

INDUSTRIAL MARKETING 4.0 - UPGRADING THE INDUSTRIAL COSTUMERS' PATH TO THE DIGITAL ECONOMY

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Abstract: Digital economy pretends new ways of interaction between suppliers and customers in industrial marketing. Technical and commercial communication on industrial semi-finished goods' distribution market in Southeastern Europe is still highly based on sales forces, which are overloaded and this fact drives to decreasing efficiency. The objectives of this paper are to identify the causes of this overloading and to develop complex communication solutions to increase efficiency. Qualitative and quantitative research methods: over 500 hours of on-site observation, in-depth professional interviews and two round of survey in four countries. The main result of this paper is a customized model (but also limited to this field) of communication (industrial customers' path with 5 stages: aware, appeal, ask, act and advocate) with digital and conventional support for sellers, including marketing tools, channels or touchpoints.

Key words: management of marketing, industrial marketing 4.0., industrial costumer path, digital economy, distribution management.

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Introduction

Industrial marketing is considered to have some delays adapting to the digital economy (Brodie, Winklhofer, Coviello, and Johnston 2007). This marketing field presents some peculiarities, among which the importance of sales forces and their overloading (Székely, Cioca, and Benedek, 2019) is a key issue for our paper. In industrial (or business-to-business) marketing there is a relative long process when a company becomes costumer, starting from the moment when it first receives information about a product or a company (Aware), through getting attracted (Appeal), acquiring information (Ask), first buying (Act) and eventually becoming a partner or supporter of the supplier company (Advocate) (Kotler, Kartajaya, and Setiawan, 2017). One of the most important research fields in industrial marketing is the complex analysis the organizational buying behavior (Backhaus, Lügger, and Koch, 2010) of the customer company, the technical and commercial

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communication, the need for high quality customer service (Kadlubek, and Grabara, 2015), and the interaction between customers and suppliers. Metal distribution firms have to focus on “helping customer companies to obtain profit by reducing acquisition (logistics, operational) costs”. (Székely, Cioca, and Benedek, 2018; Lis and Szczepanska-Woszczyna, 2015)

Industrial marketing, in general, and industrial (non-ferrous: aluminum, copper and other) semi-finished goods’ distribution market, in special, still highly depends on the activity and efficiency of sales forces (Liu, Comer, 2007; Izvercian, Radu, Ivascu, and Ardelean, 2013; Zimmerman, 2013), including: sales engineers, front and back office, sales representatives, etc. In this market it has become symptomatic that sales forces are overburdened by the large number of low added value, repetitive, informative tasks coming from low potential customers. This usually leads to a decreasing efficiency of their activities and ultimately to a general decline of the commercial potential of the company. Industry 4.0 offers the opportunity to develop new business models. Studies show readiness in enterprises, but also barriers in implementation of Industry 4.0 tools (Cioca, Cioca, and Duta, 2011; Ślusarczyk et al., 2020; Saniuk et al., 2020; Gajdzik et al., 2020).

Evolution of marketing communication models (in industrial marketing)

The theory of marketing communication recognizes many complex communication models, among them we can mention the AIDA model (attention, interest, desire and action) implemented for the first time by a pioneer of advertising and sales, St. Elmo Lewis (Kotler, et al., 2017). This model was gradually developed as the economic, marketing and social environment changed. Besides this model the marketing literature mentions a few other important communication models, such as the one developed by Nicosia (Jozsa, Rekettye, Piskoti, and Veres, 2005), Laswell (1948) and others. Recent researches emphasized on the importance of branding (Lynch, and Chernatony, 2007) and personal selling in business-to-business marketing (Moncrief, and Marshall, 2005). Most of these works focus on the business-to-consumer relations, business-to-business or industrial marketing was neglected for a long time in this field.

In industrial marketing two main approaches were confronted in the last 3 decades. The first was the classical marketing mix approach, combined with STP strategies (segmentation, targeting and positioning), even if in the classical “4Ps” product and price are replaced by offer policy (Sharma, Krishman, and Grewal, 2001). Later another main approach was promoted by many researchers, especially from the IMP Group (Ford, 2003). In Grönroos’ opinion, this change can be considered a paradigm shift (Grönroos, 1994). In industrial marketing theory two main types of approaches regarding communication models were identified. The first type includes concepts and tools imported and adapted from business-to-consumer marketing. The second type includes concepts and tools specially developed for

B2B or industrial marketing. In a communication model adapted to B2B markets (Gilliland, and Johnston, 1997), the “buy task involvement represents the degree to which individual members of the buying center feel personal (involvement) with each purchase decision”. The involvement is based on relevance factors: personal, situational, opportunity to process and ability to process. Kotler and his associates (2017) presented a new model of marketing communication, adapted to the new realities of digital society in a work with a suggestive title: Marketing 4.0. Moving from Traditional to Digital. One of the key concepts of this work is the path the consumers follow from receiving the first information about the company, product or brand until they become an advocate of them. Our research is focusing on those elements of this model which are specific for the industrial marketing in the era of Industry 4.0.: the features of sales forces (sales engineers) in relations with industrial buying-centers and their preferred communication methods and channels in a highly digitalized environment. This model is customized to the distribution market of the industrial semi-finished goods.

One of the key problems observed in industrial distribution is the decrease of efficiency while increasing effort of sales forces (Wilson 1993; Guenz, Georges, and Pardo, 2009). This observation drove us to Hypothesis1 - The increase of the number of transactions by sales teams on semi-finished industrial goods distribution market leads to the decrease of average added value per transaction. Beside the efficiency of transactions, another issue observed is the different buying and information gathering behavior of firms (Wengler, Ehret, and Saab, 2007; Liu, and Comer, 2007). This observation lead to the Hypothesis H2 - The preferred method used by industrial customers to gather information depends on the size of the firm.

The objectives of the research

The research is focusing on the following issues:

- industrial marketing communication: channels, the role of sales forces, digital and conventional tools in communication;
- distribution processes, digital tools used in selling;
- the connection between communication and distribution, focusing on the special role of the sales forces as part of both promotion (communication) and place (distribution) mix;
- the evolution of the efficiency of transactions, the correlation between the number of transactions by sales teams and the evolution of the average added value per transaction on the semi-finished industrial goods distribution market;
- the organizational buying behavior, understanding the factors which influence the information gathering of customer firms, among them the firms' size and the field of their activity.

In this order a deep analyses was made of those points, where the efficiency of marketing communication and distribution processes can be increased, through online marketing, conventional and digital tools and innovative organization.

Quantitative and qualitative industrial marketing research methods

The distribution market of semi-finished industrial goods (as a subdomain of the industrial marketing) in South-East Europe is a small segment, we can even call it a niche, with a reduced number of key participants. There are about 8-12 key firms (that can influence the market) in Romania and their number is even smaller in Hungary, Bulgaria, Serbia and in the other former Yugoslavian countries. This is why qualitative research methods were used with predilection, mostly participant observation and in-depth semi-structured interviews with professionals having a long experience in this field. This approach is also sustained by the objectives of the research, which include the identification of problems leading to the overload of sales forces which explains the decrease of their efficiency, and also the development of a complex technical and commercial communication solution.

For a period of over 3 years (2016-2019) combined forms of qualitative and quantitative research methods were used, including: statistical analyses of private and public sales database, on-site observations (at exhibitions, in office and at meetings with customers) of sales teams, in-depth semi-structured professional interviews, analyses of digital communication and questionnaire research among sales teams and buying centers.

Two types of surveys were carried out for this project: one for the sales and another for the buying professionals. The questionnaire with the sales representatives had 20 questions and it was completed by 22 salesperson who are activating in non-ferrous semi-finished industrial goods distribution in Romania, Serbia, Hungary and Bulgaria. The survey with the representatives of the buyers had 8 questions and it was completed by over 110 representatives of industrial companies (automotive, metalworking, aeronautics, food industry equipment production etc.). The surveys were conducted in 2019.

In our analysis qualitative (in-depth interviews and on-site observations) and quantitative methods (surveys and secondary data analysis) were combined. The methods for statistical analysis were chosen in order to identify the trends in the market but also to help developing more efficient communication methods and models. Quantitative data have been analyzed using basic descriptive statistics (cross-table analysis, t-test, ANOVA) and OLS regression.

Hypothesis 1 was tested using an OLS regression model as shown in Figure 1, where axis X represents the number of transactions, and Y the average added value.

Hypothesis was confirmed by the results: the number of transactions and the average added value are strongly correlated and inversely proportional (coefficient

of correlation: -0,849). The determination coefficient (R^2) is high, the number of transactions explains more than 72% of the variance of the added value.

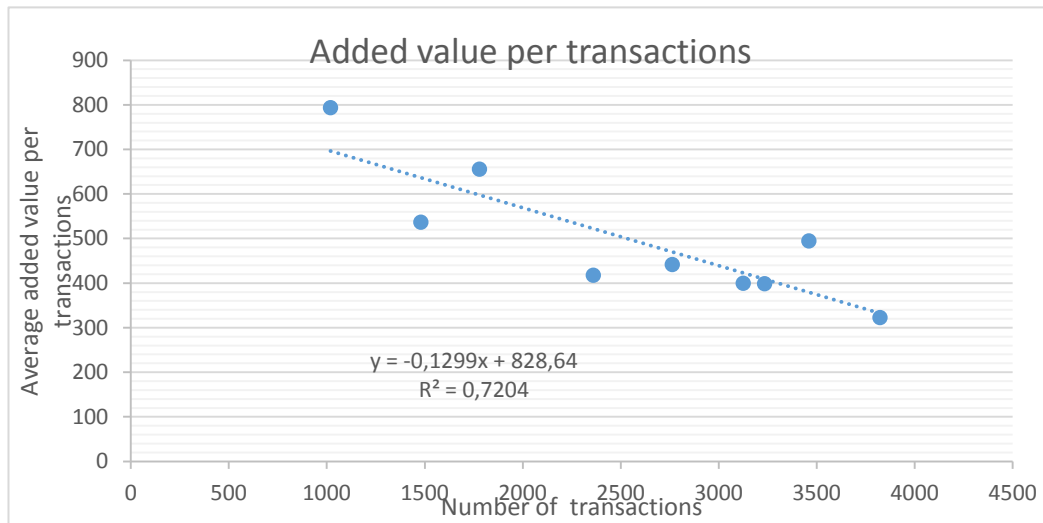


Figure 1: Scatterplot: Added value of transactions reported to the number of transactions

Hypothesis H2 was tested with contingency table, which shows a significant association between the preferred information channel and the size of the firm (expressed by the number of employees).

Table 1. Preferred information channels by the size of the firm (%)

	directly from sales forces	digital channels
micro-sized firms	58.1	41.9
other firms	38.8	61.2

58,1% of the micro-sized firms (with 0-9 employees) prefer personal information from sales representatives compared to larger firms which rather opt for other, more impersonal methods of information gathering (only 38,8% mentioned a preference for direct sellers). This difference is significant at a 0,07 level. (Chi-Square: 2.842).

Qualitative methods were also used in order to obtain a more nuanced image of the trends on this market segment we carried out on-site participant observations and in-depth semi-structured interviews. The in-depth interview is a research tool with open questions conducted by a highly qualified professional in order to explore the methods, motivations, opinions, attitudes and feelings of the subjects about a certain issue (Malhotra, 2009). For our paper it is important to identify and develop tools, methods and models to improve the technical and commercial communication in industrial marketing 4.0. This method, combined with on-site observation of sales teams leads us to a deeper understanding of these processes of communication and distribution.

A number of 12 in-depth interviews were conducted with renowned professionals on the distribution market of non-ferrous semi-finished industrial goods in South Eastern Europe (Bulgaria, Hungary, Romania, and Serbia). 6 of them are area sales representatives, other 6 are sales or export managers. The interviews were conducted mostly face-to-face. One interview lasted around 20-45 minutes, some of them were interrupted by daily work tasks and urgent calls and were restarted later or the next day. The discussed issues covered especially: details of sales and communication processes on that field, market trends, interactions between sales and buyer teams, digital transition of industrial marketing and the role of sales forces in industrial marketing 4.0.

Also a campaign of over 500 hours of observations from 2017 to 2019 was realized. On-site observation is distinguished from other observation research methods by the fact the it is not only a method of collecting data, but many times it is also a method of developing a new theory or model. (Babbie, 2015; Ivascu, and Cioca, 2019). On-site observations took place at industrial exhibitions and fairs, in the offices of sales teams' offices and at meetings with customers. The observations at the exhibitions (12 events, among them Metalshow Bucharest, Demo Metal Arad, Demo Metal Brasov, B2B Industry Meeting Timisoara and Sibiu, etc.) where participative observations, meaning we were directly interacting with (potential) customers on behalf of distribution teams. In the other cases (at offices or meetings in four cities: Bucharest, Timisoara, Odorheiu-Secuiesc, Miercurea-Ciuc) observations were conducted mostly without participation, only by watching, listening, sometimes using gadgets, taking digital notes and later addressing clarifying questions about some important aspects. The activity of 30 sales representatives was observed: sales managers, export managers, technical and commercial call-center staff, sales back offices staff from Romanian, Serbian, Hungarian and Bulgarian markets. This amount of time was not divided equally among the 30 subjects. Some of them were observed more than 50 hours, while others only for 2-3 hours. On-site observations focused mostly – but not exclusively – on the following issues: methods and direction of contacting partners (who initiated the contact: the salesmen or the customers); is there any difference

between a first contact or a contact with an active customer; the time dedicated to discussion and, if possible, the time dedicated to solve the requests; use of equipment and tools; number of sales representatives participating in transactions; the style and approach of the salesman; types of services offered – requested (introductory informing, technical or commercial description, price offer request, technical and price offer, solving logistics problems etc.); the rhythm and intensity of interactions; the time and energy dedicated to the transactions with different volume and value; the communication, negotiation and sales processes.

Trends in technical and commercial communication in industrial markets of (non-ferrous) semi-finished goods distribution

Based on the qualitative research methods a deeper understanding of the trends on this market segment was obtained. Despite the digitalization of communication and the transition to Industry 4.0, sales forces remain the key element of communication and distribution processes on the distribution market of industrial semi-finished goods. Sales forces use many digital tools, but in most of the cases, these are not combined in a coordinated and synergetic way. Sales forces are overloaded with repetitive technical and commercial communication tasks with low added value. This overburden makes difficult the optimal serving of important customers and so, contributes to the decrease of efficiency in the commercial process. The detailed causes could be time crises and extra pressure while executing different tasks. The high majority of sales representatives (on-field and back office) have too many technical (about alloys, products usage, certificates etc.) and commercial information (existing stocks, price lists, delivery conditions, orders etc.) requests. Also they have to offer solutions for special requests, and solve mistakes in distribution processes. The South-East European market of semi-finished industrial goods is a very heterogeneous market, which pretends customized approach for different segments. Similar researches emphasizes on the increasing role of service-centers and distributors. (Stefko, Slusarczyk, Kot, and Kolmasiak, 2011). The most important expectations of buyer teams are: quickness, complete logistical solutions even in case of low volume orders, quick deliveries to customers' warehouse, on-time delivery, optimal protection of merchandise (especially in the case of cut-to-size aluminum and copper products), precise information about the features of the products (mechanical, chemical, electrical).

There are important differences regarding the stage of transition to digital business, while some company uses fax and phone-calls, others already use digital platforms, big data or artificial intelligence.

Discussions

Previous researches also presented similar trends: supplier pyramids become supplier networks, beside outsourcing the insourcing is also increasing, financing becomes more and more difficult for suppliers, business models' differentiations is

increasing, e-business is increasing, from euphoria to efficient implementation, the role of partnerships increases instead of company acquisition (Varadarajan, and Yadav, 2009; Ivascu, Cirjaliu, and Draghici, 2015). Personal relations between a seller and a buyer are many times more important than the relations between the two companies they represent. Many times if a seller transfers to another supplier, the buyer will keep the business relations with him/her. Focusing on loyal customers, including key accounts, provides more satisfaction and higher efficiency of sales forces' activity.

The process of transforming a prospect into a customer can vary from one week (10% of the cases), to one (43%), six (33%) or even more than six months.

Commercial branding and references have a very strong positive effect on the potential success of contacting a prospect in the opinion of sales representatives.

The most popular sales arguments refer to four categories: products and services (large variety, on stock products, cut-to-size services, anodizing, special products, certificates); prices and financial terms (discounts, commercial credit); delivery conditions (free delivery, on-time delivery); but also partnership (long term collaboration, consultancy, information and friendly communication).

Customers use multiple channels for gathering information about products.

Sales and marketing teams use a combination of a large number of communicational channels and methods, including: digital and paperback product catalogues; brand and product advertising on outdoor boards and professional magazines; presence on social media (LinkedIn, Facebook and others); participation to exhibitions, fairs and technical PR events (Székely S., Cioca L.I., Benedek A., and Simó I., 2018); CSR and sponsorship; collaboration with technical influencers, like university teachers or researchers; digital promotion campaigns, including re-marketing; detailed technical and e-commerce web pages, with search engine optimization based on technical content (Rowley, 2008); technical calculus apps; technical and commercial call-center; customized and automated newsletter; EDI, ERP, CRM systems and partnerships with professional networks (Wengler, Ehret, and Saab, 2007).

The increase of the volume of activity doesn't mean an increase of efficiency at the same rate. The value of transactions may largely vary from case to case, from less than 100 euros to over hundred thousands of euros. Pareto's principle is valid on this market segment as well, a small percentage (around 17%) of customers provides the most part (over 80%) of the turnover. Even if suppliers use higher margins in case of smaller orders, in many cases those transactions provide very little profit because of the extra related costs.

Technical and commercial communication with major customers (key accounts) is a process based on both personal interaction and digital informational support. In many cases, if transactions become partnership (Anderson, Hakansson, and Johansson, 1994), by mutual understanding of needs and working style and

implementing CRM (customer relationship management) or EDI (electronic data interchange) systems, the processes can become more fluid and efficient.

Buyers are not comfortable with phone calls or personal visits when contacted by sales forces, they prefer direct mailing. However, when they look for certain technical and commercial information, they become more proactive in searching. In these situations, they expect rapid reactions, even if negative. They wait for the precise information, exactly on the requested subject or type of product, and they are usually reluctant to accept larger amounts of general information.

Even if acquisition managers or buyers are the contact persons in most of the partnerships or transactions, the decision of selecting a supplier and accepting commercial conditions are discussed in teams, within the so-called Buying Centers or Decision Making Units. A buying center includes project engineers, plant managers, accountants, finance experts and even lawyers and members of top management. In order to establish a successful mutual long term partnership, sales forces must communicate with every members of the buying center and this communication needs to be customized.

Developing industrial customers' path and adapting it to the distribution market of industrial semi-finished non-ferrous goods

The findings of our qualitative and quantitative research presented in earlier chapters were used to develop a general model of technical and commercial communication and interaction between sales and buyer teams. Kotler and his associates (2017) proposed a general model of customers' path valid for all marketing domains, mostly for business-to-customer relations. Our main intent was to adapt Kotler's model to the new realities of the distribution market of industrial non-ferrous semi-finished goods. This new model analyses touch points, channels, communication methods and behaviors of both sales teams and industrial customers, including the contact between those two categories through the path of costumers. A company becomes an industrial customer by going through the following steps: Aware (to know about a product or distributor), Appeal (to feel attracted), ask (to search for a product information), Act (to order, to ask for price offer), Advocate (to become "the lawyer of the supplier" or a fan of it).

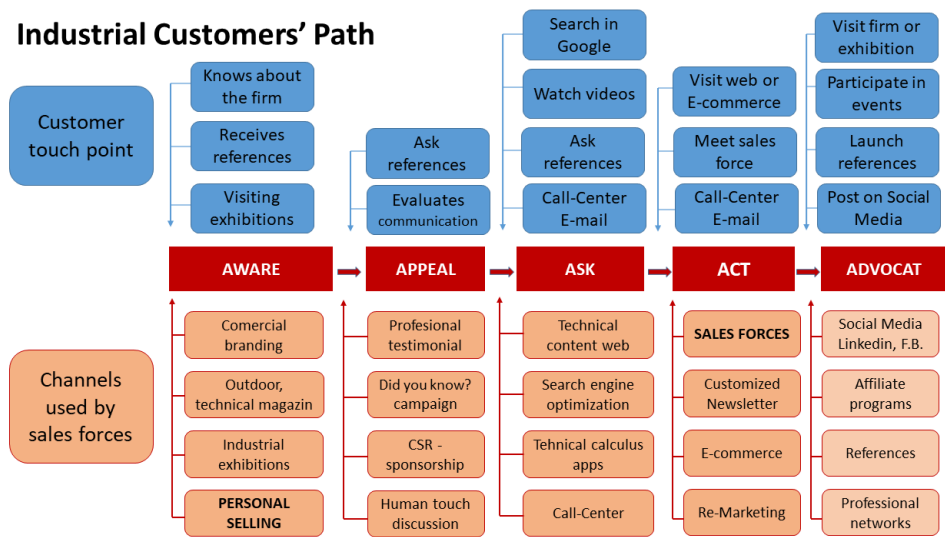


Figure 2: Customers' path in industrial marketing 4.0., customized for the distribution market of semi-finished industrial goods

The central axis highlighted in red represents the customers' path in industrial marketing 4.0. (Kotler et al., 2017). Starting from this framework and using the qualitative and quantitative finding of our research the whole process was customized to that specific market segment. The elements in blue describe the behavior and actions of industrial customers in different stages of customers' path. The brown elements describe the actions of distribution companies, including sales forces and marketing teams. The light brown elements represent the actions, channels of "the company's" advocates", meaning those customers who went through the whole customers' path and became supporters of the company, because their high level of satisfaction. Other researchers suggested that the relations of customers with a brand is developed also by word of mouth (Chankoson, and Thabhiranrak, 2019). In our case, network of professionals (engineers, professors) are important. These elements of the channel are no longer under direct control of the company, but still, can be very credible and efficient. Each stage has its own dominant channel and tools, which could appear in different proportion in other stages, too.

The applying of the customized model should be the goal of research and innovation process. A previous commercial branding and references from third party specialists are a good foundation for launching interactions with customers. Sales forces need to "keep open the communication channels", especially in stage three "ASK" (for information). In this stage costumers are becoming conscious

about their need for information or even products and start to rapidly search for it. In this stage a technical content marketing could be very efficient if addresses well defined market segments or niches. Also, companies can use search engine optimized web pages, well prepared and customer friendly (technical and commercial) call-centers.

The fourth stage, "ACT", is considered by many the most important, at least from the point of view of signing contracts and receiving orders. Sales forces again prove their importance by making things happen, but they need special backup, such as: customized newsletter for niches or even individual companies, re-marketing (online customized advertising based on previous researches in Google or other search engines linked to the IP address of the potential consumer or "cookies"). Also e-commerce pages are recommended, at least for standard products and services, which don't require detailed negotiations. Regarding the above presented paradigm conflict, stage four can be considered the transaction type interaction. Business-to-business companies work to transform punctual transactions to marketing relationships or key account, respectively in "advocate" (even if they buy rarely, they tend to be supporters of the company). In this order companies can also use other channels or tools, like CRM (consumer relationship management system).

Conclusions

Sales forces remain the key element in technical and commercial communication, but also in sales process. On present day market sales forces cannot activate without digital backup in order to increase efficiency and reduce overloading.

This model is a general one for industrial market, but adapted and customized to the distribution market of industrial semi-finished products'. Digital and conventional industrial marketing management methods and tools must be combined in a synergetic way, offering a seamless experience for customers. The industrial costumers' path (5A's) is a customized model of interaction, through which sales teams guide buyers from searching information to becoming a customer or even more, an advocate – promoter of the company and its products.

This customization is limited to the semi-finished industrial goods distribution market. On other industrial markets it is recommended that marketing managers apply further customization based on their market's peculiarities.

Every company should customize it even more, considering the specific market niche, the internal resources, business model and strategic plan. Every company should search for a special positioning, which can assure its long term development and profitability while satisfying the customers' needs.

One of the possible further research directions is to do a similar one on a larger geographical region or on other industrial marketing segments. Other direction could be a deeper case study of implementation of this model to one or more

specific company from this field or other similar industrial distribution field. A deeper analyses (using Google Analytics, Woorank, etc.) of online marketing tools applied related with this model can also offer insights for developing the model.

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MARKETING PRZEMYSŁOWY 4.0 - ULEPSZENIE ŚCIEŻKI KLIENTÓW PRZEMYSŁOWYCH DO GOSPODARKI CYFROWEJ

Streszczenie: Gospodarka cyfrowa udaje nowe sposoby interakcji między dostawcami a klientami w marketingu przemysłowym. Komunikacja techniczna i handlowa na rynku dystrybucji półproduktów przemysłowych w Europie Południowo-Wschodniej jest nadal w dużym stopniu oparta na przeciążonych siłach sprzedażowych, co prowadzi do spadku wydajności. Celem tego artykułu jest zidentyfikowanie przyczyn tego przeciążenia i opracowanie złożonych rozwiązań komunikacyjnych w celu zwiększenia wydajności. Jakościowe i ilościowe metody badawcze: ponad 500 godzin obserwacji na miejscu, pogłębione wywiady zawodowe i dwie rundy ankiet w czterech krajach. Głównym rezultatem tego artykułu jest zindywidualizowany model (ale również ograniczony do tej dziedziny) komunikacji (ścieżka klientów przemysłowych z 5 etapami: świadomy, apelujący, pytaj, działaj i adwokat) z cyfrowym i konwencjonalnym wsparciem dla sprzedawców, w tym narzędzi marketingowych, kanały lub punkty styku.

Słowa kluczowe: zarządzanie marketingiem, marketing przemysłowy 4.0., Ścieżka klienta przemysłowego, gospodarka cyfrowa, dystrybucja półproduktów przemysłowych, zarządzanie dystrybucją.

工业营销4.0-升级工业客户的数字经济之路

摘要: 数字经济假装了工业营销中供应商与客户之间互动的新方式。东南欧工业半成品分销市场上的技术和商业交流仍然高度依赖销售人员，而销售人员却超负荷工作，这一事实导致效率下降。本文的目的是确定这种过载的原因，并开发复杂的通信解决方案以提高效率。定性和定量研究方法：在四个国家进行了超过500个小时的现场观察，深入的专业访谈和两轮调查。本文的主要结果是一种定制的通信模型（但也限于该领域）（包括营销工具在内的数字和常规支持），以交流（工业客户的五个阶段的路径：知觉，呼吁，要求，行动和倡导）进行沟通。，渠道或接触点。

关键词: 营销管理，工业营销4.0，工业客户路径，数字经济，工业半成品分销，分销管理。