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BENEFITS OF A COMPLEX SOLUTION TO THE CUSTOMER'S PROBLEM FOR RSC ON THE MARKET WITH CHEMICAL PRODUCTS

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On B2B markets, the strategy of a complex solution to the customers' problem is a more and more effective way to creating superior customer value (SCV). It leads to building and developing stronger relationships with customers on the principle of mutual benefit aiming to achieve higher customer satisfaction and loyalty. It also leads to a growth in the company's competitiveness on the market, enhanced interconnection between the company and its customers, often also these customers' customers, and thus to higher effectiveness of the entrepreneurial activities. Mainly the company's ability to be flexible in their offer plays an important role in strengthening the relationships with customers (SRC). The thing is to offer a sufficient range of products, high quality products and their accessories (packaging, marking, accompanying documentation, etc.), but also a desirable level of a comprehensive system of pre-sale, sale and after-sale services, providing a complex solution to the customers' problem. This article presents the

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results of a primary quantitative research, which focused on mapping perception of the benefits of a complex solution to the customers' problem in the form of a customized range of products and quality of the supplied products and services for SRC and increasing their loyalty to the company from the point of view of managers of the selected chemical strategic business units (SBU's).

Introduction

A critical issue facing managers is in deciding the competitive means to achieve superiority in the delivery of SCV in B2B markets To address this issue we adopt the view that three specific capabilities which provide important benefits are essential [1].

The first capability involves stimulating product renewal and change through the development and application of the firm's product innovation capability [2-5]. Product innovation capability represents an ability to develop new solutions to satisfy customers' current and future needs [6]. Building on Abell, Felin, and Foss's approach to capabilities, product innovation capability is defined here as the routines and processes firms have in place for undertaking innovation related activities in areas such as developing new products, extending product ranges, improving existing product quality, improving production flexibility and exploiting the most-up-to-date technologies [7]. Product innovation capability is important in the effort to create superior performance value, co-creation value and relationship value.

The second capability involves effectively marketing the offering. Many firms build their product, company reputation and build brand success [8]. Marketing capability is defined here as the routines and processes deployed to engage in marketing activities in areas such as pricing, product distribution, marketing communication, selling, and marketing planning. Firms with superior marketing capability can develop and maintain better pricing, distribution, selling, marketing communication, marketing information and marketing planning [9-11], providing them the opportunity to create superior performance, relationship and co-creation SCV and communicate this to customers. Successful firms cannot, and do not rely just on their product innovation capability when striving for superior performance. Instead they conduct product innovation and marketing activities simultaneously.

The third capability involves market sensing which helps leverage product innovation and marketing capabilities to achieve SCV creation [4]. Undertaking market-oriented behaviours is of paramount importance because of the greater necessity of direct firm-customer interactions in B2B markets [1].

The economic crisis and recession have deepened the fight for customers among the competitors, which has resulted in erosion of the customers' loyalty.

Company managers are forced to search for such an innovative concept of creating the SCV and style of serving the customers that will lead to deeper relationships with them. Creating and delivering SCV cannot be built on the differentiation based solely on the products. Today's consumers are under time pressure, impatient and demanding. They take quality of the products for granted and demand a solution, personalization, meaningful choice and companies that are a pleasure to do business with [12]. The concept of SCV should be based on comprehensive solutions to the problems of end customers, and that is the ultimate point [13]. The real solution requires a high degree of cooperation between suppliers, producers of semi-finished products, their manufacturers, distributors and end customers. Creating of SCV asks multiside cooperation and co-creation of this value by a firm and its primary stakeholders. This approach places emphasis on personalized interactions [14]. It is necessary to place emphasis not on products and services but on solutions to customers — "offerings that generate goods and services to provide customized outcomes for specific customers" [15]. According to Sawhney [16], industrial firms have gone from offering products, over offering products/services to offering solutions. Marketing strategies of a complex solution to the customers' problem seems to be a very effective strategy on B2B markets for SRC in these macroeconomic conditions. This type of strategy asks an integrated Customer Relationship Management (CRM) and integrated Supply chain management (SCM) [17].

Strong customer relations bring companies significant benefits [18]:

- a strong relationship with a customer contributes to an increase in the market share, to larger purchase with higher prices,
- preferences, good reputation and evaluation by the customers attract next customers,
- a strong relationship makes it more difficult for other suppliers to enter the market,
- a lower speed in the turnover of items in the customer database increases the customer lifetime,
- there is an opportunity of cross-selling within various customer groups.

On the other hand, loss of customers implies the following:

- a probable decrease in the future cash-flow,
- a satisfied company customer rarely praises, but a dissatisfied customer often keeps talking about his/her bad experience,
- 75 % customers inform their surroundings about a change of their supplier,
- getting a new customer is usually more expensive than care for the existing customer.

To achieve improved satisfaction of the customers' requirements and wishes, better than any of the competitors is able to achieve, it is essential that the

companies are very versatile and flexible, as customer needs and requirements are changing rapidly. Customers are becoming more informed and their demands are growing. They expect increasingly sophisticated and new products. The surplus of supply over demand contributes to the fact that their loyalty is low. They want to satisfy their needs in the best possible and easiest way in the highly competitive environment. It is up to companies to develop such solutions that the target customers will subjectively perceive as advantageous in the long term, i.e., with a higher value than the competitors offer. It is necessary for businesses to become consistently more customer-controlled companies [19].

Becomming more customer-controlled companies requires [19]:

- maximum individualization of the offer and creation of the value for the customer with regard to the value of the customer for the enterprise,
- comprehensive and rapid solutions to the customer needs and requirements,
- focus on the strategic (relational) level of cooperation with the customer, not just on individual/particular business transactions,
- building long-term equilibrium relationships with customers and their management,
- strengthening relationships with customers through such tools and forms that will increase their loyalty based on emotions,
- collaboration with customers to create the value, i.e., involvement of customers in the process of value creation,
- cooperation in creating the value for the customer not only within the company, but also with entities outside the firm,
- creating the value not only for the immediate customers, but also by cooperation in creating the value for other entities of the chain or network, as the case may be, to final consumers,
- use of information technologies throughout the process of detection, creation and improvement of the SCV, i.e., not only for collecting, processing and analyzing information, but also, among other things, for active communication with customers.

Nowadays SCV has to be made not only by transactional benefits and costs, i.e., effects of normal commercial transactions, but, increasingly, also by strategic (relational) benefits [20]. The strategic benefits are such steps and services that lead to strengthening the strategic position of customers in the markets [21] or, as the case may be, to strengthening trust and loyalty of end users [22]. There is a need for the offer to cover not only a group of mutually complementary products and their distribution, but also a help with the deployment and the use of a product or service. Overall, this means that an increasing emphasis is put on the relational level of cooperation, connected with personal contacts with the customers, with understanding and empathy concerning their needs and requirements when seeking their requirements and satisfying them with products and services [23]. This was

reflected in the transition from the value-for-the-customer management to the customer relationship value management where the strategic benefits are an important part of the benefits provided.

While creating the SCV, it is not enough to focus just on the direct customers (next in line institutions), but companies should also learn how to monitor and manage a number of values in the way the company managers understand the behaviour of their customers' customers, sometimes a few levels beyond their direct clients (up-stream markets). It is to start applying differentiated value network marketing. Value network marketing of a modern concept should be built on the basis of network value management from producers to final consumers. This means to be winning with customers, i.e., help your customers accelerate profitable growth [24].

It is necessary to become experts in the customer's area of business and, at the same time, to understand what is necessary to do on each level to assert yourself, to keep your customers and achieve loyalty of your customers, these customers' customers in the entire related value network, often as far as the final consumer. This requires exploration of the related value network on both macro and micro levels and becoming experts concerning the strategic problems in the whole customer's branch of business.

In spite of the fact that there exists common consensus that a complex solution to the customers' problem is very efficient strategy for cocreating SCV, there does not exist a detailed explanation in literature what we can imagin under this complex solution in different branches and product lines, e.g., in chemical industry. The aims of this paper are:

1. to explain the substance and role of enhancement of the SCV and SRC on B2B markets on the basis of a complex solution to the customer's needs for SRC,
2. to present results of quantitative research concentrated on what managers of selected chemical SBU's understand under the term of a complex solution to the customers' problem and to what extent individual parts of this complex offer are, from their point of view, beneficial for gaining their loyalty.

Enhancement of the SCV and SRC on B2B Markets on the Basis of a Complex Solution to the Customer's Needs

The SRC on B2B markets has its specifics. Williams [25] specifies the basic areas the companies building and enhancing mutually beneficial customer relations on B2B markets should strengthen if they wish to keep their customers:

- technical support: creation of the added value through technical support provided to industrial market customers,

- technical knowledge: arrangement of technical knowledge may support corporate sales,
- sources of raw materials: making cost-effective sources available may lead to enhancement of customer relations,
- level of services: they are more and more important, mainly with regard to meeting the delivery time, the level of delivery itself, and the product quality,
- risk mitigation: by means of participation in fairs and product presentations, test manufacturing and particularization of product specifications in the customer's companies and by making sure that the products are delivered in time.

To strengthen the customer relations, it is essential, on all market types including B2B market, to intensify application of engagement marketing. Engagement marketing consists in interconnection of the company and its customers, their engagement in satisfying their own needs and requirements from the side of the supplier and in willing cooperation concerning creation of SCV and provision of products and a system of complex care by the suppliers [26]. Engagement marketing leads to deeper relations between partners in the value network and creation of their mutual confidence and loyalty.

Creation of the SCV on B2B market requires much closer cooperation of product manufacturers and processors than it used to be in the past. On business markets, creating value in customer–supplier relationships implies other priorities and criticalities than the traditional linear logic of conceiving, producing, and delivering value would suggest. Rather, a conceptualization of value creation in business relationships has to reflect the nature and characteristics of the interaction process in which relationship value is created [27-29]. This requires application of modern information technologies for sharing information.

By active engagement of direct customers and these customers' customers in the common efforts aiming to satisfy the final consumers as much as possible, the company acquires permanent attention of the direct customers, which results in growing sales. The fact is that the most valuable source of today's companies is attention of their customers. The customers' attention can be obtained in the way that a company provides a supply — a full range of products and services, which means problem-free satisfaction of the customers' needs without any obligation to take care of anything.

Complex resolution of the customer's needs means:

- supply of a wide range of quality products customized according to the customers' needs for a reasonable price, offered including complementary products, facilitating their subsequent processing,
- provision of wide range consulting, sales and application services, ensuring the product purchase or processing from all aspects and developing partnerships and cooperation between suppliers and their customers.

This all requires differentiated customization of the supply on B2B market [23]. Utilization of differentiated customization makes it possible for companies to focus on the customers' needs, requirements and wishes rather than on the fact what company is able to produce, and thus it makes it possible for companies to manufacture products tailored to the customers' needs.

Offering a complex solution to the customers' problem and SRC should be the company management's priority, as well as the priority of the management of individual branches of business. This process must be continuous. The company must never ease up in building and SRC, as in such a case it would give a chance to the competitors and expose the company to the threat of escape of the customers to the competitors that look after their customer relations better.

The strength of the relationship with customers is significantly influenced by the level and the quality of the complex care about customers, that is flexibly, quickly and effectively. The effective forms of customer care in the sphere of products for B2B markets intended for production consumption consists in care for a number of supply aspects. In our opinion, they are the following aspects of the complex customer care system:

Research into the Benefits of a Complex Solution to the Customers' Problem for SRC from the Point of View of Managers of Chemical SBU's

Research Objectives and Methodology

The research objective was to find out what managers of chemical SBU's understand under the term of a complex solution to the customers' problem and to what extent individual parts of this complex offer are, from their point of view, beneficial for the SRC and gaining their loyalty. The research was carried out in the selected chemical factories in the Czech Republic in SBU's producing industrial explosives, nitrocellulose, organic dyes and pigments, and organic semi-finished products and specialities. The research was implemented using the method of personal questioning among 47 managers of the selected SBU's through a structured questionnaire, sent to SBU directors, strategic development managers, research and development managers, sales managers, sales representatives, production managers and technologists, quality managers, purchase managers, and managers and workers in the section of counselling and application services. We have chosen those managers and workers of chemical business units who belong to the internal value network of the respective SBU, who are in direct contact with the customers and who participate directly in the process of creating and increasing the SCV.

The research took place during March and April 2013. With the exception of the open-ended questions, evaluation of the research was carried out using the

statistical program IBM SPSS Statistics, version 21. Given the number of researched SBUs and their managers, we cannot generalize the results of the research for the whole branch of the chemical industry, but the results can be considered as a probe into the issue.

The Research Results and Discussions

The General Perception of the Benefits of a Complex Solution to the Customers' Problem for SRC

At first, the research was focussed on the general perception of the benefits of the strategy of a complex solution to the customers' needs and problems for SRC. The managers evaluated the benefits of this strategy within a seven-point scale from

Table I Beneficial Effect of Provision of a Complex Solution to the Customers' Needs

Variants of answers		Frequency	Percent %	Valid Percent %	Cumulative Percent %
Valid	Exceptionally beneficial	15	31.9	34.1	34.1
	Highly beneficial	13	27.7	29.5	63.6
	Rather beneficial	13	27.7	29.5	93.2
	Neither yes, nor no (half-and-half)	2	4.3	4.5	97.7
	Rather useless	0	0	0	97.7
	Highly useless	0	0	0	97.7
	Absolutely useless	1	2.1	2.3	100
	Total	44	93.6	100	
Missing	I do not know	1	2.1		
	System	2	4.3		
		47	100		
Total					

Source: Self processing

Table II Average perception of the beneficial effect of provision of a complex solution to the customers' needs in the researched SBU's

SBU (manufactured product category)	Beneficial Effect Mean	Std. Deviation
Nitrocellulose	6.1	0.9
Organic Semi-Finished Products and Specialities	6	0.8
Industrial Explosives	5.9	1.6
Pigments and Dyes	5.6	0.9
Total	5.8	1.2

Source: Self processing

Table III ANOVA table and testing differences in perception of the average beneficial effect of provision of a complex solution to the customer's need by the managers of the respective SBU's

Characteristics		Sum of Squares	df	Mean Square	*F*	Sig.
Beneficial effect of provision of a complex solution to the customers' needs SBU	Between Groups	1.647	3	0.549	0.377	0.77
	Within Groups	58.239	40	1.456		
	Total	59.886	43			

Source: Self processing

1 — absolutely useless to 7 — exceptionally beneficial. The vast majority of the questioned managers and workers in the selected chemical branches of business (more than 93 % of them) who know the customers and who are in frequent contact with them and take an active part in the process of creating the superior customer value, agreed that this strategy is, in the conditions of the chemical industry manufacturing products for production consumption, important and beneficial for SRC and increasing their loyalty, 34 % of them consider it as exceptionally beneficial, almost 30% as highly beneficial, and almost 30% as rather beneficial. Only one of them working in a lower managerial position, perceives it as absolutely useless, and one manager answered "I do not know" (see Table I and Fig. 1).

The average evaluation of the beneficial effect of the strategy of provision

of a complex solution for SRC in the scale from 1 – absolutely useless to 7 – exceptionally beneficial is 5.8, which means that it is considered as highly beneficial, and among the managers of the respective SBU's, various units and positions in the management hierarchy, there are just negligible differences (see Table II), which are not significantly important (see Tables III-VII). Only the managers of SBU Industrial Explosives show larger variability in their opinions in this area (see Table II).

Table IV Average perception of the beneficial effect of provision of a complex solution to the customers' needs by type of a unit

Unit	Beneficial Effect Mean	Std. Deviation
Management of SBU	6	1.4
Strategic Development	6	0
Research and Development	5.3	2.9
Purchase	6	1.2
Production	6.5	0.7
Quality Control	6.7	0.6
Sale	6	0.9
Services for customers	5.2	0.8
Total	5.8	1.2

Source: Self processing

Table V ANOVA table and testing differences in perception of the beneficial effect of provision of a complex solution to the customers' needs by type of a unit

Characteristics		Sum of Squares	df	Mean Square	*F*	Sig.
Beneficial effect of provision of a complex solution to the customers' needs unit	Between Groups	8.414	7	1.202	0.841	0.561
	Within Groups	51.472	36	1.43		
	Total	59.886	43			

Source: Self processing

Table VI Average perception of the beneficial effect of provision of a complex solution to the customers' needs according to the manager's position in organization hierarchy

Manager's position in organization hierarchy	Beneficial Effect Mean	Std. Deviation
Top manager	6	1
Middle line manager	5.7	1.2
First line manager	6.6	0.8
Total	5.8	1.2

Source: Self processing

Table VII ANOVA table and testing differences in perception of the average beneficial effect of provision of a complex solution to the need by the managers according to the manager's position in organization hierarchy

Characteristics		Sum of Squares	df	Mean Square	*F*	Sig.
Beneficial effect of provision of a complex solution to the customers' needs manager's position in organization hierarchy	Between Groups (Combined)	4,731	2	2,365	1,758	185
	Within Groups	55,155	41	1,345		
	Total	59,886	43			

Source: Self processing

Perception of the Beneficial Effect of Individual Components of a Complex Solution to the Customers' Problems for SRC

The research was focussed on perception of the beneficial effect of a sufficient range of products, product quality and its assurance, and a complex range of services and technical equipment making it possible to be flexible when serving the customers

Average Beneficial Effect of a Sufficient Range of Products for SRC

As the research showed, a sufficient range of products is an important factor on the market with industrial explosives, decisive for the customers' satisfaction or

dissatisfaction. Utilization of chemical products in the customer's company often requires special modification of the product, which makes the given product usable for the particular way of use.

A sufficient range of products and its other aspects are evaluated by the managers from the point of view of SRC on average as highly or rather beneficial (see Table VIII, Table IX and Fig. 1). Individual attributes of the range of products relate to some other activities the company may carry out to achieve the customers' loyalty. The managers consider the ability to develop special types of products in accordance with the customers' needs as highly beneficial, but it is conditioned by a functional department of research and development. At the same time, what strengthens customer relations and increases their loyalty according to the researched SBU managers is adaptation of packaging to the customers' requirements and technologies. This is also connected with a sufficient range of products and swiftness of changes in the range of products when the customer's requirements change, and also the ability to supply products together with complementary products, necessary for utilization of the products, which are perceived by the managers as rather beneficial. This all depends on the efficiency of the research and development department, on the flexibility of production facilities, and also on the flexibility of the other departments in the company.

Table VIII Average perceived beneficial effect of the attributes relating to a sufficient range of products

Components of a complex solution to the customers' problem - sufficient range of products	*N*	Beneficial effect Mean	Std. Deviation
Ability to develop special types of products tailored to the customers' needs	44	6	1.2
Adaptation of packaging to the customers' requirements and technologies	44	5.6	1.3
Swiftness of changes in the range of manufactured products when the customers' requirements change	44	5.4	1.2
A sufficient range of existing products enabling utilization of the products in different customer's conditions	44	5.3	1.1
Ability to supply products together with complementary products, necessary for utilization of the products	44	5.2	1.4
Valid N (listwise)	44		

Source: Self processing

Table IX Average perceived beneficial effect of the attributes relating to a sufficient range of products by the managers of the respective SBU's

Components of a complex solution to the customers' problem	SBU (manufactured product line)			
	IE	PD	OS	NI
A sufficient range of existing products enabling utilization of the products in different customer's conditions	5.6	5.2	4.8	5
Adaptation of packaging to the customers' requirements and technologies	5.7	5.1	6.3	5.9
Ability to develop special types of products tailored to the customers' needs	5.9	5.7	6.3	6.3
Swiftness of changes in the range of manufactured products when the customers' requirements change	5.6	5.1	5.5	5.4
Ability to supply products together with complementary products, necessary for utilization of the products	6	4.5	5	5.1

Note: IE – Industrial Explosives; PD – Pigments and Dyes; OS – Organic Semi-Finished Products and Specialities; NI – Nitrocellulose; Source: Self processing

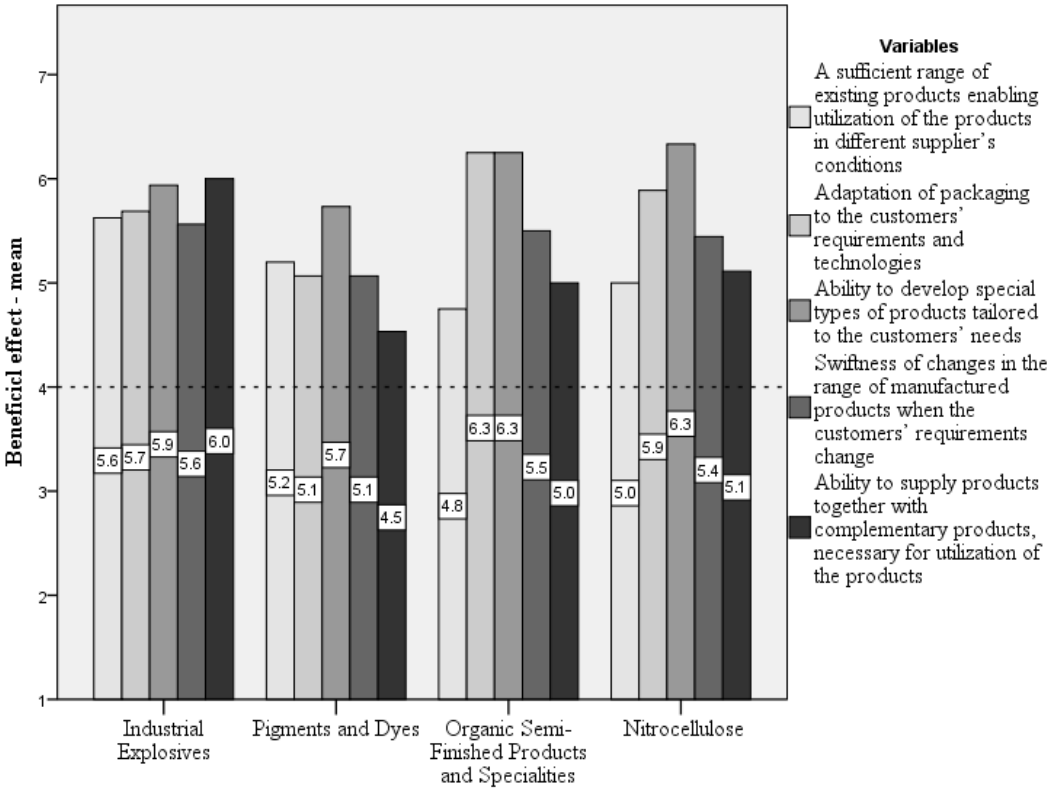

Fig. 1 Average perceived beneficial effect of the attributes relating to a sufficient range of products by the managers of the respective SBU's

Table X ANOVA table and testing the difference in the perception of the average beneficial effect of a sufficient range of existing products in individual product categories

Characteristics		Sum of Squares	df	Mean Square	*F*	Sig.
A sufficient range of existing products enabling utilization of the products in different customer's conditions SBU	Between Groups (Combined)	3.827	3	1.276	1.04	0.384
	Within Groups	48.9	40	1.223		
	Total	52.73	43			
Adaptation of packaging to the customers' requirements and technologies SBU	Between Groups (Combined)	6.786	3	2.262	1.46	0.24
	Within Groups	62.01	40	1.55		
	Total	68.8	43			
Ability to develop special types of products tailored to the customers' needs SBU	Between Groups (Combined)	2.356	3	0.785	0.52	0.672
	Within Groups	60.62	40	1.516		
	Total	62.98	43			
Swiftness of changes in the range of manufactured products when the customers' requirements change SBU	Between Groups (Combined)	2.089	3	0.696	0.44	0.729
	Within Groups	64.09	40	1.602		
	Total	66.18	43			
Ability to supply products together with complementary products, necessary for utilization of the products SBU	Between Groups (Combined)	17.11	3	5.702	3.14	0.04
	Within Groups	72.62	40	1.816		
	Total	89.73	43			

Source: Self processing

Table IX and Fig. 1 show that there are differences in the fact how managers of different SBU's perceive the beneficial effect of ensuring a sufficient range of products, that is in the ability to supply products together with complementary products, necessary for utilization of the products, where for SRC SBU Industrial Explosives considers it as highly beneficial, while SBU Pigments and Dyes perceives it just as rather beneficial or neither beneficial nor useless, which was approved by a statistical *F*-test of difference of averages (see Table X). This is given by the character of processing and utilization of individual product categories, where, for example, the users of industrial explosives require, in view

of the fact how dangerous they are, complex services in connection with geological survey of the subsoil and with an execution proposal and execution of rock blasting.

Average Beneficial Effect of Assuring Product Quality for SRC

The product quality is an important precondition for satisfaction and loyalty of the customers on the market of chemical products. According to the managers of the researched SBU's, the production quality is on average highly beneficial for SRC (see Table XI).

Table XI Average perceived beneficial effect of product quality assurance

Components of a complex solution to the customers' problem - product quality assurance	*N*	Beneficial effect Mean	Std. Deviation
Ability to manufacture products of the required qualitative parameters	43	6.1	1.1
Stable level of the product qualitative parameters in all supplies	44	6	1.1
Quick process of taking remedial measures on the basis of product quality deficiencies found by the customers	45	5.8	1.1
Ability to verify the level of product qualitative parameters in compliance with the methodology required by the customer	44	5.8	1.1
Checking adherence to technological procedures with the intent to keep the production quality High technical level and product progressiveness	44	5.8	1.4
High technical level and product progressiveness	44	5.7	1.2
Quality of documentation accompanying the products	45	5.6	1.1
Assuring quality of raw materials thanks to the selection of suppliers and interconnection with them	44	5.4	1.5
Complex quality management under EN ISO 9000 standards	43	5.3	1.3
Complex environmental management under EN ISO 14000 standards or another system of standards	43	5.2	1.3
Valid *N* (listwise)	41		

Source: Self processing

Table XII Average perceived beneficial effect of product quality assurance by managers of different units

Components of a complex solution to the customers' problem - product quality assurance	Unit							
	SD	PU	SA	RD	PR	QC	SC	TM
Assuring quality raw materials thanks to the selection of suppliers and interconnection with them	5.5	5.8	6	3.8	7	5.3	5	5.5
High technical level and product progressiveness	5.5	5.8	6	4.5	7	5.3	5	5.5
Ability to manufacture products of the required qualitative parameters	6.5	6	6	4.8	7	6.7	6	6.5
Checking adherence to technological procedures with the intent to keep the production quality	6	6	6	3.8	7	5.7	6	5.5
Ability to verify the level of product qualitative parameters in compliance with the methodology required by the customers	5.5	6	6	4	6.5	6	6	5.5
Stable level of the product qualitative parameters in all supplies	6.5	6	6	4.8	6.5	6.7	6	6
Quality of documentation accompanying the products	5	6	6	4.8	5.3	5.3	5	6
Complex quality management under EN ISO 9000 standards	4.5	6	6	3	6	5.3	5	5.5
Complex environmental management under EN ISO 14000 standards or another system of standards	4.5	5.8	6	3	6	4.7	5	5.5
Quick process of taking remedial measures on the basis of product quality deficiencies found by the customers	6.5	6.3	6	5.3	6	6.7	6	5.5

Notes: SD – Strategic development; PU – Purchase; SA – Sale; RD – R&D; PR – Production; QC – Quality control; SC – Services for customers; TM – Management SBU
Source: Self processing

The things that are highly beneficial in production quality management include the ability to manufacture products of the required qualitative parameters, assurance of a stable level of product qualitative parameters in all supplies,

thorough checking of adherence to technological procedures, ensuring a quick process of taking remedial measures on the basis of discovered product quality deficiencies, the ability to verify the product qualitative parameters in compliance with the methodology given by the customer, and high technical level and product progressiveness. The attributes relating to the product quality assurance are rather beneficial. They include: the quality of documentation accompanying the products, ensuring high-quality raw materials thanks to the selection of suppliers and interconnection with them, complex quality management thanks to EN ISO 9000 and complex environmental management thanks to EN ISO 14000. These attributes create a certain support, the basis for production of the required quality products.

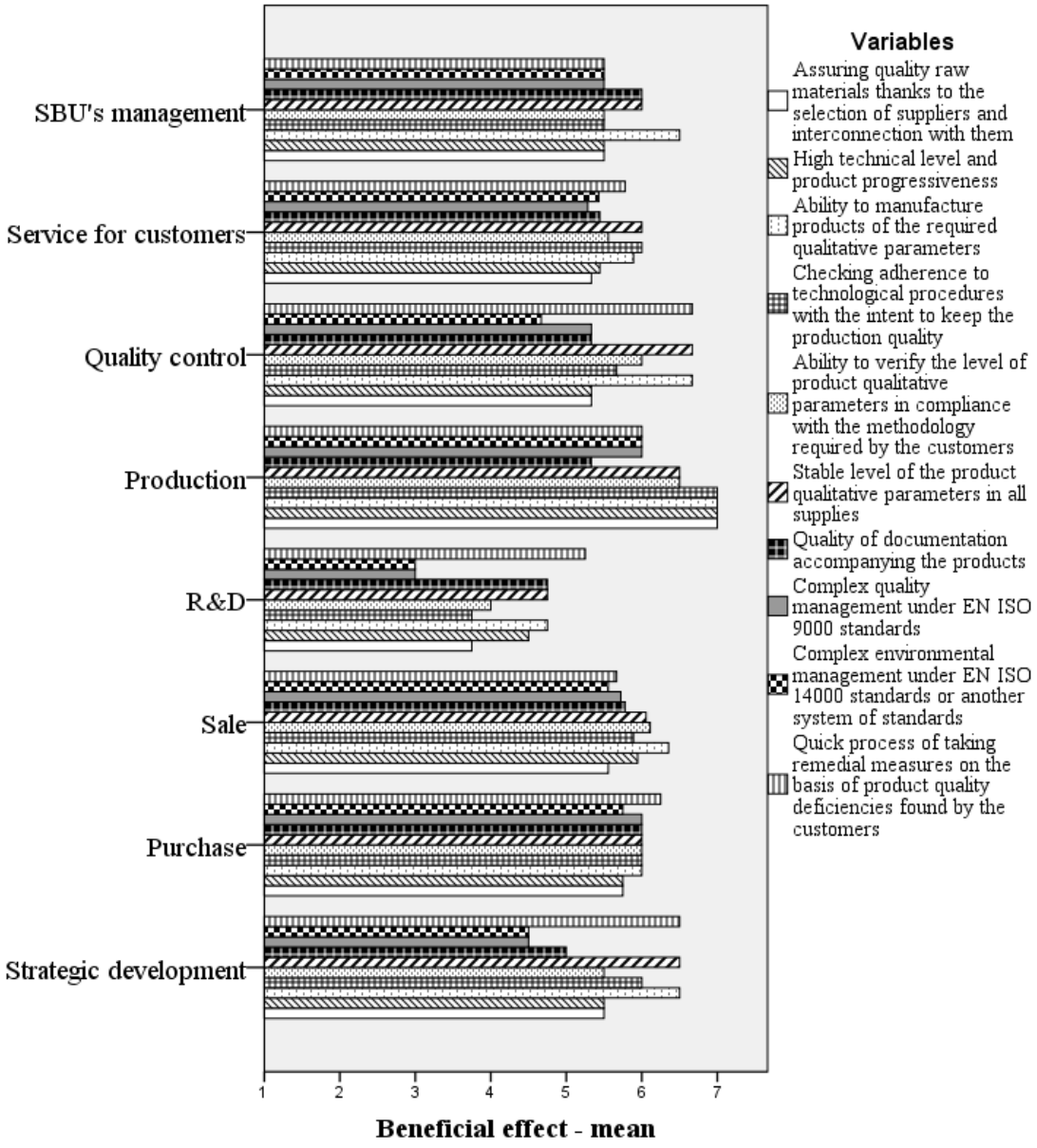

Fig. 2 Average perceived beneficial effect of product quality assurance by managers of different units

The perceived average beneficial effect does not vary among the managers of the respective researched SBU's and from different management levels, but they differ among the managers working in different units, which mainly concerns the perceived beneficial effect of verification of the level of product qualitative parameters in compliance with the methodology required by the customers and application of complex quality management, environmental management and safety under the applicable standards. Certain scepticism towards the beneficial effect of these parts of quality management for SRC was noticed mainly in the departments of strategic development and research and development, particularly due to the excessive bureaucratization of these processes (see Table XII, Fig. 2 and Table XIII).

Table XIII ANOVA table and testing of the differences in perception of average beneficial effect of product quality assurance by the managers of the respective units

Characteristics		Sum of Squares	df	Mean Square	*F*	Sig.
Assuring quality raw materials thanks to the selection of suppliers and interconnection with them Unit	Between Groups	17.03	7	2.432	1.07	0.401
	Within Groups	81.61	36	2.267		
	Total	98.64	43			
High technical level and product progressiveness Unit	Between Groups	11.3	7	1.615	1.2	0.33
	Within Groups	48.58	36	1.35		
	Total	59.89	43			
Ability to manufacture products of the required qualitative parameters Unit	Between Groups	11.98	7	1.711	1.53	0.19
	Within Groups	39.19	35	1.12		
	Total	51.16	42			
Checking adherence to technological procedures with the intent to keep the production quality Unit	Between Groups	20.56	7	2.937	1.77	0.124
	Within Groups	59.69	36	1.658		
	Total	80.25	43			

Table XIII – Continued

Characteristics		Sum of Squares	df	Mean Square	*F*	Sig.
Ability to verify the level of product qualitative parameters in compliance with the methodology required by the customers Unit	Between Groups	16.75	7	2.393	2.57	0.03
	Within Groups	33.5	36	0.931		
	Total	50.25	43			
Stable level of the product qualitative parameters in all supplies Unit	Between Groups	8.639	7	1.234	0.94	0.49
	Within Groups	47.36	36	1.316		
	Total	56	43			
Quality of documentation accompanying the products Unit	Between Groups	5.694	7	0.813	0.61	0.745
	Within Groups	49.42	37	1.336		
	Total	55.11	44			
Complex quality management under EN ISO 9000 standards Unit	Between Groups	29.06	7	4.152	3.25	0
	Within Groups	44.71	35	1.277		
	Total	73.77	42			
Complex environmental management under EN ISO 14000 standards or another system of standards Unit	Between Groups	27.1	7	3.871	3.04	0.01
	Within Groups	44.58	35	1.274		
	Total	71.67	42			
Quick process of taking remedial measures on the basis of product quality deficiencies found by the customers Unit	Between Groups	5.856	7	0.837	0.66	0.702
	Within Groups	46.72	37	1.263		
	Total	52.58	44			

Source: Self processing

Table XIV Average perceived beneficial effect of a wide range of services

Components of a complex solution to the customers' problem - a wide range of services	*N*	Beneficial Effect Mean	Std. Deviation
Professional counselling in solving technological problems at the customer	44	5.8	1.1
Ensuring and implementing safe product transport in compliance with the regulations	44	5.6	1.3
Complete arrangement of the product utilization (comprehensively approached application service at the customer before, during and after the sale)	44	5.6	1.2
Completing the product delivery in one complete consignment in accordance with the customers' requirements	45	5.5	1.2
Checking and testing the existing products for different ways of their use at the customer	44	5.4	1.1
Arranging customs clearance	41	5.4	1.6
Mapping the conditions and technology of utilization or consumption of the supplied product at the product purchaser	44	5.3	1.3
Arranging export licences	41	5.2	1.6
Assistance directly at the customer's place in consumption or use of the supplied product in the form of drawing up technological procedures of its use	44	5	1.5
Execution of some technological operations related to the use of the product directly during product processing at the customer, done by supplier instead of the customer	43	4.9	1.6
Valid *N* (listwise)	38		

Source: Self processing

Average Beneficial Effect of a Sufficient Range of Services for SRC

The services the company provides its customers with, all the activities it ensures for the customers' satisfaction, can become a strong weapon in the competition on the market with chemical products. The customers do not always choose suppliers who deliver the cheapest product, this choice may often mainly depend on the range and comprehensiveness of the services the company is able to provide. That is why a sufficient range of provided services is subject to the next thematic area of the evaluated attributes.

Table XV Average perceived beneficial effect of a sufficient range of services by managers of different SBU's

Components of a complex solution to the customers' problem – a sufficient range of services	SBU (manufactured product line)			
	IE	PD	OS	NI
Complete arrangement of the product utilization (comprehensively approached application service at the customer before, during and after the sale)	6.1	5.1	5.8	5.7
Checking and testing the existing products for different ways of their use at the customer	5.6	5.3	5	5.6
Professional counselling in solving technological problems at the customer	5.8	5.8	5.5	5.9
Mapping the conditions and technology of utilization or consumption of the supplied product at the product purchaser	5.5	5	5.5	5.3
Completing the product delivery in one complete consignment in accordance with the customers' requirements	6.2	4.9	5.5	5.2
Ensuring and implementing safe product transport in compliance with the regulations	5.8	5.1	5.5	5.9
Arranging export licences	5.8	4.4	4.8	5.6
Arranging customs clearance	5.8	4.4	5	6
Assistance directly at the customer's place in consumption or use of the supplied product in the form of drawing up technological procedures of its use	5.5	4.5	5.3	4.8
Execution of some technological operations related to the use of the product directly during product processing at the customer, done by supplier instead of the customer	5.6	4.1	5.5	4.7

Note: IE – Industrial Explosives; PD – Pigments and Dyes; OS – Organic Semi-Finished Products and Specialities; NI – Nitrocellulose
Source: Self processing

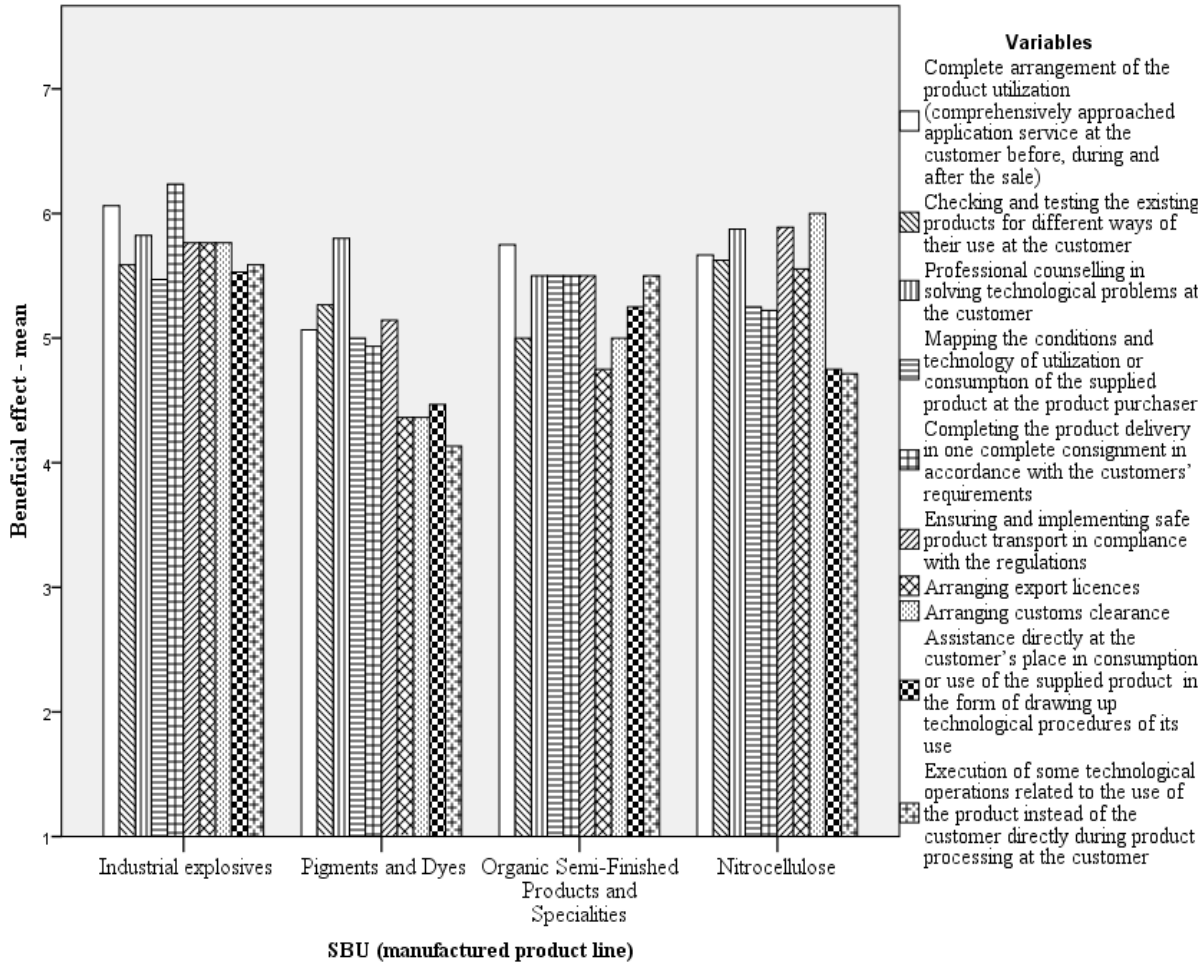

Fig. 3 Average perceived beneficial effect of a sufficient range of services by managers of different SBU's

The managers of the researched chemical branches of business affirmed the hypothesis of high beneficial effect of provision of comprehensively approached customer services (see Table XIV).

What the questioned managers consider as highly beneficial for SRC is professional counselling in the process of solving technological problems at the customer before the products are delivered and used, completing product supplies in one complete consignment in accordance with the customer's requirements, arrangement and implementation of safe product transport in compliance with the regulations, complete arrangement of the product utilization (comprehensively approached application service at the customer), other services are perceived by the managers as rather beneficial for SRC.

However, a detailed analysis showed that perception of beneficial effects of differently approached services for SRC differs among the managers of different SBU's (see Table XV, Fig. 3 and Table XVI).

Comprehensively approached customer services are considered as most beneficial for SRC by the managers of SBU Industrial Explosives, where it is very

useful to provide the customers mainly with the application service and execution of some technological operations related to the product use directly in the process of using explosives at the customer's place, done by supplier insted of the customer (see Table XVI). In particular, they include pursuance of exploratory

Table XVI ANOVA table and testing the difference in perception of average beneficial effect of a sufficient range of services by managers of the respective SBU's

Characteristics		Sum of Squares	df	Mean Square	*F*	Sig.
Complete arrangement of the product utilization (comprehensively approached application service at the customer before, during and after the sale) SBU	Between Groups	7.811	3	2.604	1.91	0.1
	Within Groups	54.62	40	1.366		
	Total	62.43	43			
Checking and testing the existing products for different ways of their use at the customer SBU	Between Groups	1.869	3	0.623	0.53	0.7
	Within Groups	46.93	40	1.173		
	Total	48.8	43			
Professional counselling in solving technological problems at the customer SBU	Between Groups	0.414	3	0.138	0.11	1
	Within Groups	48.75	40	1.219		
	Total	49.16	43			
Mapping the conditions and technology of utilization or consumption of the supplied product at the product purchaser SBU	Between Groups	1.992	3	0.664	0.41	0.7
	Within Groups	64.74	40	1.618		
	Total	66.73	43			
Completing the product delivery in one complete consignment in accordance with the customers requirements SBU	Between Groups	14.65	3	4.884	4.5	0
	Within Groups	44.55	41	1.087		
	Total	59.2	44			

Table XVI – Continued

Characteristics		Sum of Squares	df	Mean Square	*F*	Sig.
Ensuring and implementing safe product transport in compliance with the regulations SBU	Between Groups	4.133	3	1.378	0.83	0.5
	Within Groups	66.66	40	1.667		
	Total	70.8	43			
Arranging export licences SBU	Between Groups	14.98	3	4.995	2.09	0.1
	Within Groups	88.58	37	2.394		
	Total	103.561	40			
Arranging customs clearance SBU	Between Groups	17.91	3	5.969	2.52	0
	Within Groups	87.6	37	2.368		
	Total	105.5	40			
Assistance directly at the customer's place in consumption or use of the supplied product in the form of drawing up technological procedures of its use SBU	Between Groups	9.781	3	3.26	1.59	0.2
	Within Groups	82.22	40	2.055		
	Total	92	43			
Execution of some technological operations related to the use of the product instead of the customer directly during product processing at the customer SBU	Between Groups	18.51	3	6.17	2.93	0
	Within Groups	82.28	39	2.11		
	Total	100.8	42			

Source: Self processing

wells discovering the size of deposits, preparation and adjustment of an explosive directly in the location of blasting, placement and setting off of explosives, ensuring removal of the blasted rock at the customer for its next processing using

the producer's vehicles, adjustment of the terrain after blasting, to the explosive supplier's participation in restoration of the countryside after mining. In this case, it is very beneficial to complete the product supplies in one complete consignment in accordance with the customers' requirements.

Conclusion

The straegy of a complex solution to the customers' problem through a "turnkey" product delivery requires provision of a complete range of products of high quality together with a wide range of pre-sale, sale and after-sale services provided in the way that the customer's need is completely satisfied from one source — from one supplier and in accordance with the customer's ideas, quickly, reliably and effectively. For this strategy, it is important that the supplier's company has a high innovative and marketing ability, modern technical background and market-oriented corporate culture on the basis on integrated CRM and SRM.

As our quantitative marketing survey among managers of the selected chemical branches of business, directly involved in creation of the superior customer value and creating the internal corporate value network and working in various company units (management of business areas, strategic development, research and development, marketing and sales, production, purchase, customer services, quality management) and on different management levels, showed that these managers concur in the fact that in the present hard market conditions the strategy of a complex solution to the customers' problem is highly beneficial for SRC and for achieving their loyalty.

Application of this strategy requires offering a wide range of products making it possible to use the products in different conditions at the customer, the ability to develop special types of products in accordance with the customer's requirements, offering packages adapted to the requirements and technology of utilization or processing at the customers, and delivery of products together with complementary products, which are necessary for utilization of the products at the customers. What is also typical for market success in this branch of business is, according to the managers in chemical branches of business, the swiftness of changes in the range of manufactured products in the case of a change in the customer's requirements.

An essential part of a complex offer in accordance with the customers' needs and requirements is, in the case of chemical products, their high quality. The managers of the researched branches of business have concurred in the fact that what is particularly beneficial in product quality management is the ability to manufacture products of the required quality parameters, ensuring a stable level of the product qualitative parameters in all supplies, thorough checks of observance of technological procedures, ensuring a quick process of taking

remedial measures on the basis of the found product quality deficiencies, the ability to verify the product qualitative parameters in compliance with the methodology given by the customers, and a high product technical level and progressiveness.

For co-creation of the superior customer value, which brings the customers a complex solution to their problem, it is essential that the customers are provided with a complete set of services, consisting in complete provision of product utilization, i.e., mapping conditions and technologies of utilization or consumption of the supplied product at the product purchasers, checking, testing and adapting the existing and modified products for various ways of use by individual customers, professional counselling when solving technological problems at the customers within product utilization or processing, completing product deliveries in one complete consignment in accordance with the customer's requirements, arranging and implementing safe product transport in compliance with the regulations, assistance directly at the customer's place in consumption or utilization of the supplied product in the form of drawing up technological procedures of its use or pursuing some technological operations relating to the product utilization directly in product processing at the customer, done by supplier instead of the customer.

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