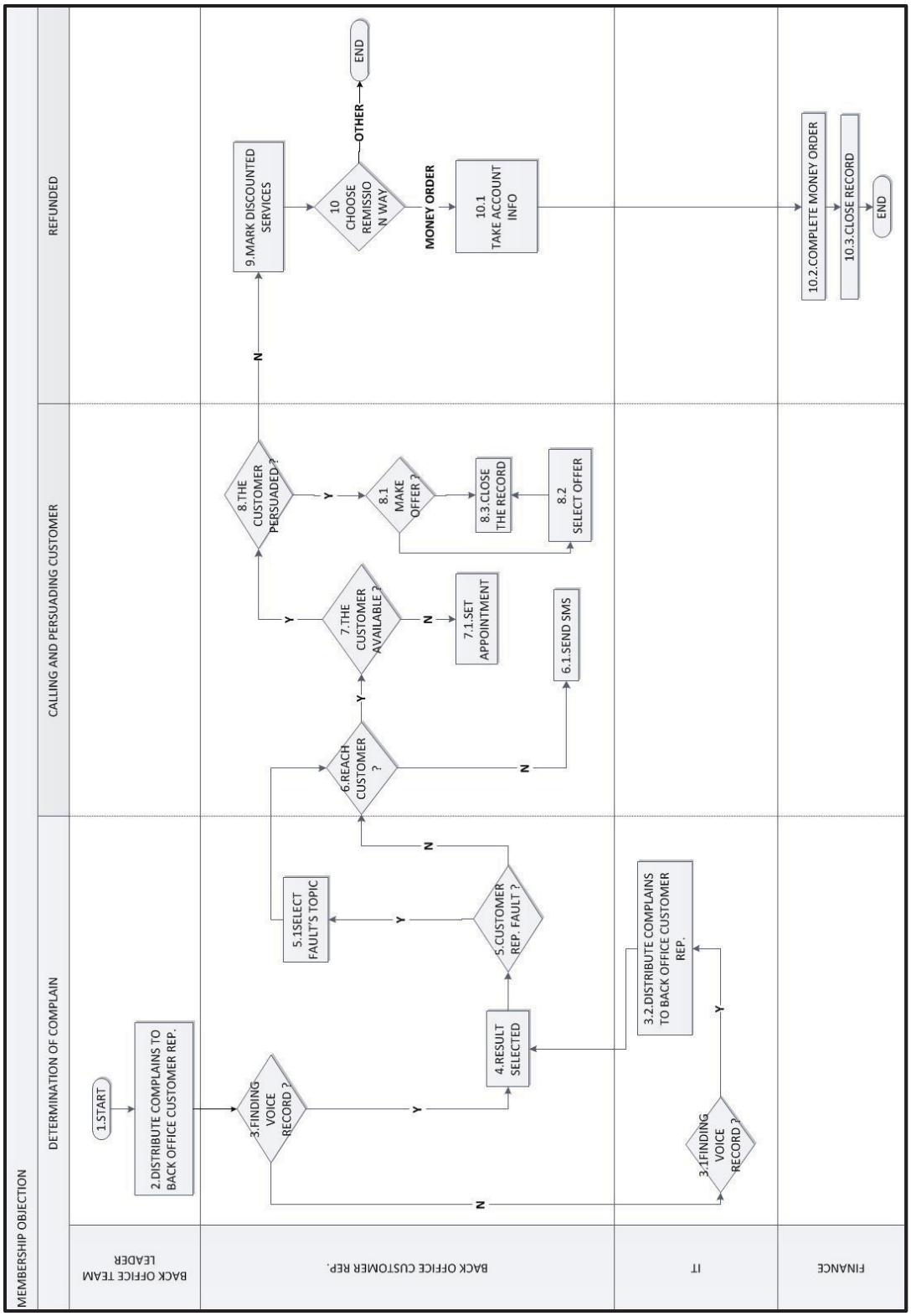


Source: Tempo Alokontör.NET CRM

4.8 REDESIGN THE NEW MEMBERSHIP OBJECTION PROCESS (TO BE)

A TO-BE process has been designed based on the determinations above. The new process has been organized in a way that it can be run with the software support because the company has decided to continue with software. The TO-BE process prepared according to this discipline is as Figure 4.7.

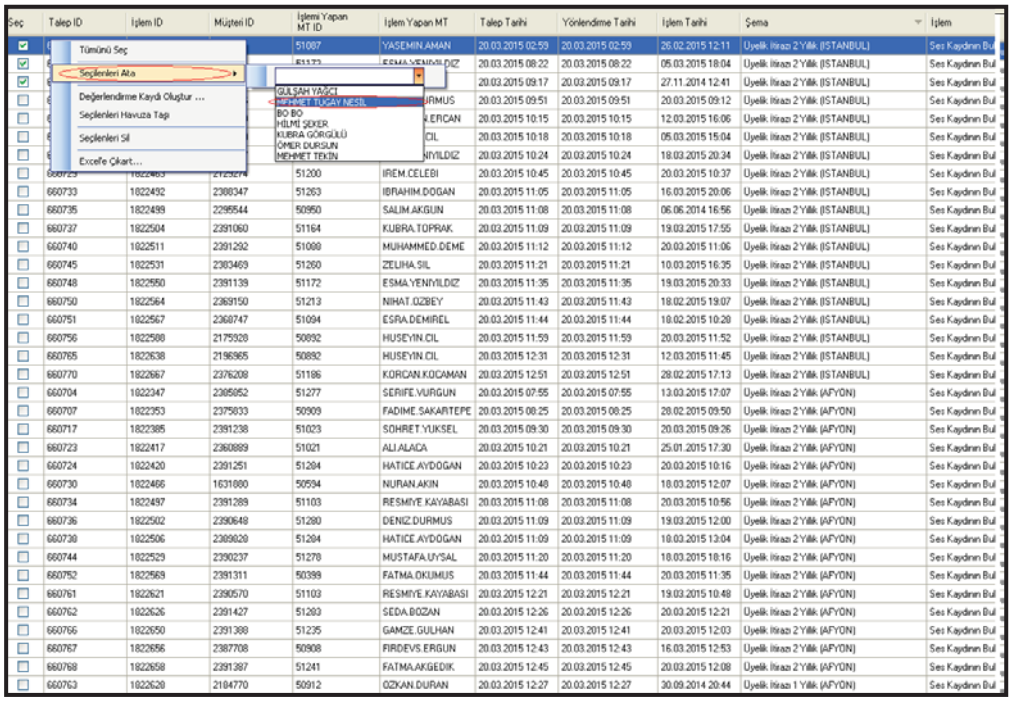
Figure 4.7: Process map of membership objection (TO-BE)



4.9 EXECUTE THE NEW MEMBERSHIP OBJECTION PROCESS

The technology search concerning the aftersales activities have been reviewed by the software teams after the new call centre CRM software. It has been determined as a result of these searches that the workflow management software that can be designed by the user in accordance with different flows is the most appropriate structure for the reengineered process. Presentations and offers have been requested from the companies

Figure 4.8: Assigning records to the Back Office Customer Representative screenshot



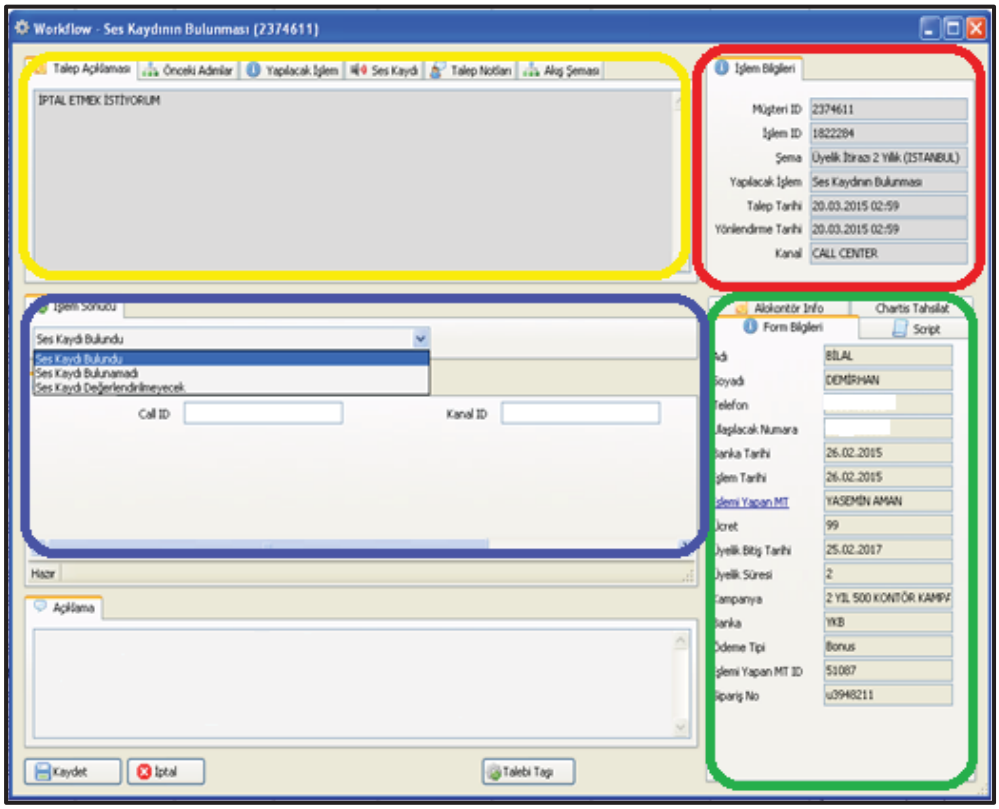
Source: Tempo Workflow Software

selling these products or similar ones and evaluated. As a result of the evaluating process. the company has decided to write the software to be used by the aftersales activities. which should also be used in integrating the purchasing costs and the post-purchasing flows into this system. with its own internal resources.

Definition of the flow concerning the objection for subscription on the new software are as follows:

i. The Back Office Director uses the button “Assign the Selected” to assign the records he selected on the column on the left to the Back Office Customer Representative. A screenshots from process can be found in Figure 4.8.

Figure 4.9: Finding voice record screenshot



Source: Tempo Workflow Software

ii. The records are displayed on the screen of the Back Office Customer Representative with the FIFO principle. When the Back Office Customer Representative clicks on the record of objection for subscription displayed on his screen. the following screen is shown.

iii. The area specified with red colour on the screen includes the process details. These details. which are showed in Figure 4.9 are respectively as follows:

a. Customer ID: It represents the unique number assigned to the customer in the database. All personal details of the customer are placed under this ID in the database.

b. Process ID: All processes are represented with a unique ID in the database. This area represents the process which has been objected by the customer. The

process objected by the customer has sometimes been found to be faulty since the system could not keep this information before.

c. Scheme: The information which flow the process belongs to is shown in this area.
d. Process to be made: The processes to be made by the Back Office Customer Representative are specified in this area.
e. Date of Request: The date on which the customer called and made the objection is shown in this area.
f. Redirecting Date: It is the date on which the related objection was assigned by the Back Office Director to the related Back Office Customer Representative. The duration between the redirecting date and the closure of the objection could not be kept in the previous system. With this new structure. the time of respond to the objection is a new KPI for the company and an important criterion to measure the Back Office Customer Representatives.
g. Channel: It specifies through which channel the complaint has come.

The area marked with green colour in Figure 4.9 includes all the process details that the Back Office Customer Representative needs to evaluate the objection. Previously. the Back Office Customer Representatives have had to open the call centre CRM to access the information in this area and tried to identify the record involving the objection. entering the necessary information into the excel files separately. Here is the information included in this area:

a. Name: Customer's name
b. Last Name: Customer's last name
c. Phone Number: The phone number to which credits have been loaded (This area is closed for the confidentiality of customer details)
d. Contact Number: The phone number through which the customer can be reached (This area is closed for the confidentiality of customer details)
e. Bank Date: The date on which the payment is sent to the bank
f. Date of Process: The date on which the process is made

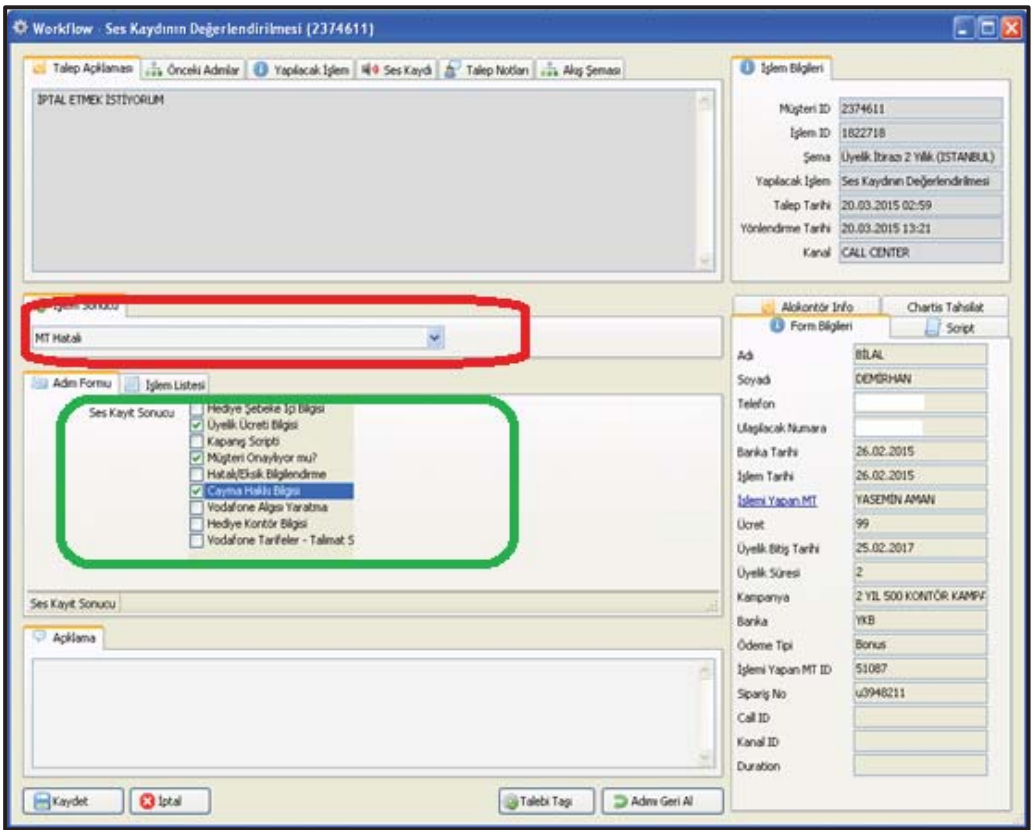
g. CR who made the process: Name and last name of the customer representative who made the process
h. Fee: Total fee for the process
i. Subscription Expiry Date: Subscription expiry date
j. Duration of Subscription: Duration of subscription
k. Campaign: Details of the campaign in which the customer participates
l. Bank: Details of the bank from which the money is collected
m. Type of Payment: Details of the payment method Instalment. in advance. vs.
n. CR who made the process: The unique ID of the customer representative who made the process in the database

The area marked with yellow colour in Figure 4.9 is the request description. If the customer representative of the call centre wants to add special information while sending the complaint. the Back Office Customer Representative sees this information in this area.

The Back Office Customer Representative tries to find the voice record for that process in the voice record systems after the record is displayed on the screen. In this stage. 3 situations emerge as seen in the area marked with blue color: (Figure 4.9)

a. If the voice record could not be found in the system. this result is selected. Accordingly. the job is redirected to the technical personnel automatically by the workflow.
b. If the customer already has an open record of objection for subscription and this record has been listened to. this selection is made. and one proceeds to the next step.
c. If the voice record has been found. one proceeds to the next step.

Figure 4.10: Evaluating the voice records screenshot



Source: Tempo Workflow Software

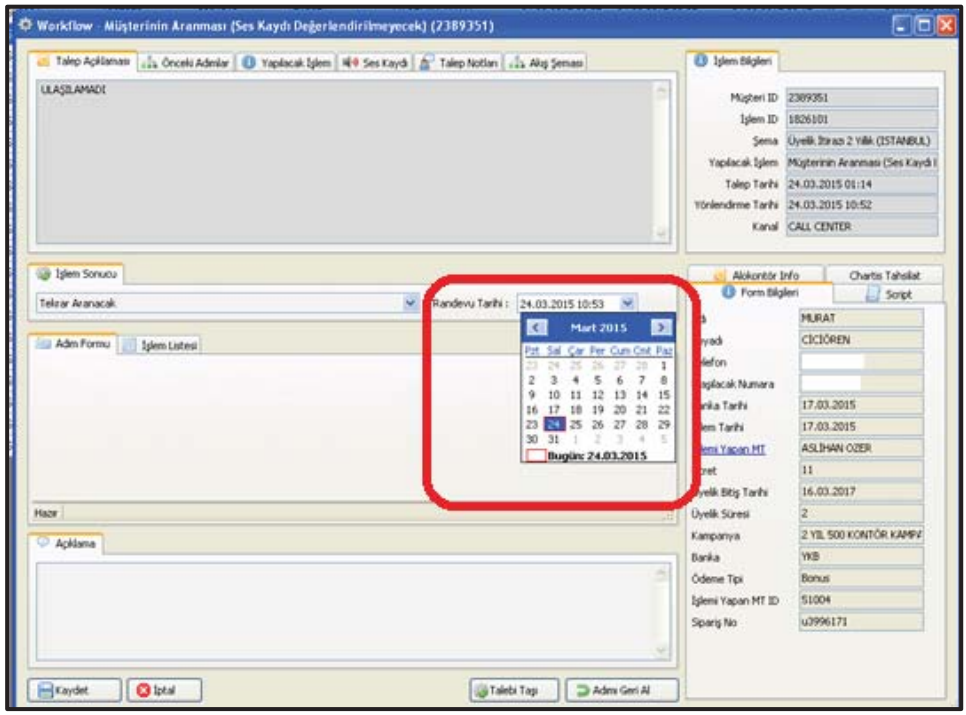
i. The Back Office Customer Representative calls the customer via the system. Situation or situations occur as a result of this action as can be seen Figure 4.10.

   a. If the customer could not be reached. he sends a SMS informing that the customer has been called but not been able to be reached by using the SMS sending button on the screen. The SMS includes the service number through which the Back Office can be reached by the customer. Even if the customer directly calls the call centre at this number. the customer can be transferred directly to the Back Office via the call centre CRM because it can been seen on the call centre CRM that this SMS has been sent by the Back Office. In case the customer cannot be reached thrice. the record is ended with the situation "the customer could not be reached." This ending process is not managed by people as in the past but automatically by the system as can be seen Figure 4.11.

Figure 4.11: Sending SMS screenshot

Source: Tempo Workflow Software

Figure 4.12: Calling customer screenshot



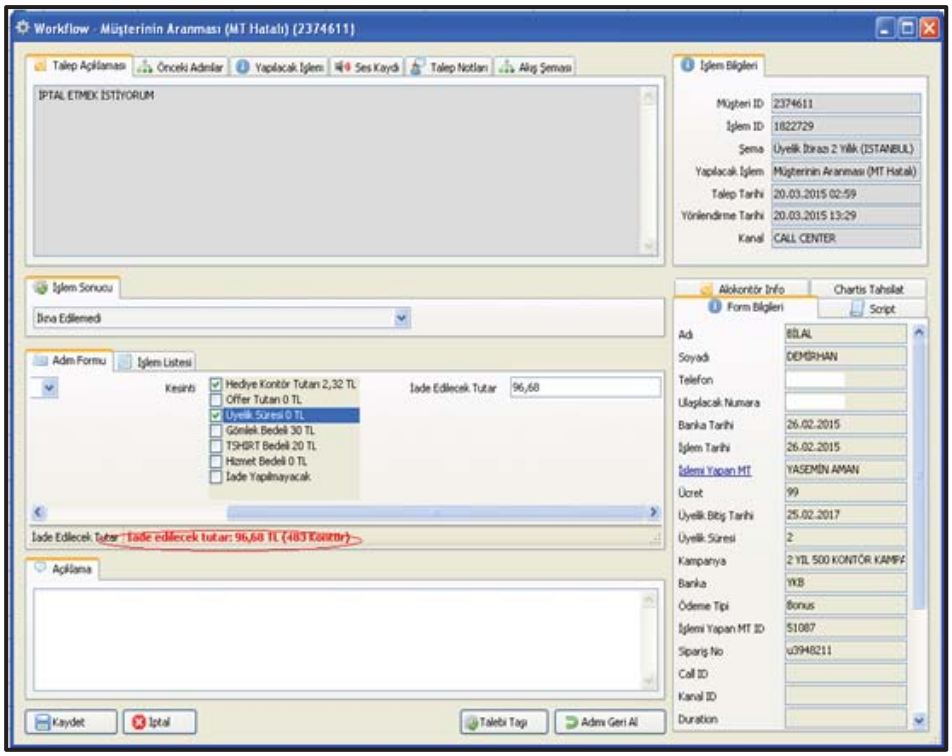
Source: Tempo Workflow Software

b. If the customer has been reached but wanted to be called on another date because he is busy. “to be called again” is selected on the screen. The date on

which the customer has requested to be called is selected in the area marked with red color in Figure 4.12. On that date. a pop-up reminding that the customer is to be called appears on the screen of the Back Office Customer Representative. As stated before. it has been found that this has been manually tracked in the system. and hence. there have been customer who could not be persuaded because they have been called very late or not called at all.

c. In case the customer has been reached. the presentation is made to persuade the customer. If the customer is persuaded. the Back Office Customer Representative makes the related selection based on the customer have received the offer and closes the record. If the customer is not persuaded. the Back Office

Figure 4.13: Calling customer (Refunding)

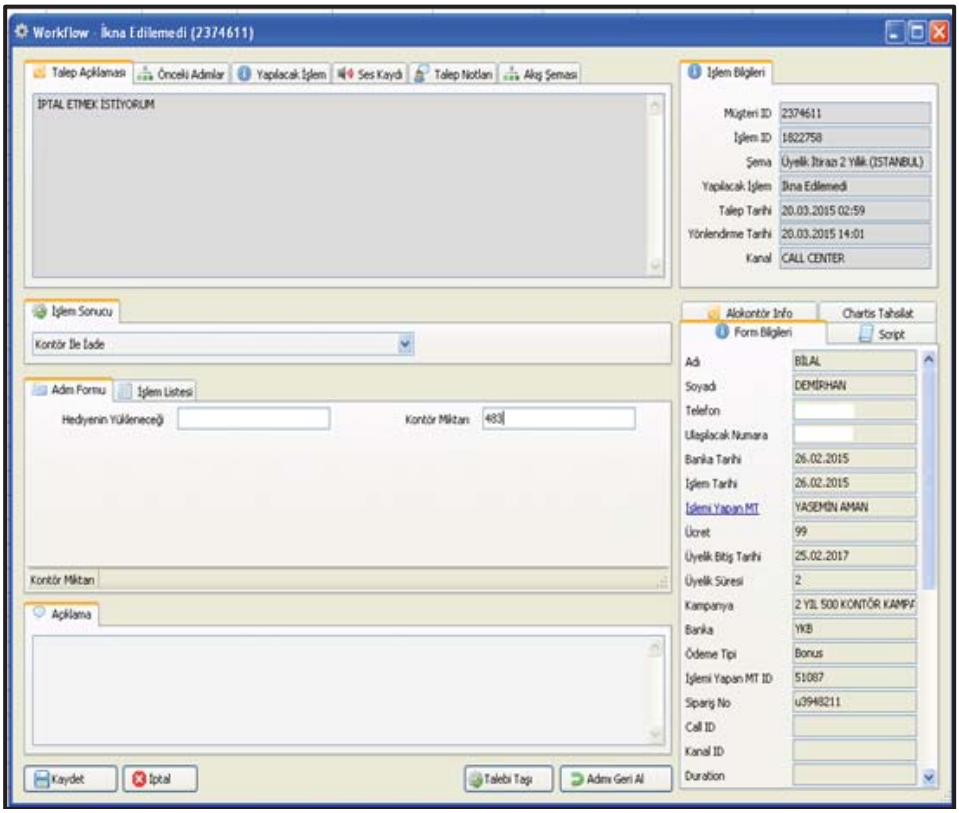


Source: Tempo Workflow Software

Customer Representative marks the discounted services from which the customer benefits due to his subscription. Based on the selected services. the amount to be refunded is automatically calculated by the system in the area circled in red color in Figure 4.13. This calculation has been manually made by the customer representative before. This has caused both a waste of time and errors.

ii. If customer could not be persuaded. the Back Office Customer Representative marks the refund method on the screen according to customer's request. The amount to be refunded is repaid to the customer in three ways:

Figure 4.14: Refunding via telephone credits screenshot

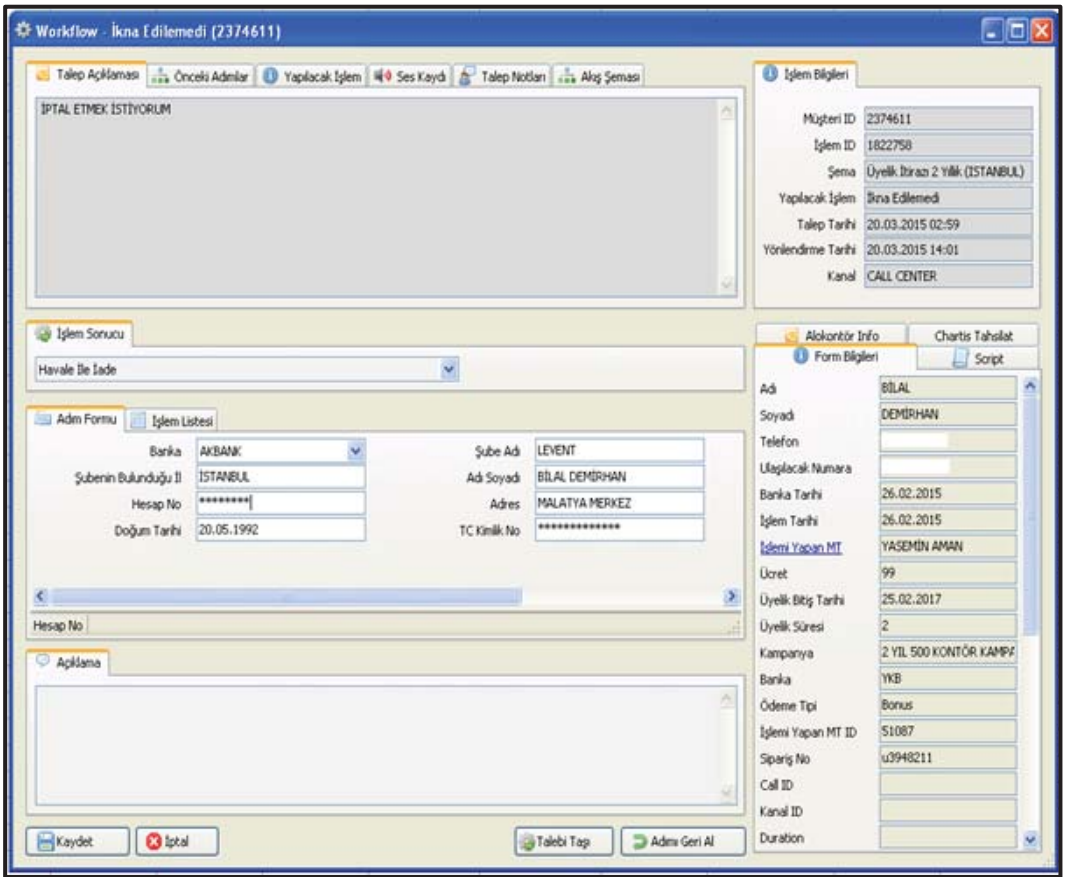


Source: Tempo Workflow Software

a. If it is to be refunded via virtual POS. the amount is refunded automatically by the system and the record is closed. In the previous flow. the Back Office Customer Representative has not been able to manage this refund process. He have been sending the process to the Back Office Director along with the excel files; the Back Office Director have been refunding the amount directly via the virtual POS screens after checking the amount to be refunded; and the customer have had to wait during this procedure.

b. If it is to be refunded in telephone credits. the Back Office Customer Representative enters the amount of telephone credits on the following screen. makes the refund. and consequently the record is closed as can be seen Figure 4.14.

Figure 4.15: Refunding via money order screenshot



Source: Tempo Workflow Software

c. If it is to be refunded via money order. the Back Office Customer Representative enters the account information of the customer into the system on the following screen and sends the record to the financial team. The financial team closes the record after completing the money order as can be seen Figure 4.15.

5. FINDINGS

As mentioned in previous chapters a new, modified approach has been produced mixing the BPR steps with BPI steps in this study in spite of the lack of quick hits and incremental improvement within the concept of BPR.

The steps that will not be able to be evaluated under BPR were evaluated under the titles quick hits and incremental improvement, and the benefits obtained as a result of these developments were mentioned under the same titles. The following table presents a summary of these findings and the developments after as can be seen Table 5.1.

Table 5.1: Performance evaluation after quick hits and incremental improvement

No	Description	Effected Value	Effect (+/-)
1	Sending the calls without any record to more competent customer representatives	Registration/Transaction Value	(+) 197%
2	The detection of registered number by the system with CTI integration	Monthly Customer Rep	(-) 1.39
3	Receiving customer information after credit card approval	Monthly Customer Rep	(-) 0.16
4	Revising the name of sales meeting as review meetings and evaluating the new KPIs except the sales	It is a strategic development. Previous values for newly added KPIs are not available.	NA
5	Adding the campaign module independently working on CRM	Preparation Process for New Campaign	(-) 89%
		Errors Experienced in Transition to New Campaign	NA (due to the lack of previous net data)
6	Integration of scripts into the CRM screen.	Errors due to failure to use up-to-date scripts.	NA (due to the lack of previous net data)
7	CRM instant announcement module	Errors due to the lack of up-to-date data.	NA (due to the lack of previous net data)
8	Adding the state of customer requests to the Alokontör CRM screen	Number of reopened records	NA (due to the lack of previous net data)

It was decided that the process of objection for subscription would be reengineered, and under this scope, a TO-BE process map was drawn for the process of objection for

subscription, and this new flow started to be used as a new CRM attached to the Alokontör CRM thanks to the information technologies.

Tablo 5.2: TO-BE performance evaluation

No	Old Situation	New Situation	Value It Affects	Previous Value	Value After BPR	Improvement
1	The customer requests have been received via Back Office e-mails. The Back Office Team Leader has been carrying the records hourly via Excel to track the incoming requests.	It has been ensured that the customer requests come to the Back Office via the system.	Duration of transferring the requests from mails to excel files.	67.5 minutes/day	0	(-) 67.5 minutes
2	Prioritization based on the type of request and assignment to senior customer representatives has not been possible since the customer request have not received in the system under certain labels.	It has been ensured that all customer request received on the Alokontör CRM are labeled. It has been ensured that the incoming requests are prioritized based on their labels via newly written Back Office CRM and sent to the Back Office Customer Representative specified by the Back Office Team Leader according to the label. The system is run with FIFO model unless there is a special prioritization.	Persuasion rates concerning the objections for subscription	The previous and current data is not meaningful due to the change in the subscription content.	NA	NA
3	In order to respond to the request, the Back Office Customer Representative has been previously opening the Alokontör CRM and getting informed from different areas of this screen and entering the information into Excel files.	Now, all information necessary for the Back Office Customer Representative to respond to the request with newly written Back Office CRM has been gathered in one area.	Time of Evaluation for Customer Request (Cycle Time)	Average objection for subscription 14.22 minutes (27 daily)	Average objection for subscription 10.97 minutes (35 daily)	(-) 22.85%
4	There has been no flow defined for voice record that cannot be found by the Back Office in the system.	A soft system has been designed through which such voice records will be IT Teams. According to the goal specified for the IT Teams, they will respond to these voice records within one hour.	Persuasion rates concerning the objections for subscription	The previous and current data is not meaningful due to the change in the subscription content.	NA	NA
5	Not every voice record have been previous able to be listened to in the system.	With new CRM, it has been suspended that next step is taken if the voice record of the Back Office Customer Representative has been found.	Persuasion rates concerning the objections for subscription	The previous and current data is not meaningful due to the change in the subscription content.	NA	NA
6	The errors due to Customer Representatives have not been previously able to be tracked in the system.	With new CRM, such errors have started to be examined in the calls listened according to their topics. While the opportunity for custom training has been obtained, The rates of objection for subscription has been included in the customer representative premium systems.	Rates of objection for subscription	The previous and current data is not meaningful due to the change in the subscription content.	NA	NA
7	Previously, discounts granted to the customer for subscription has been calculated manually by the Back Office Team Leader and the refunds have not been able to be made by the	With new CRM, the amount to be refunded to the customer is automatically calculated and refunded by the system.	Number of Faulty Transactions	Error rate in withdrawn samples 4%	0	(-) 4%
			Duration of Calculation	Average duration of calculation 2.15 minutes	Average duration of calculation 0.10 minutes	(-) 95%
8	The refunds have been previously made to the credit card account in the system.	With new CRM, it is now possible to make refunds either to credit card accounts or bank accounts via money order or as telephone credits to the advantage of the company.	Rate of Telephone credit refund	0	17%	(+) 17%
9	The appointments have been previously recorded in Excel files but on the system. Therefore, the calls either have been completely forgotten or the customer could not be called back on the requested time.	The appointment toll has been added to the CRM and it has been ensured that the information about the customer to be called on the requested date and time pops up on the screen of the Back Office Customer Representative.	Rate of failure to refund to the customer	NA (due to the lack of previous net data)	NA	NA

The following table shows the state of the findings obtained during AS-IS in the new process and the development in the value affected by this state after BPR.

As can be seen in Table 5.2, the benefit created by the new process only in the request of objection for subscription is even at the level of 23 percent. This can be interpreted roughly as one out of four employees being idle. As a result of this new process, the company did not decrease the number of its personnel and was organized in a way that it could respond to the requests within 24 hours.

6. CONCLUSION

In this study, the practice of reengineering at a call centre in Turkey is explained and a practical roadmap is presented to show companies how they can reengineer their processes using their call centres. A modified approach is put forth, including the steps that can be evaluated within the scope of BPI to the typical steps of BPR to be able to benefit from the small improvement (quick hits, incremental improvement) opportunities during the process.

As seen in the application, the improvement opportunity has been acquired under 16 topics at the company Tempo thanks to this modified approach that makes the call centre the focal point.

Some limitations of this work should also be mentioned. There has been no process management understanding whatsoever that covers all process at Tempo where the work has been done. Hence, values for many KPIs before the reengineering are based on limited samples under AS-IS and do not represent any given reliability level. The benefit obtained in these values specified as NA in Findings chapter after the reengineering could not be able to be defined numerically.

This study aims to provide a roadmap that shows companies how they can reengineer their processes using their call centres. The modified approach that was formed to this end has been applied to the call centre that receives the customer requests of a company whose core business is to sell telephone credits via its call centre. It would be useful to increase the validity of the application provided it is applied to the companies rendering service in other sectors and its results are shared. For future research, it would be interesting to apply this model to call centres of several other businesses.

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