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## QUALITY AND BUSINESS EXCELLENCE IN TELECOMMUNICATION ORGANIZATIONS

**Abstract:** *Enhanced competitiveness in telecommunication sector needs new approaches involvement, as quality and business excellence. Quality, as degree of satisfaction of clients, is evolved in satisfaction of all stakeholders. Because that, Quality Management Systems (QMS) has to be removed through Integrated Management Systems (IMS), consisted from different Standardized Management Systems (SMS) according ISO 9001, ISO 14001, ISO 18001, ISO 26000, ISO 28000, TL 9000, etc. In design of IMS are included many very famous methods, techniques and tools from Total Quality Management (TQM) approach. It is link with new paradigmue, Business Excellence (BE).*

*Base for implementation quality and BE paradigmues in telecommunication organizations are processes and integration of all stakeholders needs related to processes, specially in case preassure for higher competitiveness in global telecommunication market.*

*In this paper are presented basics of quality and BE paradigm, state of telecommunication sector with emphasaze on Serbia, and at the end new approach in one Serbian telecommunication company to achieve higher level of competitiveness.*

**Keywords:** *quality, integrated management system, business excellence, telecommunication sector, telecommunication company.*

### 1. INTRODUCTION

Telecommunication service embraces many areas, including telefon services, distribution of data, sound, images and other information via cable, broadcasting, relay or satellite. The telecommunication sector is characterised by a relatively small number of large firms. It requeres the investment of large amounts of capital, particulary for the introduction new services and technologies.

European telecommunication sector

is still growing at the steady rate. Mobile services have become the largest segment in telecommunication services with share of 49% [1]. In *table 1* is presented selected top telecommunication operators (telcor) in EU in year 2003.

Share of EU telecom sector in world turnover was about 25% [1]. With the increasing of business relationship and falling prices is broad recognised trend of growing of telecommunication services and integration of telcom prolidrs. So Deutsche Telecom has share in many EU 15 countries, as in Austrtija (T-Mobile, T-

Online), France (T-Online), Netherlands (T-Mobile), UK (T-Mobile), etc.

Table 1

Range	Operator	Country	Turnover 2003 (mile)	Staff
1	Deutsche Telecom	Germany	55,838	251,000
2	Vodafone	UK	48,597	60,109
3	France Telecom	France	46,121	221,657
4	Telecom Italia	Italy	30,850	93,187
15	OTE	Greece	4,914	17,169
18	Telecom Austria	Austria	3,970	13,890

Through analys, the following drivers of change are recognised:

- regulation – Europeanisation and the transition to open markets with:
  - √ reform the process in the EU, end
  - √ privatisation.
- Impact of the 2001 crisis with:
  - √ acquisition spree of the 1990s,
  - √ 3G licencing, and
  - √ priority to cut costs.
- entry of new operators into the market,
- technology and bstandardisation,
- increase in employment of computer support specialist,
- increase in employment of computer software engineers,
- increase in employment of information systems managers,
- increase in employment of marketing and sales managers,
- increase in employment of computer services employees,
- increase in employment of financial specialist,
- increase in quality managers and quality engineers,

- increase in *IMS* managers and engineers,
- decline in the number of telecommunication equipment installers and maintenance workers.

Enhanced competitiveness in telecommunication sector needs new approaches involvement, as quality and business excellence. Quality, as degree of satisfaction of clients, is evolved in satisfaction of all stakeholders. Because that, *Quality Management Systems (QMS)* has to be removed through *Integrated Management Systems (IMS)*, consisted from different *Standardized Management Systems (SMS)* according ISO 9001, ISO 14001, ISO 18001, ISO 26000, ISO 28000, TL 9000, etc. In design of *IMS* are included many very famous methods, techniques and tools from *Total Quality Management (TQM)* approach. It is link with new paradigmue, *Business Excellence (BE)*.

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## 2. DESIGN OF IMS FOR TELECOMMUNICATION ORGANIZATIONS

Because increased competition, increased technological complexity, shorter innovation cycles, and fast changing customer needs management of telcom needs to make decision faster in order to stay ahead of competitors. Strategic foresight of one telcom has four elements:

- technology intelligence,
- political and environmental foresight,
- competitive intelligence, and
- consumer foresight [2].

Integrating elements among the first and other three elements are:

- actors,
- methods, and
- systems.

In this paper emphasize is on the second and third element, i.e methods and systems related to quality.

*American Society for Quality (ASQ)* identified seven key forces that will influence the future of quality:

- globalization,
- social responsibility,
- new dimensions of quality,

- aging population,
- health care,
- environmental concerns,
- twenty – first century technology.

All seven key forces are very important for very complex and rapidly changed telecommunication companies. Some key forces implies extension of basic quality concept with other dimensions and needs.

The concept, role, impact end other characteristics of broader quality paradigm are explained in cited references [3, 4, 5, 6, 7, 8, 9, 10]. For telecommunication companies, the most of them started with implementation *QMS* according ISO 9001, and after that with:

- ISO 14001(environment management system):
  - √ TL 9000 (*Quality Management Telecommunication*)
  - √ ISO 20000,
  - √ ISO 27000,
  - √ ISO 18001,
  - √ ISO 31000,
  - √ ISO 26000,
  - √ ISO 28000,
  - √ ISO 12207.

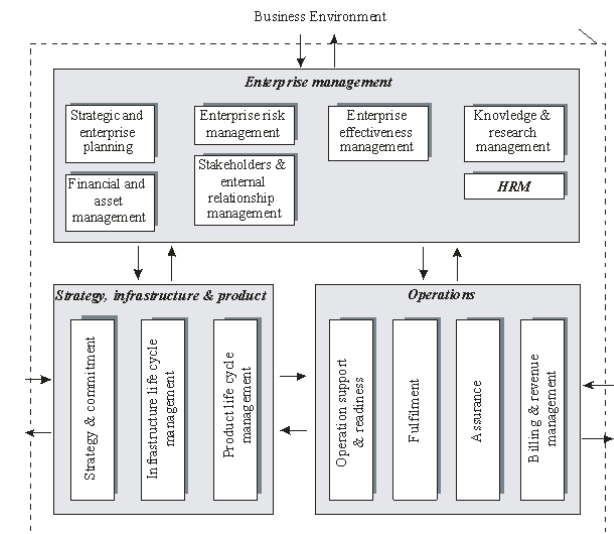


Figure 1

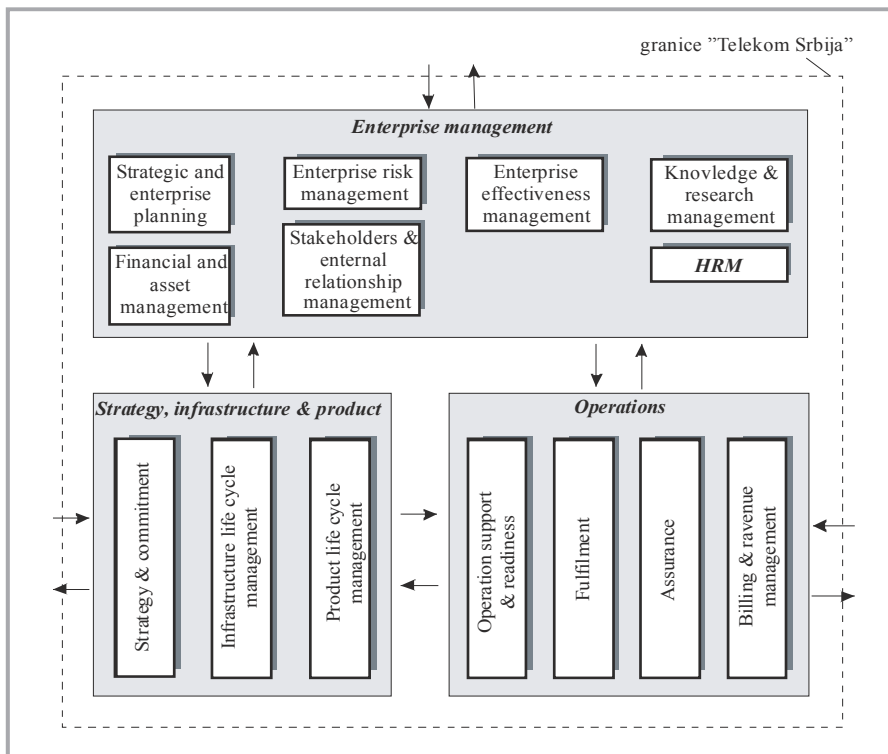


Figure 2 – eTOM process

In process of design and introduction of **IMS** with different management systems foundation are processes in each telecommunication organizations. Each process is reviewed from aspects of all stakeholder's needs and requests. In figure 2 is presented process map for telecommunication organizations according **eTOM** specification.

Each component process in macro proces: **strategy, infrastructure & product** is decoupled in four perspectives:

- marketing & offer management,
- service development & management,
- resource development & management, and
- supply chain development & management.

Redesign and introduction of all stakeholders needs into telecommunication processes are very complex project. For

realization of this project is necessary to develop and employ project infrastructure.

For each telecommunication process is necessary to realize:

- analyse of existing state,
- analyse of strategic needs relating to process,
- identification and separation of process,
- analyse of stakeholder's needs,
- analyse of interfaces,
- modeling and mapping of processes,
- conceptualisation of desired process,
- defining of process metrix, and
- marking of procedure for process management.

Outcomes for each process are:

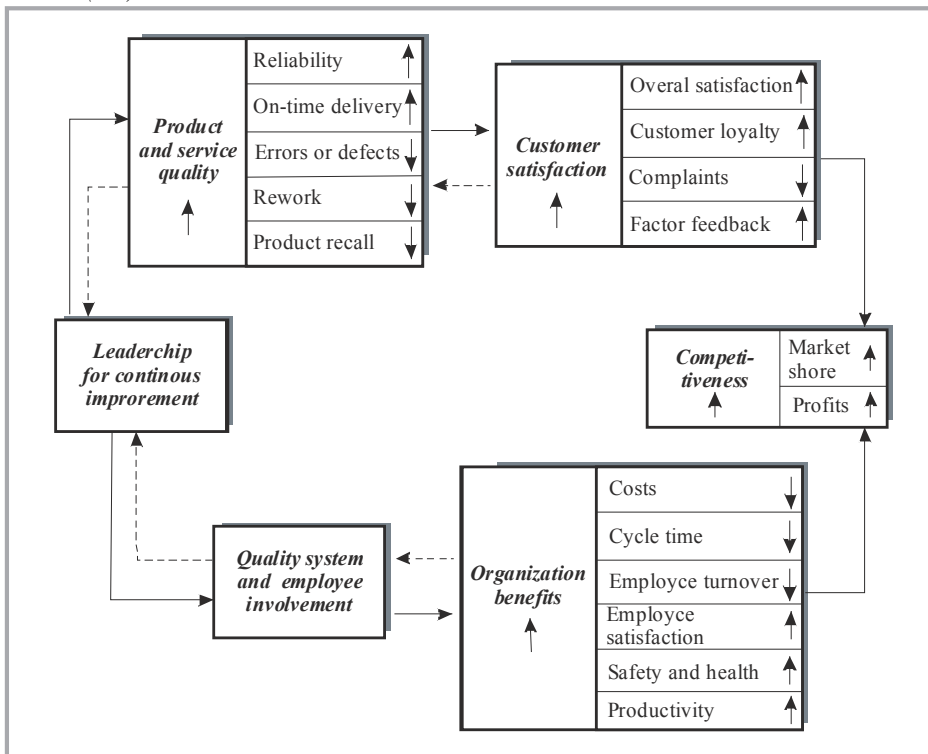
- procedure (s),
- process model,

- decomposed proces model in purpose of building of system for supporting of *Internal Communication Technology (ICT)*,
- higher process transparency, and
- enhancement of process goals.

On this way is quality linked to performance Excellence, i.e. *Business Excellence (BE)*.

### 3. BUSINESS EXCELLENCE IN TELECOMMUNICATION ORGANIZATIONS

Quality has high impact on business performance. In *figure 3* is presented closed loop between quality and business performances.



**Figure 3 – Linking quality and BE**

Impact of quality on corporate performance is in four areas [11,12,13]:

- employee relations,
- operation procedures,
- customer satisfaction, and
- financial performance.

Sources of competitive advantage can be reduced on two:

- low cost, and
- diferentiation.

Quality has very high impact on both

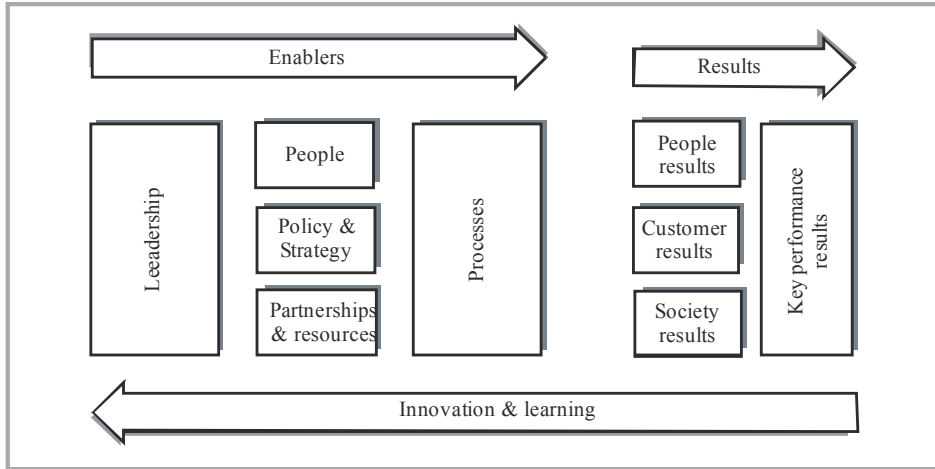
sources [15.16] through:

- superior products and services design,
- outstanding services,
- high agility,
- continuous innovation,
- rapid response, and
- higher resilience.

Like the Malkolm Baldrige, the *European Foundation for Quality Management (EFQM)* model recognized

processes as kern for achieving business excellence. This **EFQM** model consists

from enoblers and results (*figure 4*). In this **EOQM** model major role has leadership.



**Figure 4 – The EFQM Excellence Model**

In telecommunication sector in EU many companies achieved high level of **BE**. An exomple, Deutsche Telecom in year 2009 established responsible corporate governance [14] with incorporatting all stakeholders:

- staff,
- supranational organizations,
- media,
- science, research & education,
- **NGOs** & residents,
- customers,
- analysts & investors,
- suppliers, and
- business.

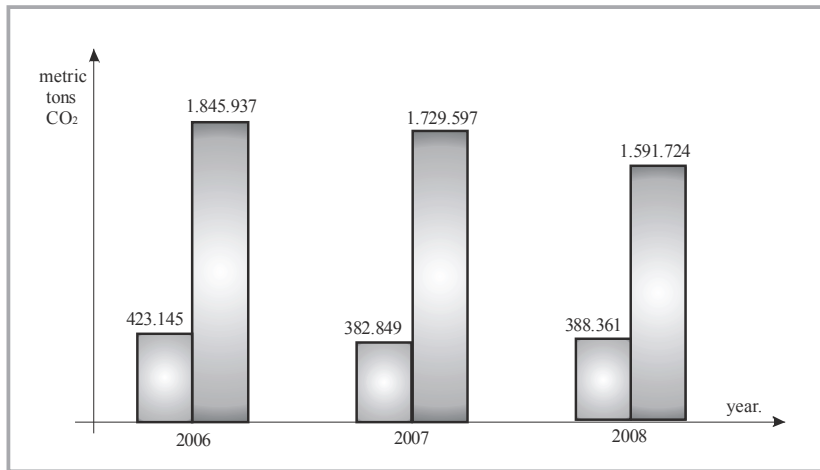
The main goal was:

- to become an international leader in
- 1: **Corporate Responsibility (CR)** with KPI 1: *Socialy Responsible Investment (SRI)* and KPI 2: Leadership indicator "social commitment"
- being the driving force for
- 2: sustainable life and work, with KPI : Number of employees with mobile equipment
- Integration of people in an
- 3: information and knowledge society, with KPI : budget committed to social

projects as a percentage of pre-fax profits,

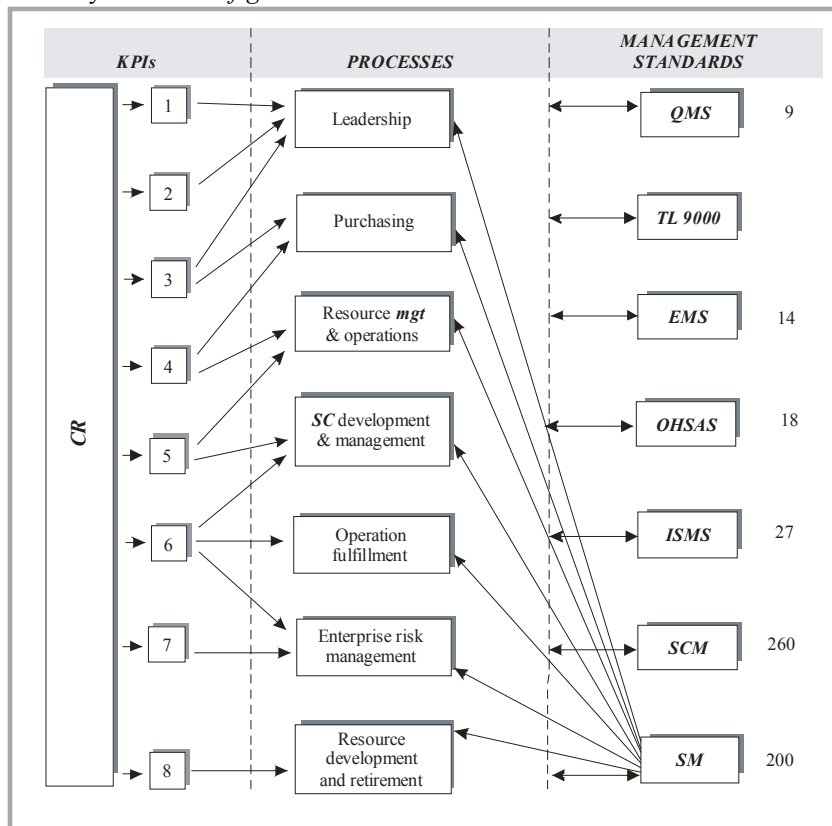
- Be a leader on the way to a low
- 4: carbon society (20% reduction of CO<sub>2</sub> emission by with KPI: Total CO<sub>2</sub> emissions in tons),
- reduce costs and CO<sub>2</sub> emissions by
- 5: controlling efficiency in infrastructure, systems, and the delivery process with KPI: Energy consumed per unit of revenue,
- ensure conplance with our social and
- 6: environmental standards in the sypply chain, to reduce CR risks and potential damage to image with KPI: Ratio of reviewed procurement volume,
- Develop and deploy sustainable
- 7: products, services, and solutions to set ourselves apart from the competition with KPI: Share of "green" products in domestic revenues,
- Best place to perform and grow with
- 8: KPI: Employee Satisfaction,

For achiering those goals in figure 5 is prescuted frend of reduction of direct and indirect emissions of Deutsche Telecom Group [14].



**Figure 5** – Direct and indirect emissions of CO<sub>2</sub> in Deutsche Telecom Group

Besides corporate responsibility, other aspects of telecommunication business have high impact from different management system. In figure 6 is presented influence of respected management systems.

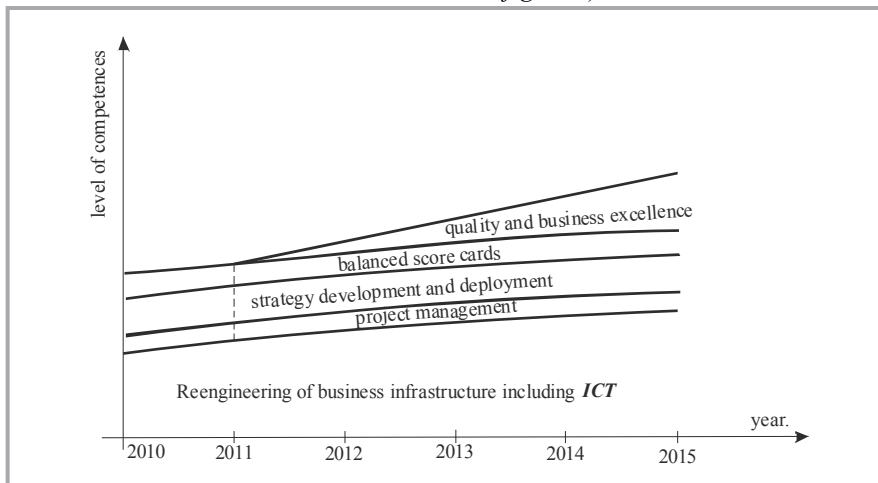


**Figure 6** – Translating of KPI into eTQM-processes and responsible management standard in area of CR in Deutsche Telecom Group

For other business area is possible to create analog figures. Because that, in each telecommunication organization business is managed through more than ten different management systems. Part of them is standardised and covered by certification process, and part of them is nonstandardized, but very good structured, developed and managed, as in the case of **CRM** in Deutsche Telecom Group.

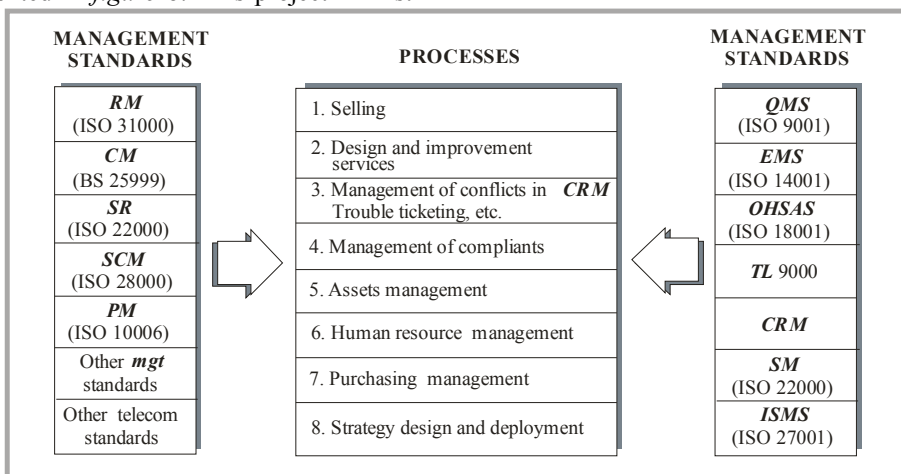
#### 4. CASE STUDY

According previous analysis one of Serbian telecom starts with design and introduction of quality and business intelligence, based on complementary projects of strategy development, project management, reengineering of existing **ICT**, and Balance Score Card, Reengineering of Business infrastructure (figure 7).



**Figure 7** – Actual and planned state in one Serbian telecom

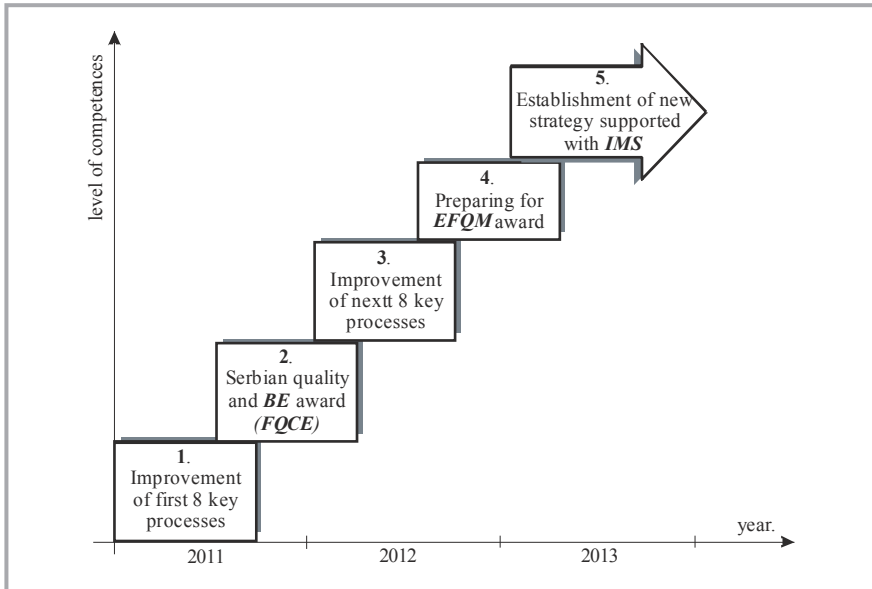
In year 2011 started project: "Establishment of ISO Quality Management Standards" with dynamics presented in figure 8. This project in first phase covers 8 key processes and training teams with topics leadership, process modelling, process mapping.



**Figure 8** – Key processes in first phase of project in one Serbian telcom



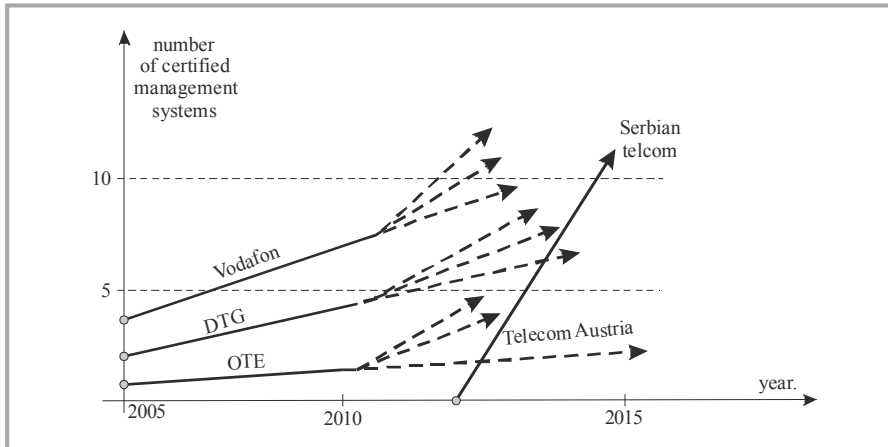
Improvement those first 8 key processes will be continue in next phases (figure 9).



**Figure 9 – Project plan**

End of this project is establishment and certification **IMS** with 12 component management standards.

On this way this Serbian telcom will be competitive on global market (figure 10).



**Figure 10 – Benchmarking of certified management systems in Europa**

On the other hand, this project has high influence on business performance.

During realization this project after 3 years could expert respectable competitiveness improvement in amount of 30 %.

## 5. CONCLUSIONS

Using of the proposed concept is expected to achieve shor and long term goals:

1. Improving of business performances: 1-5 % per year,

2. Increasing of society value: 3% per year,
  3. Increasing of the customer satisfaction level: 10% per year,
  4. Increasing of loyalty: 12% per year,
  5. Increasing of values for clients: 5 % per year,
  6. Improving of standardization level of business processes: 15%per year,
  7. Design of business processes from aspect of use of BSC: Increasing the using level of BSC (5 % per year),
  8. Increasing of process efectivity by using appropriate KPI: 10 % per year,
  9. Increasing of efectivity of strategic decision: 15 % per year,
  10. Improving of corporative culture: 15 % per year,
  11. Improving of know-how: 8 % per year,
  12. Improving of organization: 5 % per year,
- which needs to make this company more concurent on market of telecommunication services.

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