

REDUCING OPERATING COSTS AND ENHANCING COMPETITIVENESS OF THE SMES IN SOUTH BULGARIA: A CASE STUDY

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Abstract: This study is intended to present some of the results, achieved during and after the implementation of the project Cross Border Implementation of Innovative Cost Cutting Technologies (CROSS-INNO-CUT), co-funded by the European Union (ERDF) and National Funds of Greece and Bulgaria under the European Territorial Cooperation Programme “Greece-Bulgaria 2007-2013”, Subsidy contract №B1.33.07/14.04.2011. The overall objective of the project was to strengthen economic development through reducing the operating costs and improving competitiveness of the small and medium enterprises (SMEs) located in the cross-border area of North Greece and South Bulgaria. By means of a modern diagnostic tool, 100 diagnostic studies and audit reports were conducted by the experts, six areas of excessively high costs were identified, 33 cost-cutting action plans were developed, 14 plans were implemented by the SMEs and achieved positive results.

Keywords: SMEs, competitiveness, operational costs, European Territorial Cooperation Programme, Bulgaria.

Introduction

The Republic of Bulgaria is a unitary state with 7.1 million population and territory of 111 000 km², situated in the Southeast Europe on the Balkan Peninsula (NSI, 2019). At present, Bulgaria has an emerging market economy in the upper middle income range, where the private sector accounts for more than 80% of GDP (World Bank, 2019). The service sector is the engine of economic growth in recent years, contributing to 65.2% of the gross value added, compared with the other sectors such as industry and agriculture, that contribute respectively to 28.3% and 6.5% of the gross value added (NSI, 2019b). The labor force is 2.2 million people, of whom 7.3% are employed in agriculture, 35.0% are employed in industry and 57.7% are employed in the services sector (Employment Agency, 2019). Economic activities are fostered by the lowest personal and corporate income tax rates in the EU (10%), but Bulgarian GDP per capita varies between 40% and 49% of the EU-28 average for the period 2007 – 2018 (Eurostat, 2019b). For this reason Bulgaria is a net receiver of funds from the European Union, mainly through the European Regional Development Fund, European Social Fund and Cohesion Fund.

At present the administrative-territorial structure of Bulgaria includes two regions, defined as level NUTS I, six regions, defined as level NUTS II, 28 administrative districts corresponding to level NUTS III, and 265 municipalities, which represent the level LAU 1¹. The economic development in Bulgaria during the last two decades demonstrates clearly manifested territorial dimensions. The major growth-carrier is the South-West region (due to the capital city Sofia), which creates 48.5% of the GDP, while the disparities among the rest of the regions are considerably smaller. Currently, Bulgarian regions are on the last positions among the EU regions in respect of the main economic indicators. In the period 2007 – 2018 the GDP per inhabitant in the most developed Bulgarian

¹ NUTS I, NUTS II and NUTS III are the abbreviations respectively of the level I, II and III of the Nomenclature of Territorial Statistical Units within the meaning of Regulation (EC) No 1059/2003 of the European Parliament and of the Council of 26 May 2003. LAU 1 is denotation for local administrative unit.

NUTS II region, namely the South-West region varies between 72% and 78% of EU-28 average, while the rest five of the regions feature rates between 27% and 39%. One of the least developed NUTS II regions in the European Union is the Bulgarian North-West region with GDP per inhabitant equal to 27-29% of the EU-28 average (Eurostat, 2019a).

The main factor for the faster development of the South-West region is the capital city Sofia, which concentrates a significant part of the national economy. At the more detailed NUTS III level it is visible that the district of Sofia (capital city) recorded a value of GDP per capita equal to 100-107% of the EU-28 average, while the remaining four NUTS III districts in the South-West region report values for this indicator below 50% (Eurostat, 2019a). The situation is worse at the LAU 1 level, because the network of large cities that are the core centers of economic growth is unevenly distributed over the national territory, creating a significant build-up of municipalities with extremely low economic development indicators. In order to overcome the vast differences in socio-economic development of the regions Bulgaria has access to the instruments of the Cohesion Policy of the European Union.

The main purpose of this paper is to present some of the results, achieved during and after the implementation of the project Cross-Border Implementation of Innovative Cost Cutting Technologies (CROSS-INNO-CUT), co-funded by the European Union (ERDF) and National Funds of Greece and Bulgaria under the European Territorial Cooperation Programme “Greece-Bulgaria 2007-2013”. The study is structured in six sections. Section two outlines the rationale and objectives, while section three presents the methodology and activities of the project. Section four discusses the results of the CROSS-INNO-CUT diagnostics and audits conducted in the SMEs in South Bulgaria. Section five describes the pilot application of CROSS-INNO-CUT action plan in a medium Bulgarian enterprise. Section six concludes.

Rationale and objectives of the CROSS-INNO-CUT project

The project “Cross Border Implementation of Innovative Cost Cutting Technologies” (CROSS-INNO-CUT) was funded by the European Territorial Cooperation Programme “Greece-Bulgaria 2007-2013”, approved by the European Commission on 28/03/2008 by Decision C(2008)1129/28-03-2008. The total budget for the Programme (138.7 million EURO) consisted of 117.9 million EURO (85%) provided by the European Union (through the European Regional Development Fund) and 20.8 million EURO (15%) contribution from the National Funds of Greece and Bulgaria.

The eligible cross-border cooperation area extended to 40 202 km² and had a total population of 2,8 million inhabitants. It covered 4 regions at the level NUTS II, 7 regional units and 4 districts at the level NUTS III and 154 municipalities at the level LAU 1. In Greece the eligible area included the Region of Eastern Macedonia-Thrace (Regional Units of Evros, Kavala, Xanthi, Rodopi and Drama) and the Region of Central Macedonia (Regional Units of Thessaloniki and Serres). In Bulgaria eligible area covered the South-Central Region (Districts of Smolyan, Kardjali and Haskovo) and South-West Region (District of Blagoevgrad). The Regional Unit of Kavala (Greece) has been included in the Programme as adjacent area.

The idea for the CROSS-INNO-CUT project came at a time when both Bulgaria and Greece were listed at the bottom of the world ranking in terms of international competitiveness (IMD, 2011). Having in mind that the enterprises in South Bulgaria and North Greece face a common problem, namely low competitiveness, the CROSS-INNO-CUT project addressed directly to the main factors that hinder the competitiveness of enterprises and slowed down the regional development in the cross-border area. These factors were the excessive operating costs, caused by inefficient allocation and utilization of resources (raw materials, energy, finished stocked goods, fixed assets, and human resources), the low degree of cooperation between enterprises and research entities and the absence of channels to apply innovation management techniques for reducing operating costs in the small and medium enterprises.

The overall objective of CROSS-INNO-CUT project was to strengthen economic development through the improvement of competitiveness of small and medium enterprises (SMEs) located in the cross-border area of North Greece and South Bulgaria. In order to achieve this, the project was developing and disseminating innovations for cost reduction related to (a) excessive operational costs, (b) non-efficient allocation of resources, and (c) inefficient use of energy. In the framework of the project one hundred small and medium enterprises in the eligible cross-border cooperation area took advantage of free consulting services and expertise know-how intended to boost their competitiveness by applying innovative cost-cutting technologies.

For the purposes of the CROSS-INNO-CUT project a close and trustworthy partnership was built up between the two major universities and the manufacturing enterprises, located in the cross-border area of South Bulgaria and North Greece. The academic-industrial cooperation included three partners from Bulgaria, namely the South-West University “Neofit Rilski”, Industrial Association of Petrich, and Industrial Association of Kardjali, as well as six partners from Greece, namely the Federation of Industries of Northern Greece (the lead project partner), Aristotle University of Thessaloniki (URENIO Research Unit), Industries Association of Eastern Macedonia, Federation of Industries of Rhodopi, Union of Industry and Manufacture of Xanthi, and Federation of Industries of Evros. Joint actions under the CROSS-INNO-CUT project contributed to the improvement of the relationship between the academic and business communities of Greece and Bulgaria by creation of mutually beneficial cooperation. Furthermore, this cooperation has the potential to be broadened, by applying the project innovative cost-cutting methodology to more enterprises.

Methodology and activities of the CROSS-INNO-CUT project

The CROSS-INNO-CUT project followed a simple methodology in applying innovative cost cutting technologies. Basically, project activities were organized in four main stages. **On the first stage of the project implementation a team of experts** from the Urban and Regional Innovation Research Unit (URENIO) at the Aristotle University of Thessaloniki (Greece), adjoined by a team of experts from the Faculty of Economics at the South-West University “Neofit Rilski” (Bulgaria) **developed an applicable digital toolbox** (<http://toolbox.cost-cutting.eu>).

The cost cutting digital toolbox is an online application that was developed and implemented upon the benchmarking web application platform in order to meet the CROSS-INNO-CUT project’s requirements. It is a set of web software tools that were used to aid the creation and management of various types of online benchmarking and statistical applications. The digital toolbox was designed to fulfill two main objectives: firstly, to collect data from the enterprises in a structured format and secondly, to assist the experts by calculating automatically all the indicators needed for the diagnostics and audit reports.

The cost cutting digital toolbox is comprised of a diagnostic and an online audit that enabled the experts to assess the costs of the small and medium enterprises in all the thematic areas addressed by the CROSS-INNO-CUT project. **On the second stage of the project, the innovative digital toolbox was applied in 100 small and medium enterprises (70 Greek and 30 Bulgarian) in the cross-border area in order to identify the excessively high cost areas for each particular enterprise.** Managers of the enterprises provided data and answers to more than 300 questions in the diagnostics in order to help experts to identify as accurate as possible the current situation in the enterprises. The experts input data in the digital toolbox and performed the audits. The digital toolbox calculated automatically more than 600 indices, so the experts elaborated on them.



Figure 1. Core logic of the CROSS-INNO-CUT project: from diagnostics to implementation

Source: Project CROSS-INNO-CUT, <http://www.cost-cutting.eu>

The CROSS-INNO-CUT digital toolbox was used in order to collect and process information and data and diagnose excessively high cost areas in the enterprises, involved in the project. By means of the diagnostic tool and information system, 100 diagnostic studies and audit reports were developed by the experts. On this base were identified six areas of excessively high costs, where the cost-cutting innovative technologies could be applied, namely (1) “People and business processes” (management costs), (2) “Sensors, utilities and maintenance” (production costs), (3) “Supply chain” (supply chain costs), (4) “Green buildings” (fixed asset cost), (5) “Renewable energy” (alternative energy cost saving), and (6) “Marketing savings and social media” (marketing cost).

Table 1. High cost areas of intervention under the CROSS-INNO-CUT project

General cost reduction areas	Explicit cost reduction intervention areas
Supply chain (supply chain cost)	High cost of tied up capital in inventory High distribution cost High cost of material supply
Sensors, utilities and maintenance (production cost)	High cost of energy in production High cost from machinery failure
People and business processes (management cost)	High cost of processing goods and services High sales cost Low employee efficiency
Green building (fixed asset cost)	High cost of fixed asset energy High cost of water consumption High cost of water/waste treatment
Renewable energy (alternative energy cost saving)	Solar energy Wind energy Biomass energy Geothermal energy
Marketing through social media (marketing cost)	High cost for undefined marketing plan procedures High cost from failures in marketing targets

Source: CROSS-INNO-CUT Digital Toolbox, <http://toolbox.cost-cutting.eu>

On the base of the 100 cost reduction diagnostics and audit reports, **during the third stage of the project 33 action plans for cost-cutting have been developed and delivered** in 23 Greek and 10 Bulgarian enterprises. The purpose of the CROSS-INNO-CUT action plans was to provide each

of the thirty-three SMEs with a complex technical and economic solution for one of the high cost areas. The criteria for selection of the SMEs to be included in the second project stage were: (1) the location, because the selected enterprises should cover the whole cross-border area, (2) the area of excessively high costs, as all the six intervention areas should be included and (3) each one of the selected enterprises must be ready to follow action planning in the identified high cost area.

The action plans were intended to boost the competitiveness of SMEs in the cross-border area by providing free of charge innovative cost cutting consulting services to help the enterprises in reducing operating costs by:

- improving the supply chain management;
- using sensors in their production and processes;
- improving processes and increasing productivity of human resources;
- using green building standards;
- using alternative energy;
- taking advantage of social networks to optimize the marketing costs.

Factor of vital importance was the enterprise manager’s understanding and acceptance of the action plan. Each action plan comprised different possible solutions, which were examined and evaluated by the experts. Finally, the experts presented and explained the action plan to the management of each enterprise, involved in the third stage of the project.

On the fourth stage of the project cost reduction action plans were applied in 14 SMEs (11 Greek and 3 Bulgarian) from the cross-border area. During this stage the enterprise management helped by the experts decided which solution to apply. After the solution was justified, the enterprise applied the action plan, cut the operating costs and improved the competitiveness. As the CROSS-INNO-CUT project progresses into its efforts to bring competitive advantage to the SMEs through cost reduction innovative techniques, the accent was strongly put on providing real value and practical solutions to the decision takers. All the pilot applications reported initial positive results, as the enterprises benefited from the project.

Results of the CROSS-INNO-CUT diagnostics and audits conducted in the SMEs in South Bulgaria

Bulgarian enterprises involved in the CROSS-INNO-CUT project have different business activity and products, reflecting the specifics of the industries in the South Bulgaria. Prevailing part of the enterprises (24%) produce textiles and wearing apparel, 16% of the enterprises manufacture food, beverages or tobacco products, 11% of the enterprises produce fabricated metal products, 10% manufacture electronic products and equipment, 9% of the enterprises are in wholesale and retail trade. Several enterprises (8%) manufacture machinery, motor vehicles and trailers, 7% construct buildings, 5% of the enterprises are tour operators or travel agencies. Comparatively small part of the enterprises (4%) manufacture leather and related products, 3% print and reproduce recorded media, 2% of the enterprises are in the agriculture and forestry sector, and only 1% of the enterprises are in the restaurant business.

The main results from the diagnostics conducted in the Bulgarian small and medium enterprises by the means of the digital toolbox were systematized on the base of the identified high cost areas, namely “People and business processes” (management costs), “Sensors, utilities and maintenance” (production costs), “Supply chain” (supply chain costs), “Green buildings” (fixed asset cost), “Renewable energy” (alternative energy cost saving), and “Marketing savings and social media” (marketing cost).

The study of the costs for management of the **people and business processes** in the enterprises found out several basic strengths. For example 77% of the enterprises have an effectively organized order monitoring process from order to delivery. At the same time 70% of the enterprises apply after sales services and 50% of the enterprises have a dedicated account manager for each client.

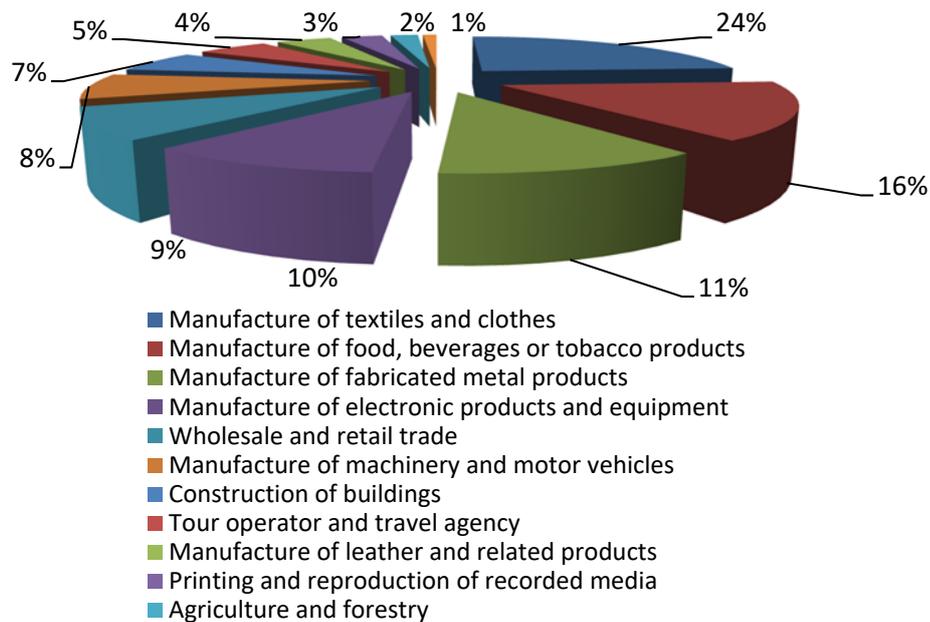


Figure 2. Main field of business activity of the Bulgarian SMEs involved in the CROSS-INNO-CUT project

Source: CROSS-INNO-CUT database

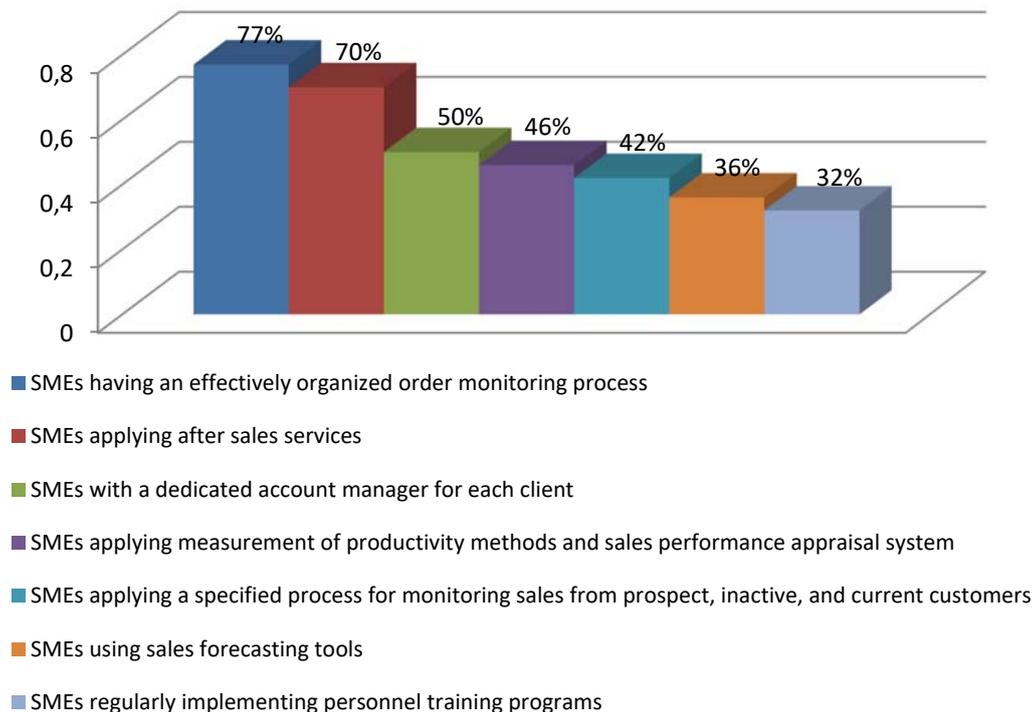


Figure 3. Management of people and business processes in Bulgarian SMEs involved in the CROSS-INNO-CUT project

Source: Author's calculations based on the CROSS-INNO-CUT database

The main weak points in the management of people and business processes in the enterprises are as follows: only 42% of the enterprises apply a specified process for monitoring sales from prospect, inactive, and current customers; only 46% of the enterprises apply employee measurement

of productivity methods and have a sales performance appraisal system for rewarding high performance; less than 36% of the companies use sales forecasting tools; no more than 32% of the SMEs implement regularly personnel training programs.

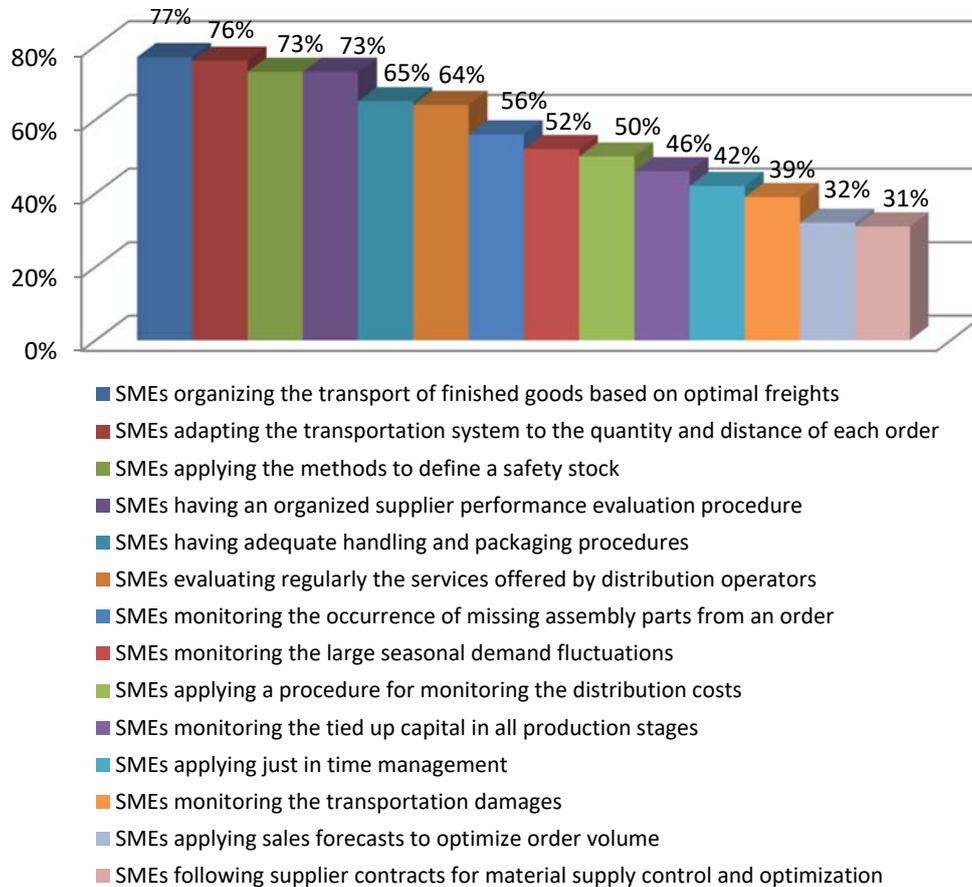


Figure 4. Supply chain management in Bulgarian SMEs involved in the CROSS-INNO-CUT project

Source: Author’s calculations based on the CROSS-INNO-CUT database

The investigation of the **supply chain** management in Bulgarian small and medium enterprises found out some strengths of vital importance. On the first place it is interesting to note that 73% of the enterprises apply the methods to define a safety stock and 77% of the enterprises organize the transport of finished goods (or transport of materials to subcontractors) based on optimal freights for reducing tied up capital on stock room. At the same time 52% of the enterprises monitor the large seasonal demand fluctuations and 50% of the enterprises apply a procedure for monitoring the distribution costs. More than 65% of the enterprises, involved in the project have adequate handling and packaging procedures and 76% of the enterprises adapt the transportation system to the quantity and distance of each order. Moreover, 64% of the enterprises evaluate regularly the services offered by distribution operators, 56% of the enterprises monitor the occurrence of missing assembly parts from an order and 73% of the enterprises have an organized supplier performance evaluation procedure.

At the same time diagnostic analysis in the scope of supply chain management identified some basic weaknesses. For example only 42% of the small and medium enterprises apply just in time management and no more than 46% of the enterprises monitor and manage the tied up capital in all production stages from materials, semi-finished goods, finished goods and on transit to the clients. Only 39% of the enterprises monitor and control transportation damages, 32% of the enterprises apply

sales forecasts to optimize order volume and 31% of the enterprises follow and monitor supplier contracts for material supply control and optimization.

The final expert conclusion is that 50% of the small and medium enterprises involved in the project can dramatically improve supply chain and reduce the excessively high costs in this area.

Marketing costs analysis conducted in the Bulgarian enterprises revealed significant weaknesses. The alarming news is that only 30% of the small and medium enterprises involved in the project follow a marketing plan or have a developed marketing strategy. Only 35% of the enterprises have ever proceeded a market research survey for the company and/or the products. Less than 23% of the enterprises have a defined budget for marketing expenses and only 3% of the enterprises have company blogs.

For the purpose of marketing costs optimization the expert recommendation is that it is necessary for all of the enterprises to develop a marketing strategy for better clarifying which are the main competitive advantages, which are the main customers, which are the optimal ways to communicate with existing clients and to attract new clients. Parts of the suggestions for optimization of marketing activities include enhancing internet communications and using the social media for marketing cost cutting. It is important to note that although all of the managers understand the need for improving marketing processes in their enterprises, only two of them are ready to define marketing budget as a percentage of sales.

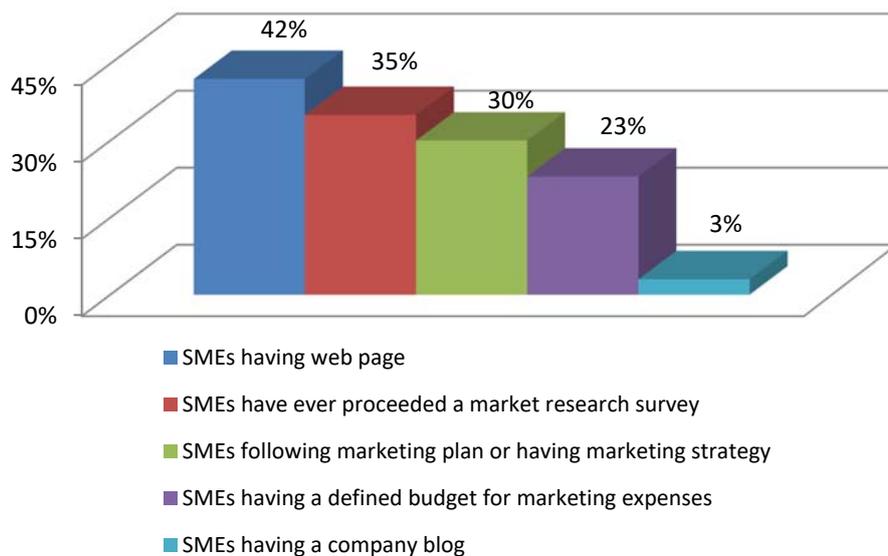


Figure 5. Marketing costs in Bulgarian SMEs involved in the CROSS-INNO-CUT project

Source: Author's calculations based on the CROSS-INNO-CUT database

On close inspection of the opportunities to reduce costs associated with **energy consumption** in the production and construction of **green buildings** are detected significant weaknesses. Results of the diagnostics show that all the Bulgarian enterprises involved in the project can substantially reduce the energy costs. It is found that the excessively high expenditures for energy in the production of 30% of the enterprises are due to the low percentage of energy efficient machinery, equipment, installations and devices. In 70% of the enterprises the main weakness is related to the buildings low energy efficiency. At the same time there are a number of options for reconstruction and rehabilitation of the buildings, which could significantly reduce the energy costs of the small and medium enterprises, included in the project.

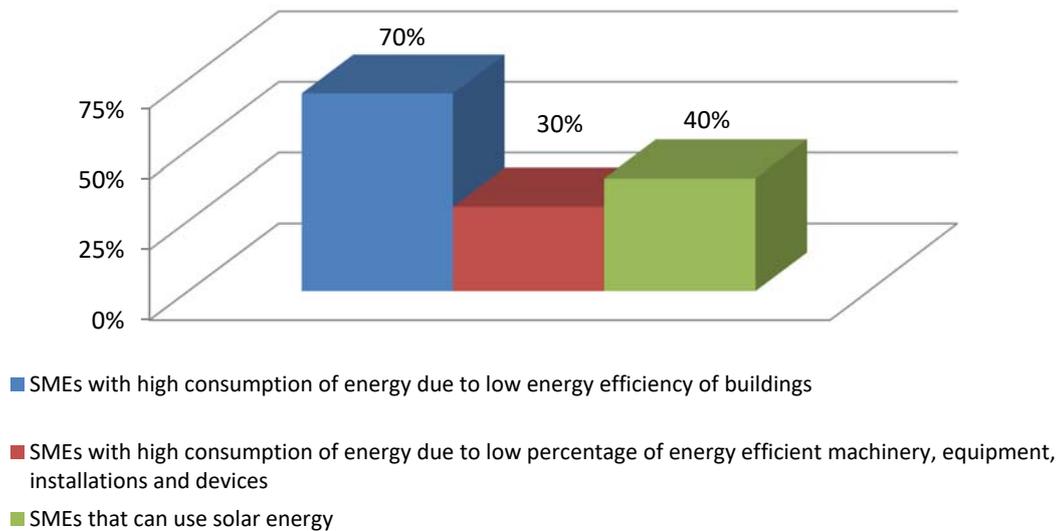


Figure 6. Green buildings and renewable energy sources in Bulgarian SMEs involved in the CROSS-INNO-CUT project

Source: Author's calculations based on the CROSS-INNO-CUT database

Understanding and attention paid by the management to the energy efficiency are the most important preconditions for taking concrete actions to search and seize the opportunities for cost cutting. The diagnostics indicate that 75% of the SMEs' managers understand the need for energy saving and are ready to start working on the energy efficiency improvement. The managers of the other 25% of the enterprises understand the needs for energy saving in their enterprises, but are not ready to start working on energy efficiency, mainly because of the lack of resources and knowledge.

The opportunities for cost cutting by use of **renewable energy** are limited. The conclusions of the audit reports are that no one of the enterprises involved in the project is able to use geothermal or wind energy, because of the lack of geothermal sources and appropriate wind areas. The usage of solar energy is possible only for 40% of the enterprises involved in the project. For the other 60% of the enterprises the usage of solar energy is not appropriate because of their small size and inadequate area to accommodate photovoltaic panels. Another problem is related to the fact that the high temperatures variations in the districts of Blagoevgrad, Kardjali, Haskovo and Smolyan reduce the effect of photovoltaic panels. This is the reason why the installation of photovoltaic panels will not result in substantial operative cost cuttings due to the high investment costs and low rate of return.

Pilot application of CROSS-INNO-CUT action plan in a Bulgarian enterprise

One of the innovative pilot applications of action plan in order to reduce enterprises costs under CROSS-INNO-CUT project was implemented in a medium enterprise, located in Blagoevgrad with main business activity manufacture of textiles and clothes. About 80 people work in the enterprise: dressmakers, designers, cutters, production control, technologists, seamstresses, administrative personnel etc. The employed staffs have appropriate qualifications and education, according to their position. The production cycle is closed, from cutting to packing. The company has more than 14 years of experience on the market of clothing production for ladies (skirts, pants, jackets, blouses, dresses, vests, coats, etc.). In addition to the main clothing production, the enterprise offers tailoring services in a very high quality level, provided by a fashion studio. Clothes made by standards are produced in different style – from sport and every day, to elegant, classical and official. The company produces cloths made in different types of fabric, from velvet, denim, and leather. During the last decade the Bulgarian enterprise has specialized in production by orders for companies in Germany, Belgium, Austria, France, Italy, Spain and USA.

According to the diagnostics and audit, conducted during the first stages of the CROSS-INNO-CUT project, the main problems for the high costs of the enterprise were connected with the management of people and business processes (management cost), namely high cost of processing goods and services and low employee efficiency. This is the reason why the innovative pilot implementation of the action plan included as its first priority redesign and reengineering of key for the enterprise business processes and (optional) implement modern ERP (Enterprise resource planning) system and Quality Management System (ISO 9001:2008). According to the analysis low efficiency is the result of poor programming processes that do not meet the requirements of a modern clothing production. Many of the key business processes can be optimized, thereby the labor productivity and quality of production can increase and cost price of the products can be reduced.

Basically, business process is an end-to-end collection of activities that creates a result for a customer, who may be the ultimate customer or an internal "end user" of the business process. The business process has a clear goal: to satisfy the customer. Business process re-engineering is "the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary modern measures of performance, such as cost, quality, service, and speed." (Hammer, M., Champy, J., 1993).

The action plan identified the following **key business processes** as opportunities to optimize costs, which were subject to redesign, reengineering and subsequent deployment: (1) process management and order execution, (2) process of managing customer service, (3) process of measuring and evaluating the performance of employees (staff), (4) process of purchasing materials and supplies, and (5) prioritization process (analysis of significance) of the goals, objectives and activities to be achieved and implemented by the personnel.

The **main objectives** of the action plan are as follows:

The immediate objectives include reducing costs from poor quality work and time for order execution, as well as increasing the employee efficiency. The expected results are: (1) reducing the costs for insufficient quality of clothes with 4 550 EURO per year, (2) increasing production capacity of the enterprise by 10%, and (3) reducing to zero of complaints due to delivery delays of production.

The short-term objectives are to increase productivity and quality due to the implementation of new procedures. The expected results in the short term are increase in sales by 3-7%.

The long-term objectives are to increase company clients by offering production of better quality at competitive prices. The expected results in the long term are entering new market with higher quality production, attracting new customers (increasing the client orders by 10-15 %); increasing the company profit by 55%.

In summary the main results, expected from the implementation of action plan are reducing costs for ineffective processes, increasing quality and labor productivity of the employees, thus increasing the competitiveness and profitability of the enterprise.

Existing prior to redesign **process of orders management and execution** in the enterprise had the following disadvantages:

- Lack of opportunity to track out the stage of execution of the contract at any point of time. Due to this deficiency, it was a usual practice for the enterprise to work overtime in the end of the deadline, and below the capacity in the middle of the period of the contract;
- Lack of traceability of the commitments undertaken by the enterprise, which was a precondition for taking more orders than could be realistically executed;
- Lack of a system for categorization and prioritization of orders;
- The planning of the contract implementation was performed "on the fly";
- It was not possible to determine the effectiveness of the orders;
- The enterprise did not make a comparison between the real and planned consumption quotas;
- There was a possibility of ordering and obtaining insufficient materials, which further slows down and restructures the production process.

During the pilot implementation the new process was constructed and all above mentioned disadvantages were removed. Now orders management and execution process in the enterprise aims to register each order and to monitor its performance throughout its life cycle - planning, execution, delivery, invoice, and payment. The register of orders is put in place, which allows the enterprise management to obtain information about the life cycle of each contract, to follow its current state, to minimize duplication of work, to optimize both the bidding and the production process, and to effectively manage the process of drawing up and monitoring the offers. The main strengths of the new process of management and execution of orders are (1) categorization and prioritization of orders, (2) implementation of planning and performance management, and (3) introduction of indicators for efficiency. The new process is developed in compliance with the ability of the enterprise to perform the contracts, the accepted profit rate, and the priority of the orders. One of the most important changes involves determining the rate of materials and labor before making a commitment to implement a contract.

The **customer service** is a key process for the enterprise. Due to the fact that the company works mainly with a few major clients, this process is not well developed in the fields of "service before signing a contract" and "management of customer complaints". As part of the pilot implementation a new process of managing customer service was developed, which includes the three main phases, namely (1) management services to potential clients before signing the contract, (2) management of customer service during the execution of an order, and (3) management of customer complaints. The effect achieved due to the new process consists in attracting potential customers and greater satisfaction of current customers of the company, as well as cost savings due to reduced complaints and better interactions with the clients.

The third process redesigned during the pilot application was **the process of measuring and evaluating employee productivity**. The main disadvantage of this process was the lack of connection between the salary and the quality of performance. When uniform operation was performed by more than one employee there was no procedure for identifying the cause for the discrepancy and rejections. The lack of performance quality measurement was a significant shortcoming in determining the productivity of employees.

In order to remove the disadvantages of the employees productivity measurement system several instructions and procedures for quality management were developed and implemented, such as a quality procedure "Control of nonconforming product", a "Form for non-compliance", and quality instruction "Identification and traceability", which ensures identification and traceability of finished products. Another improvement was the analytical calculation of the labor standards with the acceptance of the order for implementation and its integration into the production schedule.

Now, as a result of the pilot application, the company has a developed process for measuring and evaluating the productivity of employees, which takes into account the quality of the output along with the quantitative performance. The achieved effect consists in reducing costs associated with poor quality products (correctable inconsistencies, as well as irreparable products), reduced complaints and increased motivation of the personnel for quality work.

The major shortcomings observed in the key process **purchase of materials and supplies** were as follows:

- The materials and supplies were mainly purchased by a number of suppliers without searching for more favorable offers and wider variety of items;
- Lack of variability, because the enterprise always worked with the same suppliers, which excluded the possibility of variation according to the requirements of priority orders.

In order to avoid the outlined drawbacks during the pilot application of the action plan in the enterprise was built a register of suppliers. Now the register records all the potential providers with current available items, prices, discounts and terms of delivery. The enterprise uses this register for optimizing the articles, prices, and terms of delivery. In the new process the supplier is selected based on the priority criteria, set up according to the requirements of any particular order. The registry service is constantly updated in order to add any potential suppliers and remove the incorrect

providers. The achieved effect is a reduction of supply costs, reduced delivery time, and increased flexibility of the enterprise, due to the opportunities for optimization of articles, prices, and terms of delivery.

Before the pilot application the enterprise did not have a developed **process for prioritization** of goals and objectives to be achieved and activities to be implemented by the company staff. This process was developed as a precondition for expanding the activity of the company to more potential clients with competing orders.

Now the enterprise applies a process for orders prioritization according to various criteria, such as: necessary and available time to execute the contract, technological capabilities to perform the contract, financial benefits of the contract performance. Naturally, the priority is given to the orders with higher value added. Moreover, the process help the management to prioritize the complexity of the operations carried out by the employees. The achieved effect is the increased workload on orders with a higher added value for the enterprise and more precise definition of the production capacity at any time.

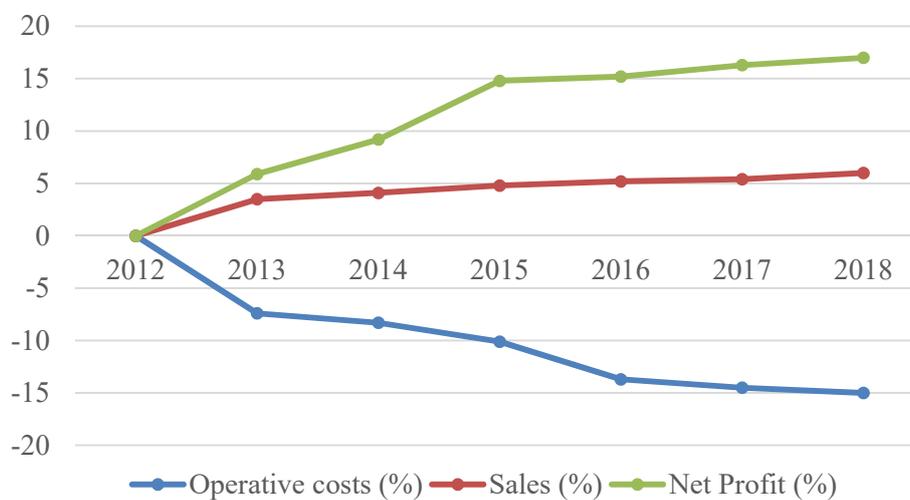


Figure 7. Dynamics of operative costs, sales and profit of an enterprise, implementing the action plan under the CROSS-INNO-CUT project

Source: Author's calculations based on the CROSS-INNO-CUT database and the financial reports of the involved enterprise

Several substantial achievements were reported as a result of the reengineering of the five key processes in the enterprise. First of all, the time needed for process management was reduced by 22%. Secondly, the operative costs were reduced by 15%. At the same time the sales increased by 6% and the company profit increased by 17%.

The management of the company is very positive and highly motivated by the achievement of the pilot implementation. Now the management team is continuing with implementation of the optional part of action plan, namely introduction of modern ERP (Enterprise resource planning) system and Quality Management System (ISO 9001:2008), which require additional improvements and investments in the software and hardware used by the company.

Conclusion

In times of economic crisis the majority of SMEs in the South Bulgaria have low competitiveness. In the framework of the project Cross Border Implementation of Innovative Cost Cutting Technologies (CROSS-INNO-CUT), co-financed by the European Union (through the European Regional Development Fund) and the National Funds of Greece and Bulgaria under the European Territorial Cooperation Programme "Greece-Bulgaria 2007-2013" the Bulgarian

enterprises were granted access to expert consulting services and “know-how”, aimed at helping them to improve their competitiveness by reducing operating costs.

The main results from the diagnostics, conducted in the enterprises with the digital toolbox designed for the project purposes indicate some serious weaknesses connected with the excessively high costs in six basic areas. For example 50% of the enterprises can significantly improve the supply chain management and reduce the excessively high costs in this area. Almost 60% of the enterprises can reduce the cost of managing people and business processes by establishing effective procedures for monitoring and management of sales, applying methods for measuring the personnel productivity, organizing a system for personalized assessment and high performance stimulation, using the tools for sales forecasting and regularly implementing the staff training programs.

More than 70% of the enterprises can take measures for optimization of marketing activities ranging from developing of marketing strategy to enhancing the internet communications and using the opportunities offered by the social media in order to optimize the marketing costs. All the Bulgarian enterprises involved in the project can reduce energy costs by increasing the share of energy efficient machinery, equipment, devices and improving the energy efficiency of administrative and industrial buildings.

One of the innovative pilot applications of action plan in order to reduce enterprises costs under CROSS-INNO-CUT project is implemented in a medium enterprise, located in Blagoevgrad with main business activity manufacture of textiles and clothes. The main problems of the enterprise were connected with the management of people and business processes (management cost), namely high cost of processing goods and services and low employee efficiency.

The action plan identified the five key business processes as opportunities for costs cutting, which were subject to redesign, reengineering and subsequent deployment: (1) process management and order execution, (2) process of managing customer service, (3) process of measuring and evaluating the performance of employees (staff), (4) process of purchasing materials and supplies, and (5) prioritization process (analysis of significance) of the goals, objectives and activities to be achieved and implemented by the personnel.

The main results from the pilot application were reducing costs for ineffective processes, increasing quality and enhancing labor productivity of the employees. Several substantial achievements were reported as a result of the reengineering of the five key processes in the Bulgarian enterprise, namely reduction of the time needed for process management, cutting of the operative costs, increase of the sales and the company profit.

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