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MARK

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MSc in Technology, Innovation & Entrepreneurship

Report in the module of:

ICT for STRATEGIC MANAGEMENT

with subject:

Preparing an Information System Proposal (ISP) for a new Information System in your company

By
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Thessaloniki – 30 May 2008

ABSTRACT

By taking the responsibility to accomplish this project, we foresee a great challenge that motivates us to make a survey and research for similar models and IS plans, regarding the field of IS Management. It is true that – in such cases – where customized solutions have to be given, there is no a "wrong-right" relationship. However, there are a number of similar cases already applied, there is relevant experience and there is useful material that can be adopted and incorporated in our customized philosophy.

In our effort to fulfill the requested stages, it is true that we have adopted knowledge acquired from our previous assignment in IT Project Management. We consider though that current assignment has a much broader domain, therefore we have focused our research in surveys that have been done in the area of IS Management.

In addition, we have considered it crucial to make a survey prior to finalizing our IS proposal to the company. In references and bibliography, the last two sections of the assignment, we demonstrate a number of resources that have been used as guidelines and support material.

We have decided to follow a mind-map, which is given right below, and illustrates with clarity the stages and its sub-parts where upon we have based our thoughts and findings.

This mind-map helped us as a guide in order to cover all requested tasks, while in parallel to follow a definite path trying to widely cover the assignment's requirements. It is a real case although for business reasons we have changed the company's name. The rest of information and processes as well as historical and financial data are all real and derived from published sources.

Where no clear objectives were given, a number of assumptions have been made, in order to proceed in the IS planning. We have seen this assignment's tasks, both as an opportunity and a challenge to investigate and study in a number of resources, models and cases in order to conclude and make our proposal.
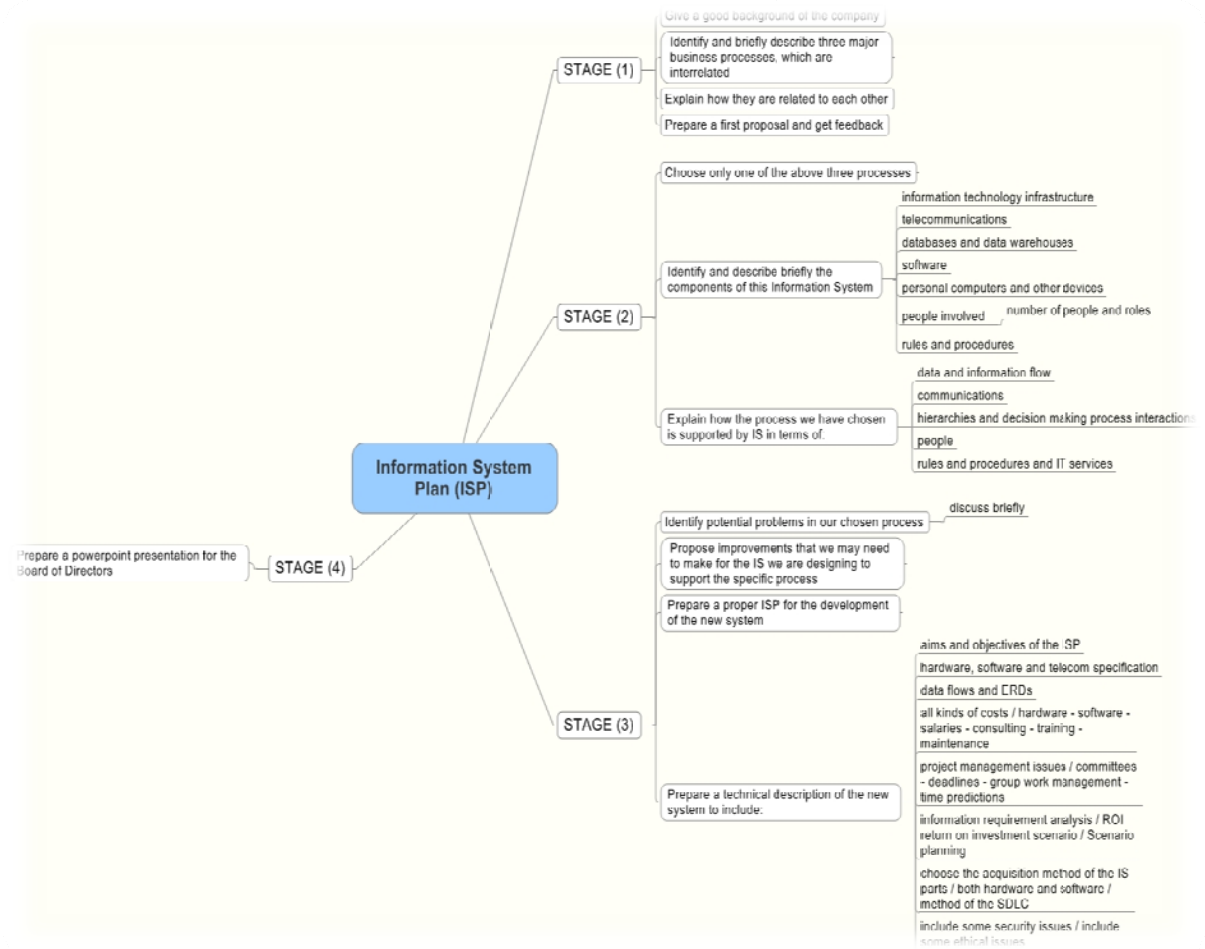
Abstract figure. Mind-mapping of project's tasks-stages

SUMMARY

Purpose – Our purpose is to make a research in the area of Information Systems Planning, trying to investigate different models, studying in relevant material, experiencing and brainstorming, aiming to suggest a complete solution to our customer (Telecom Salonika SA).

Design/Methodology/Approach – The report is consisted of two parts. The first part is a group work assignment, where a number of tasks-stages are requested to be covered. The second (stage 4), is an individual part, where a power-point presentation has to be produced, as we will perform a presentation of our IS plan to the Board of Directors of the company. For the first part, we have been based in relevant literature, as presented in the appendices, references and bibliography of this report. The second part was derived from the material described and analyzed in the first part.

Findings – An implementation of Service-Oriented Architecture (SOA) framework, in combination with agile programming, is our final proposal as a promising IS solution to the customer. Software development, costs, other IT project management issues are only one part of the whole project. Therefore, we have decided, that it is necessary to apply much more components, in order to change existing environment and drive the company to a new status. Business processes re-engineering is applied partially in our focused area of Technical Support unit.

Research limitations/implications – All material processed are derivatives and conclusions of research made by various groups of authors/scientists on this issue. We have tried to include material that has approached the issue in various ways, in order to cover the subject in a broaden manner. Personal experience was used as well, brainstorming elements and conclusions of our joined work.

Practical Implications – This report is aiming to help, our customer. It is an IS plan, where we present our proposal describing how we can implement a new improved information system with the help of a business process re-engineering to improve company's operations. It is in our customer's discretion to accept or not the proposal. We point out that this is only the plan.

Originality/Value – This report was prepared as the fourth paper to submit for the MSc in Technology, Innovation and Entrepreneurship course (University of Sheffield – CITY Liberal Studies). The relevant module for which is submitted is the *"ICT for Strategic Management"*, with module director *Mr. Nikos Yagoulis*.

Keywords – Information Systems, Planning.

Paper type – Group work Assignment (85%) / Individual Assignment (15%)

TABLE OF ACRONYMS

IS	Information System
IT	Information Technology
CIO	Chief Information Officer
CEO	Chief Executive Officer
SOA	Service Oriented Architecture
GNT	Greek Net Telecom
IRS	Information Requirements Strategy
TROI	Technology Return on Investment
ROI	Return on Investment
BPR	Business Process Re-engineering
ERP	Enterprise Resource Planning
SDLC	Software Development Life Cycle
ICT	Information & Communication Technologies
RUP	Rational Unified Process
WBS	Work Breakdown Structure

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H. The three processes interrelation

I. Work Breakdown Structure of the new IS

J. Stage 4: Prepare a Powerpoint Presentation of the IS plan
        (individual part made by ERGEN Evangelos)

<u>INTRODUCTION</u>

> *"The most difficult task is to assess how the information*
> *systems strategic choices affect business performance"*
> ***King 1998***

In our effort to find some guidelines and models about IS plans, we have reviewed a number of relevant theories which finally concluded in a number of certain proposals.

It is true that this assignment, gave us a strong motive to survey in sources both academic and professional.

The main idea is that, an Information System (IS) cannot give the expected benefits unless it is embraced by the top management of the company. Therefore, for an IS planning to have potential for success, ***efforts should be focused on the following:***

- Top management involvement and support
- Cooperation with other company's departments such as, the Sales, the Technical, Commercial and IT department
- Existence of a business strategy
- Essential study of the business before the technology
- Implementation of a good and effective IS management

Our target in the present assignment, is to make an IS proposal for a real company, specializing in telecommunications services, where a new information system should be introduced. This proposal embraces procedures of re-engineering, which are considered necessary for the system to take place.

We aim to use IT in order to support the company's goals. Emphasis should be given in creating an environment where business drives, technological innovation and management, will collaborate under the IT "umbrella".

Undoubtedly, technology is a mean that: (a) can give benefits to the company, (b) can create competitive advantage and in addition (c) adds value to the final product or service.

1

The proposed IS plan will be based in three cornerstones: *[1]*

- Special focus in the IS planning process (strategic planning)

- Achieve a successful strategic alignment between company's business strategy and IS strategy (alignment)

- Define a clear model for the IS/IT management function where responsibilities will be agreed and applied (managerial responsibilities)

The outcome should be, the new IS system to reach its full potential within the company, in order to make the company more competitive, more flexible, change-oriented and eligible to pursue high risk-high return pathways.

We should be very careful in stages 2 and 3 of the assignment, where we will seriously have in mind a number of possible drawbacks. Our efforts will be focused in certain factors such as: *[2]*

- To define and shape the new IS strategy in parallel with the existed business strategy of the company

- To work in detail for achieving operational efficiency, through the improvement and restructuring of the one business process that we have chosen

- To develop scenario planning where we try to address possible obstacles and ways to overcome them

- To make an approach based in the changing environment and not in a "one-size-fits-all" scenario

- To link our philosophy for the IS plan with the business strategy through continuous cooperation, feedback and frequent reviews with senior business managers of the company

- To play the role of CIO (Chief Information Officers), by interpreting business needs to technology products and in parallel, being fully aware of what are the real needs of the company playing a proactive role

- To communicate the IS plan, its aims and objectives not only to the managers but to all stakeholders of the company

- To receive the full commitment of the top management that will support our effort to improve the current IS and guarantees that our aims as CIOs will find consensus

- To receive a degree of freedom regarding hierarchical issues during the project, as we do not forget that our primary concern will be to foster an innovative culture supported by a well-developed IT architecture

It is important to realize that, the new system will not be the universal solution to solve all problems or just open new opportunities. Technology, in this case, will not act as a source of direct advantage in itself. Instead, it will provide the means of dealing with challenges faced by the company, and enhance existing and new competences. Moreover, it will add value by facilitating faster responses to the customer, by developing linkages throughout the supply chain and by meeting business demands.

Finally, we consider it necessary to implement the Information Systems Plan, as this will encourage company's managers and the Board of Directors to articulate their objectives, priorities and action plans. In any case, our mission as CIOs, will be to help company achieving its goals and objectives, through the use of information technology.

Moreover, this plan will provide the company with a number of benefits which are:

1. A faster route to more valuable information when and where it is needed, in a form that can be used
2. Sounder reasons for supporting IT projects, in general, and assurance that requested resources will be available when needed
3. More effective use of the money spent on information technology
4. A complex information technology environment, in which the parts fit well together, just as they should in any other engineering structure
5. Less waste of money supported an unplanned IT environment
6. Reduction of costly maintenance and corrective work
7. Identification of cost-saving and cost-sharing opportunities in distributed environments
8. More effective responses to unexpected changes in the business environment, thereby reducing the need for crisis management

Although the planning process never ends, it is ultimately necessary to agree with the company in a fixed plan, so by all odds the most valuable component of this effort will be the cooperation and the mutual support among us as CIOs and the company's CEOs.

We believe that to achieve this, our IS plan should exhibit five distinct characteristics: *[3]*

- It has to be **timely**, meaning in the right time when the company needs it
- It has to be **usable**, since it is the plan and not the system itself, so it would be adopted by the project managers who will carry out its attributes
- It has to be **maintainable**, as quick changes may affect original planning, changing fundamental parts of the plan
- It has to be a **quality product**, because it is a living document so any estimation included should be updated with every technology event in certain periods
- It has to be **reproducible**, which means by the time its elements start being developed, the outcome should remain the same

An IS plan cannot exceed 3% of the total budget. In our case, since the new IS that we introduce will be performed by the company, we will participate in a situation where company's environment will transform from a project to a release environment.

CHAPTER 1: STAGE 1

1.1   Background of the company

General

Company: Greek Net Telecom SA (GNT)

Greek Net Telecom is the biggest telecommunication company in Greece, and one of the biggest in the region of South-East Europe. It is located in Thessaloniki, where the main administration resides, while has a number of branches in five European countries with over 30.000 employees in total.

It owns the national cooper network; it has more than 20.000 km of fiber-optic cables installed, and is a very well organized company.

National and International standing

Greek Net Telecom is a company that has been established in 1949, as the first national telecommunications operator, providing simple telephone lines. These lines were offered primarily for the government, the industry, other corporate customers and finally for domestic customers.

In its current position has reached after a significant change made in its investment strategy on 1997. At that time, the company decided to expand its services and products in countries of the South-East Europe. As a result, in a ten-year period, a series of companies takeover in a number of countries, have made it the biggest telecommunication provider in the region.

Specifically, the company has currently presence in Albania, Fyrom, Bulgaria, Romania, Serbia and Greece. In most cases a significant share of the local telecommunication operators has been purchased, so through this acquisition it secures its presence in each market, creating in parallel a global image.

Further to the products and services already presented earlier, the company has a valuable network of retail shops in the abovementioned countries, which gives it a strong

competitive advantage. These shops serve as contact points for direct sales to retail and wholesale customers as well.

Company Shareholders

Greek Net Telecom is a former public national company that has been privatized few years ago. The shares of the company are negotiated in the Greek Stock Market, as well as in the Stock Markets of London and New York. In the capital share of the company, there is a spread participation of other companies (not necessary from the same field), which owns a percentage of 3% to 30% in a range relevantly. There are also a percentage of shares that is split to small investors. It is a private company, very competitive and high-promising as it owns both technology and knowledge.

Company Administration

There is a Board of Directors which is administered by the President who is also the CEO of the company. There is also the Shareholders' Convention which meets once a year on the regular annual meeting.

Financial data

Based on recent data which concern the previous financial year 2007, the gross turnover was 6.319,8 million euro, showing an increase of approximately 7,3% compared to the results of year 2006.

Main factor that affected positively the company was the increase of sales in the broadband services, which proved to be a definitive product.

Net profits for 2007 (after taxes) was 662,6 million euro, showing an increase of 15,3% compared to the results of 2006.

Products and services

The company offers a number of products and services as follows:
- Broadband telecommunication services (dsl, adsl, sdsl)
- Fixed telephony
- Mobile telephony

- Satellite connections and communications

- Leased lines and ISDN

- Customized Corporate solutions (government and industrial)

- Retail network of hi-tech equipment and relevant accessories

In the appendices section, we are giving the general organization chart of the company (*Appendix A*), which is illustrated according to product and service offered. As mentioned earlier, company has branches in six different countries. Each country offers a restricted number of products, except Greece, where all services and products are available.

Therefore, we have given the complete organization chart with all services and products.

Status of competition
GNT is the leader company and holds the biggest share in the market, although it has faced very high competition since the liberation of the market. From monopoly status and complete market domination, new players with innovative products entered the market. Small SMEs with flexible products, gradually gained a percentage in the telecommunications market and immediate actions are required for the company to protect its status.

The new IS will provide, through restructuring and process re-engineering, better services and customer-oriented philosophy.

Strategy
The company is one of the oldest in the region, most successful in its area of expertise with continuous expansion.

Major strategic targets are the following:
- Optimization of all procedures through viable reduction of costs and in parallel continuous improvement in productivity and in flexibility.
- Continuous improvement in customer service, retail and wholesale – corporate customers.

- Expansion of the offered products and services, giving special emphasis in the broadband services as well as the voice-data services.

- Focus in local and global activities that hide potential of further development for the company especially in the area of south-east Europe.

- Reinforcement of the cooperation among all subsidiary companies, in the six countries including mother-company in Greece.

- Development of activities related to corporate social responsibility issues, in combination with the company's primary targets.

Corporate Social Responsibility

GNT has connected its name throughout the years, with social care and offer. Since it was one of the biggest local companies in Greece, and remains so, recently decided to incorporate this philosophy in its strategic planning. This has resulted in a gradual change in the enterprise mentality concluding that the offered telecommunication services should be not only modern and in low cost but also give full satisfaction to customers and all participated parts in this process.

Moreover, participation of the company to actions for the society, the environment, and the employees is fully supported.

Company's vision

The vision of the company is to: succeed in being the first choice for telecommunication services in the region. In addition, to continue offering high-standard services in all aspects of the company's activities and keep profiting in a hard-competitive environment.

Final component of the vision is: the company to add value with its presence in every market it decides to participate.

1.2 Identification and description of three interrelated business processes

Based on our previous descriptions, it is realized that the specific company has a variety of offered services and in result, there is a customer base differentiation accordingly.

We have isolated and describe three of many different business processes, which we believe that appear a special interest, if observed in combination. They are strictly related

and their procedures are interdependent and sequential. In addition, ***we have restricted our survey to the business processes that concern the Broadband services.***

The product-service

The basic new product that the company promotes is called ***"Broadpack"*** and is broadband connection to the internet (ADSL). It has two main versions:

- Broadpack Home (for domestic users)
- Broadpack Professional (for companies)

The main differentiation is that the second has Service License Agreement (SLA). This implies that, in the second choice the provider has specific obligations regarding the customer (quality of service – QoS)

These major business processes in this environment, are the following:
1. **Ordering** procedures for customers (1st process) / Sales – Accounting Department
2. **Customer Service – Call center** support for all customers (2nd process) / Customer Service Department
3. **Trouble Management** (3rd process) / Technical Department and Support

The Customer Service is the first reference point for the customer. It has a section, the Call Center, which accepts all customers' requests. There is an on-line filtering of each request and the customer service representative is the person who decides how customer will be helped. That means, a number of requests are solved instantly directly by the Call Center, while others are forwarded to the relevant Departments.

Ordering (process 1) – Appendix B

By the time a customer decides to purchase the "Broadpack" product-service, he has to order it either through the Ordering Call Center (via phone), or any retail shop of the chain or through company's web site. In any case all requests are directed to the Customer Service. In continuous, an employee from customer service, register customer's order to the order management system. Then the order goes to the local technical department to

patch the cords and then follows the procedure of automated port configuration. Then the product hardware is shipped to the customer (adsl router).

Customer service-Call Center (process 2)

Moreover, a customer has to call in order to activate his service after the purchase and in addition, in case of facing technical problems he has to call first the Call Center.

Currently there are four Call Centers:

Call Center 1 (CL1): The first one deals with ordering of new products and services. Also modifications in services are covered further to the customer's request (*Appendix C*).

Call Center 2 (CL2): The second one deals with assisting for the configuration of the ADSL equipment and modem installation and provides useful advises for new connections installation (*Appendix D*).

Call Center 3 (CL3): The third center is to declare any faults/technical problems. Any product's malfunctions are reported at this center (*Appendix E*).

Call Center 4 (CL4): This center is the call center of ISP, of the company that creates and checks the usernames and passwords of the customers (*Appendix F*).

Trouble Management (process 3) – Appendix G

Currently, if a customer has technical problems that cannot be solved through phone support by any of the Call Centers, the relevant Call Centers (CL3 or CL4), are obliged to inform the Technical Support (trouble management) through an IS. Then the technical support calls the customer to identify the problem and try to fix it.

In case of not solving the problem instantly, through phone or on-line help, the technical support forwards the request to the local technical department, again through an IS.

Then a technician visits locally the customer, but usually this process takes a lot of time till the visit to take place.

As illustrated in the flowcharts given in Appendices section, these three processes are the most commonly used and have a significant ratio of company's daily operations. In *Appendix H*, we try to illustrate the interrelation between these processes graphically.

CHAPTER 2: STAGE 2

2.1   Selection of one business process

As mentioned earlier, we have identified that the third business process, ***"trouble management"***, is one of the major processes that appeared to face serious weaknesses. In addition, relevant experience showed that there are leaks as well. Although customer has a first reference point to search for help, and this is the Call Center, any further requests or more serious demands have a very complicated path to follow.

Our company supports not only domestic customers, but corporate as well. Usually these are the ones with high requests and being in parallel customers of high budget.
Currently all customers' requests are handled through the same path. No special treatment is given to the corporate ones. Moreover, in many cases service offered is not equal to what is expected.

In *Appendices G, Ga, Gb, Gc and Gd*, it is given a graphical flowchart of how this process currently works. The Call centers process is strictly connected with the technical-trouble management process. We believe that this link has to be simplified.

We have isolated and studied this process, in the limits of Technical Support Unit in the area of Thessaloniki. Considering that all branches follow the same hierarchy and strategy, we believe that, using Thessaloniki's branch as a model, it would be possible to apply our philosophy in each different branch.

We have been asked to give solution in the specific branch, as this is one of the most-growing and facing serious problems of serviceability.

2.2   Identify and describe briefly the components of current IS

Information technology infrastructure

Although the company has already applied an information system which is used the last 5 years, it is obvious that this cannot serve any more the new continuously changed conditions.

Current IS has been produced and maintained by our company's IT department. Since the company has a high level of expertise staff due to its products and services, top management considered it more effective to construct something on its own.

There is an operational network that connects all the germane departments and allows access to the network elements and allows their management.

Telecommunications

Being a large telecommunication company, GNT, has all the resources available. The main way of communication with the customers is digital telephony. Also VoIP, faxes and e-mails are accessible to make communications between the departments and employees even easier.

Databases and data warehouses

There is a central database where all the information that is related to the ADSL customers is stored. There is also a GIS operating.

Software

The trouble ticketing management is the main application that it is used, which is part of the existed IS which is called "Promitheas". It has been proved to be a very stable system with fast response times and user- tailored interface. It is developed from the organization resources and that's why it is a very good customized solution. "Promitheas" information system is a web-based application and was developed in Java.

Also, a few applications are used to allow the management of the network elements and allow the user to interact with the network devices.

Security Issues

The entry to both the IT infrastructure and software requires authentication. All processes are complied with the ISO 17799 and SOX (Sarbanes-Oxley Act).

People involved (number of people and roles)

There are basically around 100 people that are involved in this process. They are divided in two departments: North and South Greece trouble management department. Both have a

manager as head of the department and there are ten supervisors for each department. The rest of the people are the ones that deal with the customers and the network. There are also around 500 field and MDF technicians who are located at every local GNT center and participate at the trouble resolution if necessary.

Personal computers and other devices

Every employee in the trouble management department and the local GNT centers has his own PC with the appropriate software installed. There is an IT department to support all these users and ensure network security and operability.

Business processes have been kept in the same framework. No attempt for any redesign has been made so far. Moreover, any sub-systems that comprise business processes have not been identified. We experienced that during our efforts to decompose and reassemble our referred business process. In our effort to identify the sub-systems of this process, we found complexity.

Regarding the IT procurement framework according to which have been made procurement activities, there were no much available material, both for deployment and management processes.

Our aim was to find some information that has been gathered by the company's IT team at that time, in their effort to establish current IS.

IS Procurement Framework

Requirements determination: we would try to find information about, project teams, cost-benefit techniques that were used, other analytic techniques for evaluating proposals for procurement, risk assessment.

Acquisition: our main concern was to find out which were the criteria for selecting specific suppliers, regarding products or parts of services that have been acquired, in order to make the IS. In addition, if there were any pre-contracts or arrangements that have been made with these suppliers, it would be useful to study on this material.

Contract fulfillment: since most of the services were made by the company's IT department, this section is restricted only to outside products that have been purchased as part of the whole system.

Supplier management: any network of suppliers is useful to be closely monitored. In any case, an optimized customer-supplier relationship, adds value to the business. If the company has a strategy for key-suppliers, that is of primary concern, as this would influence suppliers' performance and would contribute to the better management of communication.

Asset management: the optimization of utilization of all IT assets should be under continuous review and follow-up. We have concluded that this target has not been met so far.

Quality management: anything that is about to be purchased should compromise with a number of certain qualitative criteria. In this manner, we should assure continuous improvement of all products and services.

Currently there is a centralized system where end-users have low involvement in its daily improvement. In addition, there is a risk regarding information protection. Monitoring and control is not present, at least in issues where customers' data are exposed to any technical officer, no matter his responsibilities in the job.

Regarding confidentiality and integrity controls, more or less there is a certain level of application to physical, logical and procedural levels. We work in an end-user system, so security solutions need to be tightly integrated into *the way the business is managed* and *how work is done*.

No such tools found to exist, while a number of security vulnerabilities, regarding customers' files access were identified.

Application used is internal software, made by the IT team. This serves as an ERP, which covers different departments and teams within the company.

It is an internally-made product, which among others covers the technical support unit. In this case, the application resides in the technical unit but affects other units throughout the organization.

The critical nature of the application is undervalued. End-user problems or identified errors are not considered seriously. Thus, traditional IS has a delayed reaction. In addition, there are no metrics applied to measure criticality and value of such reactions.

Another issue raised is that in the technical support unit, a small number of independent applications have been developed. Due to inability of company's IT department to cover the continuous needs of technicians, they have done smaller scope, customized software solutions in order to face daily demands.

Determination of technical support unit's IS problems are well-known, but there is no response from the IS department so far, on any possible approach to make a join review of the problems.

Although there is a messaging system infrastructure, it seems that is not operating effectively. As a result, system's problems or interoperability weaknesses are difficult to be identified. Any kind of expertise acquired by staff cannot be facilitated among employees and it is difficult to achieve consensus between teams and units throughout processes.

Current infrastructure is based in a number of behind-the-scenes components, which are consisted of the following parts.

- Network services
- Message transfer services

There is a backbone server/gateway/router environment. In general, there is a path of external environment-gateway-server-desktop connectivity. Unfortunately, there is a single-tier system although the number of system's users has been increased during last five years.

Another current fear is the one of losing network connectivity during operation hours. System has centralized attributes and advantages of remote access are not used.

There is a central database, which is mostly accessed by customer service and technical support departments. A client/server model is followed as the company has acquired a LAN technology.

We have identified that the ***"information behavior"*** of staff is almost inexistent. Given the fact that communication channels are broadening, this situation creates obvious obstacles in information sharing. **Information behavior** is the way people act regarding the information they need, hold or manage. **Information sharing** is the voluntary act of making information available to others. *[4]*

Information sharing is low. As a result, this decreases employees' commitment, troubles decision making and delays unit's response to customers' demands.

Although there was an idea of establishing an intranet, this has managed to reach very primitive stages. Technical support unit has not its own database though, but shares it with other departments. Therefore, this non-dedicated approach in combination with the non-existent intranet creates disadvantages in daily operation of the unit effectively.

It seems that current IS has not been characterized by "win-win" philosophy, as users have not been involved in its development. As a result, the IT department has a win-lose situation to face. On the one side top-management is dissatisfied with results, while on the other side, users feel more like simple forwarders rather than active participants.

Moreover, being a large and ex public organization has some disadvantages. It still holds large layer of hierarchy and is very slow to reactions.

CHAPTER 3: STAGE 3

3.1   Identify potential problems in the business process

As illustrated in the series *G of Appendices*, current matrix of facing customer's problems and giving support, shows restrictions, while in parallel ***creates a feeling of low trust in what is expected***.

The problem is that services provided by the trouble management departments and the four call centers are very poor. This has a massive impact on the value and reputation of the product, since the customer in several occasions is left without services for several days. Customer knows that if he wants to order a new product he will contact call center 1, while if he wants to receive support he obliged to call another call center.

Experience so far showed that there are three main categories of ADSL problems:

1. No synchronization

The majority of this category of problems is due to:

- Wrong connection of the ADSL filters and cables made by the customer.
- The customer is located at a distance of 5 km or more.
- There is noise at the line. The signal to noise ratio (SNR) is below 8 db.
- The line needs reset.
- The MDF patch wasn't correct.

2. No ip

The majority of this category of problems is due to:

- The customer hasn't configured the router correctly.
- The customer hasn't activated his account.
- The ISP hasn't activated the customers' account.
- The cross connection isn't created at the BBRAS (Broadband Remote Access Server).
- The Vp or Vlan isn't configured or working properly.

3. Slow speed

The majority of this category of problems is due to:

- Low capacity of bandwidth of the VP or Vlan.
- The customers' PC is infected with a virus.

So, in any case, the above numbers of possible problems have to be treated immediately at no delay.

On the other side, ***continuous retrenches in training budgets and cost containments***, are the worst allies of productivity.

A deeper analysis showed us that staff members cannot understand their end-users' business needs and demands. This ***low awareness*** directs to low level services and in low trust. Low trust drives company to ***non-productive customer philosophy***. No attempts for transition have been made so far. In addition, we have discovered that no special care have been given to staff's training.

The understanding of customer needs and expectations is not in department's (technical support) daily agenda, since tasks are limited to solve problems as quick as possible, tracking data in a simplistic way and issuing reports that normally do not represent multi-leveled information.

An IS cannot solve problems magically.
An information system is a mean and as such has to be treated.
Since the customer is obliged to direct his demands through 4 different call centers and then with technical support, it is obvious that somewhere, during this process, he might lost the communication and revert to point zero.

The problem is that services provided by the four call centers are very poor. This has a massive impact on the trouble management, since the customer in several occasions is left without services for several days.

Technical support is a significant unit of the service chain, thus it is necessary to revise our thoughts and opinions and try to approach it differently.

3.2   Propose improvements to be made for the new IS

The ADSL service shows an increase in sales during last 3 years, so the company is focusing in a more service oriented architecture (SOA).

Recalling company's history, it is clear that although it was established in 1949, the period followed, almost a 50 years period, was not the "so evolutionary" as the one of last decade, when it was decided to make an expansion and get into different markets. High risk may hide high return or failure. On the other hand, business agility is a prerequisite that the company must have in order to meet future challenges.

With the help of flowcharts, where it is described each process separately, we can easily identify possible leaks and weaknesses of current system. These processes are a big part – subsystem of a greater ERP system which already exists in the company. To be honest, this is not a real ERP, as it does not have the attributes of such a philosophy. Although the processes are interrelated from customer's view, they appear strong leaks, leading the user of the system outside the framework, without giving certain solution in each case.

Nevertheless, we consider it crucial to give a small description of what will be the general framework of our IS proposal.

We expect "GNT", (a) to be better equipped to serve the customers, (b) to be able to seize the opportunities and moreover, (c) to be able to respond to changes. Therefore we think of proposing an IS planning, ***where***:

- IT will be more responsive to changing business demands and more flexible to changing business processes, thus company will acquire business agility.
- IT will enable the potential of achieving significant cost-reductions, by reusing shared information and accelerating application development, thus company will get cost savings.
- IT will enable the company to achieve more with less.
- Current IT will not be replaced; instead there will be directed efforts to maximize the IT investment of the company, and support it with additional components

- Special focus will be given to create the IT processes, which accurately reflect the business processes and operational requirements. Thus achieve the alignment of IT to business processes.

We have adopted the service-oriented architecture (SOA) in our proposal for the improved IS, as it is our belief that we have to think in terms of business services. Our mission is not simply to improve some interrelated processes to gain serviceability. We think in terms of preparing the company to: (a) respond to change, (b) differentiate, (c) drive revenue and (d) mitigate risk. *[5]*

To achieve this, three components are necessary to be cultivated throughout the new improved IS.

1. **Visibility:** Customers must have the opportunity to find and understand the services offered, get full information, and interact with the company, in order to make more informed decisions. On the other side, company's stakeholders, should clearly acquire new knowledge through the system and understand how services are offered to the customers and which their responsibilities are.

2. **Trust:** Designing and implementing quality in our services is not enough, since this is not demonstrable. We will focus in this attribute, because we emphasize in gaining the customer's trust about our services and products. Information should be captured effectively and create a descent profile accessible to the customers. This will increase trust. Moreover, the relationship between customer-company should be encompassed by pre-defined agreements that will specify service-level expectations. This will help us to avoid misunderstandings.

3. **Control:** As customers' demands are changing, services are changing too. It is necessary to control the chain process of offered services. This may imply managing access to services, pre-evaluate them or try to closely monitor them.

We aim to create a different environment, through our Information System (IS) and innovate in three key areas:

20

- The service level management
- The problem resolution
- The change impact

New system will facilitate fast problem-detection and notification, will identify performance issues and contribute in the minimization of repair-time for the Technical Support section. Any changes will be quickly detected and the system will be eligible to adapt to new requests minimizing as well any impacts. Finally, it will give clear information and results of how the actual business service of the company will be delivered in real-time (*Figure 1*).
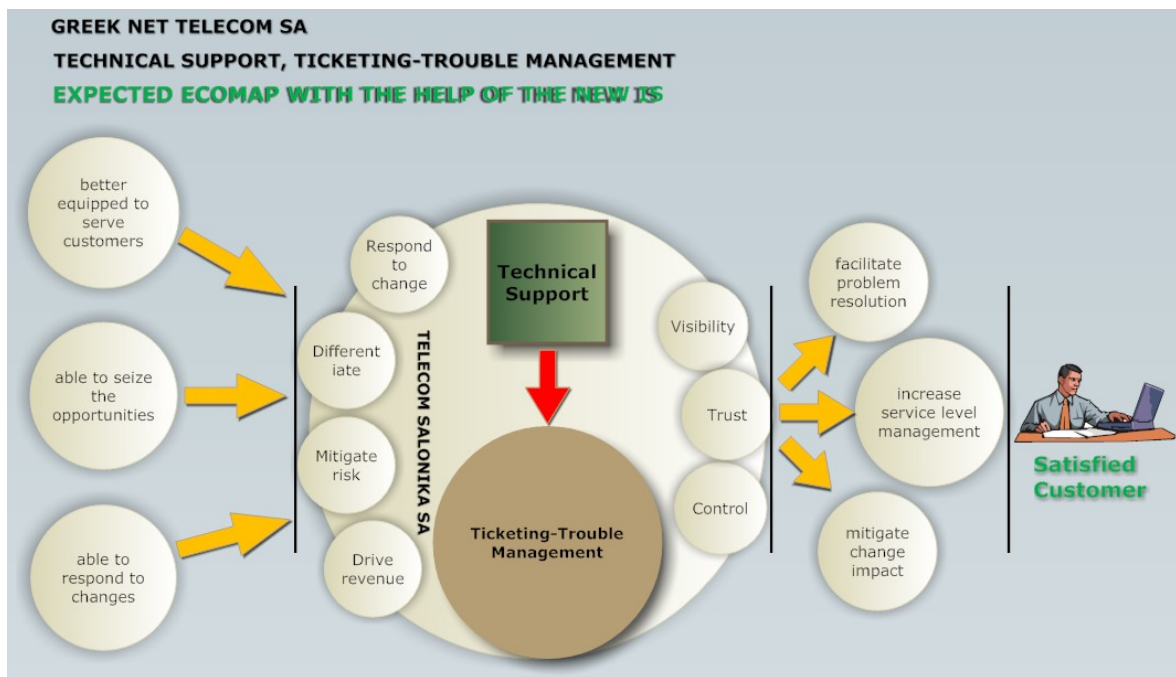
Figure 1. Expected ecomap of GNT with the contribution of the new IS

3.3 Technical description of the new IS

Preparation of a proper ISP

We accept that in any IS there are two key elements: (a) change and (b) learning.

In order to prepare a proper IS plan, we try to map these two keys, as internal processes during the establishment of the new IS.

In *Figure 2* below, we can identify this effort, as it is illustrated this interaction between IT implementations and organizational learning. *[6]*
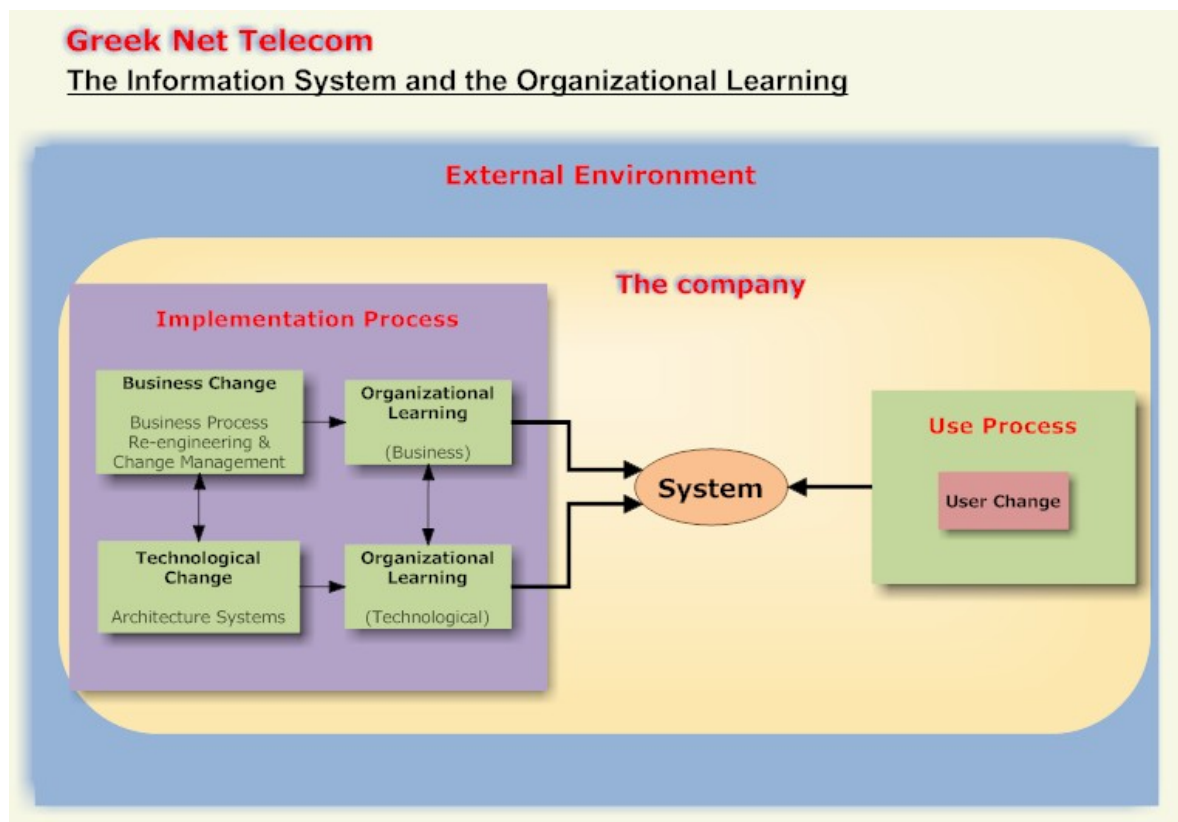
Figure 2. IT implementations and organizational learning.

We will adopt the *"Business Systems planning",* as our primary IS planning framework. This philosophy combines top-down planning with bottom-up implementation. It focuses on business processes and data needs are derived from business processes as well. *[7]*

Aims and Objectives of the ISP

For us to succeed in IS planning, we consider it valuable to define a number of **objectives** which will be the "target list" of tasks to complete. In addition, essential **guidelines** should be adopted, as the *IS framework* is the primary ingredient to work with. *[8]*

Objectives of our ISP

1. To obtain high and fast level support for the customer
2. To identify the strategic applications
3. To align IT with business needs

4. To improve communication about IT with users

5. To increase the visibility of IT in the organization

6. To allocate IT resources

7. To develop an information architecture

8. To increase top management's commitment to IT

9. To identify new and higher payback applications

10. To forecast IT resource requirements

11. To gain a competitive advantage from IT

Guidelines of our ISP

1. Prepare to implement

2. Plan quickly

3. Demonstrate business value in the plan

4. Understand top management

5. Model if only time permits

6. Do not expect the methodology to guarantee success

7. Manage project managers and other consultants carefully

The goal of the ISP is to deliver the most valuable business information at the earliest time possible in the most cost-effective manner. *[9]*

In addition, although we are describing only one business process of GNT, the focus of our plan is not only this specific IS but the entire suite of information systems for the company.

IS Management Framework *[10]*

Right below we give a graphical illustration of an imaginative model *(Figure 3)*, where the new IS should comply with. Since, we have introduced a number of parameters that we have to consider regarding the new IS, we strongly believe that a general framework has to be applied as well.
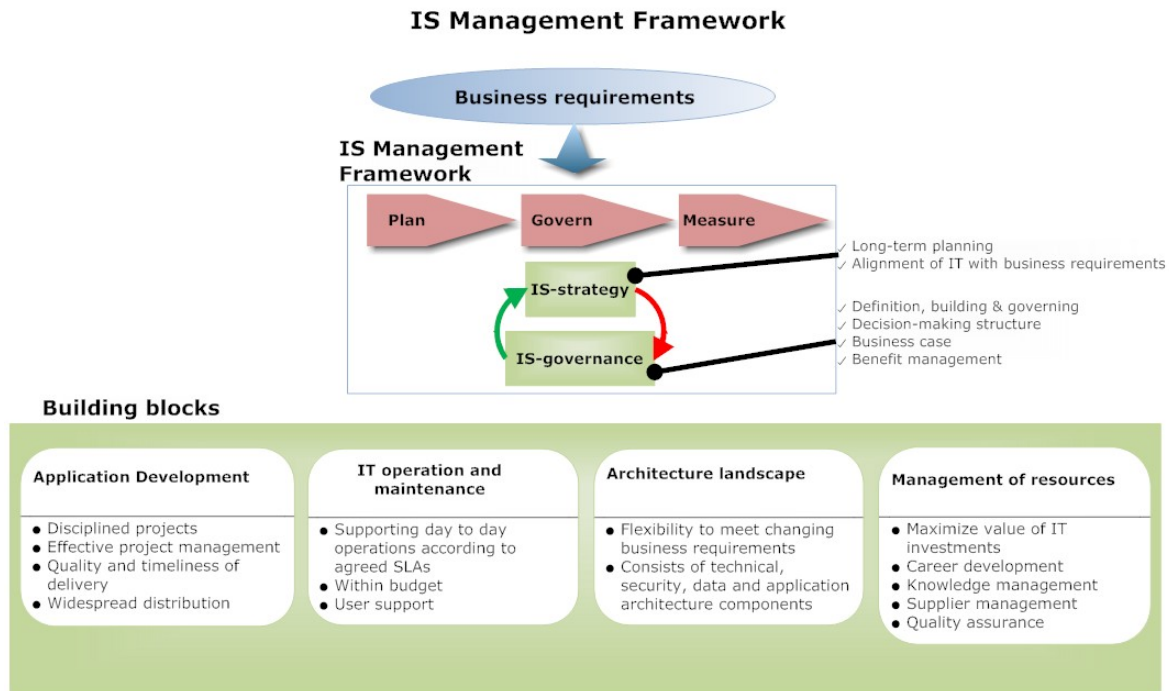
Figure 3. IS Management Framework

Create the mission model

At this stage, we will start by re-forming the department's vision. Since we are suggesting a new IS, we will refer to it as, ***information vision.***

It is our primary concern to conclude in a vision, which in continuous will consist the base for the mission.

In order for the information vision to be real, we should consider a number of parameters which will help us to determine it.

- First of all, we have to define the dimensions of power, size and cost of the new system. Mostly we are referring to the hardware part, since it is a high-promising one. Power is increasing while size and cost are decreasing.
- Then the application, as a software product should be available and easy to use.
- Since the application should be available and easy, the complexity of the support infrastructure is an issue which has to be predicted and analyzed.

- The new system will increase the speed and capacity of company's communication network. That means, the technical support department and the company will be able to deliver information as they wish.

- The IT department of the company should keep abreast of the new trends through reading the trade and research literature.

- IT staff should participate in seminars and organizations in order to improve their knowledge.

Hardware – Software and telecom specification

<u>New IS objectives:</u> The project's objective is to re-engineer with the use of technology the "trouble management business process" which in fact, will be part of a broader customer service philosophy. The new system should improve current procedures and give special focus to the day-to-day operations, specializing in increased serviceability to the customers. Moreover, the new system will guarantee the efficient flow of information and diminish any bottlenecks and delays, or even information losses experienced so far. The system's objective should be to be easily established, user friendly, inexpensive, easily upgraded and adapted to GNT's needs.

<u>System's requirements & characteristics:</u> The final system requires three parts to be processed:

1. The business process re-engineering.
2. The design, implementation and testing of the software.
3. The preparation and establishment of the relevant hardware in the departments, where the new IS will be accommodated.

<u>System's acceptance criteria:</u> The final product, as a whole, should be easily established, at no causing any troubles in the daily operations of the company. There will be a transition period of 6 months, where the new system incrementally will replace the old, not only procedural but also through mentality changes, facing daily requests of customers.

<u>IS boundaries:</u> Initially the project should be focused in the one business process, as mentioned above, but we foresee that soon this IS plan will be requested to extend its boundaries in relevant processes of current ERP.

IS requirements & deliverables: The new IS in order to be implemented, requires a team, which will prepare and establish the software and the hardware. Before this, a team of business analysts should proceed in BPR functions (business process re-engineering). Following, another team will handle the hardware preparation and establishment in the company's infrastructure. This team will also make the appropriate network installments and re-arrangements, as the interrelated offices and stations are planned to be connected between them via a network. In addition, the cooperation of some "insiders" will be necessary. This will normally take place in the phase prior to the final set up of the deliverables.

To be more specific, the end deliverables should be:
- A new IS adapted in the revised business process
- A software product (includes: the database, the code to handle the database, the interface for the users, additional functions adapted to each user's needs according to their tasks and duties)
- A number of hardware products (includes: equal number of PCs to users' stations, relevant peripherals, extra accessories and wires)
- Re-arrangement of the existed network (wired/wireless) to secure the interconnection between the PC stations

IS possible constraints: A number of possible limitations-constraints should be considered. Anything that may restrict our options during the IS implementation is a constraint. We are giving some possible areas below, that might affect this project and should be faced proactively:
- Resource constraints (over assigned team-members)
- Tight deadlines
- Budgetary limitations (top management's willingness to support)
- Government regulations (databases and handle of customers' data)
- Software limitations
- Scope limitation (e.g. being required to use the particular existing software and merge it with the new one)
- Hardware requirements

All the above are based in the three universal constraints faced on each project and these are, (a) time, (b) cost and (c) scope, which constitute the "Iron Triangle of project management" (*Figure 4*). Each constraint must remain in balance with the other two. Relevantly, we may achieve quality, which is our desired target as well. *[11]*
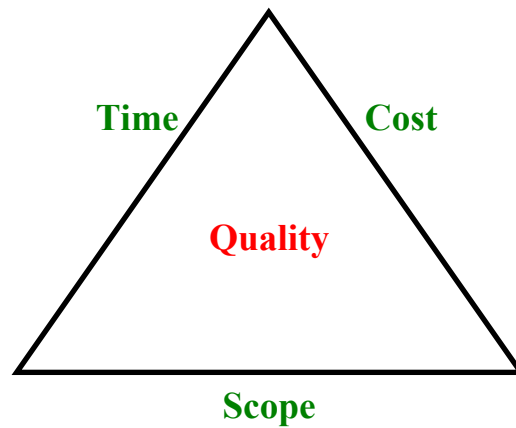
Figure 4. The Iron Triangle of Project Management

Cost and time constraints are fairly popular on each project. **Scope** is the constraint that needs special attention. It has two parts, (a) *the product scope*, which is the finished deliverable and (b) *the project scope*, which is all the required work to create the deliverable.

The project scope has to be defined and agreed from the beginning. That means we have to control the *scope creep*. Any change to scope means change to time and cost (*Figure 5*).
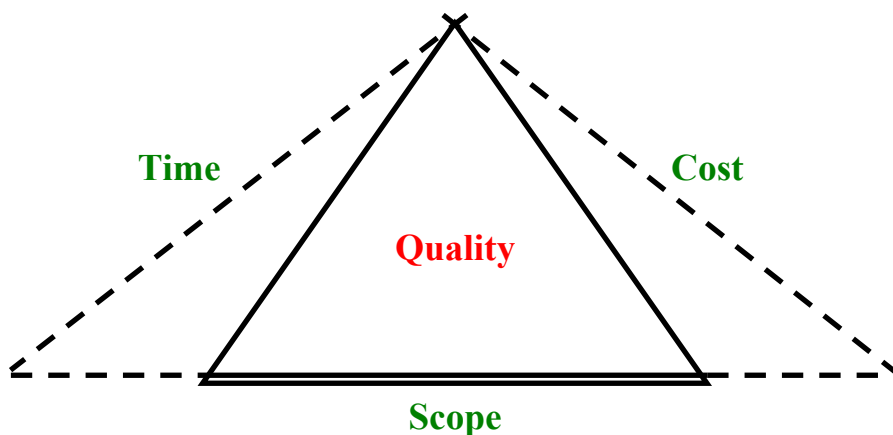
Figure 5. The Iron Triangle: Controlling the Scope creep

All information systems as projects normally follow a cycle of phases, which are called process groups. A software project has five (5) process groups. *[12]*

The process groups are the organic parts of the project. These are: (a) the ***initiating*** processes, (b) the ***planning*** processes, (c) the ***controlling*** processes, (d) the ***executing*** processes and (e) the ***closing*** processes (*Figure 6*).
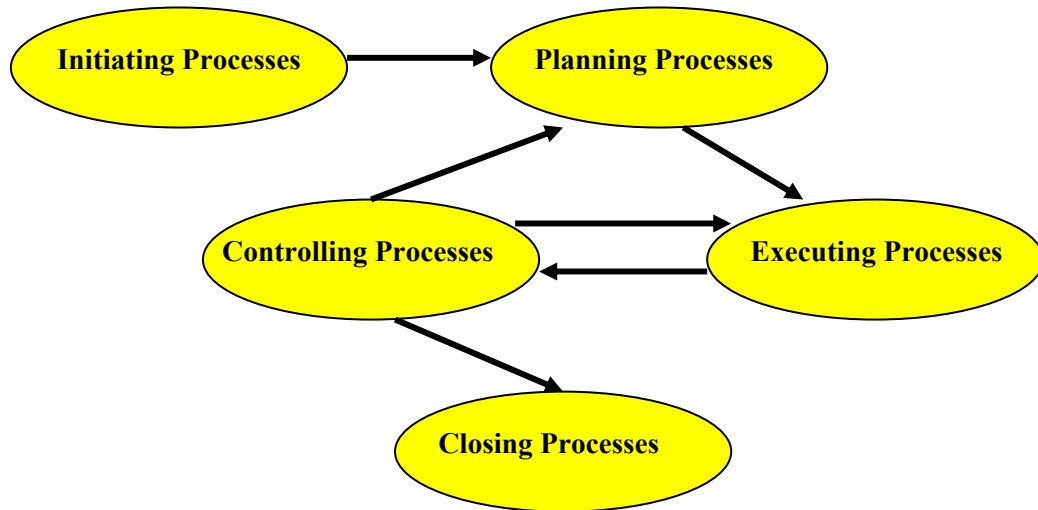
Figure 6. All projects follow repeating sequences called process groups

Information Technology drives many businesses today and it is true that it can create competitive advantage and wealth for a company. Therefore, there is a connection between the speed of technology and a company's bottom line. We will contribute at this case through this project in the company's stability, profitability and differentiation from the competitors in the market.

IS planning assumptions: We assume that the top management of the company will agree with our IS proposal. We have identified a strong willing to invest in technology in order to overcome the experienced problems so far. We expect to achieve a full agreement in the scheme and we get the authorization to proceed.

Initial defined risks: Possible risks may arise from both internal and external factors. Some identifiable are the shortage of skilled manpower in the company, the unclear requirements

from the users, the too many requirement changes afterwards and the link failure between the company's users and the external experts (us) who will prepare the new system.

Data flows and entity-relationship diagrams
Develop a high level data model

We have concluded in the below model (*Figure 7*), in which our proposal is to integrate all call centers in one Integrated Call Center. This unit will manipulate all incoming calls, evaluate each case with the help of "Icarus database", through a knowledge-based database and if necessary, will forward the case to the technical department.

Through this approach we minimize the reaction time to the customer's request, we provide immediate response, do not misroute incoming calls and keep customer alive and satisfied with us.
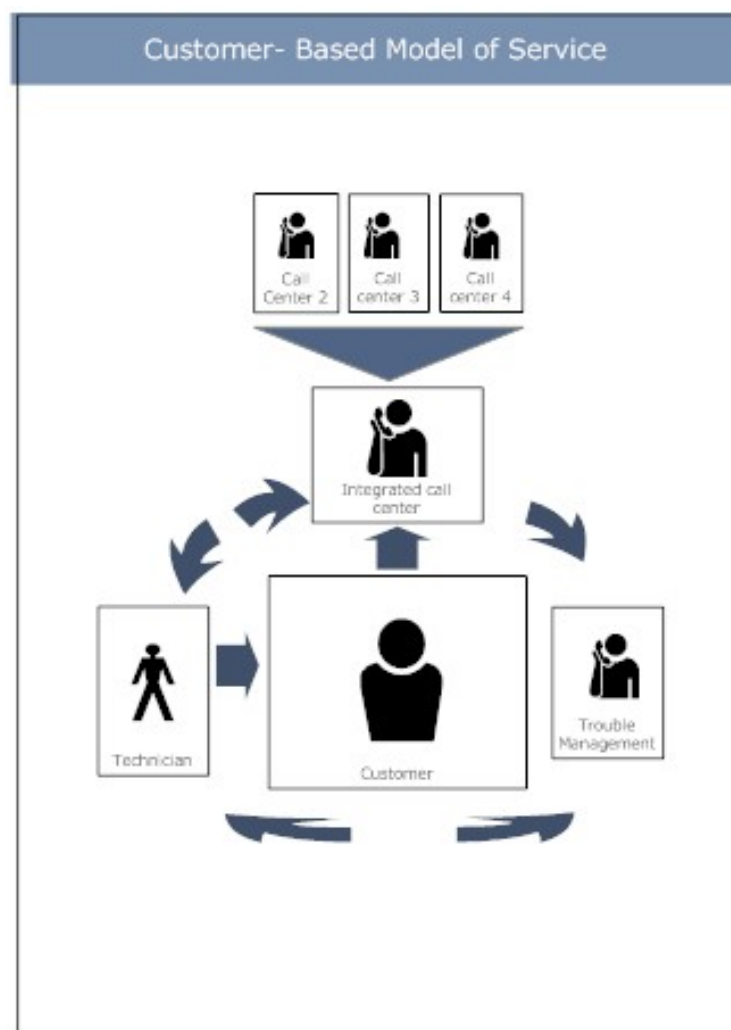
Figure 7. Customer-based model of service

Also, our suggested system is graphically illustrated in *Figure 8*, which consists the heart of the philosophy.
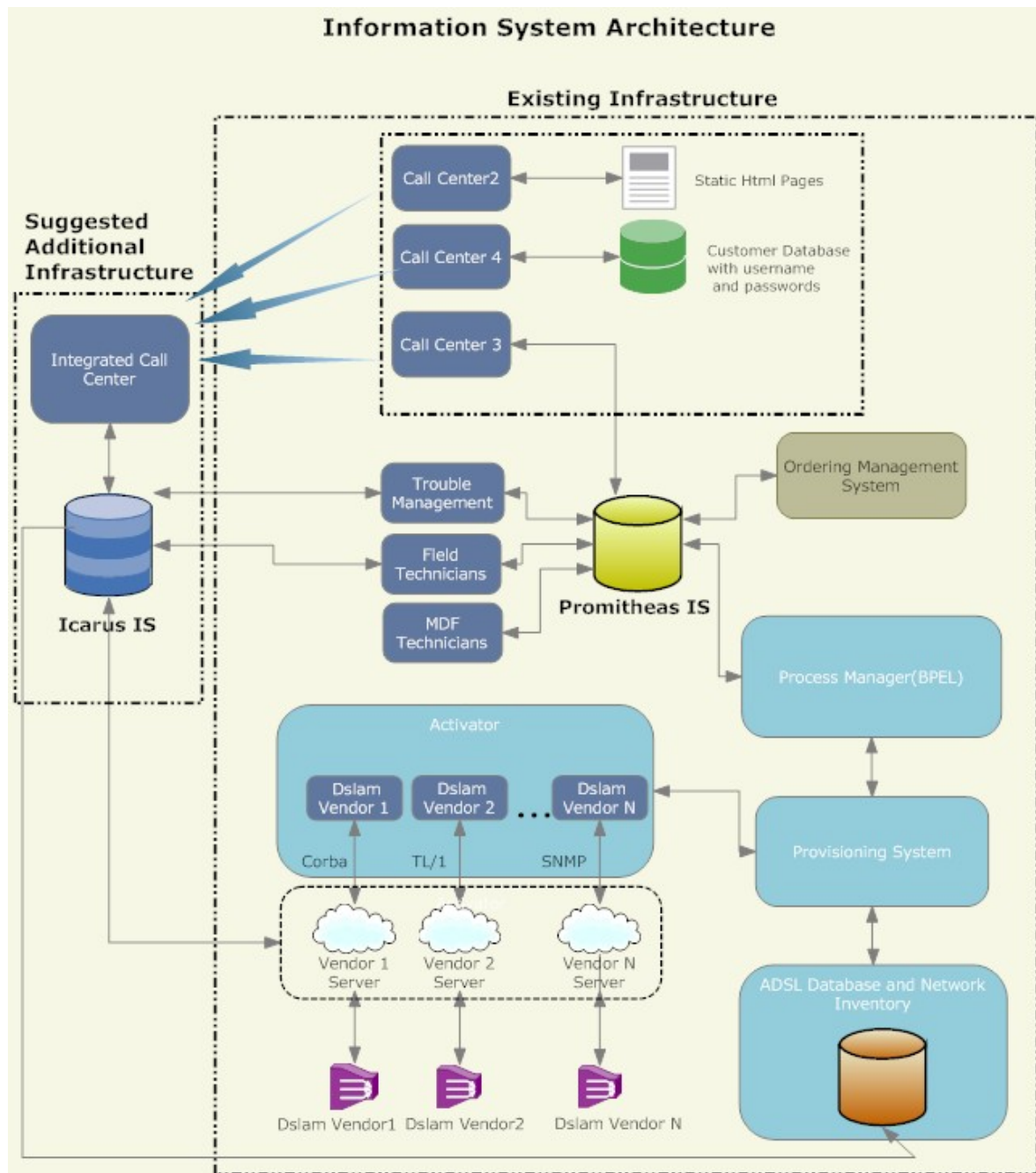
Figure 8. Information System proposed Architecture

In this flowchart (*Figure 8*), we are aiming to present the additional infrastructure (we name it "Icarus IS") as it will cooperate with the current one through the re-engineering of the "trouble management" business process.

Building Blocks

Process Manager (BPEL)

✓ Monitors and controls the end-to-end services, flows and registers the key performance indicators (KPIs).

✓ Manages the service building blocks.

✓ Allows the central management of the information.

Promitheas IS

✓ It is a workforce management and trouble ticket management system

✓ Monitors and reports any tasks made by the trouble management and MDF technicians.

✓ Trouble management of ADSL and historical data.

Provisioning System

✓ Receives and controls all the modifications that take place at the network

✓ Allocates the resources

✓ Controls and monitors new activations.

ADSL Database and network inventory

✓ Maintains all the data of the ADSL network

✓ Estimates the capacity of the network

✓ Supports network planning

Activator

Based on the data that is produced from the provisioning system sends monitors the commands at the network elements.

Icarus

It is the mean of the proposed information system, which supports all changes both in the structure and the processes. Using a user friendly GUI, it will use a number of diagnostic tools about the status of the line in order to identify accurately and effectively the trouble. In addition, it should be able to decide what actions should be made. Also, it will give restricted access to network control (for example "reset the ADSL line"). The IS would be

more timely effective, since the whole process would need only ¼ of the current actual time.
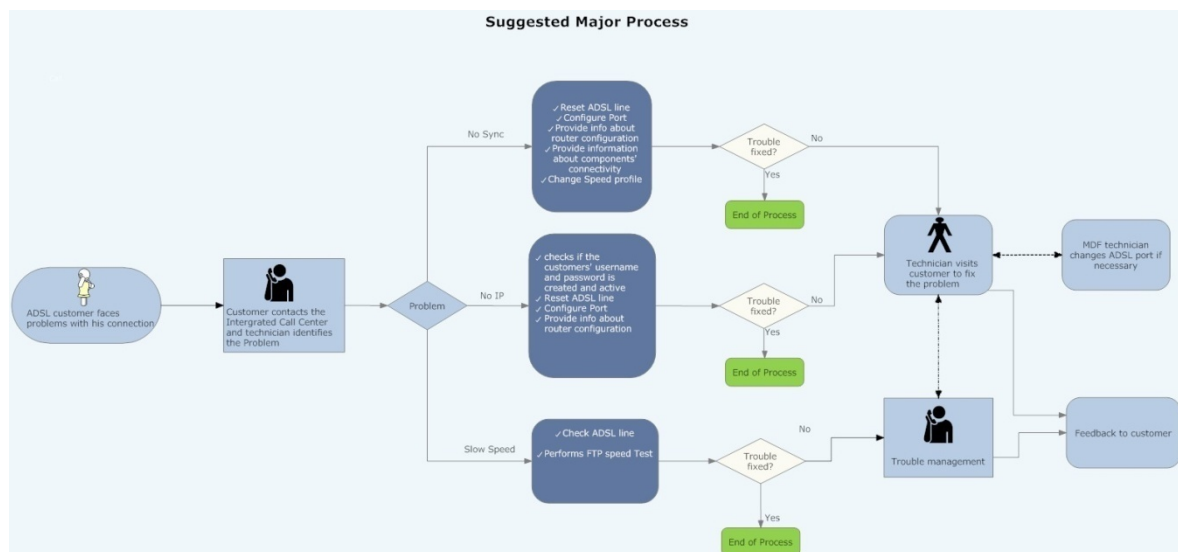
Figure 9. The suggested process and how it works

The actions supported by the ICARUS model are illustrated in the above figure.

The most important and innovative service at this point, would be that the customer will always have immediate feedback so to enjoy the quality of the provided services.

We have decided that the above three flowcharts, ***consist the high level model***, which form the essential framework of the new system.

Our efforts should be directed in the application of these ideas, which shape the new information system.

Costs

Based on the type of the software project, the medium complexity and size, and fixed requirements in a system with transactions including database and central server, we will use the "Basic Cocomo" model to calculate the software cost.

The above calculation model will be used for the software product. Concerning hardware product there is a fixed cost, which covers the purchase of a number of personal computers, plus the network re-installation and the peripheral parts (switches etc) which

will be needed. In addition, a team of business analysts will work for improving the existed business process.

Tasks and costs for the software part and anything have to do with software installations are illustrated in the Gantt chart.

The purchase of technical equipment will be outsourced and an internal committee of the company will decide for the best offer.

IT Project Management issues

As described later, in the SDLC part of this assignment, we have decided to follow the ***Rational Unified Process framework*** as our software development process. We justify our decision accordingly, and we point out that we have adopted a more lightweight philosophy. As the project is considered a small one (currently includes only one business process), based in a number of outcomes and assumptions we have done, we finally adopt a **tailored RUP framework with agile programming methodology model (object-oriented programming-JAVA).** *[13] [14]*

In addition, we have adopted the ***PMI philosophy*** (Project Management Institute); therefore, our plan is significantly affected by its basic characteristics. Moreover, we combine and adapt many of its suggestions to the current IS plan. *[15]*

Our primary concern is given at the ***nine (9)-project management's knowledge areas***, in which we have decided to stay focused. We consider the <u>knowledge areas</u> to be the cornerstones of IT every project. *[16]*

<u>Therefore, the whole project will be evolved in the following areas:</u>

- ***Project Scope Management*** (controlling the planning, execution, and content of the project as well as pay special attention to both product and project scope)
- ***Project Time Management*** (managing everything that affects the IS's schedule)
- ***Project Cost Management*** (cost estimating, budgeting and control)
- ***Project Quality Management*** (no project is a good project, if the product does not meet customers' expectations)

- ***Project Human Resources Management*** (ensure that the project team will get their work done and also hiring and managing competent people)

- ***Project Communications Management*** (focusing on who needs what information and when with the help of communication)

- ***Project Risk Management*** (focusing on how to anticipate risks, handle them and take advantage of any opportunities arise)

- ***Project Procurement Management*** (collaborate with vendors and purchase goods and services)

- ***Project Integration Management*** (aiming to ensure the coordination of all previous knowledge areas and their inter-affection)

IT project management, is a combination of two major areas so, we have tried to joint these elements in a way that would benefit our customized solution. As a result, right below, we are giving another "map". The "map", where it is illustrated the skeleton of the SDLC proposal (*Figure 1*).

We have concluded that, in order to complete the tasks, we had to follow these processes and keep up with the knowledge areas. This map was inspired by the "PMI Body of Knowledge Book". We have tailored it to the specific project's needs. *[17]*

In the Appendices section, at the end of this report, we have included a Work Breakdown Structure (WBS) including the detailed steps of the project to follow, in case of proceeding to the implementation phase.

GREEK NET TELECOM (GNT)
Mapping of the IT Project Management Process Groups and the Knowledge Areas

Knowledge areas	Initiating Process Group	Planning Process Group
Project Management Integration	1. Assessment & Preliminary Plan (Project Initiation) 2. Develop the Project Charter 2.1 Prepare Project Statement of Work (SOW) 2.2 Examine Enterprise Environmental Factors 2.3 Examine Organisational Process Assets 4. Software Development Process 4.1 Choose Software Development Life Cycle Framework & Methodology (tailored RUP framework with agile programming methodology) 4.2 Description of Phases / milestones / deliverables	5. Develop Project Management Plan 5.1 The Software Development Plan
Project Scope Management	3. Develop Preliminary Project Scope Statement	5.1.1 Define Software Scope (Scope Planning & Scope Definition) 5.1.2 Create & Develop WBS 5.1.2.1 Create the GANNT Chart 5.1.2.2 Dependency Analysis 5.1.2.3 Resource Usage Matrix
Project Cost Management		5.1.3 Resource Planning 5.1.4 Cost Estimating 5.1.5 Cost Budgeting 5.1.6 Cash Flow
Project Time Management		5.1.7 Activity Definition 5.1.8 Calendar of activities
Project Human Resource Management		5.2 Human Resource Planning
Project Quality Management		5.3 Quality Planning
Project Communications Management		5.4 Communications planning
Project Procurement Planning		5.5 Plan Purchases and Acquisitions
Project Risk Management		5.6 Risk Management Planning

Figure 10. Mapping of the process groups and knowledge areas of the SDLC

Information Requirement Analysis

Trying to approach this part of the IS, we easily think of asking users about their requirements, as a start in our efforts. Simply asking prospective users is not necessarily the most suitable way to obtain the correct and complete requirements.

It is necessary to form an ***information requirements determination strategy (IRS)***. An information system should meet the needs of the host organization it serves. *[18]*

Therefore, instead of using a simple approach, we prefer to use a combination of methodologies in our effort to elicit and document information requirements. On the other hand, we may customize these methodologies, according to each case and apply one of them each time relevantly.

In developing the concept of this strategy, we have adopted the principle that there are two levels of requirements. These are: (a) the organizational-level requirements and (b) the application-level requirements.

We propose to use a mix of four strategies and their methodologies in order to establish an IRS. These are (a) asking, (b) deriving from the existing information system, (c) synthesis from characteristics of the utilizing system and (d) discovering from experimentation with an evolving information system.

For example concerning the first strategy (asking), some methods that will be followed are: *[19]*

- Try to receive information from potential users with "closed questions". This is the method of asking by giving in parallel a defined set of possible answers.
- Try to capture more information through the use of "open questions". In this case, no answers are provided.
- Make open brainstorming sessions, encouraging open flow of ideas.
- Make guided brainstorming sessions, where give to participants ready-made ideas and ask them to brainstorm in order to find the best feasible ideal solution.

- Make session of group consensus, where users will be requested to provide their estimates and expectations about significant issues for the system.

The use of combined strategies will have a common focus. We will try to embrace the uncertainty exists in the idea of not acquiring correctly the information requirements.

Return on Investment (ROI)

Actually this is an issue of **technology's return on investment (TROI).**

ROI methodologies usually are concerned with a number of critical measures which are: (a) the budget and cost, (b) the schedule and timing of project delivery, (c) the specific hardware and software equipment and (d) the client satisfaction, ensuring that end-users are pleased with the new technology.

Main weakness at this stage is the connection of the technology to actual business results, which most of the times is not clear. On the other hand, is difficult to measure and materialize the actual payback from a technology investment.

It is true - as derived from research and experience - that project sponsors have been burned by inappropriate and improperly designed technology implementations.

In our case, we insist on developing a methodology and a sound framework where ROI calculations will be developed accurately and reliably. We aim to implement an application where demonstrated accountability will be available, after the initial implementation of the IS.

We will adopt the ROI methodology where there is a scorecard of six measures. It is necessary to input data from different sources throughout the IS, and in different timing. The measures are focused in the following: *[20]*

1. Reaction and satisfaction
2. Learning and understanding
3. Application and implementation
4. Business impact

5. Return on investment ratio and
6. Intangible benefits

The above measures will be the base to *create an evaluation framework*, for collecting data along critical areas.

Then we establish *a process model,* to define how the data will be processed, analyzed and reported to various audiences. Appropriate techniques and suitable procedures will be followed to gain consistency, which is the major component while a process is implemented.

Third part refers to the *development of operating standards.* Main target is to ensure that the results of our plan will remain stable. This will increase the credibility. Replication and implementation of the plan is critical, meaning to achieve the same results, no matter who will be the project manager.

In the next part, we will include some *implementation issues,* regarding the project's development such as: (■) skill development, (■) communication, (■) roles and responsibilities, (■) plans and strategies.

Finally our ROI methodology will include an *internally developed practice describing the implementation of the process* within the organization.

To be more specific, we have adopted a ROI process model which, if applied correctly, will give us tangible results very early, right after the new IS implementation (*Figure 7*) *[21]*

The ROI methodology requires resources from the project and it has to be done early in the process. We fully understand that this is the most valuable stage of the project, especially for the shareholders and top management. They want to see in numbers, the benefits of their investment.

At this stage, we aim to present the framework and the model.

We consider it necessary to include them in the present IS plan. In any case, it is crucial for us to demonstrate in the stakeholders, how the present IT solution will benefit them.

Deeper analysis of every step, according to the ROI framework, should be done further to the approval of our IS plan. This is a task which will be undertaken during the IS analysis phase of the project.

GNT - Trouble Management business process
The Return on Investment Process Model
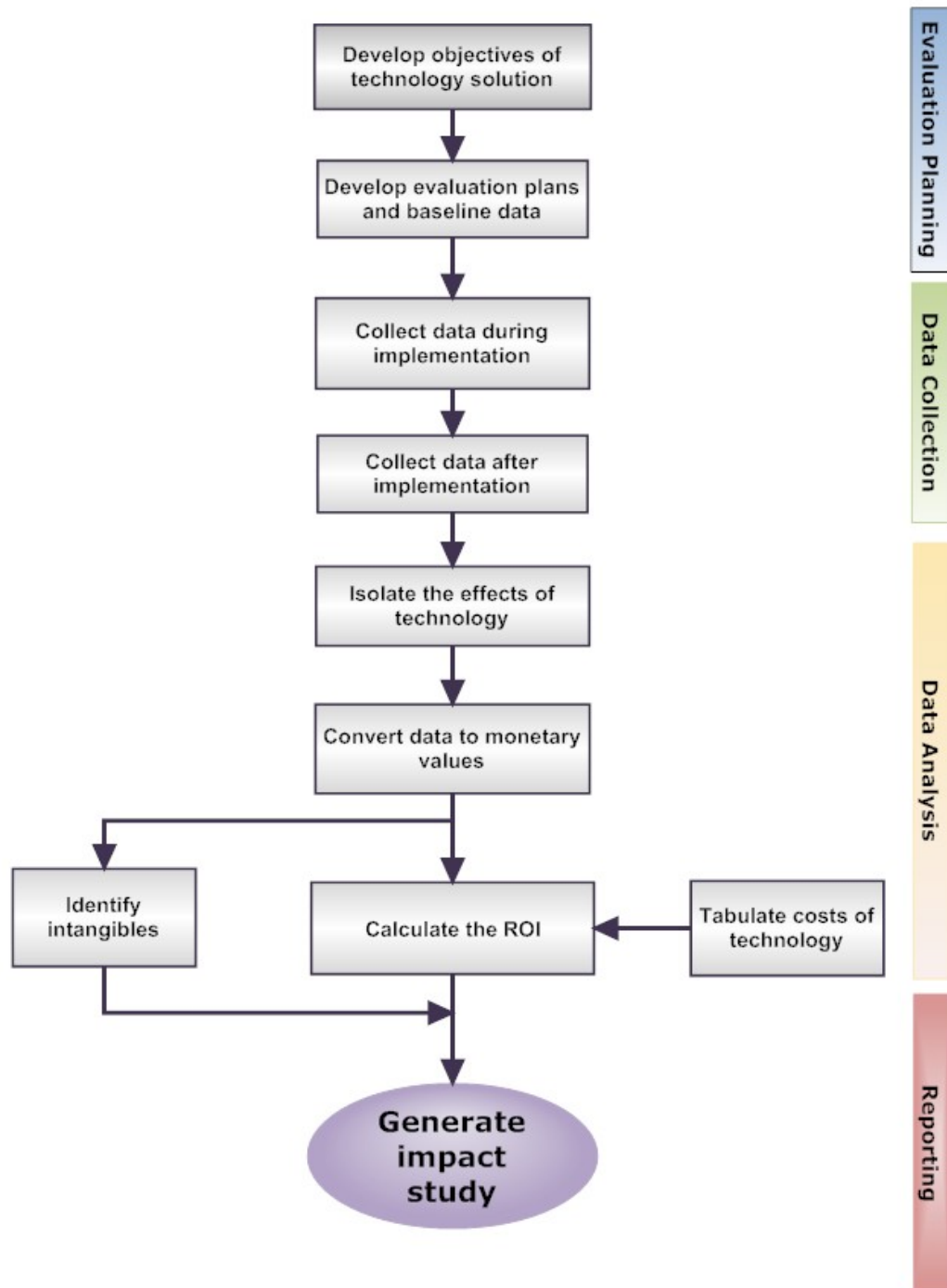
ROI Process Model of the new IS

Figure 11. The Return on Investment process model

Software Development Life Cycle (SDLC)

In the current IS planning, we have to include some research, and reply in a number of questions, which will guide us in the selection of the software methodology and framework to adopt.

As discussed earlier, final product has three parts, but we consider that the software part is the most important.

Therefore, we have applied a model of questions, where we try to answer and through this evolving process, logically, we will select the framework of SDLC.

Which is the company's overall strategy and how competitive is it?

We have already referred in the mission of the company, at the very early stages of this plan. The strategy is derived from the information vision, as explained earlier, in combination with the overall mission. Current ambitious of the company is to be the first choice in telecommunication services. It recognizes the necessity of adding value through its presence in every market and to achieve this a successful IS should exist.

Which is the size of the project scope to be managed?

According to what we have decided, the new IS should be constrained in a subsystem, having to do with the trouble management and customer service issues.

The priority of the project

It is of high priority, although it will cover a part of the future information system. Actually, this will act as a rehearsal for the future incremental changes in other connected subsystems.

How critical is the project to the company

As mentioned above, the completion of the new IS will give a competitive advantage, and is expected to change the day-to-day operations, by improving offered services to customers who are communicating with customer service department. Therefore, time is a constraint and results have to be appeared as soon as possible. This process represents a big ratio in company's daily operations, thus it is characterized of high significance.

<u>*How flexible the methodology and its components should be*</u>

So far, we have concluded that the initial IS, is small. Despite this, in case top management decides to expand the application in other processes, we are obliged to consider this option as almost possible. Therefore, the selected framework should give us flexibility and guarantees that it will handle both small and big projects in the same way and with the same results. In addition, as mentioned earlier, time is a constraint and company would like to get results the soonest possible. Cost is a quantifiable factor and has to be treated in such a way.

Based in our experience gained from the previous assignment in "Managing Knowledge-Driven ICT Projects", and a scholastic survey in a number of available project frameworks, we have been directed to the selection of the ***Rationale Unified Process (RUP) project framework.*** Below we argue a number of reasons that justify our choice. In fact, we propose a tailored RUP framework (an agile RUP model), as the proposed system is small.

Our strategy includes three major components:

- Tailor the RUP to be as simple as possible
- Focus on frequently producing releases
- Involve the end-users to review and accept each release

RUP is a framework that can be used from lightweight to more complex, heavyweight projects. It fits to projects of all sizes. It enhances team productivity and delivers software best practices to the project team, through a set of components. *[22]*

It is suggested also for more agile projects, such we consider the current one.

This framework creates the environment in order to develop the project more rapidly and deliver quality. In addition, it can handle changes successfully. It contains specific processes and it is as a roadmap, which if followed, may drive us to the solution. The key advantage of RUP is ***reduction of risks***. Another key is ***iteration***. Each phase ends with a deliverable and each increment, results in a working product version. Therefore, customer can see results very quickly. This framework can work with bigger projects, or smaller where quick deployment of partial products is necessary. ***This is the case here***. Currently we are developing a subsystem.

The best practices that are adopted by the RUP framework are: *[23] & [25]*

- Develop iteratively
- Manage requirements
- Use component-based architectures
- Model visually
- Continually verify quality
- Manage changes

Recently, after some years of applying this framework to thousands of projects, these six best practices were updated with six new ones, which are: *[24]*

- Adapt to process
- Balance competing stakeholder priorities
- Collaborate across teams
- Demonstrate value iteratively
- Elevate the level of abstraction
- Focus continually in quality

Moreover, the benefits of such an approach are:

- Risks are mitigated earlier
- Change is more manageable
- There is a higher level of reuse
- The project team can learn along the way
- There is instant user feedback
- The workload is spread
- There is better overall quality

Adopting the RUP framework, we will easily stay focused in a number of components that are essential for our success. The spirit of RUP, by itself, can guide us in an efficient way throughout the project's life cycle.

Our primary target will be to deliver value to GNT Company. To obtain this, there is only one path, which unavoidably includes:

- to stay focused in the executable software

- to accommodate changes as early as possible in the project

- to attack major risks early and continuously, before they attack us

- to create an executable architecture at an early time

- to build the new system through smaller components

- to work together as one team

- to incorporate quality from the beginning and not as an afterthought

We believe that this model, in the specific case, will guide us to the successful completion in the most effective manner.

User involvement

From current research we have learnt that, to implement a sustainable software productivity improvement program, we have to make everyone a winner.

Our final product should satisfy:
- Top management

- End-users

- Customers

- Development team and project managers

Each entity of the above has its own desires and expectations. So we will start negotiating with each part. Our aim should be to identify users' needs and involve all parts in the development of the new IS. In this way, we will manage to publicize one part's requests to the other and so on.

All parts should feel that are embraced and are equal members of the system. The involvement of all affected parts will contribute in matching expectations with objectives. Our inability to identify the real needs of stakeholders will drive to project failure.

Improving end-user application development

It is our responsibility to create and distribute specific guidelines to users about the new IS and its operations. We should search for improving the environment so it is necessary for us to prepare a relevant checklist. *[26]*

- Users should be provided with detailed handbook of how to use the end-products of the new system and which option to use for each task (Use of end-user development products).

- Each situation faced, should be included in a "matrix of situations". This document will serve as a handbook to get feedback (Documentation).

- A list of common types of problems and how they have been solved should be distributed to all users of the unit (Support for design and development).

- A list of responsibilities should be distributed as well, to the staff of the unit. Who owns problem resolution, or who has the expertise to support in each case (Responsibility and authority).

- No other software should be allowed to be developed within unit. A manual of corporate policy will be developed and will be clearly publicized to the staff (Corporate computing policy).

Information sharing policy

Information sharing is a sensitive issue of high importance for every company. It is an idea that covers the central organizational structure and may contribute to goals achievement.
A small survey made on this issue, showed that information sharing does not occur easily. Usually individuals try to restrain their information sharing, in case they believe that they keep unique information that gives value to what they control.
To face this situation which derived from experience, we will establish an incentives-plan which rewards information sharing and keeps track of this flow. Our aim will be to encourage this philosophy and change current mentality. In addition, every technical solution, facing of problem or similar contact should be entered in the database of the unit. In this manner, every technician would have the ability to apply the same solution in similar cases, without needed to spend any other resources.

Security – Ethical issues

It is our aim to pay special attention in confidentiality, integrity and continuity with this business process regarding the use of information within technical support department. As clearly described so far, the system is operating in the context of end-user computing. Thus, it is necessary to establish a security framework, where relevant issues will be monitored. *[27]*

Our plan includes a number of components considered definite and almost obligatory to be applied. It is crucial to spread within our team the security-ethical model which will be based in the following ingredients:

Establish an enterprise-wide information protection policy

- Information should be stratified in different levels with different access. In the same way that information is distributed for achieving business goals, the same path should be followed to be protected. That means, protection controls are required with the help of the company's management.

Develop a management structure for information protection

- Security issues have to be captured from the design phase of the new IS and not by the end-user's environment. We should act proactively at this stage. Moreover, it is suggested to create a small team as company's security committee, which will be responsible for managing changes to the protection policy and its implementation throughout the company. Although the focused process is only a small part of the whole system, it is inevitable our proposal not to cover more broaden aspects.

Develop appropriate technical components

- The idea of security should start from the very early phase of designing the new IS. In addition, any other service offered by the system such as, (a) easy access to end-users, (b) increased dependence on the internal network and databases, (c) fast access to data, (e) integrity and (f) quick results, should be examined to include some authentication and monitor controls.
- This effort will include the tracing of both inside and outside access attempts.
- The responsibility for individual actions should be assigned through protection controls. Trouble management business process is considered as a sensitive process, as it administers customers' data of high importance. As a result our focus will be this process to be effectively controlled.

Provide an execution and feedback mechanism

- The end-user environment is characterised by rapid and frequent changes. These changes have to be identified in the appropriate time and managed as well. A mechanism to track them is necessary to be developed in order to acquire consistency and control.
- For us to secure effectiveness means, confidentialy, integrity and continuity need to be considered in advance of change and throughout the life cycle o the IS

Figure 12. Model of security and ethics - cornerstones

<u>CONCLUSIONS</u>

Although, we understand that this proposal is fairly lengthy, our aim was to approach the implementation of the new system from different perspectives, trying to analyze it effectively.

Our plan is suggesting an incremental innovation, through the technique of re-engineering and introduction of a new idea. We were based in a number of observations, data collection, and communication with all parties involved.

We double-point that this is only the proposal, where we have tried to identify the framework, the methodologies to follow and the technical components. It is not the system itself, as this needs extra effort and budget to take place.

In the last part of this proposal we will individually present the main points of our plan to the top management of the company, hoping to provide them all necessary information for their decision.

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APPENDICES

Appendix A.   The organizational chart of the company (GNT)

Greek Net Telecom Organization Structure
Products & Services approach

Appendix B.   Ordering business process
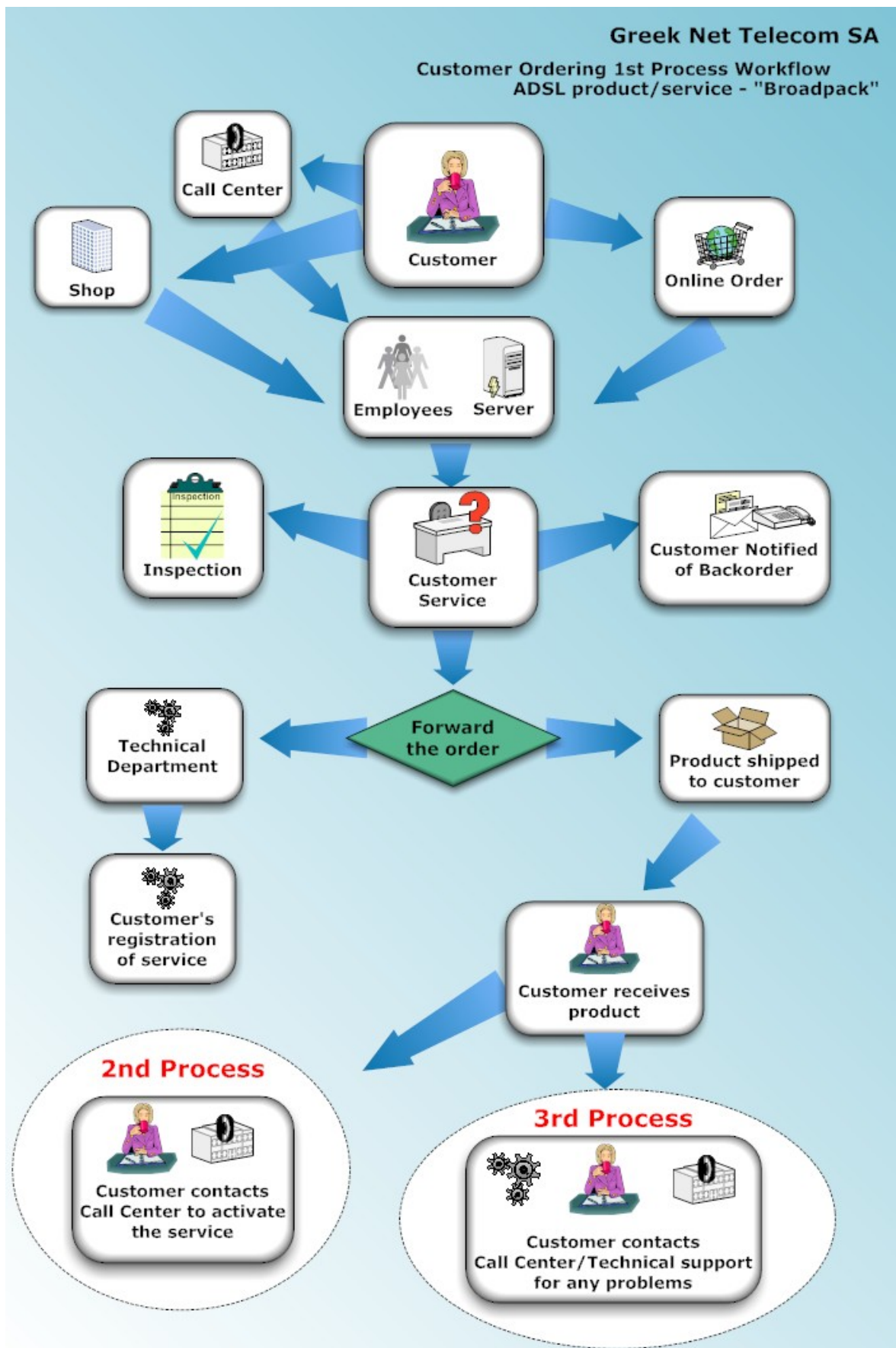
Appendix C.   Call Center 1 business process
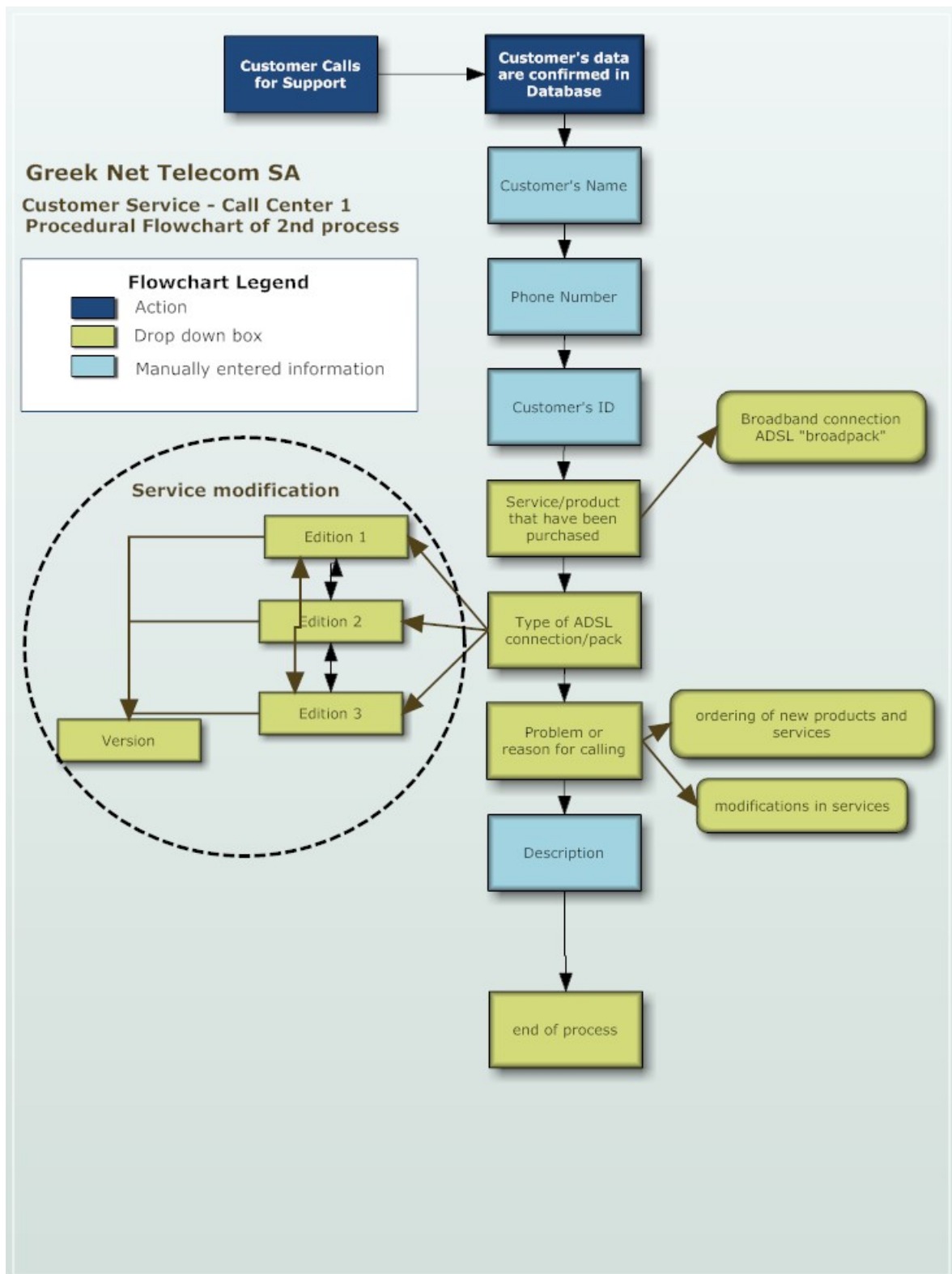
Appendix D.   Call Center 2 business process
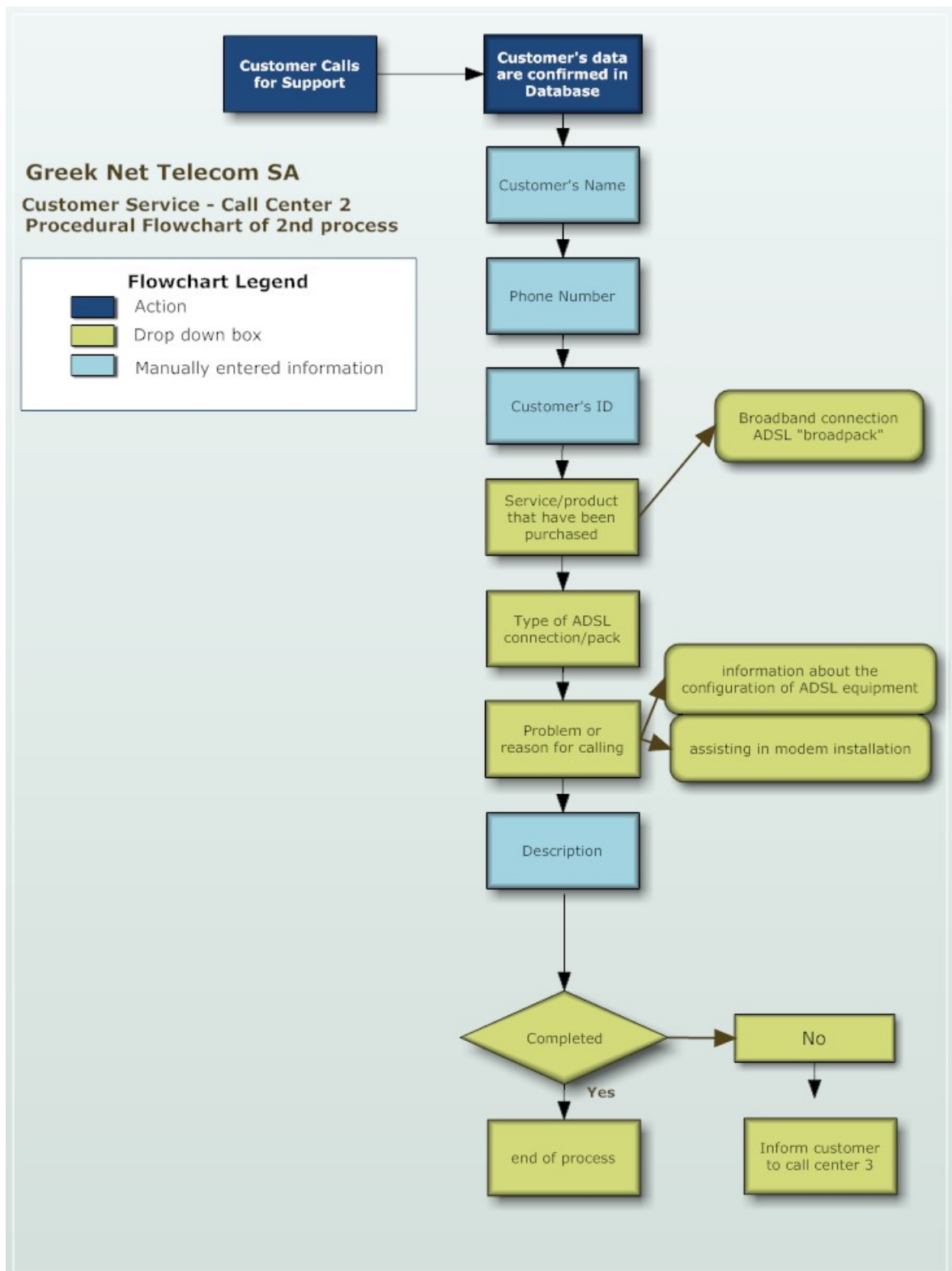
Appendix E.   Call Center 3 business process
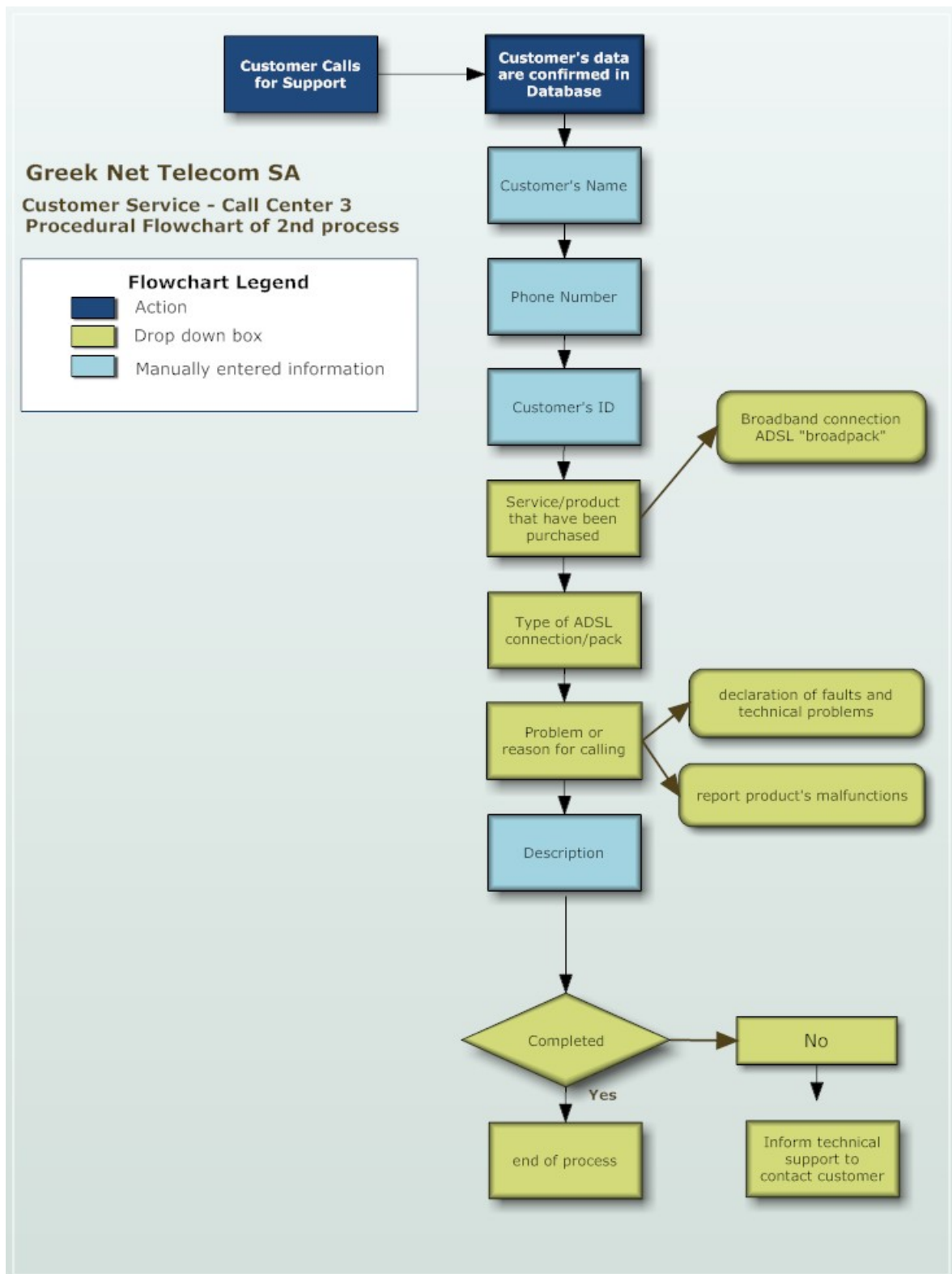
Appendix F.   Call Center 4 business process
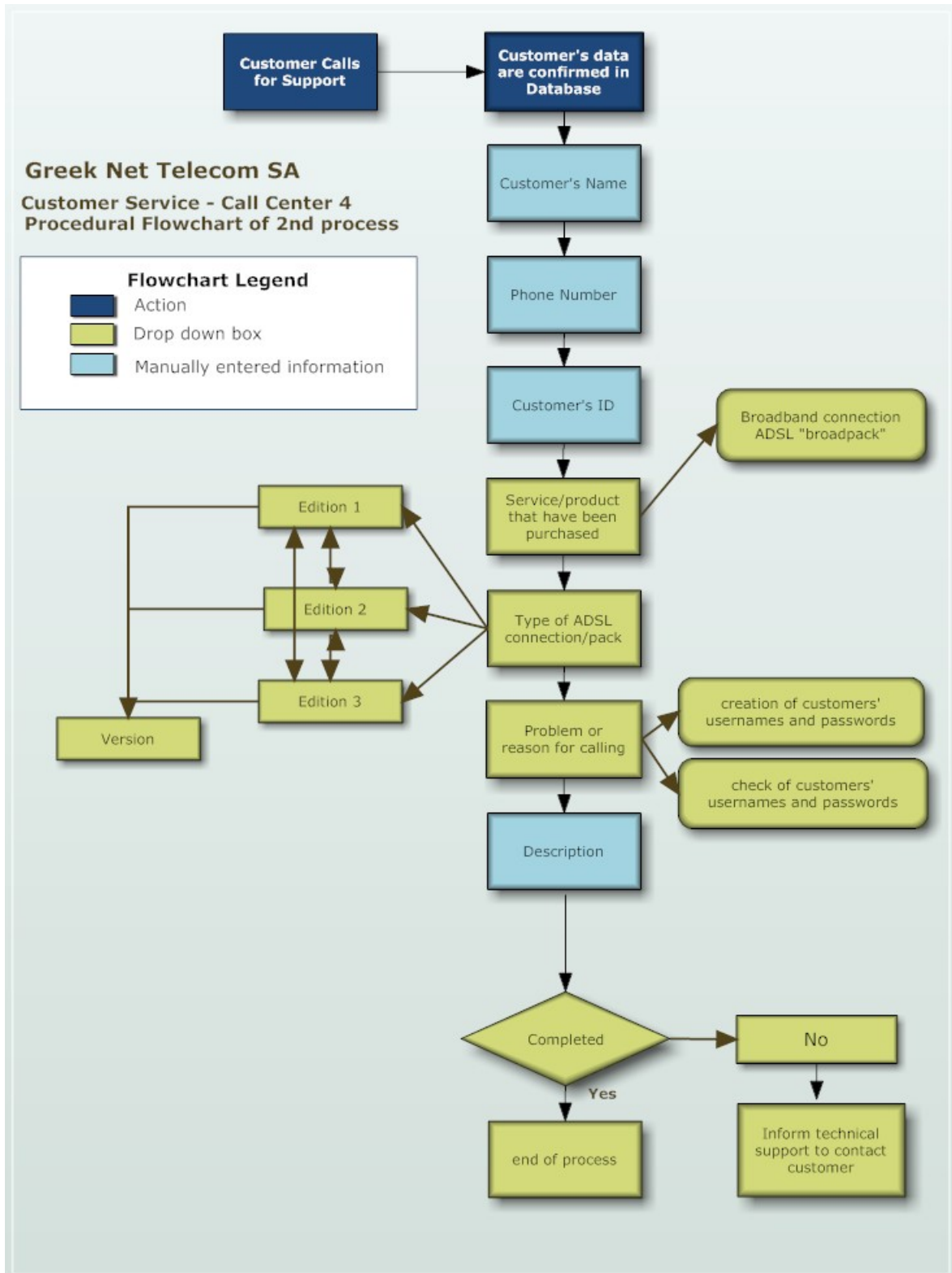
Appendix G.   Trouble Management business process

Greek Net Telecom SA
TROUBLE MANAGEMENT (3rd PROCESS)
ADSL PRODUCT/SERVICE, "Broadpack"
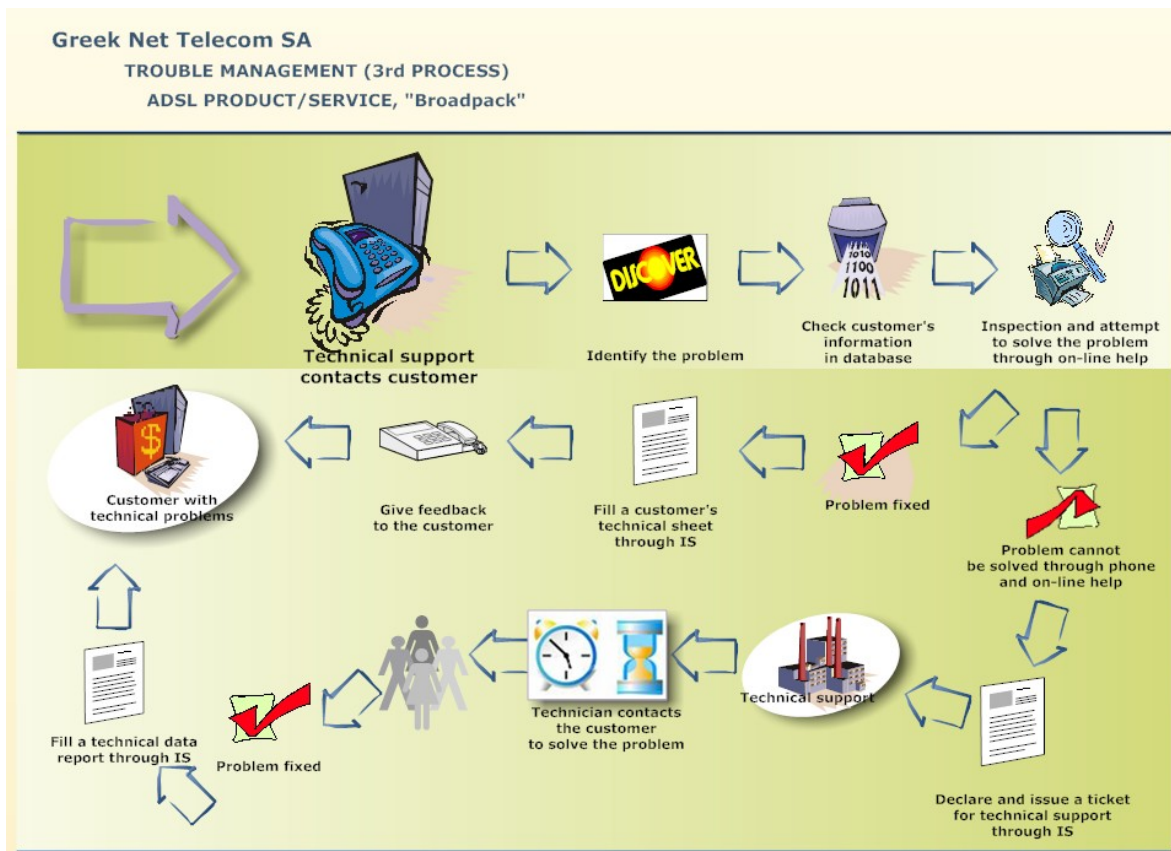
Appendix Ga. Trouble Management business process – 2nd approach
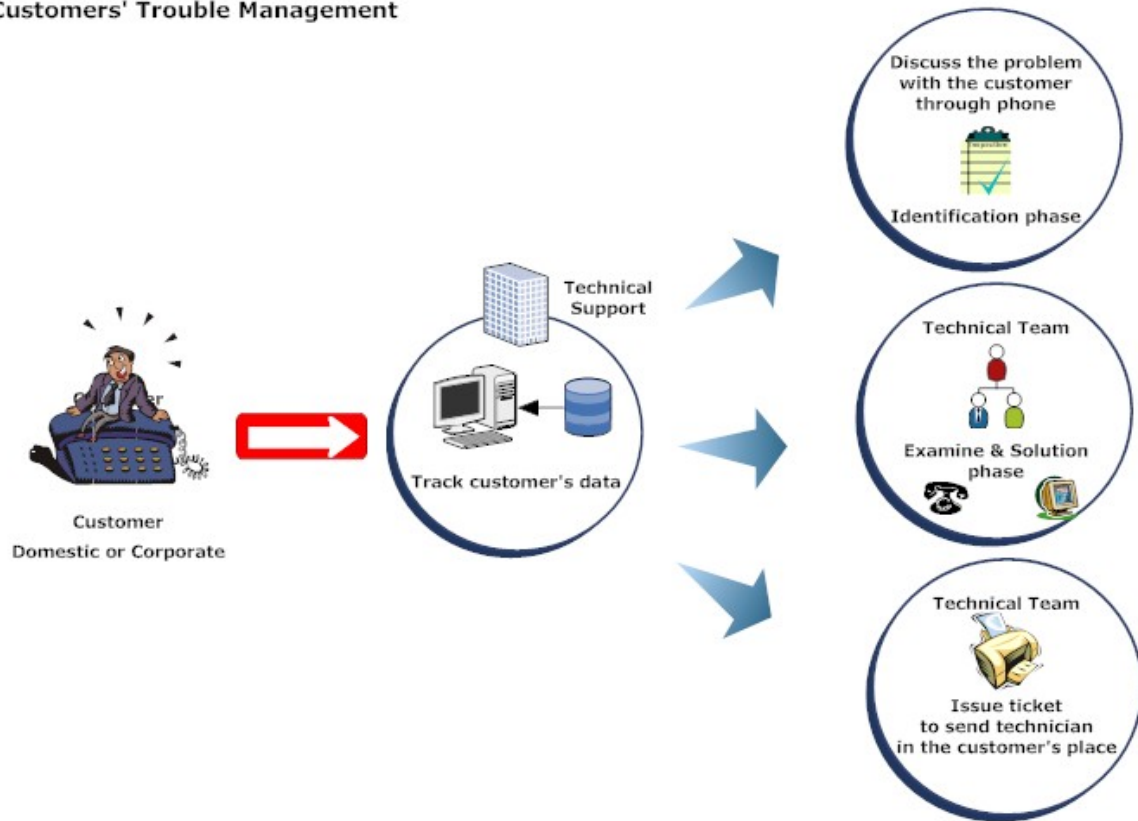
Appendix Gb. Hierarchical Model of service / current process
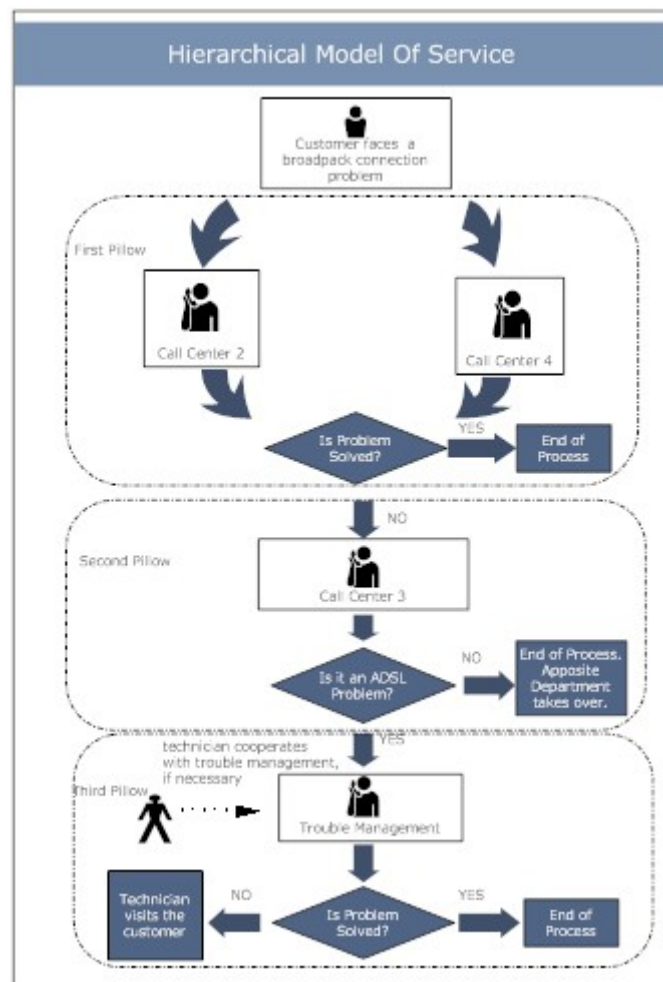
Appendix Gc. Trouble management process
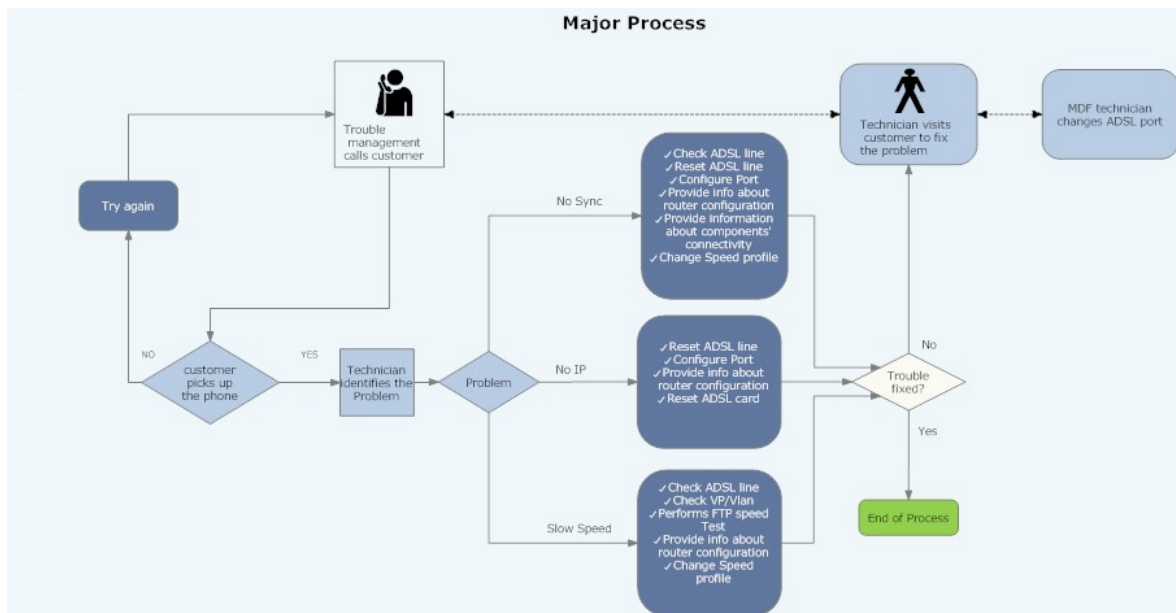
Appendix Gd. Trouble management subsidiary processes
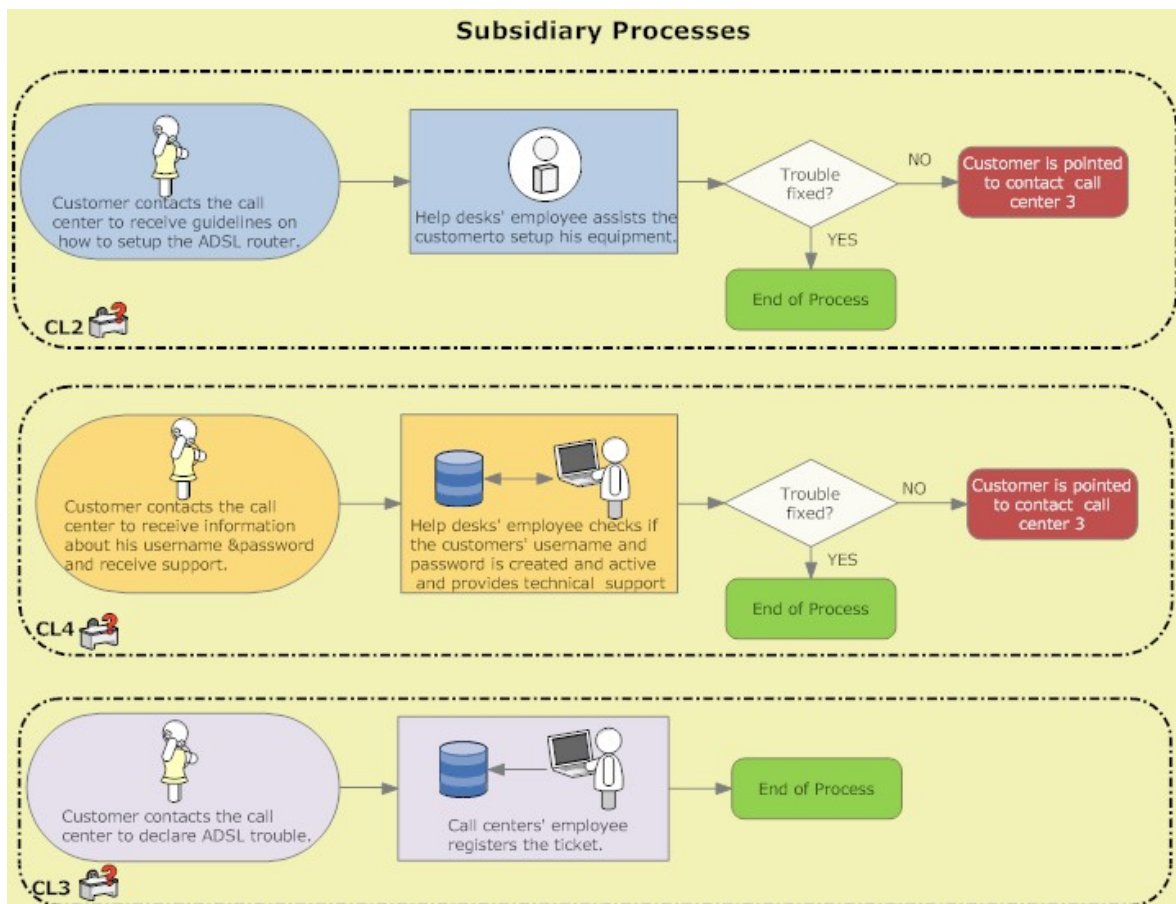
Appendix H. The three processes interrelation

Greek Net Telecom SA
The three business processes' interrelation
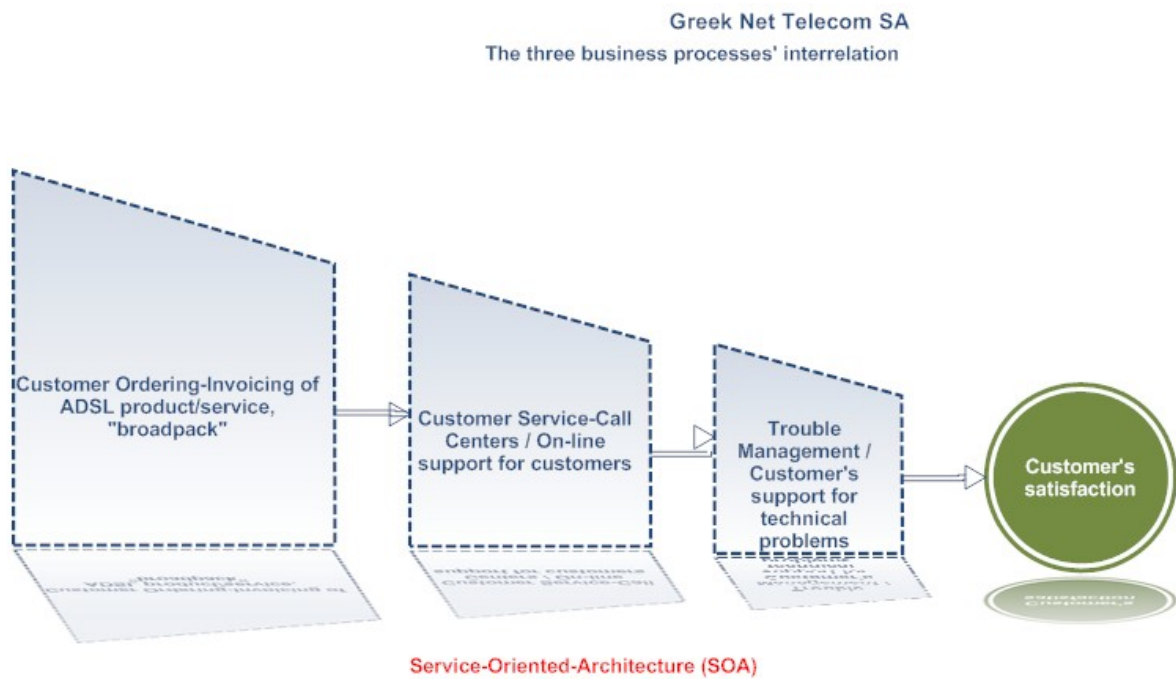
Appendix I. Work Breakdown Structure of the new IS

(pages attached)

ID	ID	Task Name
1	1	**Greek Net Telecom - Project starts**
2	2	
3	3	**Business Case Development**
4	4	**Create Business Case**
5	5	Align Deliverables with Strategic Business Objectives
6	6	Enroll Sponsors
7	7	Quantify Financial and Organizational Benefits
8	8	Identify Project Team Member Requirements and Critical Knowledge Sources
9	9	Determine Key Risk Factors and Failure Indicators
10	10	Develop Project Assumptions
11	11	Estimate Capital and Operational Costs
12	12	Determine Return on Investment (ROI)
13	13	Document Business Case
14	14	**Present Business Case**
15	15	Prepare for Business Case Presentation
16	16	Review and Refine Presentation with Sponsors
17	17	Present Business Case for Project Approval and Funding
18	18	
19	19	**Business Reengineering Process**
20	20	**Perform GNT Engineering Assessment**
21	21	**Position Enterprise Engineering Assessment**
22	22	Define the Scope of the EEA
23	23	Establish Goals, Objectives and Deliverables
24	24	Define the EEA Approach
25	25	Define the Project Team
26	26	Obtain Commitment for the EEA
27	27	**Assess Business Direction and Strategy**
28	28	Assess Enterprise-Wide Mission Statement
29	29	Assess Product and Service Lines
30	30	Assess Business Plans
31	31	Identify Goals and Drivers
32	32	Assess Financials
33	33	Assess Market and Customer Information
34	34	Document Business Strategy Findings
35	35	**Assess Cultural Structure**
36	36	Assess Organizational Structure
37	37	Assess External Labor Relationships
38	38	Assess Hiring and Retention Practices
39	39	Assess Communications Channels
40	40	Assess Enablement Activities
41	41	Assess Code of Conduct
42	42	Document Cultural Structure Findings
43	43	**Assess Operating Structure**
44	44	Identify Major Processes
45	45	Assess Working Conditions
46	46	Assess Process Measurements
47	47	Assess Operating Costs
48	48	Assess Change Plans for Products and Services
49	49	Assess Internal Controls Structure
50	50	Document Operating Structure Findings
51	51	**Assess Technology Structure**
52	52	Assess Current Technical Architecture
53	53	Assess Development Standards
54	54	Assess Technology Costs
55	55	Assess Performance Standards
56	56	Assess Technical Controls Structure
57	57	Assess Technology Plans
58	58	Document Technology Structure Findings
59	59	**Assess Physical Facilities**
60	60	Assess Work Locations
61	61	Assess Structures
62	62	Assess Facilities Costs
63	63	Assess Facilities Plans
64	64	Assess Disaster Recovery Plan
65	65	Document Facilities Findings
66	66	**Assess the Enterprise**
67	67	Develop a Working Vision
68	68	Analyze EEA Findings
69	69	Recommend Enterprise Change Priorities
70	70	Obtain Authorization to Proceed
71	71	
72	72	**Perform Strategic Visioning**
73	73	**Position Strategic Visioning**
74	74	Set Strategic Visioning Goals and Objectives
75	75	Define Strategic Visioning Deliverables
76	76	Define Enterprise Boundaries
77	77	Review Current Vision and Mission

ID	ID	Task Name
78	78	Define Business Drivers
79	**79**	**Create the Vision**
80	80	Establish the Ground Rules
81	81	Create the Cave of Wonders
82	**82**	**Build the Business Strategy**
83	83	Confirm Marketplace
84	84	Define Perceived Needs and Satisfiers
85	85	Evaluate the Competition
86	86	Identify Core Competencies
87	87	Evaluate Products and Services
88	88	Develop Values, Beliefs and Behaviors
89	89	Develop Business Strategy
90	**90**	**Build the Enterprise Infrastructure Strategy**
91	91	Evaluate Value Streams
92	92	Identify Potential Areas for Change
93	**93**	**Build the Technology Strategy**
94	94	Review Current Use of Technology
95	95	Review Emerging Technologies, Architectures and Standards
96	96	Define Technical Architecture Principles
97	97	Develop Technical Architecture Strategy
98	98	Define Technology Organizational and Skill Set Requirements
99	**99**	**Build the Technology Infrastructure Strategy**
100	100	Understand the Role of Information
101	101	Review Current Application Architecture
102	102	Identify GNT Business Needs
103	103	Define Application and Technology Priorities
104	104	Develop Technology Infrastructure Strategy
105	105	Define Technology Infrastructure Organizational and Skill Set Requirements
106	**106**	**Develop Enterprise Vision**
107	107	Define Change Targets
108	108	Define Strategic Gaps, Enablers and Barriers
109	109	Prioritize Change Actions
110	110	Establish Budget and Schedule
111	111	Update Mission Statement
112	112	Publish Enterprise Vision
113	113	Publicize Enterprise Vision
114	114	
115	**115**	**Position Business Reengineering**
116	**116**	**Obtain Organizational Commitment**
117	117	Initiate Consideration of Business Process Re-engineering
118	118	Introduce Value Stream Concepts
119	**119**	**Structure Reengineering Effort**
120	120	Confirm Goals, Objectives and Benefits
121	121	Confirm Scope of Reengineering
122	122	Define Approach and Deliverables
123	123	Confirm Commitment of Resources and Time
124	124	Confirm Project Funding
125	125	Confirm Strategic Impact
126	126	Obtain Authorization to Proceed
127	**127**	**Develop Business Reengineering Teams**
128	128	Confirm Executive Sponsor
129	129	Confirm Steering Committee Members
130	130	Identify BPR Project Manager
131	131	Identify BPR Team Members
132	132	Identify Reference Group(s)
133	133	Orient the Project Participants
134	134	Develop Mission Statements
135	**135**	**Develop Master Project Plan**
136	136	Develop Detailed Task Plan
137	137	Develop Quality Plan
138	138	Develop Communications Plan
139	139	Develop Training Plan
140	140	Establish Project Standards
141	**141**	**Set Target Goals**
142	142	Qualify Target Goals
143	143	Define Critical Success Factors
144	144	Obtain Executive Concurrence
145	**145**	**Position the Organization for Change**
146	146	Define Team Structure and Roles
147	147	Define Group Characteristics
148	148	Develop Team Building Plan
149	149	Conduct Team Building Exercises
150	150	Monitor Team Behavior
151	151	Initiate Interventions
152	152	
153	**153**	**Assess Current Value Stream**
154	**154**	**Develop Value Stream Profiles**
155	155	Understand Enterprise Mission and Objectives
156	156	Conduct Value Stream Workshop

ID	ID	Task Name
157	157	Identify Timings, Duration and Costs
158	158	Develop Information Architecture
159	159	Profile Value Streams
160	**160**	**Document Current Work Processes**
161	161	Diagram Processes
162	162	Analyze Critical Path
163	163	Identify Process Strengths and Weaknesses
164	164	Validate Processes
165	165	Update Value Stream Profiles
166	**166**	**Survey Employees**
167	167	Define Employee Survey Objectives
168	168	Identify Employee Survey Group(s)
169	169	Develop Employee Survey Method
170	170	Develop Employee Survey Questionnaire
171	171	Conduct Employee Survey
172	172	Analyze Employee Survey Data
173	**173**	**Identify Customer Needs**
174	174	Validate Customer Interactions
175	175	Define Customer Survey Objectives
176	176	Identify Customer Group
177	177	Develop Customer Survey Method
178	178	Develop Customer Questionnaire
179	179	Conduct Customer Survey
180	180	Develop Problems and Needs Lists
181	**181**	**Survey the Marketplace**
182	182	Define Market Survey Objectives
183	183	Identify Marketplace and Competition
184	184	Develop Market Survey Collection Method
185	185	Develop Market Survey Questionnaire
186	186	Conduct Market Survey
187	187	Perform Competitive Analysis
188	188	Identify Potential Best Practices
189	**189**	**Determine Customer Satisfiers**
190	190	Understand Problems and Needs
191	191	Identify Customer Satisfiers
192	192	Identify Reengineering Candidates
193	**193**	**Confirm Assessment**
194	194	Consolidate Findings
195	195	Present Voice of the Employee
196	196	Present Voice of the Customer
197	**197**	**Assess Readiness for Change**
198	198	Assess the Organizational Structure and Work Unit Groupings
199	199	Assess Management Style
200	200	Assess Hiring, Retention and Training Practices
201	201	Assess Performance Measurements
202	202	Assess Rewards, Incentives and Benefits
203	203	Review Labor Relationships
204	204	Develop Cultural Assessment
205	**205**	**Assess the Current Physical Environment**
206	206	Review Current Plans and Specifications
207	207	Conduct Site Survey
208	208	Prepare Facility Assessment
209	209	
210	**210**	**Reengineer Value Stream**
211	**211**	**Conduct Benchmark**
212	212	Define Benchmark Objectives
213	213	Develop Benchmark Questionnaire
214	214	Define Benchmark Performance Criteria
215	215	Identify Best Practices
216	216	Prepare for Benchmark
217	217	Conduct Benchmark
218	218	Analyze Benchmark Data
219	**219**	**Explore Breakthrough Concepts**
220	220	Conduct Breakthrough Workshops
221	221	Evaluate Options and Proposed Solutions
222	**222**	**Add Benchmark Value**
223	223	Identify New Ideas
224	224	Map Satisfiers to Solutions
225	**225**	**Engineer New Processes**
226	226	Identify New Processes
227	227	Identify New Organizational Interactions
228	228	Simulate New Processes
229	229	Analyze New Critical Path
230	230	Develop Business Model
231	231	Estimate Costs
232	232	Develop Reengineered Value Stream Profiles
233	**233**	**Assess Impact of Breakthrough**
234	234	Evaluate Sacred Cows
235	235	Align With Goals

ID	ID	Task Name
236	236	Perform Cost Benefit Analysis
237	237	Develop Impact Summaries
238	238	Prepare Impact Assessment Report
239	239	Obtain Executive Approval to Proceed
240	**240**	**Determine Implementation Strategy**
241	241	Define Sequence of Change
242	242	Define BPR Pilot
243	243	Develop Pilot Plan
244	244	Develop Implementation Strategy
245	245	Analyze Risks
246	246	Develop Implementation Strategy Report
247	247	Obtain Executive Approval to Proceed
248	**248**	**Reengineer the Organization**
249	249	Conduct Organizational Breakthrough Sessions
250	250	Reengineer Organizational Structure
251	251	Reengineer Work Units
252	252	Develop Staffing Models
253	253	Develop Queuing Model
254	254	Prepare Organizational Recommendations
255	**255**	**Reengineer the Social Systems**
256	256	Conduct Rewards and Benefits Survey
257	257	Align Hiring and Retention Practices
258	258	Align Training Practices
259	259	Align Performance Measurements
260	260	Align Rewards, Incentives and Benefits Programs
261	261	Negotiate Contractual Agreements
262	262	Prepare Social System Recommendations
263	**263**	**Reengineer the Physical Environment**
264	264	Develop Facility Requirements
265	265	Develop Support System Requirements
266	266	Conduct Detailed Site Visits
267	267	Develop Design Concept
268	268	Develop Detailed Facilities Design
269	269	Develop Detailed Support Systems Design
270	270	Obtain Cost Estimates
271	**271**	**Plan Facility Preparation**
272	272	Identify Skill and Resource Requirements
273	273	Select Contractor(s) and Suppliers
274	274	Schedule Time to Complete
275	275	Develop Facilities Change Plan
276	276	Develop Contingency Plan
277	277	
278	**278**	**Pilot Selected BPR Solutions**
279	**279**	**Position for Pilot**
280	280	Define Pilot Objectives
281	281	Identify Participating Organizational Units
282	282	Obtain Commitment from External Entities
283	283	Develop Interim Policies and Procedures
284	284	Define Measurement Criteria
285	285	Implement Support Facilities
286	**286**	**Conduct Pilot**
287	287	Publicize Pilot
288	288	Implement Pilot and Interim Policies and Procedures
289	289	Monitor Pilot Performance
290	290	Adjust Pilot Parameters
291	**291**	**Evaluate Results of Pilot**
292	292	Assess the Pilot
293	293	Develop Pilot Assessment Report
294	294	Obtain Executive Authorization to Proceed
295	**295**	**Pilot Cultural and Organizational Change**
296	296	Identify Pilot Components
297	297	Develop Organizational Pilot Plan
298	298	Obtain Commitment to Organizational Pilot
299	299	Develop Training Plan
300	300	Enable Staff
301	301	Implement Organizational Pilot
302	302	Monitor Organizational Pilot Performance
303	**303**	**Prepare the Facility**
304	304	Prepare Physical Environment
305	305	Prepare Support Systems
306	306	Develop Floor Plan and Configuration Drawings
307	307	Follow Up Outstanding Issues
308	308	
309	**309**	**Implement Reengineered Value Stream**
310	**310**	**Develop Transition Plan**
311	311	Develop Operational Change Plan
312	312	Develop Technology Change Plan
313	313	Consolidate Transition Plan
314	314	Develop Transition Communications Plan

ID	ID	Task Name
315	315	Obtain Executive Authorization to Implement
316	**316**	**Ready Organization For Change**
317	317	Interview Process Sponsors and Owners
318	318	Administer Organizational Readiness Inventories
319	319	Synthesize Feedback
320	320	Establish Foundation for Change
321	321	Execute Training Plan
322	**322**	**Implement Transition Plan**
323	323	Implement Management Change Plan
324	324	Implement Operational Change Plan
325	325	Implement Social Systems Change Plan
326	326	Implement Technology Change Plan
327	327	Implement Facilities Change Plan
328	328	Implement Transition Communications Plan
329	**329**	**Implement Cultural Change**
330	330	Develop Management Change Plan
331	331	Develop Social Systems Change Plan
332	332	Develop Enablement Plan
333	333	Consolidate Into Master Plan
334	**334**	**Install and Test Facilities**
335	335	Confirm Delivery of Equipment
336	336	Install Furniture and Fixtures
337	337	Install and Test Hardware
338	338	Install and Test Specialized Equipment
339	339	Follow-up Outstanding Issues
340	340	
341	**341**	**Software Development Project**
342	**342**	**Project Launch**
343	**343**	**Initial Review**
344	344	Review Business Case / Statement of Work
345	345	Establish Business Objectives
346	346	Determine Technical Complexity
347	347	Identify Target Audience
348	348	Establish Success Criteria & Measurables
349	**349**	**Project Estimation**
350	350	Identify skill set needed
351	351	Identify (Initial) HW / SW environment
352	352	Develop time & effort estimates
353	353	Develop Man Power Budget
354	354	Develop Hardware and Software Budget
355	355	Develop / Review / Update Initial Budget
356	**356**	**Project Planning**
357	357	Organization
358	358	Communication Plan
359	359	Project Quality Plan
360	360	Data Migration Plan
361	361	Integration Plan
362	362	Implementation Plan
363	363	Test Plan
364	364	Training Plan
365	365	Support & Maintenance Plan
366	**366**	**Man-Power Planning**
367	367	Detail skill-set list
368	368	Identify Client resources
369	369	Man-power count
370	370	Identify Sources/Get Quotes
371	**371**	**Initial HW /SW Planning**
372	372	Development / Testing / Production environment details
373	373	Identify Sources/Get Quotes
374	**374**	**Approval & Go Ahead**
375	375	Review Project Work Plan
376	376	Check project plan against client calendar
377	377	Present revised business case and plan
378	378	Get Approval for Project
379	379	
380	**380**	**Acquire Resources**
381	**381**	**Man-Power**
382	382	Send PO/Sign Contract
383	383	Get Team On Board
384	**384**	**Work space & equipment**
385	385	Identify need
386	386	Get Work space & equipment for team
387	387	
388	**388**	**Requirement Definition**
389	**389**	**Current System**
390	390	Review / Document business functions
391	391	Review / Document system functions
392	**392**	**Business Requirements**

ID	ID	Task Name
393	393	Schedule client interviews
394	394	Identify hi-level business functions & requirements
395	**395**	**Detailed business requirements**
396	396	Business rules
397	397	Input / Output requirements
398	398	Processing / Computing requirements
399	399	Storage / Archival
400	400	Document business requirements
401	401	Review business requirements
402	402	Business Requirement sign-off
403	**403**	**Systems Requirements**
404	404	Identify technical requirements
405	405	Identify integration requirements
406	406	Identify performance requirements
407	407	Develop User Interface requirements
408	408	Document system requirements
409	409	Reveiw system requirements
410	410	System requirement signoff
411	**411**	**Testing**
412	412	User Acceptance Criteria
413	**413**	**Training**
414	414	Identify training needs
415	415	
416	**416**	**Detailed Design**
417	**417**	**Current System**
418	418	Review / Document current state design
419	419	Review / Document process model
420	420	Review / Document data architecture
421	421	Review / Document application architecture
422	422	Review / Document technical architecture
423	**423**	**Proposed System**
424	424	Process Model
425	425	Entity Relationship
426	426	Data Flow
427	427	Data modeling
428	428	Define data architecture
429	429	Define application architecture
430	430	Define technical architecture
431	**431**	**Review Proposed System**
432	432	Review system design
433	433	Proposed design signoff
434	434	
435	**435**	**System Configuration**
436	**436**	**Hardware**
437	437	Develop hardware configuration
438	438	Development / Testing / Production environment details
439	439	Review and signoff
440	**440**	**Software**
441	441	Design SW configuration
442	442	Development / Testing / Production environment details
443	443	Review and signoff
444	444	
445	**445**	**Acquire and Install System**
446	**446**	**Hardware**
447	447	Identify Sources/Get Quotes
448	448	Send PO/Sign Contract
449	449	Acquire, install & test HW For Development
450	450	Acquire, install & test HW For Testing
451	451	Acquire HW For Production
452	**452**	**Software**
453	453	Identify Sources/Get Quotes
454	454	Send PO/Sign Contract
455	455	Acquire, install & test SW For Development
456	456	Acquire, install & test SW For Testing
457	457	Acquire SW For Production
458	458	
459	**459**	**Application Development**
460	**460**	**Development Planning**
461	461	Development module plan
462	**462**	**Initial Database**
463	463	Build / Develop/ Setup database
464	464	Test database
465	465	Review / signoff database
466	**466**	**Prototype**
467	467	Build prototype
468	468	Test prototype
469	469	Review / signoff Prototype
470	**470**	**Common Routines / Modules / Templates**
471	471	Build common routines / modules /templates

ID	ID	Task Name
472	472	Develop unit test scripts
473	473	Test common routines / modules / templates
474	474	Review and signoff
475	**475**	**Modules / Programs / Units**
476	476	Build modules / programs / units
477	477	Develop unit test scripts
478	478	Test modules / programs / units
479	479	Review and signoff
480	**480**	**Application Integration**
481	481	Integrate modules / programs / units
482	482	Develop unit testing scripts
483	483	Unit Testing
484	484	Review and signoff
485	485	
486	**486**	**Data Migration**
487	**487**	**Build**
488	488	Data migration design
489	489	Build data migration components
490	490	Perform Data migration
491	**491**	**Test**
492	492	Build testing routines
493	493	Test Migration Results
494	494	Review and signoff
495	495	
496	**496**	**System Documentation**
497	**497**	**Source Code**
498	498	Compile source code documentation
499	499	Review and signoff
500	**500**	**Operations Manual**
501	501	Develop Operations manual
502	502	Review and signoff
503	**503**	**User Manual**
504	504	Develop User Manual
505	505	Review and signoff
506	506	
507	**507**	**Testing**
508	**508**	**Planning**
509	509	Build Test plan and startegy
510	510	Build test cases and scripts
511	511	Review and signoff
512	**512**	**System Testing**
513	513	Perform system testing
514	514	Verification and validation
515	**515**	**Iintegration testing**
516	516	Perform testing
517	517	Verification and validation
518	**518**	**Regression / Performance testing**
519	519	Perform testing
520	520	Verification and validation
521	**521**	**User Acceptance**
522	522	Perform final user acceptance
523	523	Perform final operational acceptance
524	524	Review & Signoff
525	525	
526	**526**	**Training**
527	527	Develop training program
528	528	Conduct training
529	529	
530	**530**	**Production Implementation**
531	**531**	**Implementation Readiness**
532	532	Review implementation readiness
533	533	Signoff
534	**534**	**Install system**
535	535	Install HW
536	536	Install System SW
537	537	Install applcation
538	538	Load data
539	539	Application Testing
540	540	Parallel Testing
541	541	System Launched
542	542	
543	**543**	**CLOSE-DOWN**
544	544	Document project closedown report
545	545	Release resources
546	546	Perform project post-martem
547	547	
548	**548**	**Monitor new IS Performance**
549	**549**	**Measure Performance**

ID	ID	Task Name
550	550	Define Program Goals and Objectives
551	551	Define Performance Indicators
552	552	Establish Measurement Criteria
553	553	Develop Measurement Program
554	554	Publicize Measurement Program
555	555	Implement Measurement Program
556	**556**	**Evaluate Performance Measures**
557	557	Evaluate Customer Satisfaction Level
558	558	Evaluate Operational Performance Levels
559	559	Implement New Performance Measures
560	**560**	**Perform Ongoing Benchmarking**
561	561	Revise Benchmark Questionnaire
562	562	Update Benchmark Partners List
563	563	Conduct Benchmark
564	564	Analyze Benchmark Results
565	565	Initiate Change to the Value Stream
566	**566**	**Monitor Cultural Change**
567	567	Develop Measurements
568	568	Implement Measurements
569	569	
570	**570**	**Provide Support and Maintenance Services**
571	571	Schedule Warranty Period(s) Follow-up
572	572	Evaluate Support and Maintenance Options
573	573	Conduct Service Agreement Negotiations
574	574	Execute Service and Maintenance Agreements

Greek **N**et **T**elecom

Information System Plan (ISP)

STAGE (1)
- Give a good background of the company
- Identify and briefly describe three major business processes, which are interrelated
- Explain how they are related to each other
- Prepare a first proposal and get feedback

STAGE (2)
- Choose only one of the above three processes
- Identify and describe briefly the components of this Information System
  - information technology infrastructure
  - telecommunications
  - databases and data warehouses
  - software
  - personal computers and other devices
  - people involved — number of people and roles
  - rules and procedures
- Explain how the process we have chosen is supported by IS in terms of.
  - data and information flow
  - communications
  - hierarchies and decision making process interactions
  - people
  - rules and procedures and IT services

STAGE (3)
- Identify potential problems in our chosen process — discuss briefly
- Propose improvements that we may need to make for the IS we are designing to support the specific process
- Prepare a proper ISP for the development of the new system
- Prepare a technical description of the new system to include:
  - aims and objectives of the ISP
  - hardware, software and telecom specification
  - data flows and ERDs
  - all kinds of costs / hardware - software - salaries - consulting - training - maintenance
  - project management issues / committees - deadlines - group work management - time predictions
  - Information requirement analysis / ROI return on investment scenario / Scenario planning
  - choose the acquisition method of the IS parts / both hardware and software / method of the SDLC
  - include some security issues / include some ethical issues

STAGE (4)
- Prepare a powerpoint presentation for the Board of Directors

The MIND-MAPPING of our IS plan

An IS plan cannot give benefits unless it is embraced by all parts involved

What we need is the:

- Top management involvement and support

- Cooperation with other company's departments

- Existence of a business strategy

- Essential study of the business before the technology

- Implementation of a good and effective IS management

Our focus should be concentrated in:

• To define and shape the new IS strategy in parallel with the existed business strategy of the company

• To work in detail for achieving operational efficiency, through the improvement and restructuring of the one business process that we have chosen

• To develop scenario planning where we try to address possible obstacles and ways to overcome them

• To make an approach based in the changing environment and not in a "one-size-fits-all" scenario

• To link our philosophy for the IS plan with the business strategy through continuous cooperation, feedback and frequent reviews with senior business managers of the company

• To play the role of CIO (Chief Information Officers), by interpreting business needs to technology products and in parallel, being fully aware of what are the real needs of the company playing a proactive role

• To communicate the IS plan, its aims and objectives not only to the managers but to all stakeholders of the company

• To receive the full commitment of the top management that will support our effort to improve the current IS and guarantees that our aims as CIOs will find consensus

• To receive a degree of freedom regarding hierarchical issues during the project, as we do not forget that our primary concern will be to foster an innovative culture supported by a well-developed IT architecture

The suggested IS plan exhibits five distinct characteristics

- It is **timely**, meaning in the right time when the company needs it

- It is **usable**, since it is the plan and not the system itself, so it would be adopted by the project managers who will carry out its attributes

- It is **maintainable**, as quick changes may affect original planning, changing fundamental parts of the plan

- It is a **quality product**, because it is a living document so any estimation included should be updated with every technology event in certain periods

- It is **reproducible**, which means by the time its elements start being developed, the outcome should remain the same

What we will achieve for GNT

• A faster route to more valuable information when and where it is needed, in a form that can be used

• Sounder reasons for supporting IT projects, in general, and assurance that requested resources will be available when needed

• More effective use of the money spent on information technology

• A complex information technology environment, in which the parts fit well together, just as they should in any other engineering structure

• Less waste of money supported an unplanned IT environment

• Reduction of costly maintenance and corrective work

• Identification of cost-saving and cost-sharing opportunities in distributed environments

• More effective responses to unexpected changes in the business environment, thereby reducing the need for crisis management

Our visionary model

GREEK NET TELECOM SA

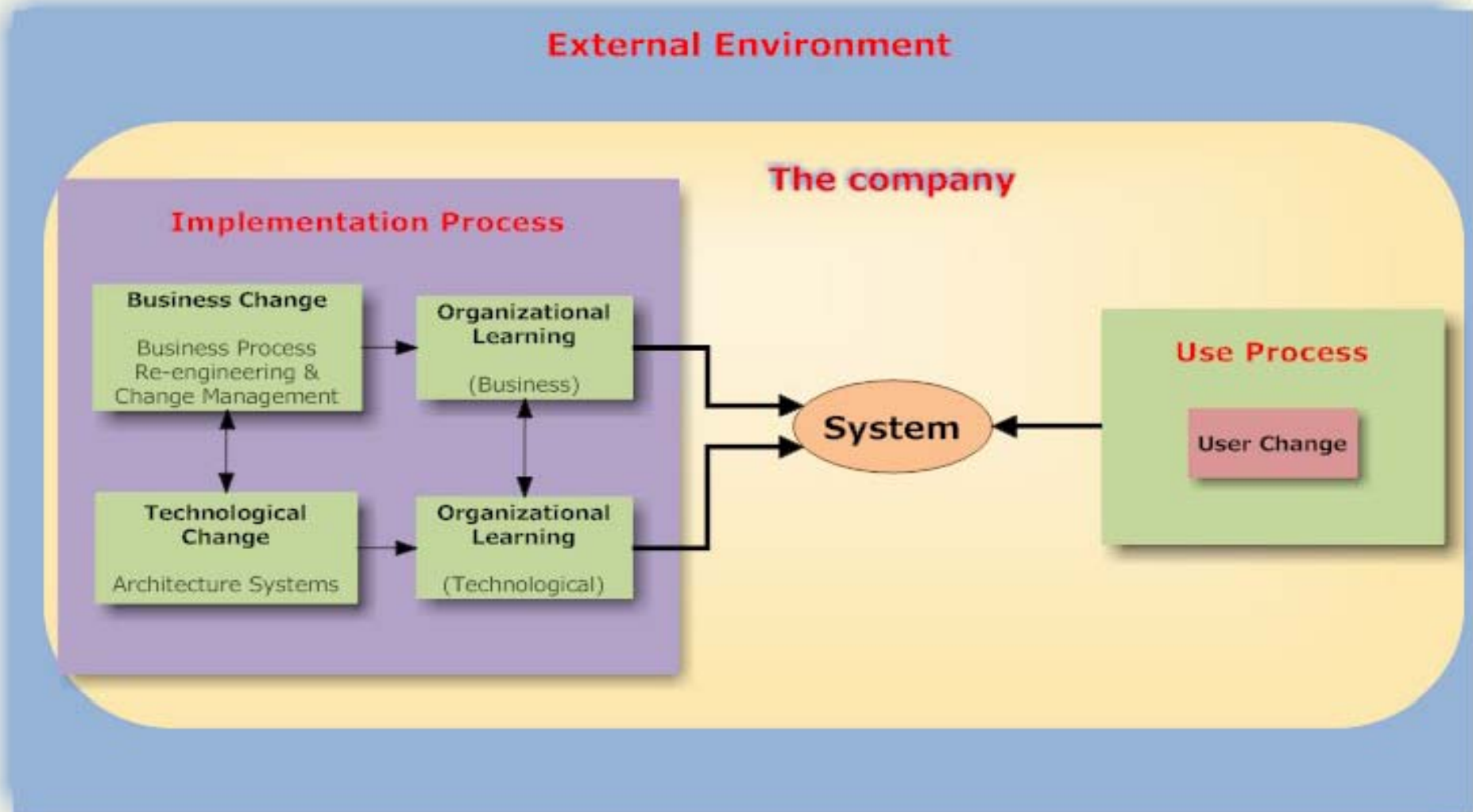TECHNICAL SUPPORT, TICKETING-TROUBLE MANAGEMENT

EXPECTED ECOMAP WITH THE HELP OF THE NEW IS
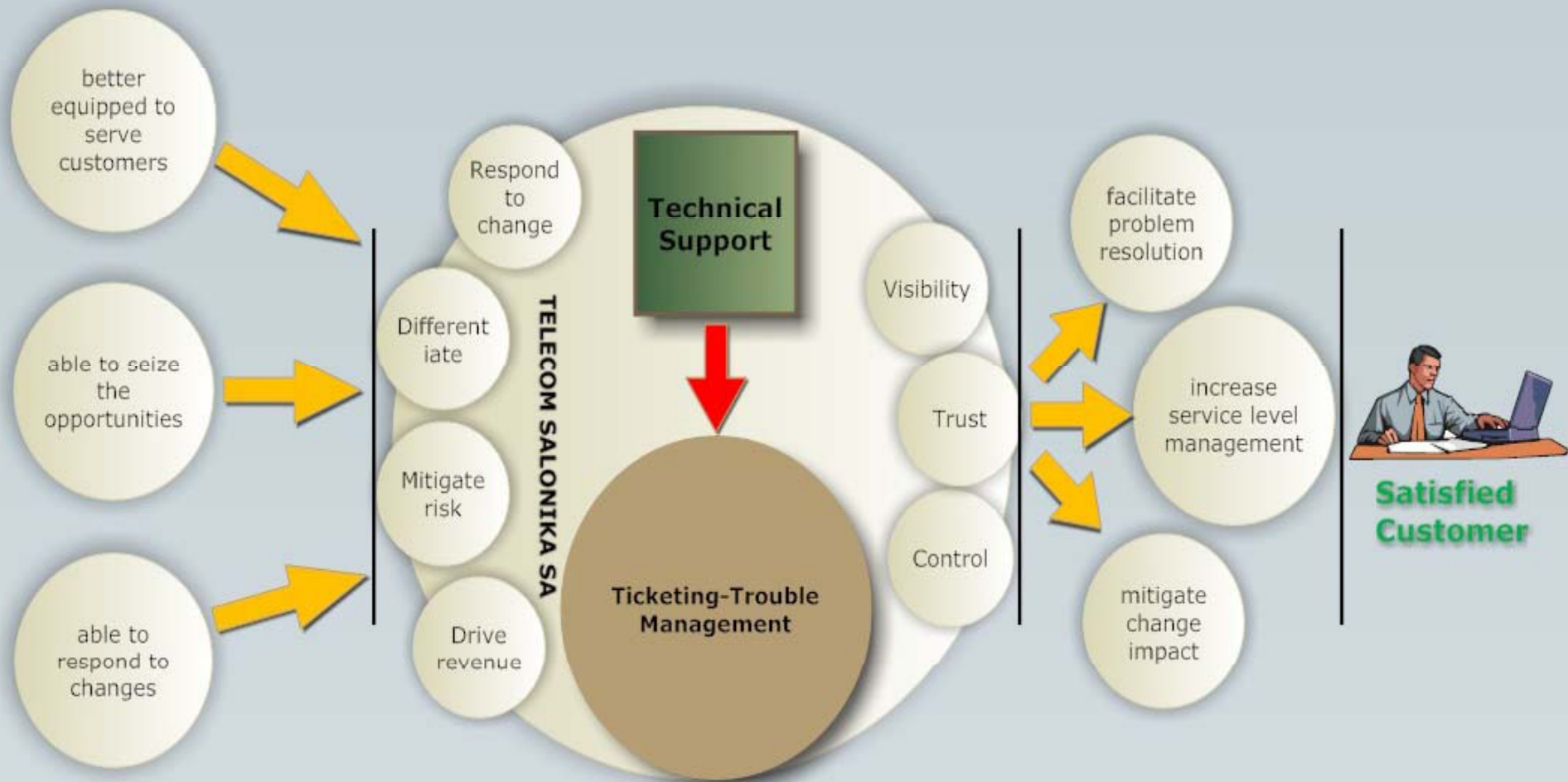
# How this model works

Greek Net Telecom
The Information System and the Organizational Learning

The objectives of the IS plan

- To obtain high and fast level support for the customer

- To identify the strategic applications

- To align IT with business needs

- To improve communication about IT with users

- To increase the visibility of IT in the organization

- To allocate IT resource

- To develop an information architecture

- To increase top management's commitment to IT

- To identify new and higher payback applications

- To forecast IT resource requirements

- To gain a competitive advantage from IT

Customer-based model inspired by the Service Oriented Architecture

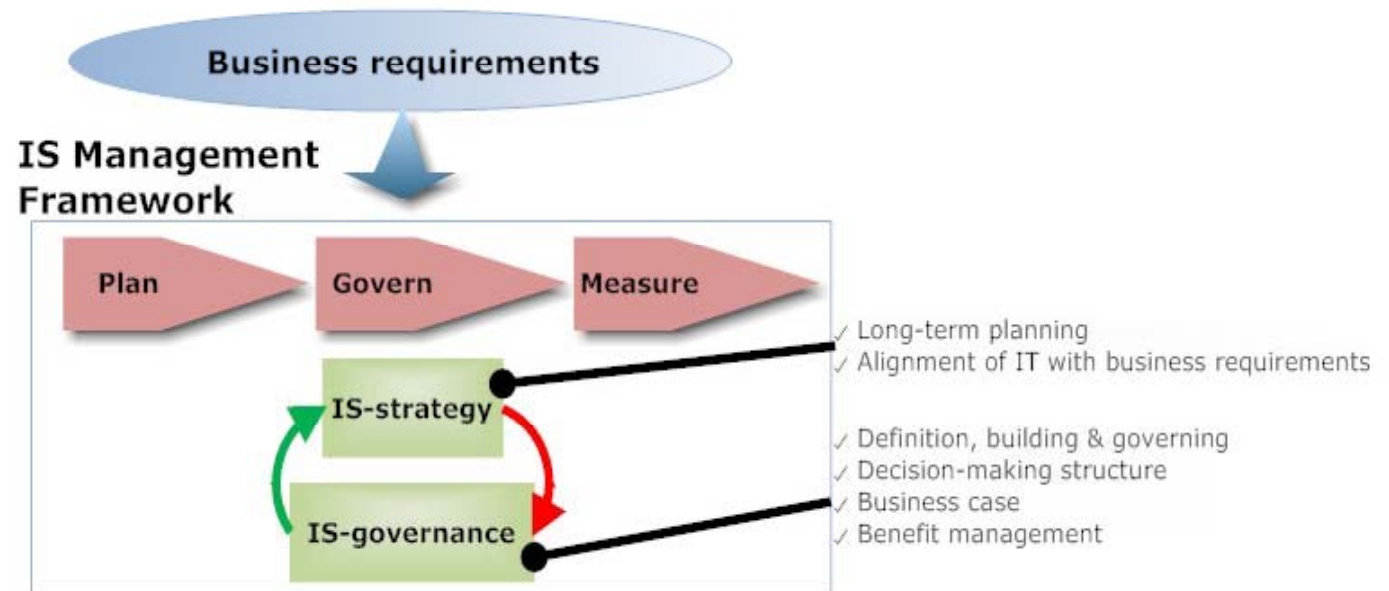Information System Architecture
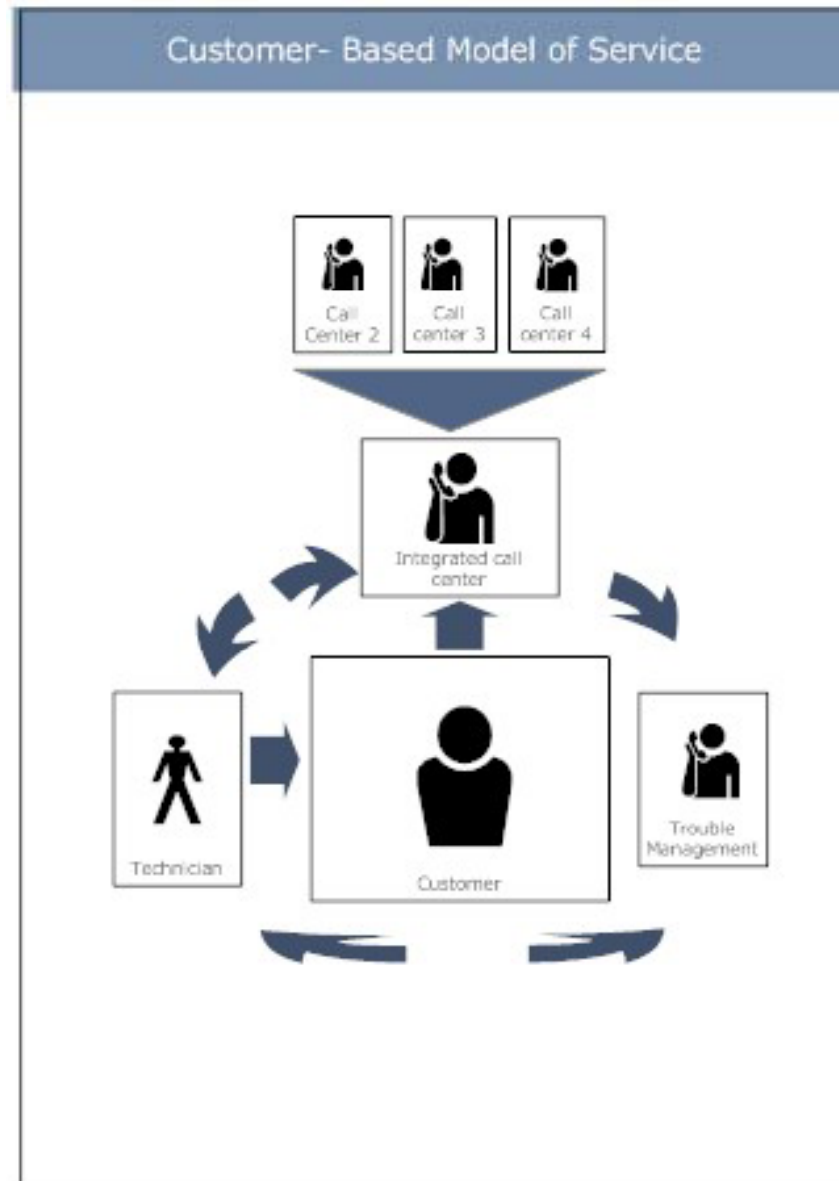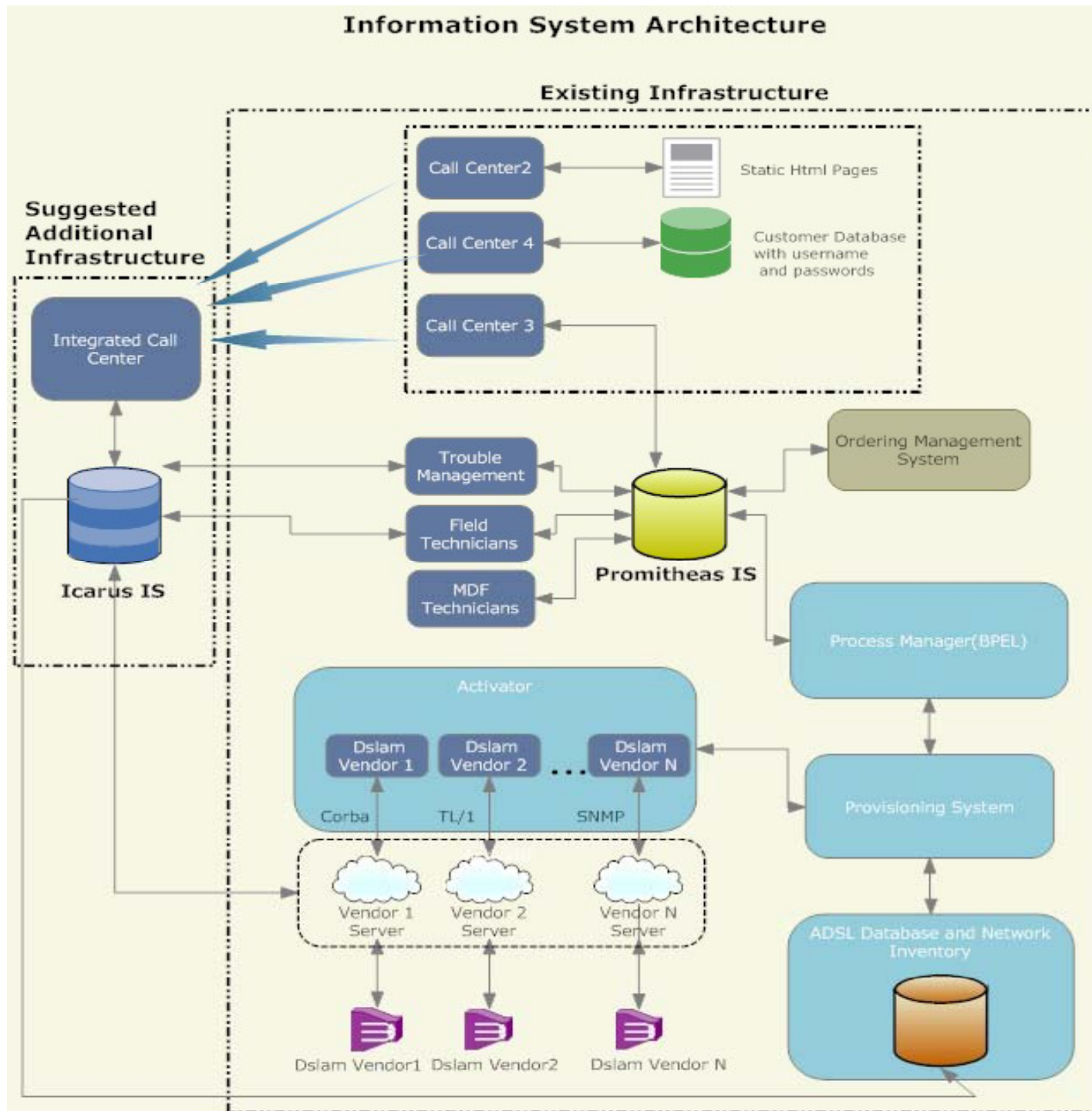
A new Database is placed at the top

GREEK NET TELECOM (GNT)
Mapping of the IT Project Management Process Groups and the Knowledge Areas

Knowledge areas	Initiating Process Group	Planning Process Group
Project Management Integration	**1. Assessment & Preliminary Plan (Project Initiation)** **2. Develop the Project Charter** 2.1 Prepare Project Statement of Work (SOW) 2.2 Examine Enterprise Environmental Factors 2.3 Examine Organisational Process Assets **4. Software Development Process** 4.1 Choose Software Development Life Cycle Framework & Methodology (tailored RUP framework with agile programming methodology) 4.2 Description of Phases / milestones / deliverables	**5. Develop Project Management Plan** 5.1 The Software Development Plan
Project Scope Management	**3. Develop Preliminary Project Scope Statement**	5.1.1 Define Software Scope (Scope Planning & Scope Definition) 5.1.2 Create & Develop WBS 5.1.2.1 Create the GANNT Chart 5.1.2.2 Dependency Analysis 5.1.2.3 Resource Usage Matrix
Project Cost Management		5.1.3 Resource Planning 5.1.4 Cost Estimating 5.1.5 Cost Budgeting 5.1.6 Cash Flow
Project Time Management		5.1.7 Activity Definition 5.1.8 Calendar of activities
Project Human Resource Management		5.2 Human Resource Planning
Project Quality Management		5.3 Quality Planning
Project Communications Management		5.4 Communications planning
Project Procurement Planning		5.5 Plan Purchases and Acquisitions
Project Risk Management		5.6 Risk Management Planning

Our MANAGEMENT Philosophy

IS Management Framework

Business requirements

IS Management Framework

Plan → Govern → Measure

IS-strategy

IS-governance

- ✓ Long-term planning
- ✓ Alignment of IT with business requirements

- ✓ Definition, building & governing
- ✓ Decision-making structure
- ✓ Business case
- ✓ Benefit management

Building blocks

Application Development	IT operation and maintenance	Architecture landscape	Management of resources
• Disciplined projects • Effective project management • Quality and timeliness of delivery • Widespread distribution	• Supporting day to day operations according to agreed SLAs • Within budget • User support	• Flexibility to meet changing business requirements • Consists of technical, security, data and application architecture components	• Maximize value of IT investments • Career development • Knowledge management • Supplier management • Quality assurance