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GÁBOR HETÉNYI

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BUSINESS**

*Head of the Doctoral School: Prof. Dr. Péter Balogh university professor, DSc*

**THE CRITICAL POINTS AND SUCCESS FACTORS  
FOR SALES AND MARKETING INTEGRATION**

*Prepared by:*  
**GÁBOR HETÉNYI**

*Supervisor:*  
**PROF. DR. EDIT SZŰCS**  
university professor

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MARKETING INTEGRATION**

The aim of this dissertation is to obtain a doctoral (PhD) degree in the scientific field of  
„Management and Business”

Written by: Gábor Hetényi certified Business Administration

Supervisor: Prof. Dr. Edit Szűcs, university professor

**Doctoral final exam committee:**

|          | name  | academic degree |
|----------|-------|-----------------|
| Chair:   | ..... | .....           |
| Members: | ..... | .....           |
|          | ..... | .....           |

**Date of the doctoral final exam:**

**Reviewers of the Dissertation:**

| name, academic degree | signature |
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| .....                 | .....     |
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**Review committee:**

|            | name, academic degree | signature |
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## DECLARATION

I undersigned (name: Gábor Hetényi, date of birth: 09.01.1984) declare under penalty of perjury and certify with my signature that the dissertation I submitted in order to obtain doctoral (PhD) degree is entirely my own work.

Furthermore, I declare the following:

- I examined the Code of the Károly Ihrig Doctoral School of Management and Business Administration and I acknowledge the points laid down in the code as mandatory;
- I handled the technical literature sources used in my dissertation fairly and I conformed to the provisions and stipulations related to the dissertation;
- I indicated the original source of other authors' unpublished thoughts and data in the references section in a complete and correct way in consideration of the prevailing copyright protection rules;
- No dissertation which is fully or partly identical to the present dissertation was submitted to any other university or doctoral school for the purpose of obtaining a PhD degree.

Debrecen, .....

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## ABBREVIATION LIST

|            |   |   |
|------------|---|---|
| AVE        | - | average variance extracted                                |
| B2B        | - | Business-to-Business                                      |
| CB-SEM     | - | Covariance Based-Structural Equation Modelling            |
| CRM        | - | Customer Relations Management                             |
| e.g.       | - | exempli gratia; for example                               |
| etc.       | - | et cetera; and so forth                                   |
| EU         | - | European Union  |
| GoF        | - | Goodness of Fit   |
| H          | - | hypotheses  |
| IT         | - | information technology                                    |
| LDA        | - | latent Dirichlet allocation                               |
| LVPLS      | - | Latent Variable Partial Least Squares                     |
| LVPLSM     | - | Latent Variable Partial Least Squares Path Model          |
| NPMC       | - | non-pharmaceutical manufacturing companies                |
| PLS        | - | Partial Least Square                                      |
| PLS-PM     | - | Partial Least Square-Path Modelling                       |
| PMC        | - | pharmaceutical manufacturing companies                    |
| SE         | - | standard error  |
| SEM        | - | Structural Equation Modelling                             |
| SM         | - | sales and marketing                                       |
| S.M.A.R.T. | - | Specific, Measurable, Assignable, Realistic, Time-related |
| SMI        | - | sales-marketing interface                                 |
| tf-idf     | - | term frequency-inverse document frequency                 |
| t-SNE      | - | t-Distributed Stochastic Neighbour Embedding              |
| USA        | - | United States of America                                  |
| V          | - | variable  |

# 1. INTRODUCTION

We spend most of our lives working, which is why it is important to address the potentials of conflict in employment relationships and the means by which they can all be addressed. Marketing and sales departments play a central role within companies and can be considered almost the only revenue-generating business. Due to the importance of this, it is in the interest of all companies that these functional areas work together in optimally coordinated strategies and in a coordinated manner. Future-oriented strategic coordination of these departments is essential for successful business management. Maintaining the competitiveness of firms also requires a strong operational implementation through the creation of concrete functional and instrumental measures. There can be a number of interface problems between marketing and sales, the failure of which to be addressed by management can make the work of both areas counterproductive, which can consequently negatively affect the success of the company (Haase, 2006). The performance of marketing and sales departments is highly dependent on the other class — reciprocal interdependence (Dewsnap & Jobber, 2000) — which may involve a number of conflict potentials. This can be the existence of unclearly defined roles and responsibilities, or even the lack of information exchange, common corporate goal, culture (Piercy, 2002). According to Lamasheva (2004), two important elements for optimal integration are the definition of the common goals of the parties and the results to be achieved. According to Klumpp (2000), due to interdependence, the separation of tasks is essential for coordinated collaboration. Therefore, there is a need for organizational mechanisms on the part of corporate management, such as the coordination of regular information exchange, which allows for the necessary coordination between the two departments, thus having a positive effect on the effectiveness of their relationship (Dawes et al., 2001). While there is a regular exchange of information, activities and resources are allocated, thus providing an opportunity to increase and complement each other's capacity to achieve multiple benefits and goals. However, all of this requires trust, commitment, and fairness between the two classes (Bititci et al., 2004). Preserving competitiveness is one of the goals to be achieved by enterprises, where cooperation and competition, or their intertwining, cooperation as a tool must be present (Raab, 2010).

According to Hackman and Oldham (1976), employee commitment and satisfaction is determined by three critical psychological factors: (1) the meaning of work: the employee's sense of how important and relevant the work he or she does is, (2) the individual's sense of responsibility for the outcome of the work: that the result of his efforts depends on his productivity, (3) knowledge of the value and consequences of work: how he performed his tasks (Gelei, 2005:163). Research suggests that the interpretation attributed to work in this way

determines employee performance (Roberson, 1990; Shamir, 1991), and that the social environment in the workplace influences an individual's attitude and attitude to work (Salancik & Pfeffer, 1978). This draws attention to the fact that establishing a relationship that is mostly confrontational is an important issue not only for the employee but also for the employer. It is important for companies primarily to retain employees, increase their commitment and motivation (Roberson, 1990), which paves the way for long-term cooperation, thus helping companies to remain competitive.

Cooperation is one of the most important strategic tools for development, the inspirations behind which can be very heterogeneous (Blomqvist et al., 2005). Unequal resource allocation can lead to confrontations (Bakacsi, 2001), which has been articulated in the literature as an perceived conflict of interest (Smith et al., 2004). Due to the existence of different goals, which may arise from the structure of the organization, there is a rather emphatic and manageable area of conflict, according to which the marketing and sales department have different concepts and approaches, so they do not have a specific definition of competencies (Vahs, 2012; Brockhoff, 1989; Specht, 1995). While marketing has long-term, lasting and product-oriented ideas, sales have tendentious short-term and consumer-oriented ideas. These different perceptions then lead to the next state of whether the buyer or the product enjoys priority (Krafft, 1995).

Social identity and categorization, and the resulting distinction, are a very significant additional problem between the two classes that can be present as a psychic barrier, thereby inhibiting productive collaboration. In order to mitigate the negative effects of the resulting subcultures, it is necessary for the organizational units to get to know each other's working methods (Haase, 2006). According to literature data, the behavior of individuals is mostly regulated by subjective theories, subjective assumptions, and previously stored regulations. This can be developed through jointly organized corporate trainings and meetings, as well as job rotations (Dewsnap & Jobber, 2000). The absence of the above-mentioned factors and the resulting interaction deficit develop a sense of competition instead of a constructive and progressive cooperation, which can lead to confusion, thus negatively contributing to the company's failure and a sense of mistrust (Wolfrum, 1994; Wunderer, 1985).

The basic conditions for successful cooperation are the congruent common goal and the existence and proper communication of the designation of results (Lamasheva, 2004). This opens the door to a higher-order interaction that can create the conditions for dealing with joint tasks and uncertainties between the two departments (Miles et al., 2005), thereby directing the two parties to a more effective cooperation (Anderson et al., 1989; Pinto et al., 1993).

In the course of work, not only the obligation itself is decisive, but also the consequence of the system of conditions and its activity (Genis & Wallis, 2005). In terms of information conflict potentials, there is information exchange and communication between the two departments on the one hand, and the technical background required for this, on the other hand, arising from the Hard- and Software requirements (Wierum, 2001). In practice, the communication deficit can lead to marketing measures being implemented without taking sales information into account, and sales professionals are informed by customers about various promotions and activities within the company. Information exchange is particularly essential for strategic planning, especially in the early stages, where recognizing potential opportunities and threats is of paramount importance to the firm (Weber & Schäffer, 2000). A further communication gap may be caused by a lack of compatibility / lack of technical background for the flow of information between departments (Specht, 1995; Cespedes, 1994). There is also a spatial separation of the two departments due to the differences in the areas of work performed, as sales people are mostly on the road, with marketers mostly doing office work (Bauer, 2000). All this negatively affects communication, which can be reduced by regular telephone and video conferencing and standardized communication methods. This interdependence holds several conflict potentials, where a detailed functional division promotes competition rather than integration between the two classes (Wunderer, 1985).

All in all, the cooperation of the two departments is an important element of corporate life, and as long as there is an optimal level of integration, the business will have a good chance of staying competitive. The relationship between these two interrelated departments is neither collaborative, nor harmonious, which can be due to multiple different reasons. The assessment of these factors serves as the focal point for my research. Thus, my aim is to examine and analyse these potential conflicts as well as identify possible solutions that can have an essential role in the organisation.

## **2. TOPIC AND OBJECTIVE**

### **2.1. Importance of integrating marketing and sales**

A close and clear relationship between the sales and marketing (SM) departments, especially their leaders is extremely important in the strategic development of the firm (Strahle, Spiro & Acito, 1996; Ahsan, 2018). Since both SM have turnover-related tasks, there will be interactions and interdependencies between them. It is these dependencies that make the cooperation of the two departments so interesting and rather instable (Haase, 2006; Dewsnap & Jobber, 2002; Johnson, Matthes & Friend, 2017). As research evidence demonstrates, the relationship of SM departments is not smoothly integrated in most companies (Beverland, Steel & Dapiran, 2006; Homburg & Jensen, 2007; Madhani, 2015). There are a number of interface issues between sales and marketing (Kotler et al., 2006; Malshe, Friend, Al-Khatib, Al-Habib & Al-Torkistani, 2017b), which, if not resolved, will put the organisation at risk of making the work of both departments counterproductive and inefficient, thus negatively affecting the performance of the organisation (Haase, 2006; Moncrief, 2017).

Business activities are often characterised by optimisation - i.e. an attempt to achieve satisfaction - rather than maximisation. In order to accomplish this, it is essential that in the decision making process the manager is in the know about capacity and strategy, and has previous experiences to build on (Cornaggia et al., 2017). In the operation of an organisation, innovation has a key role, which means a constant alertness to meet and satisfy customer needs by providing services. SM departments are amongst the key elements of the general algorithm of the innovation process. Examining this process along the innovation chain makes it clear that the starting point (marketing) and the end point (sales) of the chain is the market per se. Thus, taking the most relevant measures is the responsibility of the SM departments (Keszey & Biemans, 2016). A smooth cooperation between these departments is largely affected by organisational and cultural corporate factors and it is crucial for the successful operation of the organisation - i.e. it serves as a foundation for a positive market response to the given product or service (Snyder et al., 2016).

In the business world, competition means monopolising value, whereas cooperation means a collective act of adding value (Snow, 2015). Lamasheva (2004) argues that the two elements that are essential for cooperation are common goals and clearly defined targets. Barger et al. (2015) stress the importance of trust between departments as well as dedication, fairness along with regular information exchange and a division of activities and resources in order to mutually enhance each other's capacities and maximise results. Staying competitive is one of the

objectives of all enterprises, where competition and cooperation need to go hand-in-hand (Snow, 2015).

The relationship of the two departments has various interface challenges and conflicts which can be due to unclear roles and responsibilities as well as the lack of information exchange, common corporate goals or corporate culture (Razmerita et al., 2016). Klumpp (2000) believes that the cooperation between the two departments requires a division of tasks and the coordination of all relevant organisational mechanisms such as regular information exchange, which, in turn, will boost the effectiveness of their relationship by creating a permanent dialogue (Harmon, 2019). Discrepancies between SM can also be due to differences in their ways of implementing the corporate strategy, as marketing tends to focus on long-term strategic goals, whereas sales typically use sales techniques that generate short-term profit (West et al., 2015).

Another possible source of conflict might arise from the fact that different nationality employees might embrace different preferences and priorities concerning cooperation. The question of nationality as an influencing factor of corporate efficiency and interdepartmental cooperation has been examined earlier in various contexts (Rosenauer et al., 2016).

Out of all the processes contributing to profitability in companies, a smooth cooperation between these two departments is key (Krush, Malsche, Al-Khatib, Al.Jomaih & Katoua, 2015). Thus, what management needs to do is build trust and efficient cooperation between these departments, relying on information and know-how from sales and incorporate it into strategic marketing decisions in order to promote product development and competitiveness.

## **2.2. Interfaces between marketing and sales**

The arising conflicts can be organisational (conflicting targets, incentives), personal (mindset, behavioral patterns) or informational (communication issues) (Cespedes, 1993, 1994; Specht, 1995, 2000; Egelhoff & Wolf, 2017; Rahim, 2017). Proper management of conflicts have a significant effect on the efficiency of pharmaceutical firms (Al-jawazneh, 2015). Conflicts are often a result of the different perspectives of SM departments. Sales departments tend to set monthly or quarterly targets, whereas marketing usually has more long-term visions with no short-term sales commitments (Krafft, 1995; Rouziès et al., 2005; Malshe, Johnson & Viio, 2017a). It is interesting to note that according to literature not all conflicts “are created equal”, that is, conflicts, especially functional conflicts between the two departments can even be beneficial (Matsuo, 2006; Guenzi & Troilo, 2007; Massey & Dawes, 2007).

Potential information-related conflicts can be linked to communication and exchanging information between departments (Quirke, 2017; Thornton, 2019) on the one hand, and the necessary technical background, hardware and software requirements on the other (Wierum, 2001; Wang, Fang, Qureshi & Janssen, 2015). Malshe et al. (2017) found empirical proof that SM communication paucity can seriously undermine trust between the two departments, which in turn, can have a strong negative effect on overall company performance.

Communication deficiencies can lead to a situation where marketing measures are implemented without taking sales aspects into consideration, or where sales staff get to know about company promotions and activities from their customers (Martinez & Hurtado, 2018). Exchanging information is key to strategic planning, especially in the early stages where identifying potential opportunities and risks is crucial (Omar, Ramayah, Lo, Sang, & Siron, 2010; Bigdeli, Kamal & de Cesare, 2012; Huang, Wu, Wen, Hsin-Fei & Hairui, 2017). Further communication deficiencies can be caused by an incompatible/missing technical network between the departments (Järvinen & Taiminen, 2016). Erturk and He (2018) analyse how a highly integrated CRM (Customer Relations Management) system can influence the mutually dependent operations of SM. Dalla Pozza, Goetz and Sahut (2018) point out that linking sales analysis with marketing segmentation through a well-functioning common CRM system can greatly help competitiveness. Pohludka and Štverková (2019) assess two years of experience with an online CRM platform and conclude that it has proved to be a robust system for both sales and marketing.

Proper alignment and coordination of the SM is instrumental in ensuring a cost-efficient cooperation of the two departments (Kotler et al., 2006, Mayer & Nyhuis, 2016). As Morgan and Slotegraaf (2012, p. 102) point out in connection with B2B firms marketing capabilities, „... the development of different capabilities requires the coordination of various resources, skills and routines. The necessity of this form of coordination is also inevitable when it comes to harmonizing the relationship and interface interactions of SM departments within the company.

A strong and clearly communicated strategic corporate vision is another key element of success (Tomek, Vávrová, Červenka, Naščáková & Tomčíková, 2016; Balmer, 2017). In an early empirical study Baum, Locke and Kirkpatrick (1998) found that a clear company vision had positive effect on overall company performance only if it was clearly communicated to the employees. The importance of effective internal communication was also affirmed later by Ferdous (2008) and Martinez and Hurtado (2018).

According to Jo Hatch and Schultz (2002, p. 1047) strategic corporate vision is, „The central idea behind the company that embodies and expresses top management’s aspiration for what the company will achieve in the future.” A shared vision of SM departments can greatly enhance the effectiveness of cooperation between them (Madhani, 2016). In connection with pharmaceutical companies Birkinshaw, Zimmermann & Raisch (2016) highlight the importance, a strong strategic vision plays in the adaptation capabilities of pharmaceutical manufacturing companies (PMC) analysing the example of GlaxoSmithKline.

Lamasheva (2004) believes that defining common targets and objectives is an inevitable element of coordination and must be a part of every company’s life in order to maintain competitiveness and ensure cooperation. The existence and appropriate communication of corporate culture as a set of management measures will promote teamwork and reduce conflict (Morgan and Piercy, 1998; Song, Xie & Dryer, 2000).

One way to improve communication deficiencies and the quality of cooperation between SM is the introduction of regular meetings and common training programmes for the employees of the two departments. The importance of cross-functional training for SM was established by Kahn (1996) and later confirmed by Le Meunier-FitzHugh & Piercy (2007). Matthyssens and Johnston point to the fact that “Joint training and development programs also stimulate the interface. A common jargon and thinking pattern is provided and the residential atmosphere of seminars leads to open discussions under professional guidance.” (Matthyssens & Johnston, 2006, p. 344). Kotler et al. (2006) developed a rating scale measuring instrument to tap into the relationship of SM. In their scale one item to be rated is, “Sales and Marketing jointly develop and deploy training programs, events, and learning opportunities for their respective staffs.” (Kotler, Rackham & Krishnaswamy, 2006, p. 6). In their study they also underline the importance of organizing regular common meetings for SM employees.

Literature has confirmed that sharing common goals can improve the cooperation of the two departments (Kahn 1996; Le Meunier-FitzHugh & Lane, 2013). Assessing the determining factors of SM integration Sleep, Lam and Hulland conclude, “Creating common goals or encouraging joint visits to customers can reduce boundaries. In addition, managers can implement cross-functional teams to increase information and resources sharing across functions to further increase interdependence, which reduces the integration gap and ultimately improves business results.” (Sleep, Lam & Hulland, 2018, p. 15).

When attempting to clarify the division of tasks and responsibilities between SM, it is useful to build on the well-established distinction between the sales and marketing functions within the

operations of the company (Homburg, Jensen & Krohmer, 2008; Homburg, Alavi, Rajab & Wieseke, 2017). Homburg et al. point out, while „Salespeople are typically responsible for a set of customers in a sales territory or in a specific industry segment, while marketing managers are typically responsible for a specific product or brand offered by the firm.” (Homburg, Alavi, Rajab & Wieseke 2017, p. 16). „...lack of collaboration may be caused by lack of understanding of each other’s roles, role ambiguity, poor communication, a culture of blame, different perspectives and poor alignment of activities and goals. (Le Meunier-FitzHugh & Piercy, 2007, p. 942).

The question of the „ideal customer” in the literature encompasses the various means of profiling the best target group for a certain product or line of products, that is, identifying the customers who are most likely to buy them. Customer profiling has rich literature for both PMC (Xu & Walton, 2005; Guido, Pichierri, Pino & Conoci, 2018; Paglialonga, Patel, Pinto, Mugambi & Keshavjee, 2019) and non-pharmaceutical manufacturing companies (NPMC) (Boe, Hamrik & Aarant, 2001; Walters & Bekker, 2017; Ghuman & Mann, 2018). Anshari, Almunawar, Lim and Al-Mudimigh summarises the importance of profiling by suggesting, “...customer profiling for each and every customer becomes important for business to make sure that the whole CRM’ life cycle (sales, marketing, and customer service) are offering personalized and customized services so that each customer will experience differently according to their needs and interest.” (Anshari, Almunawar, Lim & Al-Mudimigh, 2018, p. 6).

### **2.3. Critical points of contact between marketing and sales**

The goals served and pursued by the company, such as meeting customer needs and achieving maximum profit, largely referred to the collaboration between the two divisions. The related responsibilities are divided and assigned to specific functional areas (Brockhoff & Hauschild, 1993). One organizational area is marketing, which is primarily responsible for carrying out corporate initiative, planning and marketing activities (Grönroos, 1989), and the other organizational unit is sales, whose tasks are to initiate, develop and support customer relationships (Krafft, 1995). By solving the partial tasks necessary to achieve the goals, the two classes develop mutual interdependencies and thus dependencies (Röder, 2003). While the marketing discipline has undergone significant development and become a market-oriented leading concept, sales have been reduced to a traffic generating machine. In contrast to this traditional scientific judgment, in practice, companies attach greater importance to sales, which has been greatly contributed by customer-driven market events and fierce competition (Krafft et al., 2004). Rather than acting in a customer-oriented manner in the marketplace in accordance with the corporate strategy, conflicting opinions and mutual prejudices often prevent this.

Marketers are characterized by a long-term mindset and a competitive orientation that involves strategic analysis and planning activities, as well as strategic issues across product and communications policy. In contrast, sales associates are customer oriented, whose business attitudes are characterized by operational-tactical measures. While marketing is traditionally geared towards market share, image, and sales goals, sales focus primarily on revenue goals. Other conflicts, such as the lack of mutual exchange of information, hamper collaborative work. Sales have little opportunity to learn about market developments and customer preferences at an early stage of planning, and on the other hand show little interest in marketing strategic steps and prescriptions, delivering customer and market relevant information often to inquiries (Haase, 2006).

The emergence of a marketing discipline in English-American language areas dates back to the early 20th century. Until then, marketing was merely a distribution function that provided basic supply of products to the population. In the literature much less information is available on the concept of sales, in most cases it was considered a subordinate unit of the marketing department, but in practice it played a more dominant function (Meffert et al., 2019). The steady growth of customer demand and the cost-effective production of identical products led to a shift from marketing to long-term orientation, thus developing into strategic marketing by the end of the 1980s. The increasing international competition, the so called competition globalization promoted the development of a competitive approach to both marketing and sales, with the focus on securing significant competitive advantages (Kreutzer, 2010). Marketing has been increasingly characterized by a growing and broader market-oriented management concept, and by the need for customer-centric sales and the associated and appropriate information technology (IT) systems (Bruhn, 2012).

Due to intense competition and intense constant adaptation to changing market conditions and concerns, at all levels, all companies forget about internal interface issues, so they usually develop their sales and marketing departments separately. Collaboration is usually characterized by shortcomings, which are mainly manifested in the different ways of thinking in the departments, thus creating a consequent tension between the two departments (Kirsch & Stoyke 2011). Much of the conflict is attributable to the "human factor" (Schmidt, 1996). Due to the nature of work assignments and positions, certain personal groups may be formed, whose employees are so identified with their own departments that they create a kind of subculture, thereby facilitating the emergence of certain psychic barriers and prejudices against the other class (Deshpandé et al., 2005). ). The main reasons for these limitations are based on personal attitude, motivation, ability and lack of knowledge. Thus, instead of constructive cooperation,

a sense of competition develops, leading to further disharmony, contributing to the company's failure and a sense of mistrust. This disturbance of harmony is mainly due to the interaction deficit and the lack of communication (Wolfrum, 1994, Wunderer, 1985). In practice, the lack of communication leads to the implementation of marketing measures without taking into account sales information, and sales professionals are informed by customers of various promotions and activities within the company. Exchange of information is particularly important for the strategic plan, especially at an early stage, where the identification of potential opportunities and threats is extremely important for the company (Weber & Schäffer, 2000). It should also be noted that this is made more difficult by the spatial isolation of the department's staff, as sales professionals often work directly on site and maintain close contact with customers, whereas marketers are mainly involved in campaign-oriented projects at the company site. Thus, customer assistance to them is relatively abstract, often based on market research data (Bauer, 2000, Schmitz et al., 2008). Conflict potentials arising from organizational structure may arise from the fact that marketing and sales departments have different goals and interdependencies, do not function as a unified team, and responsibilities are not clearly defined (Vahs, 2012, Brockhoff, 1989, Specht, 1995). The formalization of the working relationship between the two divisions ensures that responsibilities and decision-making powers are clearly defined, meaning written rules, instructions, or regulations (Brummund, 1983). Diverging goals lead to further fragmentation, fostering competition rather than integration. Long-term and product-oriented marketing, and tendentially short-term and customer-oriented sales ideas lead to the customer or product prioritizing (Krafft, 1995).

Depending on their origin, conflicts can only be handled by senior management and minimize their destructive impact. The goal for the company is to have the most profitable cooperation possible. Whether cooperation ends in compromise or consensus depends on the nature of the conflict. It is, of course, a priority to achieve the highest possible profit, despite market failures, which will only be realized in the long run if marketing and sales can work together with great intensity and coordination (Cespedes, 1993, Strahle et al., 1996, Klumpp, 2000).

The sales and marketing team should work together to develop a coherent strategy that involves, in addition to defining the strategy, defining the target group ("ideal customer"), understanding the buying process, and understanding the communication behavior of the target group. Each important step before selling a product / service is to get to know and understand the potential customer. The sales process can only be effective if these conditions are met in the past. Who understands and knows the customer has the opportunity to tailor sales to the customer's needs. This facilitates persuasion and, at best, enables a long-term customer relationship. Although the

definition of a potential customer / target group is primarily in the marketing field, intensive exchange of ideas with sales is very important in the preparatory work. (Hannig, 2017). As Gordon, Schoenbachler, Kaminski, & Brouchous (1997, p. 33) have pointed out, salespeople spend considerable time with their customers and are therefore in a special position to have first-hand knowledge of current and highly valuable market information and customer needs. Other research has also found that customer-focused sales staff can more easily identify individual customer needs, but this requires proper training, information flow, and a structured product development process (Gordon et al., 2008; Homburg et al., 2008). In many cases, this knowledge and experience is considered a strategic factor by organizations and their leaders. This may also be the reason for the increasing role of sales in strategic tasks. The production of organizational knowledge depends crucially on how the organization can transform individual implicit knowledge into collective knowledge (Nonaka & Takeuchi 1995). The consensus among professionals is that salespeople are increasingly involved in strategic decision-making and the quality of their customer relationships is of paramount importance (Ingram et al., 2002; Johnson et al., 2001; LaForge et al., 2009; Piercy & Lane, 2003). This changing role in sales means that it interferes with tasks performed by certain marketing areas. However, strategic goals need to be kept in mind, for which the future user, co-invented by the two divisions, needs to portray the "ideal customer". (Troilo et al., 2009, Hannig, 2017). Consequently, this could be another potential critical point in the interaction between sales and marketing.

The above-mentioned divergent attitudes and perceptions lead the two divisions to set out my research work to explore the different views of these units on how they work together and to propose solutions to them.

#### **2.4. Focus on the pharmaceutical industry**

The pharmaceutical industry is one of the most lucrative, most promising sectors, with very high levels of investment in development, strong state regulations, and temporary monopoly rights to pay for these research costs. Many decades of development - mergers, acquisitions, strategic alliances - have enabled today's successful structure of the industry, where fierce competition between companies has strongly highlighted the role of marketing and, of course, sales for new markets and patents (Nagy, 2018). Multinationalization has contributed to higher profits, expanding market share and more efficient manufacturing. The large size does not automatically guarantee the development and launch of new medicines. In the long term, there is a need to improve the capacity for innovation and to bring new products to the market. Therefore, instead of mergers, strategic alliances, conglomerates were formed and where these mergers continued, competitiveness and the success of the company also increased. A skilled

workforce, including skilled manpower for the pharmaceutical industry, management, and marketing and sales activities essential to its success in the market, are essential to the competitiveness of the pharmaceutical industry. The pharmaceutical industry, as one of the most complex industries closely linked to the scientific, education, health, social security systems, is becoming more and more complex with each passing year, as national pharmaceuticals have almost disappeared, with both national governments and senior management where the workforce is also foreign. The business of the pharmaceutical industry, which is referred to overseas markets, is to acquire the market, which is a huge challenge for the departments (marketing/sales) that have been given this noble "mission". Among the processes that determine effectiveness is the harmonious cooperation of these two divisions. (Antalóczy, 1997). Furthermore, the improvement of the ability to innovate, which is directly influenced by the existence and dynamics of the integration between marketing and sales, is the factor that most influences the success of the company. Therefore, the task of management is to build trust between these departments by relying on the information and knowledge of the sales staff, using all of this in marketing strategic decisions for more successful product development and thus competitiveness (Keszey & Katona, 2016).

That is why in my research I found it interesting to test my model in this sector, unlike other companies.

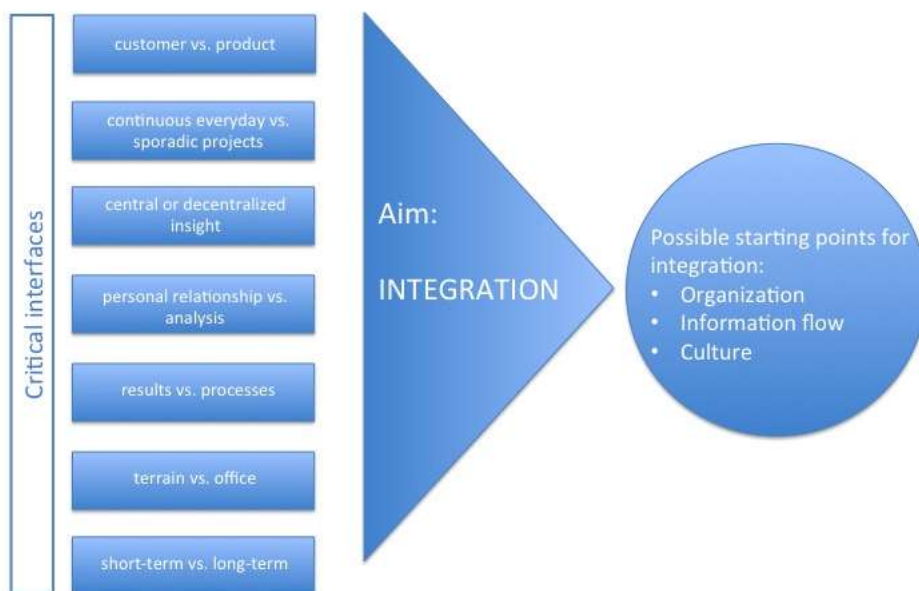
## **2.5. Aims**

Research effort invested in the topic of the dissertation is warranted by several factors. Although there has been research done in connection with employee nationality as a factor influencing interdepartmental cooperation, as pointed out a few lines earlier, no research has so far attempted to analyse it in the context of SM cooperation. The present work is an attempt to partly fill this gap. Also, as the lack of efficient cooperation between SM can undermine overall efficiency at the corporate level, revealing latent mechanisms between groups of variables affecting SM cooperation can provide information of potential managerial relevance. The third reason why it is definitely worth doing research into this direction is the fact that while there is rich literature on how PLS (Partial Least Square) path modelling can be utilised in the context of sales or in the context of marketing separately, its possible merits in the examination of SM cooperation has not been demonstrated yet.

My research aims to show, via PLS-PM (Partial Least Square-Path Modelling), how the evaluation and relationship of pre-selected factors influencing SM cooperation differ and overlap in the case of Hungarian and foreign workers of six international companies, respectively to explore how the cooperation between SM in pharmaceutical (PMC) (n=16) and

non-pharmaceutical (NPMC) (n=31) manufacturing companies is affected by selected indicators. In addition the present work aims to give a short introduction into the possibilities offered by Voyant Tools to quantitatively explore qualitative data on the sales-marketing interface (SMI).

If the relevant points are mapped (Figure 1), which can also be called critical points of contact, integration structure development between the two departments can begin. Figure 1 illustrates this possible process. The interfaces between marketing and sales are the result of the division of workflow, which involves splitting a complete process into sub-tasks within the two areas. They also provide possible test dimensions that may shed light on the critical interfaces, their location and condition. One of the important tasks of my research is the structural exploration of these critical interfaces, the identification of the development areas necessary for the realization of integration and the possible ones.



**Figure 1: Study dimensions and integration areas of critical interfaces**

*Source: Own editing, based on Rouziès et al. (2005)*

### **3. REVIEW OF LITERATURE**

#### **3.1. Delimitation of the terms marketing and sales**

The term „marketing” dates from the beginning of the 20th century. It was developed by U.S. economists (Meissner, 1995). Different marketing definitions exist, but the most widely used definition in theory and practice is that of the American Marketing Association (AMA) (Meffert, 2007). The AMA definition of marketing has evolved and changed over the years and has been adapted according to its progress in marketing thinking and environment. I.e. marketing went through several stages of development. For example, Kotler categorizes marketing as production, sales and customer-oriented marketing or integrated marketing (Haase, 2006). In 1985 the AMA initial definition was changed as follows: "marketing is the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create exchanges that satisfy individual and organizational objectives" (Keefe, 2004). Marketing began to change again in the 1990s. Around the time, it became a market-oriented management concept, after marketing was also increasingly oriented towards legal, ecological and social framework conditions. Since the 2000s, marketing and sales have faced challenges. As a result of the developments in information and communication technology, these are the different consumption structures as well as the ever increasing so-called hyper competition. These influencing factors in turn create so-called interactive marketing, which can be described as an individual and multi-optional networked relationship marketing (Bruhn, 2009). AMA also became aware of this trend and in 2004 realized that marketing became a customer and customer relationship driven term and adjusted its final definition as follows. „Marketing is an organisational function and a set of processes for creating, communicating and delivering value to customers and for managing customer relationships in ways that benefit the organisation and its stakeholder.“ (Haase, 2006). Three years later in 2007, AMA revised its definition as follows „the activity, set of institutions and processes for creating, communicating, delivering and exchanging offerings that have value for customers, clients, partners and society at large“ (Keefe, 2004). Thus, AMA has included a set of marketing organs, which were defined very precisely as rules and regulations. These were defined as cornerstones, both for a control system of marketing activities and for the objectives that marketing must generate values for different people concerned (Kuß, 2009). The tasks of marketing according to a leading management opinion leader, Peter Drucker, are defined as follows. “You can assume that it will always be necessary to sell something to a certain extent. But the goal of marketing is to make selling redundant. The aim is to know and understand the customer so precisely that the product or service fits to the customer and sells on its own.

Ideally, marketing should make the customer ready to buy. All that needs to be done to make the product or service available” (Kotler et al., 2015, p. 10). It can also be seen from this statement that sales are in some ways part of marketing. However, marketing has a broader definition. Marketing cannot therefore be equated with sales, because its tasks begin much earlier than the appearance of the product on the market. Marketing is, so to speak, the manager's homework. This includes measuring, assessing the intensity and extending the needs. Then comes the decision of whether satisfying the needs makes the company profitable or not. Sales only comes into play after these facts have been considered. After the product launch, it is the job of marketing to monitor and accompany the product life cycle, the identification of new, potential customers, the improvement or optimization of the product properties, the implementation of sales, sales control and the evaluation of the sales experience (Kotler, 2000). While there are numerous different definitions of marketing, there is very little information about sales in the literature, which is why the definition of sales is not so widely discussed. A relatively old but well-known form of direct marketing is and was sales calls. In the meantime, industrial companies are building professional sales teams to identify potential target groups, turn them into customers and drive the business forward in terms of sales and profit. It is clear to everyone that sales within the company, as part of the marketing mix, are very relevant and important. Nevertheless, companies react sensitively to the topic of "sales", which concerns constantly growing personnel costs, commissions, bonuses and other additional services. It is therefore completely comprehensible that companies try to optimize the effectiveness of sales staff with different measures. The measures are e.g. the better selection of staff, continuous training, and constant control at the same time as motivation and flexible, performance-based remuneration systems (Kotler et al., 2015). Marketing sees the company's customers mostly as a whole. In contrast, the sales employees who are in direct contact with the individual customers have to confront the customers' individual wishes, requirements and decision-making structures. In addition, the marketing department adds the strategies and concepts as a task to be implemented in direct customer contact (Haase, 2006). According to Krafft, the responsibility of sales extends to the distribution of products, order acceptance and services (Krafft, 1995). Compared to the office staff, which acts from the office, mostly communicate by phone and receive potential or existing customers, the field staff are constantly on the way to visit and support customers (Kotler et al., 2015). The sales department must be responsible for the market-related quantitative targets, e.g. responsible for sales, sales and qualitative targets such as customer satisfaction (Schwendler, 2000). The following table (see table 1) summarizes this section. This contains the two areas of marketing and sales, how the two operate at different levels and what their customer orientation looks like.

|  | <b>Marketing</b>  | <b>Sales</b>   |
|--|---|--|
| <b>Orientation</b>                           | Competition, Brand  | Customers, contract realisation  |
| <b>Way of thinking and acting</b>            | Strategical   | Operative  |
| <b>Timing</b>                                | Long term   | Short term   |
| <b>Customer focus</b>                        | Studies customer needs and expectations   | Has detailed knowledge of the individual customer  |
| <b>Information and customer satisfaction</b> | Continuously collects and evaluates new product ideas, potential products and services, and increases the company's image and customer satisfaction | Collects the customer feedback that can be used for product development and strives for long-term customer relationships with each individual customer |

**Table 1: Comparison of marketing and sales**

*Source: own illustration based on Kotler (2000) and Haase (2006)*

As Kotler and his colleagues described in 2007 and can also be clearly seen in table 1, marketing and sales have completely different competencies, so they are also responsible for different tasks. A key competence of marketing is product and brand management. This also includes the definition of development and competition strategies. Furthermore, cooperation with the advertising department and sales promotion (merchandising) is essential so that sales is supported and promoted in the best possible way in its work and goal achievement. Another very important task, which tends towards marketing controlling, is the procurement and collection of product-related information, customer feedback, and on the basis of this information the detection and evaluation of the improvement potential (Kotler et al., 2007). However, in order to achieve the marketing goals and to be able to successfully meet the requirements, marketing is largely dependent on the contributions made by sales (Ernst, Hoyer & Rübsaamen, 2010). On the other hand, the sales functions build the interfaces between the company and the clients and are of great relevance in the customer relationship management (CRM) of the company and in the identification of customer needs (Becker, 2009). In addition, the field service collects the market-related information, based on which the company is able to quickly implement new (product) developments and adjustments. As it is well known, sales

is responsible for identifying potential customers, but its tasks also include keeping the allocation between potential new and existing customers in balance. In general, the sales process includes both the assessment and assessment of customer needs and the presentation of product properties with an emphasis on the customer-relevant product benefits as well as the discussion on the trading conditions such as price and delivery terms (Kotler et al., 2007). In order to realize all of these, you need good communication skills, because the sales department must be able to answer all the product-related questions and establish a good, preferably long-term, customer relationship ([http://insight.kellogg.northwestern.edu/article/sales\\_force\\_effectiveness](http://insight.kellogg.northwestern.edu/article/sales_force_effectiveness)). Because of these differences, conflicts arise which will be dealt with in the following sections.

### **3.2. Importance of analyzing conflict potentials**

Earlier research findings suggest corporate performance is mainly determined by internal factors (Mory et al., 2016). Szentes et al. (2006) believe that in order to meet market expectations, organisations need to take economic, technical as well as social factors into consideration, i.e. management capabilities, education and behaviour have a key role in achieving targets. Recent views state that competitiveness is created by employees by adding value, creativity, a willingness to cooperate and a sense of loyalty towards the company (Adjibolosoo, 2018). Ermolina et al. (2018) in their study conclude that human capital occupies a central role in ensuring long-term competitiveness and the combination of intellectual contribution and other factors (capabilities, attitude and other internal features) create the advantage that is necessary for development.

Cooperation is key to development. Of all known management attitudes, a cooperative approach is a possible key to efficient long-term cooperation. This positive attitude can compensate for numerous negative business practices (Chen et al., 2011). Management responsibilities are very diverse, where challenges are defined by the coordination and organisation of corporate targets and resources. Activities that support the relationship between SM (information exchange, coordination, vision and communication) contribute to product development and other innovations, and that this working cooperation leads to higher success rates and better corporate results (Hughes et al., 2012; Malshe et al., 2017c). The motives behind cooperation can be very diverse (David & Rank, 2016). Cooperation is achieved by grouping and arranging resources within the organisation and defining roles and responsibilities. Homogeneous resources lead to competition, whereas heterogeneous resources lead to cooperation (Bengtsson et al., 2003). An unequal distribution of resources leads to conflict (Gupta et al., 2018), which is perceived in literature as an incompatibility of targets (Malshe et al., 2017a).

Organisational dimensions include the formalisation of certain processes, a clear definition of roles and responsibilities, the centralisation and decentralisation of power, as well as organisational structure. Defining formal roles and responsibilities is of special importance, as it is essential for a smooth cooperation between SM (Homburg et al., 2017). Formalised processes and rules also contribute to the authenticity of marketing plans and facilitate their successful implementation and their incorporation into corporate practices, whilst also stimulating employees' participation in corporate processes (Wood, 2016). The centralisation of power and strong hierarchy have a negative effect on the cooperation of departments (Holmemo & Ingvaldsen, 2018).

In addition, the existence and implementation of a common corporate vision has a crucial role in the integration of the two departments, as it enhances the sense of belonging between the interdependent SM staff (Kumar, 2016). Successful cooperation requires common goals and achievable targets in the organisation (Lamasheva, 2004), which facilitates a high-level interaction to tackle common tasks and insecurities (Miles et al., 2005). Thus, congruent target setting and communication leads to more efficient cooperation (Berson et al., 2015). The existence and appropriate communication of the corporate vision as a set of management measures improves teamwork and reduces conflict (Rahim, 2017).

Information exchange (both qualitative and quantitative) and corporate culture (including mutual trust, openness, market- and customer orientation) are essential prerequisites of cooperation. Fallio et al. (2013) believe that efficient cooperation requires constant correction, i.e. constant feedback. Thus, information exchange between the two parties has an essential role in increasing the efficiency of their cooperation (Madon & Krishna, 2018). Regular information exchange promotes mutual understanding, reduces conflict and contributes to a better and more efficient relationship between the two departments (Prajogo et al., 2018). Informal information exchange and an informal network between employees of the two departments in general leads to better cooperation (Leenders and Wierenga, 2001). Starting a permanent dialogue between the two departments will have a positive impact on the effectiveness of their relationship, thus the coordination of regular information exchange is inevitable for a smooth and balanced cooperation (Klumpp, 2000; Malshe et al., 2017b).

### **3.3. Interface problems between marketing und sales**

The cooperation between marketing and sales has become a current research topic in the past ten years. Numerous studies have concluded that there is a positive connection between the harmonious cooperation between sales and marketing and the performance of the company (Kotler & Keller, 2006). However, it is still a fact that the cooperation between marketing and

sales in most companies is fraught with many conflicts. The organizational structures that have been established for years have led to classic perceptions and mindset differences in these fields. These differences hinder goal-oriented and constructive cooperation. Since 1960, the marketing discipline has had a trackable development in both science and practice, while marketing has become a market-oriented management concept, sales have continued to function as revenue generators. So that the company can continue to create value, it is imperative to examine and evaluate these interactions. The lack of cooperation not only affects the company's added value. Due to the rapidly changing environmental influences, the company must also be able to make the necessary adjustments. This requires interdisciplinary teamwork and even increased concentration and focus on the customer (Malshe, 2010). So in order to generate benefits for the company, marketing and sales have to link their interactions in order to drive up the overall company performance (Le Meunier-FitzHugh & Piercy, 2007). In reality, marketing and sales also have different and separate functions within the company (Kotler & Keller, 2006). The associated different goal orientation has recently become a topic for corporate research (Homburg et al., 2008). The two disciplines are not linked. In addition, there is also a certain psychological distance between the two (Dawes, 2005). The fact that marketing and sales report to two different superiors quite often leads to an even greater blockage of information. Furthermore, poor leadership undermines the unclearly defined goals and poorly executed control the chance to achieve the common goals and objectives. This leads to the subconscious promotion of the "we against them" attitude and mentality. Above all, this scenario can arise when one discipline explains and feels superior to the other. This feeling of superiority and demarcation is further exacerbated by the possibly higher proportion of academics in marketing compared to the probably less or more conventionally trained sales team. But perhaps the biggest barrier in the cooperation between marketing and sales is to be found in the weighting of sales within the company (Kirsch et al, 2011). This barrier is related to the fact that the success of sales can be measured and evaluated for a long time but also at very short notice. Accordingly, the management could rate sales comparatively disproportionately. The sales approach is mostly geared towards sales targets (Haase, 2006). But every specialist knows that this kind of short-term orientation can endanger and harm the company (<http://www.marke41.de/content/komplexitaet-marketing-und-verkauf>). It is comparatively typical for marketing employees that they are characterized by a competitive orientation and a strategic or long-term perspective. Your aggregated planning and analysis are geared to take a close look at the entire marketing mix. Conflicts also arise in the area of knowledge management and when it comes to exchanging valuable information (Haase, 2006). Sometimes you see perspectives in sales and marketing that are so different that you immediately think that

you work in completely different companies. It can happen that the two departments hardly ever talk to each other (<http://www.marke41.de/content/komplexitaet-marketing-und-verkauf>). As already mentioned, the sales department has relatively little interest with its orientation on short and long-term sales figures to the mostly strategic requirements of marketing. The sales department therefore only provides customer and market-related information on repeated demand (Krafft, 2002a). However, market developments and customer potential require an increased need for coordination and information flow between the two areas (Cespedes, 1994). The two disciplines are primarily involved in sales and turnover-related processes. This means that a coordinated collaboration seems logical and even imperative in order to achieve as much success as possible in the interests of the company. The quality of the cooperation has the highest priority and importance. This quality can, however, be affected by the division of functions between the two departments (Haase, 2006). On the other hand, it should be noted that the poor process coordination, no uniform language and no open communication culture contribute to the fact that mis-communication, misunderstandings and other destructive conflicts can arise. The inappropriate incentives or the uncoordinated key figure system also lead to more harmful conflicts (<http://www.marke41.de/content/komplexitaet-marketing-und-verkauf>). It can therefore be said that in the majority of companies there is no routine exchange between the two disciplines. Only sporadic discussions are held about bottlenecks or maybe successes in the implementation of the marketing mix. A phenomenon that can be observed relatively often is that the effects of products and communication measures to be triggered are not passed on to sales very clearly. This often creates ambiguity in sales. Sales will also withhold customer- and market-relevant information and thus build a monopoly on knowledge (Kirsch et al., 2011). Constructive cooperation is therefore prevented by opposing opinions and prejudices. Marketing and sales should stick to all of the company's strategic guidelines and act in a customer-oriented manner on the markets (Haase, 2006). The following table (see table 2) represents a small selection of the reasons for the interface problem between marketing and sales.

| <b>From the marketing perspective</b>  | <b>From the sales perspective</b>   |
|--|---|
| Sales people are not interested in corporate branding, positioning and profitability, but only in sales.           | In marketing, the focus is far too much on internal processes.  |
| Most in sales cannot interpret the marketing plan, in addition sales support materials are ignored by the sellers. | The sales department does not receive any support materials that they can use and if they are, they are not suitable for the sales situation. |

|   |   |
|---|---|
| Information about needs and preferences will not be passed on to marketing.   | The sales department, as just one executive body, is only informed about upcoming marketing campaigns.  |
| Marketing arranges contacts at the trade fairs, they are processed by sellers with whom they get on well and who make little demands. | The marketing people are sitting in an ivory tower. They have no idea what our customers actually want. |
| Marketing develops the strategy, sales should implement it. Nevertheless, strategic corporate goals are often ignored.                | Product managers design concepts far from any reality.  |
| Marketing people work hard and long, but sales people make more money.  | Sales gets the money in, marketing spends it.   |

**Table 2: Reasons for the interface problem**

*Source: own illustration, based on Haase (2006), Kirsch et al. (2011) and www.marke41.de*

### **3.4. Conflicts between marketing und sales**

As the heading of this section suggests, there is considerable potential for conflict in the points of contact between the two disciplines, which can have a negative impact on the effectiveness of the cooperation and, as a result, on the company's results (Haase, 2006). Although marketing and sales are closely linked, the mutual relationships between the two are neither collaborative, nor harmonious and unanimous (Dewsnap & Jobber, 2000). Historically, there has always been a certain tension between marketing and sales (Lorge, 1999). Numerous studies have dealt with the conflicts between the two disciplines. The main conflicts are those that hamper smooth cooperation, the lack of cohesion and trust, the stereotypes that have arisen about the others, and the lack of communication. These are mostly due to the organizational structure (Souder, 1981 and Gupta, 1986). Another very important factor that can lead to conflicts is the lack of support for integration by senior management, which generates uncertainty in the focus on the short- and long-term strategy and differentiates in the performance-related reward system (Gupta, 1986). Problems can also arise from the fact that field staff consider information about customers to be their own strategic resource. That is why there is some resistance when it comes to the fact that another department, such as marketing, initiates customer visits. Sales and marketing assess their own role as the strategically most important department, whereby they think the other is only an executive body and only perform operational tasks. Another argument against the cooperation is that the sales employees may think that they are the ones who generate the sales immediately and see an expensive marketing department as superfluous. The marketing employees, in turn, complain that sales are not willing to partner up with the implementation of the forward-looking and good initiatives (Keszey, 2014). The opposite

interests of two parties clearly lead to social, interpersonal conflicts (Naase, 1978). This behavior can be inferred from the fact that the parties identify too much with their own specific goals instead of orienting themselves towards the company goals (Haase, 2006). They pursue their own interests, although the parties are in an interdependent relationship, which can create a new conflict situation. The framework conditions shown in Figure 2 occur in different points of cooperation. The following problem areas were identified (Haase, 2006).



**Figure 2: Classic problem areas between marketing and sales**

*Source: own editing based on Haase (2006)*

### **3.4.1. Organizational conflict potentials**

"The concept of organisational design comprises the systematic planning, introduction and control of explicit organisational rules and is therefore also referred to as a structural approach or process technology approach" (Vaahs, 2012, p. 374). The functionality and efficiency of the structure and the process have the central role here. These are created rationally and consciously, checked regularly and, if necessary, reorganised. According to literature it can be said that organizational design is the permanent task of management and should be seen as one of its core activities. Due to internal and external environmental changes and pressure to

innovate and reduce costs, companies must seek appropriate organisational solutions in order to take advantage of the resulting opportunities and avert imminent dangers and risks.

The work-related interdependencies and interfaces resulting from the specialisation of the organisational units must be coordinated on an ongoing basis. If this is not the case, a situation in which the company's performance can be described as anything but marketable threatens at the end of the day. Thus all the activities of the respective organizational units are to be aligned and coordinated with the collective objectives. The whole organisation of the company should be understood as a team of groups that are linked both horizontally and vertically (Vahs, 2012). A further potential for conflict lies in the already mentioned differences between marketing and sales. They have goals that are usually defined independently of each other and are not coordinated. On the one hand, marketing focuses on strategic goals, for example on market share, positioning, etc., on the other hand, the sales department often has the short-term profit and contribution margin targets in front of its eyes. In some cases, the cost budget is also monitored by marketing. The coordination of the above-mentioned targets in terms of amount and content is therefore relevant, since employees orient their behavior according to them. Strahle et al. (1996) also shows that these inconsistencies and misalignments exist between marketers and sales staff with regard to marketing strategies and corresponding sales activities. The marketing strategies should be transformed into sales strategies so that the marketing strategy can be applied. Therefore it is already in the (marketing) strategy development phase of high importance to include the sales department in the process (Zupancic, 2008).

Furthermore, in order to avoid conflicts, it is of great importance to have a clearly communicated corporate vision. A vision is an attractive, but even more important, credible picture of the future development of the company. Through its scenic character, it points in a certain direction without defining the boundaries and frameworks in a binding way. The corporate vision has the goal of stimulating the willingness to perform and to give the work an acceptable meaning. When visions are accepted by the members of the company, they have a significant motivational effect by providing a kind of basic orientation for the actions and attitudes of employees. Thus the vision is an essential leadership instrument (Vahs, 2012).

In summary, it can be said that there must be a consistent link between the sales management activities and the marketing strategy of the company. This statement is supported by the fact that a narrow and clearly defined distribution of work processes, responsibilities, roles and identification with the company's mission is necessary (Haase, 2006).

### ***3.4.2. Personnel conflict potentials***

However, potential conflicts are not only hidden in the organisation, but also between groups of people who are used to different business cultures and are brought together for work reasons. When working together and dealing with other departments, psychological barriers or even prejudices can be developed. However, this phenomenon should not be a surprise. As a result, employees can identify so deeply with their own department that a kind of subculture can develop within the company (Deshpandé et al., 1989). Rouzies et al. (2005) says that marketing and sales people have a completely different mentality and way of thinking and so it is clear that when it comes to discussing and interpreting customer needs or other questions, they hardly get along or not at all. In general, while marketers tend to have an analytical mindset, sales people strive for a stable relationship with customers. From the cultural perspective, the two different mindsets of the two disciplines prevent a final consensus (Homburg & Jensen, 2007). Barriers are thus created that can be potential social interfaces. However, they are nothing more than personal attitudes, motivational and ability barriers that lead to a lack of willingness and ability to behave cooperatively. The logical consequence is that instead of working constructively together, a kind of competitive feeling develops that is disruptive to the emergence of harmony between the two departments. Thus disharmonies arise. The reasons for this are poor communication and lack of interaction. Further reasons for severe disharmonies could be if one area is perceived as less helpful and useful and if mistakes are blamed on the other department. In addition to this disturbance of harmony, there is the feeling of mistrust, which makes constructive cooperation almost impossible (Wunderer, 1985).

### ***3.4.3. Informational conflict potentials***

Marketing and sales often seem to live in completely different worlds. As already mentioned in previous sections, a permanent exchange of information is essential to be successful. What won't work in the future are quizzes and estimates about the other department (Wunderer, 1985). The market observations of the sales employee are, ideally, always up to date. They are even always accessible without any effort. Due to the relationship between marketing and sales, which is traditionally always burdened with conflicts, companies seldom create this type of market research option. The ability of a manager to use the information available in-house is basically not an individual ability, but an organization-related manager ability. This ability to use the information correctly promotes better market performance, sustainable competitive position and a market-oriented corporate image (Keszey, 2011).

On the one hand, the information-related conflict potential is the flow and exchange of information in the interaction between different departments. On the other hand, it is about the

peculiarities of information technology, which are affected by hardware and software conditions (Wierum, 2001). In addition, one can also claim that two factors have a very strong impact on the process of using information. These are the quality of the perceived information and the basis of trust. The basis of trust between the information user and its source is defined as follows. On the one hand, the source of information has the professional qualifications necessary for its work. On the other hand, their behaviour and attitude are responsible and cooperative. As already mentioned, the flow of information is primarily an organizational ability and secondarily an individual ability. Of the organizational factors there are two that play an enormous role. Firstly, the centralisation of the organisation and secondly the peculiarities of the internal education system. Centralisation means the extent to which managers participate in decision-making and how decision-making competencies can be divided within the organisation. The peculiarities of the internal education system are understood to be the extent to which external departmental training is typical for the company. This means that it is possible for managers to gain insight into the daily work of other departments as part of the training programme. The internal exchange of information does not take place automatically. The companies must make their contribution to creating a framework that promotes the exchange of information and other exchange processes (Keszey, 2011). The harmony disorders and departmental attitudes contribute to the lack of communication. Particularly when it comes to strategic planning, it would be essential to pay more attention to the mutual flow and exchange of information, especially when it comes to early detection systems and the early identification of opportunities and risks for the company. Furthermore, the flow of information is still affected by whether the software and hardware systems for communication, which are supposed to guarantee the flow, are compatible with each other or not. Conflicts also arise from the fact that the information technology systems of the respective departments and functions, especially in marketing and sales, are different for the discussions, thus also creating a different view of the two. Salespeople often complain that information in IT tools is not always available in time, while marketers react irritably because their tools, which have invested a lot of financial resources and time, are not used properly or even not at all by salespeople. Physical separation doesn't make it easy to build the optimal relationship between marketing and sales. Marketing is usually separated in offices, while sales people are on the road in the market. This situation also causes tension and inadequate communication between the two disciplines (Weber & Schäffer, 2000; Haase, 2006).

#### ***3.4.4. Interdisciplinary approaches to interface analysis***

Once the potential for conflict has been identified, the question arises as to which approaches can be used to counteract it. When one speaks about the investigation of the operational interfaces, it is an evaluation of the cooperation between different operational departments and sub-areas. These cooperations between sub-areas arise as a result of the division of labor and are interdependent. The term interdependent also suggests, the division of labor exerts an influence on the relationship between the respective departments, since different tasks and goals arise as a result of the division of work forces. These influences can be explained by the economic approaches. As it is well known, departments consist of different numbers of employees. These groups of people arise from the variety of functions. These functions can be optimally represented in an organizational chart of a company. In the case of social groups, in contrast to teams, there is not always clarity or agreement about the goals to be achieved. Team members are thus characterized by pursuing a common goal, while control and incentive issues play a greater role. What makes smooth collaboration difficult is the fact that department members identify and categorize as a group. This can create psychological barriers. Social influences can be increased by using social psychological approaches (Haase, 2006).

#### ***3.4.5. Economic approaches***

Economic and organizational issues are always related. The reason for economic problems is simply the shortage of resources. The level of information, skills and knowledge are usually unevenly available and distributed. This fact is the reason why the shortage is counteracted with specialization and exchange. What results from this are numerous and diverse division of labor with different service contents. The emergence of these diverse tasks limits the information processing options and the interest of those involved. Close coordination is therefore of great importance here. The critical point of the organizational problem lies in the definition and coordination of the distribution of tasks (Ordelheide, 1991). The economic boundary conditions also include the correct allocation of the budget, which must be allocated to each individual function. The discrepancies can be illustrated using a good example with marketing and sales. Marketing tends to set product or service prices higher because it knows that price is the most important lever to achieve positive contribution margins. At the same time, sales strives for a relatively low price in order to be able to sell as many products as possible in simple ways. In the case of marketing, the economic constraint, i.e. allocating the budget, could be a little difficult. It is clear that the financial impact that can be attributed to the marketing department is very difficult to measure. Due to the more strategic nature of the marketing activities, these results, e.g. based on market share, only measurable in the long term. On the other hand, the

hiring in sales rather short-term oriented. The positive as well as negative effects of the sales work can be measured directly by the turnover of the company (Kotler & Keller, 2006). In summary, the economic approach can be defined as follows. "Economic theories of the organization analyze the emergence, the change and the basic functioning of efficient structures under competitive conditions as a prerequisite for efficient processes" (Ordelheide, 1991, p. 160).

#### ***3.4.6. Social psychological approaches***

"Social psychology describes and contains the interaction between individuals and the causes and effects of these interactions" (Herkner, 1991, p. 17). Belonging to different social groups according to different criteria, such as gender, skin color, religion, education, profession, employer, etc. more define the social identity of the individual. But if you look at the identity of the individual, the following properties or attributes play a role, for example. Physical characteristics, intellectual characteristics, one's own taste, psychological character and behaviors and attitudes towards others. This is a kind of categorization process on which the person's social identity is based. By analyzing the actions of the individual in certain memberships in social groups, the value of (social) identity can be evaluated. Social identity, in the form of social status, can be defined by belonging to different social groups. The social identity of the individual is therefore more positive, the more social group affiliations are positively assessed by this person and or by others (Türk, 1999). Furthermore, one can say that the more psychological distance there is, the more pronounced the subcultures are in the individual, interrelated areas of the company. This state could be a more logical potential for conflict. The psychological gap between marketing and sales becomes crucial due to their work experience (Dewsnap & Jobber, 2000). But if the psychological differences are put aside, productive collaboration will be much more likely. Therefore, it is critical to understand the way the other department works in order to prevent the possibility of subculture formation. Job rotation or joint training and team building programs could be alternatives for the re-approchement (Haase, 2006). According to Haase, there is a kind of reciprocal dependency between marketing and sales. This results in a need for coordination, which goes hand in hand with a great need for communication (Haase, 2006). In order to increase bi-directional information flows and to reduce conflicts that arise from communications, more cross-functional integration, several meetings and documented information exchange are necessary. In the meantime, however, it has also been proven that the increased exchange of information via telephone, fax, reports, emails and meetings does not contribute to increasing the quality and effectiveness of the interfaces (Kahn & Mentzer, 1998).

### 3.5. Solution approaches for integration

Several different terms describe the working relationship between marketing and sales, e.g. cooperation, interaction, cross-functional collaboration and integration. Collaboration is defined as the intangible activities in which two or more functions, areas work together. Collaboration builds on relationships and teamwork that follow common goals, shared values. This ends in a cooperative internal operating environment (Kahn & Mentzer, 1998). The cross-functional cooperation consists of numerous activities, which include both the development and testing of ideas and concepts, as well as the decision-making regarding final marketing concepts (Ernst, Hoyer & Rübsaamen, 2010). Ernst and his colleagues divide the multiple terms of interfunctional relationships into two groups. It defines a behavior that affects the level of interaction and the level of information sharing between different functions. On the other hand, it defines an attitude approach that affects the integration and form of collaboration (Ernst, Hoyer & Rübsaamen, 2010). Rouzies et al. describe the integration of marketing and sales as a dynamic process in which these two disciplines work together to add value to the company (Rouzies et al., 2005). What ensures highest positive correlation that enhances the performance indicators (key figures) such as corporate and product management performance, but also employee satisfaction, seems to be the collaboration between departments. These collaborations do not arise through formal meetings and documentation, but through the focus on communicating informally. In summary, one can say that the term "interdependent integration" can be used as a synonym for the term "integration" (Kahn & Mentzer, 1998).

On the one hand, cross-functional interrelationships are typical of an open social system that is characterized by the motivation of individual and collective interests. On the other hand, they are characterized by interdependent processes due to specialization and labor sharing (Ruekert et al., 1987a). Thus, the integration of the two disciplines can be critical to overall business performance (Dewsnap & Jobber, 2000). Therefore, marketing and sales have to accept the fact that the customer is responsible for both short-term and long-term success, no matter how big or small the company is, or whether it is regional or international, or how the products sold and services are of a kind ([http://crmdynamics.blob.core.windows.net/docsdeat/Vertrieb\\_und\\_Marketing\\_mit\\_Microsoft\\_Dynamics\\_CRM.pdf](http://crmdynamics.blob.core.windows.net/docsdeat/Vertrieb_und_Marketing_mit_Microsoft_Dynamics_CRM.pdf)). So it becomes clear that companies rely on the effective but well-functioning cooperation between marketing and sales. Different measures could be used to achieve a better integration of the two. Such approaches could build up the organization, information systems and corporate culture (<http://www.marke41.de/content/komplexitaet-marketing-und-verkauf>).

| In focus                     | The goal                     | The solution<br>What is needed to achieve the goals?   |
|------------------------------|------------------------------|--|
| Success criteria             | Profitability<br>(business)  | Comprehensive transparency in all results / KPIs, predictable pipeline and precise forecasts that enable short-term course corrections |
| Vision of the ideal customer | Profitability<br>(customers) | A common definition of the ideal customer that keeps an eye on costs and income over the entire life of the business relationship      |
| Quality of relationship      | Sustainability               | Demand-based joint support - as a result of the continuous collection of information   |
| Process                      | Cooperation and simplicity   | Coordinated planning, shared and central customer database for all employees   |
| Technology                   | Integrated CRM               | Holistic view of the customer, introduction and continuous improvement of workflows based on best practices                            |

**Table 3: Sales and marketing in close cooperation**

Source: URL: [http://crmdynamics.blob.core.windows.net/docsdeat/Vertrieb\\_und\\_Marketing\\_mit\\_Microsoft\\_Dynamics\\_CRM.pdf](http://crmdynamics.blob.core.windows.net/docsdeat/Vertrieb_und_Marketing_mit_Microsoft_Dynamics_CRM.pdf)

### **3.5.1. Organisation**

In order to achieve improvements in the cooperation between marketing and sales, the company management must be involved. The behavior and working methods of these areas must be analyzed and the sub-optimally exploited sales potential determined. The interface problem can only be uncovered and solved with the help of the management (Kirsch et al, 2011). Both divisions have their specific know-how, which they can bring into the work processes. When it comes to cooperation, it is about coordinating this know-how in order to master the tasks that are important for achieving the company's goals (Haase, 2006). In addition, corporate vision and the shared value system can reduce prejudices and influence the way of thinking in a positive direction. But they also ensure mutual trust and a cross-departmental, devoted relationship (Haase, 2006). The clearly defined strategy is essential for achieving the common goals. This strategy must be followed by all competent managers from both disciplines.

Conflicts that have arisen from different goal orientations can be resolved by setting up cross-functional teams, which, however, follow common organizational goals and not individual goals of the individual departments (Maltz et al., 2000). In the process and concept development for the two areas, the composition of the team is decisive with regard to the subsequent success. In these mixed, cross-functional teams, employees from both departments help to overcome the obstacles between the two. On the one hand, it can be achieved that the important conditions of the departments are taken into account. On the other hand, engagement could increase because sales can sometimes reject upcoming good ideas. In the latter case, one could speak of the "not-invented-here" syndrome (<http://www.marke41.de/content/komplexitaet-marketing-und-verkauf>). A positive effect could still be generated if someone from executive management join this team, consisting of marketers and sales people. This would promote greater integration between the two disciplines (Lorge, 1999). It is part of the management's competence to divide the entire sales management processes into sub-processes and to assign them to the individual areas. A potential risk here can be if the organizational areas are not clearly defined and the previously mentioned sub-processes and competencies are not clearly assigned (Kirsch et al., 2011). There is a risk of empty spaces because the responsibilities have not been clearly defined. If this type of formalization is applied across departments, the responsibilities and tasks can be clearly assigned. This helps to reduce the dysfunctional conflicts between the two areas (Haase, 2006). In summary, one can say, as the studies have already shown, that management has a critical role in reducing and overcoming conflicts between interdependent disciplines, e.g. by creating a common culture and by introducing common processes (Le Meunier-FitzHugh & Piercy, 2006).

### ***3.5.2. Information systems***

In this work it was suggested several times that marketing and sales seem to live in different worlds. The exchange of information is essential to become really successful ([http://crmdynamics.blob.core.windows.net/docs-de-at/Vertrieb\\_und\\_Marketing\\_mit\\_Microsoft\\_Dynamics\\_CRM.pdf](http://crmdynamics.blob.core.windows.net/docs-de-at/Vertrieb_und_Marketing_mit_Microsoft_Dynamics_CRM.pdf)). The geographical separation of marketing and sales employees, which is, of course, inevitable, clearly impairs and hampers communication. Compensation through information technologies is also only possible to a limited extent. Insufficient information exchange is often the main cause of poor and ineffective cooperation between two areas. It is also a major cause of conflicts (Haase, 2006). It is also important that a common language is spoken if possible. I.e. Marketing concepts and terms must be clearly defined and understandable for others (Oliva, 2006). As already mentioned in the previous section, the exchange of information should not always take place as part of a meeting but also via cozy

and informal conversations and telephone calls (Kotler & Keller, 2006). Due to the organizational separation of the two departments, in most companies, there is a completely different meeting culture. Logically, the individual employee groups held meetings lead to the fact that information, only insufficiently penetrates to other groups and teams, therefore it suffers from the same level of knowledge and coordination. Due to the specialization and focus of the two disciplines, there are certainly topics that are rather irrelevant for the other area, so it makes more sense not to hold all meetings, but to hold joint meetings in repeating periods. However, to make sure that any important information might not be lost, you could invite a linking pin to an employee of the other department at the department meetings (<http://www.marke41.de/content/komplexitaet-marketing-und-verkauf>). The development of a common concept and concept system is of great necessity. The development of this communication concept could be supported on a computer basis by so-called customer relationship management (CRM) programs (Kirsch et al., 2011). The advantage of this system is the fact that all data on the relevant business development can always be accessed in the current state. There can be a single documented truth that can be used to perform analysis and planning. Another advantage is the direct access from marketing and sales to all customer data and processes. In this way, trends and potential cross-selling and upselling opportunities can be identified. So the role of CRM is "to support employees, processes and technologies to increase sales and improve customer satisfaction." However, users are only well provided with technologies if they offer a well-structured and customized work environment and can be operated intuitively. ([http://crmdynamics.blob.core.windows.net/docs-de-at/Vertrieb\\_und\\_Marketing\\_mit\\_Microsoft\\_Dynamics\\_CRM.pdf](http://crmdynamics.blob.core.windows.net/docs-de-at/Vertrieb_und_Marketing_mit_Microsoft_Dynamics_CRM.pdf)) Such tools allow the spatial distance between two departments to be bridged relatively well in practice. However, there are complex coordination cases that require personal interaction. Such a case could be, for example, the decision to develop a new product or a product launch (Wermeyer, 1994).

### ***3.5.3. Corporate culture***

Organizational questions primarily concern the definition and allocation of processes, a clear allocation of roles and responsibilities, and the decentralization and centralization of governance, power and structures in general. The cultural influencing factors concern e.g. the quality and quantity of the information exchange, the trust, the open attitude and the customer orientation of the company. Through trust and an open attitude towards others, through willingness to learn etc., one builds a corporate culture that can have a positive impact on the relationship between the areas. For effective cooperation between the areas, market and customer-oriented thinking must become an integral part of the corporate culture. This increases

the willingness of the individual areas to cooperate (Haase, 2006). A corporate culture characterized by market and customer orientation and an open attitude also has a positive impact on the relationship between marketing and sales (Haase, 2006). It is well known that marketing and sales have different mindsets and motivations (Rouziès et al., 2005). However, the key would be to build on these differences and use them in the interests of the company (Oliva, 2006). In addition, interpersonal skills and abilities are very important, because with such skills conflicts between functions can be better resolved (Homburg & Jensen, 2007). Another option, in order to have a better understanding of the others, would be to employ marketing staff who already have experience in sales and vice versa (Lorge, 1999). As a result, job rotation could play an important role in increasing empathy and the level of collaboration (Moorman et al., 2007). The change from employees to other departments and other positions helps to develop an understanding, to be able to understand the way of working and thinking, the challenges and limits of the other party. This system makes the employees learn the perspective of the other departments. Later they can take into account the perspectives and ways of thinking they have learned in their decisions. With regard to cooperation, long-term improvements can be achieved through this corporate culture (<http://www.marke41.de/content/komplexitaet-marketing-und-verkauf>). When it comes to managers who also participate in the job rotation system, agreement and understanding for both operational and strategic decisions can be gained from both areas. Job rotation not only serves to develop understanding on one side, but also promotes a high degree of knowledge transfer between the departments. In order to develop and continue a learning culture, the dissemination of silent (implicit) knowledge can contribute to effectiveness and increased productivity. The culture contains other methods that promote cohesion within the company. Joint training programs are important for the development of team spirit (Haase, 2006). The community events can further promote the atmosphere, relationship and culture, as employees can get to know each other a little bit better. That is why nowadays companies organize summer parties, company outings and other celebrations so that the marketing and sales staff can get closer (<http://www.marke41.de/content/komplexitaet-marketing-und-verkauf>). In summary, well-defined and lived corporate culture can reduce the need for strict coordination within the company. Mechanisms such as plans, programs or even personal instructions become partially or completely superfluous and they are supported or even, if only partially, replaced by standards and uniformly lived values (Haase, 2006).

### **3.6. Classification system of the interaction of marketing and Sales and development**

According to some authors, as already described in the previous sections, the contrasts between sales and marketing are most distinct that have an economic or cultural relationship. The

management assigns the budget scope and this distribution leads to the economic disputes. The balance of power within the organization is demonstrated by the budget distribution. The management often tends to distribute more resources to the sales department, which according to their logic, more sales force, can lead to more sales. Not like in the case of marketing, where more marketers don't generate additional revenue. In this way, they see actions more tangible and more measurable, which of course is a rather short-term attitude. The revenue-related analyzes are also easier and faster than with marketing. The culture-related friction between the two disciplines is even more pronounced. The two functions attract people with completely different mindsets and types who also organize their working hours differently. The marketers are more analytical, data and project-oriented due to their training, in contrast to the salespeople who are trained contact-establishers. In the eyes of sales, the performance orientation of marketers does not seem to be entirely realistic because they are not out in the field with customers, but only in their offices. The sales department not only understands and knows the customers' purchase intentions, they also know exactly which product feature contributes to success or to a flop. Despite frequent rejections, they do not appear negatively upset. They work to make deals and contracts. They want to keep moving. It is therefore not surprising that the people from the two departments cannot work together so easily. Management has an enormous role in bringing together the motivation, goals and mindset of the two departments. The assessment of performance is challenging because the marketing budget is not linked to people, but to projects and programs, and it takes a lot more time to achieve success, e.g. with regard to the expansion of competitive advantages, to be able to perceive or even measure projects at all (Kotler et al., 2006).

### **Classification system**

Even in those cases where marketing and sales managers work in accordance, contradictions can be observed between the departments. Previous research of the interactions between the two departments has shown four types or groups of interactions.

- 1. Not defined:** The relationship is characterized by completely independent functioning. There is no flow of information and the plans are created without considering the other. The meetings are held ad hoc and instead of proactive work, they are shaped by conflict resolution.
- 2. Defined:** The procedures and processes are clearly defined and are formulated by rules and specific guidelines. The departments know the functions of the other and insist on their own tasks. They try to realize common positions on potential discussion issues.

The departments work in large events such as exhibitions and congresses, closely together.

3. **Aligned:** It is the higher level of formalization in which the boundaries between the two departments are clear, but at the same time flexible. The interaction, in terms of planning and training, becomes part of the relationship, frequent consultations either. The sales team understands and uses marketing terminology, such as “value proposition” and “brand image”.
4. **Integrated:** The boundaries between the two departments no longer exist. Marketing and sales share the processes, the system and the successes. The preparation of the budget becomes flexible and less prone to disputes. The development of an analysis tool for analyzing the relationship between marketing and sales is made possible. Without such an objective instrument, it would be almost impossible for the management to evaluate the corporate culture and work environment. The cult of "rise and fall together" emerges (Kotler et al., 2006).

The further developed cluster system according to Homburg has five groups instead of four and evaluates the individual group performances. These groups differ in their dimensions as follows, and these are different industries.

1. Ivory Tower: The marketing department's strong customer focus is characteristic of this group, but with very little market and product knowledge. There are no interactions between the marketing and sales departments. I.e. there are hardly any joint planning and interaction processes. Companies belonging to this group have the weakest performance of all examined.
2. Brand-Focused Professionals: The companies belonging to this group have the best performance in terms of market environment and financial results. They have the best developed links such as joint planning and the broadest product and market knowledge. Marketing has a leading role in this group. The main characteristic of the companies in this group is that they tend to have a short-term focus. But there is more intensive interdependent cooperation.
3. Sales Rules: Sales is far superior to marketing not only in terms of product knowledge but also market knowledge, while marketing is more short-term but strongly customer-oriented.
4. Marketing Driven Devil's Advocacy: This group contains the lowest cooperation rate and is classified as a mediocre high-performing group with declining profitability

(Homburg et al., 2008). Marketing and sales are characterized by their already known and traditional properties. I.e. Marketing is long term and product oriented, while sales is short term and customer oriented (Kotler et al., 2006).

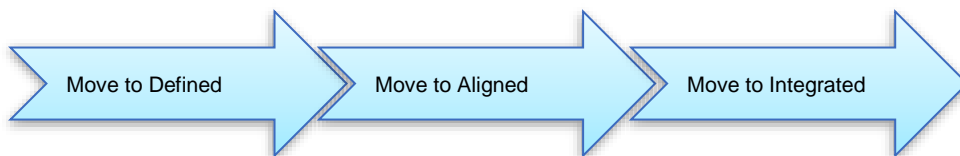
5. Sales Driven Symbiosis: typical is the leadership position of the sales function. The knowledge of marketing and sales complete each other. They are both very closely related and have a strong customer focus.

The following model, in Figure 5, can be perceived as a basis for realizing possible ways to improve the interaction of marketing and sales, which can also positively control company performance (Homburg et al., 2008). As soon as management has realized and evaluated the characteristics of the relationship between marketing and sales, they will most likely intensify the closer cooperation with different measures.

### **Development**

Obviously, if the company recognizes the characteristics of the relationship between marketing and sales, management should develop the close relationship between the two (Kotler et al., 2006).

|  | Undefinide  | Defined  | Aligned   |
|--|---|--|---|
| Don't make any a changes if...                             | The company is small.   | The company's products and services are fairly cut-and-dried.  | The company lacks a culture of shared responsibility.   |
|  | The company has good informal relationship.   | Traditional marketing and sales roles work in this market.   | Sales and Marketing report separately.  |
|  | Marketing is still a sales support function.  | There's no clear and compelling reason to change.  | The sales cycle is fairly short.  |
| Tighten the relationship between Sales and Marketing if... | Conflicts are evident between the two functions.  | Even with careful definition of roles, there's duplication of effort between the functions; or tasks are falling through the cracks. | A common process or business funnel can be created for managing and measuring revenue-generating activities |
|  | There is duplication of effort between the funtions; or tasks are falling through the cracks. | The market is commoditized and makes a traditonal sales force costly   |   |
|  | The functions compete for resources or funding.   | Products are developed, prototyped, or extensively customized during the sales process   |   |
|  |   | Product life cycles are shortening, and technology turnover is accelerating  |   |



**Table 4: Do we need to be more aligned?**

Source: Kotler et al., 2006

Table 4 shows how the development stages change.

**“Goes into defined over”**: In the case of a smaller company, the members of the two disciplines enjoy a relaxed and informal relationship. This relationship should not be disturbed unless conflicts arise frequently. These conflicts result from the scarcity of resources or the unclear assignment of roles and areas of responsibility. At this level, it is the inevitable task and responsibility of upper management to clarify roles and establish rules for working together.

**"Goes over to the balanced one"**: the well-defined relationship between marketing and sales will no longer be able to function in the event of a change in the respective focus industry. Should the market become completely saturated, a sales team will gradually become too

expensive. Or should the market develop in the direction of individual requirements or needs, there is a great need to develop sales skills further. In this case, the management must strive for a balanced, coordinated cooperation between marketing and sales, in addition to the generation of new common team skills. These can be achieved by initiating the following points:

- The motivation for formal communication
- The formation of common tasks, job rotation
- The involvement of a marketer as a liaison to work with sales
- The use of marketers and salespeople in the same geographic location
- The promotion of the flow of information with a special focus on the information that comes from sales
- The initiation of joint trainings and meetings.

**"Goes over to integrated":** In today's complex and rapidly changing situations, it is crucial that marketing and sales are integrated. This integration means the merging of processes such as planning, goal setting, customer evaluation and value creation. As a result, the coordination of processes and systems does not become easier. But in order to build a unity between the two departments, the key figures and motivation systems must be coordinated. According to the literature, the following points must be focused on for integration:

- The appointment of a manager, e.g. CRO or CCO, whose responsibility is to coordinate the goals of sales and marketing
- The determination of tasks, areas of responsibility and process sections of the two disciplines
- The separation of the marketing team into two groups according to operational and strategic tasks
- The establishment of common sales targets and motivation systems
- The merging of key figures from marketing and sales

Many companies consider the relationship between the two departments to be poor. Nevertheless, not every company wants or is able to bring about an improvement. The experience and unexploited knowledge of the salespeople could provide customer satisfaction or support in developing new products in the future. All of these facts could help organizations bring together relationship building skills and analytical skills. The most important thing is that all of these developments contribute to increasing sales and profits (Kotler et al., 2006).

### **3.7. Effect of globalization**

With globalization accelerating, there is an increasing number of international organizations where the employees and management might be of several different nationalities. Being a different nationality entails that the employees come from various cultural backgrounds in a general and a corporate sense as well. The cultural diversity of a firm can enhance innovative processes. Kim et al. point out, „The cognitive diversity brought by foreign nationals enhances decision-making by increasing consideration of the number and innovativeness of alternatives ...” (Kim et al., 2015: 6). On the other hand, cultural diversity of international firms also poses challenges. As Fatehi and Choi underlines, „... employees from different cultures have different views about the proper job-related behaviour and expected management behaviour.” (Fatehi & Choi 2019: 344). Swami and Shankar (2018) in their qualitative study on German firms operating in Mexico conclude that organizational culture is deeply affected by the presence of multiple nationalities within a firm. Ferris et al. (2018) demonstrate, through a quantitative study of Eastern and Western employees how their cognitive style is significantly different.

### **3.8. Situation of the pharmaceutical sector**

In addition to being a virtually unresearched area, there are several reasons why I decided to examine possible differences specifically between PMC and NPMC. The pharmaceutical industry has been growing at an astounding rate globally in recent years (Buncher & Tsay, 2019). In Hungary, similarly to the USA (United States of America) or Japan over 2 % of the GDP is pharmaceutical spending (Organisation for Economic Co-operation and Development, 2017). Over 30% of all healthcare spending in Hungary is pharmaceutical spending (Inotai, Csanádi, Harsányi & Németh, 2017). For a country like Hungary, the development of knowledge intensive industries relying heavily on research and development can be a sound long-term economic strategy (Antalóczy & Sass, 2018).

The sector needs to be viewed in the context of strict EU (European Union) regulations and legal frameworks with regards to patents, marketing authorisation, pricing and other market surveillance activities (Schweitzer & Lu, 2018; Garattini & Padula, 2018). The complex and strict safety regulations and the long authorisation and special patenting procedures (Kumazawa, 2017) set PMC apart from other NPMC in many ways. The detailed discussion of these differences would go beyond the scope of this work, however, I attempt to uncover possible differences between PMC and NPMC in optimising the cooperation of SM departments. As PMC are different in many respects from NPMC it was hypothesized that there might be differences in how employees of SM departments evaluate factors that the SM optimisation literature has found to significantly affect the overall efficiency of the companies.

The pharmaceutical industry is one of the most complex sectors and the key corporate task in this sector is acquiring new markets, which is a major challenge for the responsible SM departments (Katsanis, 2015). The role of sales and marketing to win new markets and patents has been strengthening in PMC firms (Nagy, 2018). When it comes to meeting market and customer needs, the two most important departments are SM (Bauer, 2000; Bruhn & Homburg, 2004; Pepels, 2012; Keszey & Biemans, 2016). It is evident that the successful management of any organisation requires future-orientated strategic alignment of these departments (Homburg, Vomberg, Enke & Grimm, 2015). The past decades have seen a large amount of research on the productive cooperation between sales and marketing, leading to the conclusion that harmonious cooperation between these areas has a marked positive effect on the organisation's performance (Kotler, Rackham & Krishnaswamy, 2006; Guenzi & Troilo, 2006, 2007; Biemans, Brenčić & Malsche, 2010; Ernst, Hoyer & Rübsaamen, 2010; Snyder, McKelvey & Sutton, 2016). Sales and marketing departments are mutually dependent on one another, since one's performance is greatly affected by the performance of the other (Dewsnap & Jobber, 2000; Le Meunier-FitzHugh & Piercy, 2007; Le Meunier-FitzHugh & Le Meunier-FitzHugh, 2016).

Out of all the processes contributing to profitability in PMC, a smooth cooperation between these two departments is key (Krush, Malsche, Al-Khatib, Al-Jomaih & Katoua, 2015). Thus, what management needs to do is build trust and efficient cooperation between these departments, relying on information and know-how from sales and incorporate it into strategic marketing decisions in order to promote product development and competitiveness.

PLS path modelling is a second generation SEM (Structural Equation Modelling) approach that can be efficiently used if normality of the data cannot be assumed and the sample size is relatively small and the measurement level of the data is ordinal (Tenenhaus, Vinzi, Chatelin & Lauro, 2005; Wong, 2013; Henseler, 2018). PLS is widely used in marketing research (Hair, Ringle & Sarstedt, 2012). As Hair et al. point out "Researchers especially appreciate SEM's ability to assess latent variables at the observation level (outer or measurement model) and test relationships between latent variables on the theoretical level (inner or structural model)." (Hair et al., 2012, p. 414).

The choice of variables (V) in the measuring instrument and subsequently in the constructs (blocks) was made based on what earlier SM literature consider key factors in determining the success of SM cooperation. Owing to the lack of an available and adequate measuring instruments in the SM literature a compact but adequate rating scale as measuring instrument was developed.

Peer-reviewed literature on how the optimisation of the SM interface is different in PMC and NPMC is virtually non-existent. Even recently published books (Lidstone & MacLennan, 2017; Holden, 2018) on pharmaceutical marketing do not analyse the importance of SM interface optimisation. Also, while there is an abundance of literature on the utilization of PLS path modelling in the sales or marketing context in general (O'Cass, Ngo, & Siahtiri, 2015; Swaim, Maloni, Bower & Mello, 2016; Abu Farha & Elbanna, 2018) and for PMC in general (Azizi, Ghytasivand & Fakharmanesh, 2012; Kohan, Rafie & Hosseini, 2014), application of this SEM technique for SM optimization of PMC is not available either. In the literature review section literature on the factors selected for scrutiny and previous context-relevant application of the PLS path modelling as well as literature addressing why SM management in PMC and NPMC might be different will be reflected upon.

From my personal experience as a salesman and a marketing professional, I can say that regular peer-to-peer information sharing, multiple joint interdisciplinary meetings, and a well-defined corporate vision actually contribute positively to the coordination and integration of marketing and sales. Clarifying responsibilities and communicating leadership culture play a strategic role in improving reconciliation processes. All of this strengthens the employee's sense of belonging, paving the way for mutual trust. All this was supported by the literature and the results of my study.

### **3.9. Qualitative and quantitative analysis options in SMI**

#### ***3.9.1. Quantitative analysis: Using Voyant Tools***

Qualitative research has evolved into an accepted and invaluable research method since it was first advocated by German sociologists Max Webber and Georg Simmel (Dey, 2003; Gummesson, 2005; Lapan, Quartaroli & Riemer, 2011; Mayer, 2015; Flick, 2018). The false dichotomy between the two research methods has by now been resolved as there are more and more studies employing mixed research methodologies that take advantage of both qualitative and quantitative data collecting and data processing techniques (Molina-Azorin, Bergh, Corley & Ketchen, 2017; Bryman, 2017; Braun, Clarke, V., Hayfield, N., & Terry, 2019).

Marketing research can be traced back to the first part of the 19th century when the first market-focused data collections took place in the USA (Lockley, 1950). Since then marketing research has gone a long way and today there have accumulated an abundance of literature on both qualitative (Carson, Gilmore, Perry & Gronhaug, 2001; Belk, 2007) and quantitative research (Franses & Paap, 2001; Müller, Boda, Ráthonyi, Ráthonyi-Odor, Barcsák, Könyves et al., 2016; Lipowski, Pastuszek & Bondos, 2018) used in this field.

Qualitative research methods have been used in marketing research for decades (Bellenger, Bernhardt & Goldstucker, 2011; Wilson, 2018). However, analysis of qualitative data, usually in the form of the transcripts of various interview techniques or answers to open-ended questions in self-reported questionnaires, is usually restricted to quoting passages, typical sample answers or themes that emerge during some form of content analysis (Hsieh & Shannon, 2005).

Quantitative analysis of qualitative data (Young, 1981), other than word clouds, is extremely scarce in marketing research and not frequently used in other social sciences either (Bernard & Ryan, 1998). On the one hand, it is understandable, as the transformation of a coherent text, which is a complex, multi-layered information source with contextualised meaning, into smaller meaning units necessarily entails some loss of information (Krippendorff, 2018). It might be tempting to think that qualitative analysis of qualitative data does not result in information loss, however, as Bernard aptly points out. Quantitative analysis involves reducing people (as observed directly or through their texts) to numbers, while qualitative analysis involves reducing people to words (Bernard, 1996: page 10). Obviously, the validity and generalisability of the results depend on the research design including sampling methods as well as the form of analysis applied to the collected data.

In order to be able to apply quantitative statistical methods with qualitative data the answers of respondents are typically coded. Coding can be as complex as to include sixteen steps (Assarroudi, Heshmati-Nabavi, Armat, Ebadi & Vaismoradi, 2018). At the end of the coding process longer meaning units are reduced to one word. These one-word codes can then be analysed as categorical data using quantitative statistical methods. However, there are statistical methods, such as the latent Dirichlet allocation used for topic modelling (Jacobi, Van Atteveldt & Welbers, 2016; Toubia, Iyengar, Bunnell & Lemaire, 2019) to mention one, which can be used without any previous coding.

Voyant Tools is a web-based, free, open source text analysis software package that offers versatile and sophisticated text manipulation capabilities useful for both the beginner and advanced humanities scholar (Welsh, 2014; Uboldi & Caviglia, 2015; Bradley, 2018; Miller, 2018). It has already been used as a quantitative text analysis tool in several peer-reviewed articles (Steiner, Agosti, Sweetnam, Hillemann, Orio, Ponchia et al., 2014; Clouder & King, 2015; Williams, Inversini, Buhalis & Ferdinand, 2015; Zahedzadeh, 2017). Data visualisation in social sciences research is an under-researched area (Uboldi & Caviglia, 2015).

Via the analysis of data on SMI, the present work demonstrates how Voyant Tools can be used to quantitatively analyse qualitative data. The harmonious, constructive and efficient

cooperation between the SM departments are considered a key element of customer satisfaction and strategic success in a fast-changing global market. The SMI can be burdened with various conflicts and dysfunctions which (Malshe, Friend, Al-Khatib, Al-Habib & Al-Torkistani, 2017; Cometto, Labadie & Palacios, 2017), if not investigated and properly managed, can undermine the overall performance of the company. Thus, it is of utmost importance to obtain a clear picture of the state of SMI and its possible problems. Even though the optimization of the SMI is obviously a crucially important challenge, the SMI is a seriously under researched area within business research and the application of quantitative techniques to qualitative data in connection with SMI has not been researched at all. Previous studies on the SMI typically applied qualitative data collection and processing methods such as personal interviews of sales and marketing managers with summaries of the main findings, but no coding of text (Matthyssens & Johnston, 2006), minimal coding of interview data (Hughes, Le Bon & Malshe, 2012) or a detailed and rigorous coding process (Malshe & Al-Khatib, 2017).

### ***3.9.2. Qualitative analysis: PLS Modelling***

PLS-PM (Partial Least Square-Path Modelling) is gaining increasing popularity in scientific research (Hair et al., 2016). In contrast to CB-SEM (Covariance Based-Structural Equation Modelling), which is best applied in confirmatory studies, PLS-PM is the ideal choice when the study is exploratory in nature and the variables are ordinal and categorical (Schuberth et al., 2018) and non-normally distributed (Sarstedt et al., 2016). PLS-PM groups questions under the same topic into blocks, and then examines the paths and links between these blocks in terms of correlation and regression as well as their strength. The model is exploratory, so it is able to identify irrelevant links. The path model creates a common latent variable from the observed factors in each block (external factor model or measurement model) based on their correlations. Regression links between the latent variables are explored by the internal structural model.

## 4. RESEARCH HYPOTHESES

### 4.1. Nationality differences affecting the cooperation of SM: PLS Modelling of data from six international companies

In order to optimize the SM cooperation in an international company with both Hungarian and other nationality employees it has to be examined whether they evaluate various factors bearing upon the SM relationship differently. Based on factors considered important for the harmonisation of SM cooperation in the literature I pre-selected variables 12 variables that can have a potentially significant impact on SM cooperation and formulated my research questions and hypotheses (H) based on their hypothesized interactions. I formulated the following research questions and hypotheses:

Q1: How does information exchange affect SM cooperation?

*H1: The more regular and frequent information exchange between SM is, the more cooperation there is between the two departments.*

Q2: How does coordination and the definition of roles and responsibilities affect SM cooperation?

*H2: The better the SM coordination is (more frequent common meetings, training sessions, common goals) and the clearer roles and responsibilities are defined, the better the SM will be.*

Q3: How does corporate vision and its communication affect SM cooperation?

*H3: The clearer the company's vision is defined and communicated, and the better the company's general communication is, the more efficient the SM cooperation will be.*

Q4: How does information exchange affect SM cooperation?

*H4: Information exchange in any shape or form has a positive and equal effect on the coordination of SM.*

Q5: Do information exchange, coordination and corporate vision have a combine effect on SM cooperation?

*H5: Information exchange, coordination and corporate vision as elements of the company's management culture also have a combined effect on the cooperation between SM.*

Q6: Which of the three elements in Q5 have the biggest impact on SM cooperation?

*H6: Of all aspects of management culture, coordination has the most significant role in improving cooperation.*

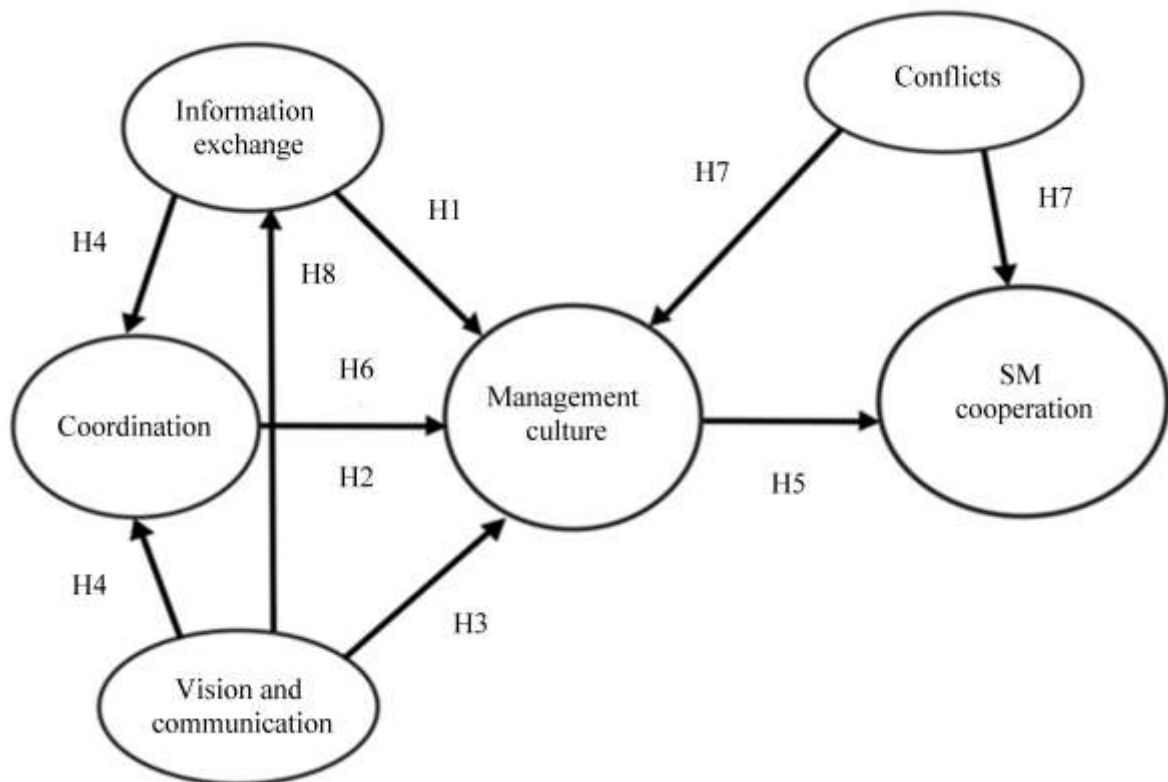
Q7: What impact do conflicts between SM have on SM cooperation?

H7: *The more frequently conflicts between the two departments occur, the less cooperation there will be between them, and conflicts have a direct negative effect on cooperation.*

Q8: How does corporate vision and its communication affect information exchange between SM?

H8: *The clearer the corporate vision is defined and communicated, and the better the company's general communication is, the better the information exchange between SM will be.*

The above hypotheses will be tested separately for Hungarian and foreign employees of my sample to see how nationality differences might affect factors determining the efficient cooperation of SM. Figure 3. summarizes the hypotheses and depicts the variables in blocks.



**Figure 3: Research modell**

*Source: Own editing*

## **4.2. PLS Modelling of factors affecting the cooperation between sales and marketing in pharmaceutical and non-pharmaceutical manufacturing firms**

During the investigation of PMC and NPMC manufacturing companies my research attempts to find answers to the following research questions:

1. How does information exchange affect SM cooperation in PMC and NPMC?
2. How does coordination (common meetings, training sessions, goals and clearly defined responsibilities) between SM affect SM cooperation in PMC and NPMC?
3. How does the company vision and its communication affect SM cooperation in PMC and NPMC?
4. How does management culture (information exchange, coordination, vision) affect SM cooperation in PMC and NPMC?
5. How do conflicts between SM affect SM cooperation in PMC and NPMC?
6. How does a shared perception of the ideal customer affect SM cooperation in PMC and NPMC?

## **4.3. Using Voyant Tools to investigate the sales-marketing interface (SMI)**

During the quantitative analysis I have analysed six manufacturing companies. Answers to three open-ended questions were visualised in various ways using the online toolset of Voyant Tools. Respondents had to answer the following three questions:

1. Please describe your daily tasks in a few sentences. [ ]  
|SEP|
2. What are the tasks of the other (sales or marketing) department? [ ]  
|SEP|
3. How is sales-marketing cooperation managed in your company? [ ]  
|SEP|

## **5. METHODOLOGY**

### **5.1. Nationality differences affecting the cooperation of SM: PLS Modelling of data from six international companies**

#### ***5.1.1. Sampling procedure***

Six international (Austrian, Hungarian, German, English) companies were involved in the research. As the present study is exploratory in nature, a sample of convenience was considered appropriate. Out of the six companies one is a hardware company, three are pharmaceutical companies and two are manufacturers of medical instruments. Online self-reported questionnaire was used to gather information. The original Hungarian questionnaire was translated into English and German to make it easier for the respondents of different nationalities to interpret the questions. The link was sent out by the HR managers of the six companies to the marketing and sales departments employees as well as the members of the general management in a letter of invitation which contained a brief explanation of the aim of the research and information about its full anonymity. The invitation letter was delivered to 530 potential respondents on 1 August 2018 and the questionnaire was closed on 1 September 2018. Respondents had the possibility to pause their completion of the questionnaire and return to it later during this one month period. The questionnaire included both open-ended and closed-ended questions, however, with the help of PLS-PM to reveal non-normally distributed ordinal data, only answers to closed-ended questions are analyzed and discussed in this section. Answers to questions 1.3, 1.4, 1.5, 1.9a-i and 2.2 provided the input data for the statistical analyses and model building. The English version of the questionnaire can be found in the Appendices section of the work.

#### ***5.1.2. Methods***

Questions in the questionnaire were grouped in the following blocks: information exchange (Questions 1.9c, 1.9h), coordination (Questions 1.9b, 1.9d, 1.9e, 1.9g), vision and communication (Questions 1.3, 1.4, 1.5), conflicts (Question 1.9f), cooperation (Questions 1.9a, 1.9i). The model also includes a superblock called management culture. This block included information exchange, coordination and vision and communication. The reason behind the creation of the superblock was the fact that I wanted to examine the effects of coordination, information exchange and vision on the sales-marketing cooperation as a combined set of factors as well, rather than just as individual factors. Respondents were asked to rate the 12 items, presented in table 3, on a scale of 1 to 5 to reflect their perception of the extent to which the individual factors are present in the subject company. The 5-point Likert

type scale, a type of psychometric response scale in which responders specify their level of agreement to a statement typically in five points: (1) Not At All; (2) Of Little Importance; (3) Of Average Importance; (4) Very Important; (5) Yes Completely. The formulated research questions and hypotheses: see point 4.1.

I created a Latent Variable Partial Least Squares Path Model (LVPLSM) based on the blocks of questions in my questionnaire. In path modelling /LVPLSM/ (Wold, 1975; Tenenhaus et al., 2005; Rigdon, 2016) questions under the same topic are grouped into blocks, and then the paths and links between these blocks in terms of correlation and regression as well as their strength are examined. The model is exploratory, thus it is suitable for eliminating insignificant links. The path model creates a common latent variable from the observed factors (input variables) in each block (external factor model or measurement model) based on their correlations. Regression links between the latent variables are explored by the internal structural model. I applied the GoF (Goodness of Fit) indicator to measure the goodness of the model. This indicator is calculated via geometrical average as the average R<sup>2</sup> value of the regression estimates of the average variance extracted (AVE) explained by the blocks and the internal structural model. The AVE indicator needs to be above 0.4-0.5 (Chin, 1998). In terms of R<sup>2</sup> values, 0.02; 0.15 and 0.35 are considered low, medium and high reference values, respectively (Cohen, 1988). In terms of GoF, reference values, 0.10; 0.25 and 0.36 are considered as unacceptable, acceptable and good model fit, respectively (Wetzels et al., 2009). In the interpretation of latent variables, I can only include those items in the block that have a correlation coefficient of above 0.5. I applied the Fornell and Larcker criterion to measure the discrimination potential of the model (Fornell and Larcker, 1981). As per Fornell and Larcker's criterion (1981), the individual latent variables should explain more of the items in their own block than all the other latent variables. Thus, the Fornell and Larcker test shows whether or not the different blocks are sufficiently separated from one another. For the estimation of the LVPLS (Latent Variable Partial Least Squares) model I used Version 0.4.9 of the PLS-PM (Tools for Partial Least Squares Path Modeling) package of the 3.4.4. "Someone-to-lean-on" version of the R statistics software.

I applied the Spearman rank correlation to explore the correlations between factors on the ordinal scale level. The Spearman correlation measures the X and Y runs and takes values between -1 and 1 (Spiegel and Stephens, 2008).

A concordance test was carried out in order to establish the level of agreement between various groups of respondents with regard to the ranking of specific factors, i.e. how unanimous the ranking was. In the concordance test I considered two types of group creating factors (yes/no

questions, field of work) and calculated Kendall's concordance coefficient (Kendall & Babington Smith, 1939).

In the case of multiple choice questions, a table is presented to show the proportions of respondents marking each individual option as well the percentages of each answer option against the total number of answers.

## **5.2. PLS Modelling of factors affecting the cooperation between sales and marketing in pharmaceutical and non-pharmaceutical manufacturing firms**

### **5.2.1. Sampling procedure**

My research population was made up of sales, marketing and management staff of 16 PMC and 31 NPMC. Out of the 16 PMC 7 were big companies (number of employees  $\geq 250$ ) and 9 medium-sized companies ( $50 \leq$  number of employees  $\leq 250$ ). Out of the 31 NPMC 14 were big companies (number of employees  $\geq 250$ ) and 17 medium-sized companies ( $50 \leq$  number of employees  $\leq 250$ ). 427 of the 1033 questionnaires were returned (PMC=147; NPMC=280), which is a response rate of 41%. 6 questionnaires contained so many missing data that they were excluded from the statistical analysis, which was carried out using 421 completed questionnaires. Table 5 shows the percentage distribution of respondents by departments and company type.

**Table 5: Percentage distribution of respondents by departments and company type**

| Type of company              | Marketing | Sales | Management |
|------------------------------|-----------|-------|------------|
| Pharmaceutical companies     | 42%       | 44%   | 14%        |
| Non-pharmaceutical companies | 17%       | 57%   | 26%        |
| Entire sample                | 28%       | 51%   | 21%        |

*Source: Own editing*

**Table 6: Variables used for PLS path modelling**

|                                  |  |
|----------------------------------|--|
| Vision (V1)                      | The company management has a clear vision for the future                         |
| Communication of the vision (V2) | The management communicates the company vision efficiently                       |
| SM communication (V3)            | The communication between SM in general is very good                             |
| Information exchange (V4)        | Information exchange between SM departments is optimal                           |
| Common IT, CRM (V5)              | The inter-divisional IT platform (CRM system) greatly helps information exchange |
| Common training sessions (V6)    | SM staff members have regular common training sessions                           |
| Common goals for SM (V7)         | SM departments share a common goal they both work for                            |
| Common Meetings for SM (V8)      | There are regular common meetings for SM staffs                                  |
| Roles & responsibilities (V9)    | SM have clearly defined areas of responsibilities                                |
| Ideal customer (V10)             | SM share a mutual perception of the ideal customer                               |
| Conflicts (V11)                  | Conflict negatively affect SM cooperation  |

*Source: Own editing*

Table 6 contains the 11 statements that respondents had to rate on a 5-point Likert scale (1= totally disagree, 5=totally agree). The answers to these statements provided the basis of PLS modelling. In the questionnaire respondents were also asked what areas they would want to change the most, in order to improve cooperation. The complete questionnaire can be found in the appendices section.

### **5.2.2. Methods**

Questions were grouped in the following blocks: (1.) information exchange (V4, V8), (2.) coordination (V5, V6, V7, V9), (3.) vision (V1, V2) and communication (V3), (4.) conflicts (V11), (5.) shared perception of ideal customer (V10).

In developing my measuring instrument two main considerations were given the biggest importance. Firstly, an instrument was needed that has an adequate number of variables to serve as a basis for PLS path modelling (Hair, Ringle, & Sarstedt, 2011), but is short enough to ensure the highest possible response rate. Secondly, these eleven variables were chosen as I considered them, based on my findings after consulting the literature, to be key factors in determining the cooperation between SM.

In earlier literature on SM cooperation and integration two rating scales have been used. One is a three-item scale developed by Hult, Ketchen and Slater (2002) focusing on shared vision of SM and a twenty-item scale suggested by Kotler et al. (2006). While I incorporated some of the ideas (e.g. shared vision, common training programmes) I considered these two scales inadequate to measure the five blocks of questions detailed earlier. My research attempts to find answers to the research questions (see point 4.2.).

For the PLS modelling, the LVPLSM method described above was used.

The Spearman rank correlation was applied to explore the correlations between factors on the ordinal scale level.

The Chi square test was applied to the proportions of the areas employees would like to change in each department.

In the case of multiple choice questions, a table is presented below to show the proportions of respondents marking each individual option as well the percentages of each answer option against the total number of answers.

### **5.3. Using Voyant Tools to investigate the sales-marketing interface**

#### ***5.3.1. Sampling procedure***

As it is an exploratory study a sample of convenience was used. Six different manufacturing companies (number of employees  $\geq 250$ ) were involved in the data collection process. The main criterion of qualifying into the research was the presence of a separate sales and marketing department within the company. Data collection was conducted via a self-reported online questionnaire, which contained three open-ended questions. The link to the questionnaire was emailed to the Human Resources managers of the six companies and were forwarded to the SM employees by them. The data was gathered during a two-week period in March 2019. Out of the 352 questionnaires sent out to potential respondents I received 124 fully completed ones which served as the basis for my analysis. 75 of them were marketing employees and 49 sales employees. As there were Hungarian, Austrian and German companies involved the questionnaires were distributed in three languages (German, Hungarian, English). As the first step in processing the data the returned questionnaires filled out in German or Hungarian were translated by a qualified translator into English. Respondents had to answer three questions: see point 4.3.

### 5.3.2. *Methods*

For limitations of space most method demonstrations are performed on the third question, as it is the main focus of the analysis. As my work contained only three questions and the number of completed questionnaires is small too, it was possible to compare the results of quantitative analysis carried out with the help of tools of Voyant and see how accurate quantitative results are. Obviously, Voyant Tools is especially useful with large textual data sets when content analysis methods are extremely time-consuming. Out of the twenty-four different text analysis tools this paper attempts to demonstrate the use of four:

- **Cyrrus Tool**

It is a word cloud creation tool which positions the most frequent words centrally and in the biggest size in the cloud. It is possible to exclude words using the „Stop word,, function or specify the maximum number of words to be fetched from the corpus.

- **Correlation Tool**

It allows the researcher to check which words tend to occur together within the text. Negative correlations signal words with an inverse occurrence pattern. In order to be able to perform Pearson correlation calculations the text is divided into segments. The software examines how many times words appear in the various segments and the resulting numerical serves as the basis of the correlations. The significance level for each pair of words is also provided. Pearson correlation is typically applied with assumptions of normal distribution. However, several studies demonstrated that the Pearson correlation is robust enough to tolerate the violation of the above-mentioned typical assumption (Havlicek & Peterson, 1976; Fowler, 1987). Still, the results should be interpreted with caution.

- **Topics Tool**

This tool uses a rather sophisticated algorithm called latent Dirichlet allocation (LDA). It is a topic model which assumes that words in the text belong to latent topics. It also assumes that there is a relatively small set of topics with a relatively small set of words used frequently by the topic. With the help of this tool term clusters and their distribution can be discovered. It is possible to set the number of topics to optimise modelling for.

- **Scatter Plot Tool**

This is probably the most sophisticated tool among the text analysis tools of Voyant. The analysis functions of this tool include Principle component analysis, Correspondence analysis, document similarity check and t-SNE (t-Distributed Stochastic Neighbour Embedding)

analysis. All four cluster plotting analyses uses algorithms that creates a 2 (or 3) dimensional representation of the data in a multidimensional space. The number of dimensions and the number of clusters to be created can be set by the analyst. Out of the four types of plotting methods t-SNE is discussed in this paper. t-SNE is a prize-winning method that can be applied especially well to high dimensional data sets such as qualitative textual data (Van Der Maaten & Hinton, 2008; Van Der Maaten, 2014). Cao and Wang define the method as follows, “t-SNE tries to preserve local neighbourhood structure from high dimensional space in lowdimensional space by converting pairwise distances to pairwise joint distributions, and optimize low dimensional embeddings to match the high and low dimensional joint distributions.” (Cao & Wang, 2017: page 1.)

There is a tuneable function of t-SNE in Voyant, the level of perplexity (0-100) which largely determines, what cluster model is plotted. If the data is very dense perplexity close to 100 might be the most suitable but with lower density data lower levels of perplexity will yield the best results, that is the most accurately identified clusters. The algorithm behind perplexity examines the “local” and “global” aspects of the data set, that is, it tries to determine the number of closest neighbours of each word (data points) or expressed differently, it can be “measure of the effective number of neighbours” (Van Der Maaten & Hinton, 2008: page 2582).

## 6. RESULTS

### 6.1. Nationality differences

Out of the 530 potential respondents 106 completed the questionnaire, which means a 20% response rate. 30.2% (32) of those completing the questionnaire were foreign employees and 69,8% (74) were Hungarians. 51% of respondents work in sales, 21% work in general management and the remaining 28% of respondents work in marketing. The numbered columns of tables 7 and 8 show the Spearman correlations. The values below the main diagonal of the correlation matrix are the actual correlations, whereas the values above the main diagonal are significance values corresponding to the correlation coefficient. There are no values in the main diagonal as each individual factor fully correlates with itself and the value of the correlation coefficient would be 1. I highlighted all correlation values above 0.4 in bold, these are considered moderate correlations. All correlations above 0.6 were marked in italics, these are considered strong correlations.

**Table 7: Descriptive statistics of the variables of the model for Hungarian employees**

|     | Variables                         | M    | Std  | 1            | 2            | 3            | 4            | 5      | 6            | 7            | 8            | 9            | 10           | 11           | 12    |
|-----|-----------------------------------|------|------|--------------|--------------|--------------|--------------|--------|--------------|--------------|--------------|--------------|--------------|--------------|-------|
| 1.  | Vision (VC1)                      | 3.32 | 1.07 |              | 0.000        | 0.000        | 0.001        | 0.004  | 0.005        | 0.000        | 0.004        | 0.000        | 0.001        | 0.488        | 0.000 |
| 2.  | Communication of the vision (VC2) | 4.35 | 1.26 | <b>0.582</b> |              | 0.000        | 0.000        | 0.003  | 0.020        | 0.000        | 0.013        | 0.000        | 0.004        | <i>0.951</i> | 0.000 |
| 3.  | Communication (VC3)               | 3.75 | 0.86 | <b>0.564</b> | <b>0.590</b> |              | 0.000        | 0.007  | 0.013        | 0.000        | 0.072        | 0.000        | 0.001        | 0.105        | 0.000 |
| 4.  | Information exchange (II1)        | 4.00 | 1.01 | 0.380        | <b>0.472</b> | <b>0.487</b> |              | 0.012  | 0.000        | 0.000        | 0.000        | 0.000        | 0.000        | 0.001        | 0.000 |
| 5.  | CRM (II2)                         | 3.27 | 1.34 | 0.333        | 0.342        | 0.337        | 0.292        |        | <i>0.878</i> | 0.006        | 0.058        | 0.023        | 0.003        | 0.003        | 0.001 |
| 6.  | Training (CR2)                    | 3.11 | 1.39 | 0.327        | 0.278        | 0.314        | <b>0.452</b> | 0.018  |              | 0.000        | 0.000        | 0.000        | 0.001        | <i>0.896</i> | 0.000 |
| 7.  | Common goals (CR3)                | 2.74 | 1.19 | <b>0.486</b> | <b>0.489</b> | <b>0.470</b> | <i>0.752</i> | 0.317  | <b>0.495</b> |              | 0.000        | 0.000        | 0.000        | 0.497        | 0.000 |
| 8.  | Meetings (CR4)                    | 3.84 | 1.25 | 0.330        | 0.293        | 0.228        | <i>0.630</i> | 0.223  | <b>0.458</b> | <i>0.637</i> |              | 0.000        | 0.000        | 0.161        | 0.000 |
| 9.  | Roles and Responsibilities (CR1)  | 3.83 | 1.06 | <b>0.519</b> | <b>0.514</b> | <b>0.516</b> | <i>0.651</i> | 0.268  | <b>0.558</b> | <i>0.667</i> | <b>0.583</b> |              | 0.000        | <i>0.725</i> | 0.000 |
| 10. | Ideal customer (CP1)              | 2.74 | 1.19 | 0.381        | 0.334        | <b>0.416</b> | <i>0.611</i> | 0.340  | 0.388        | <i>0.617</i> | <b>0.440</b> | <i>0.717</i> |              | -0.108       | 0.000 |
| 11. | Conflicts (CF1)                   | 3.75 | 0.99 | 0.083        | 0.007        | -0.208       | -0.376       | -0.345 | 0.016        | -0.081       | -0.167       | -0.043       | 0.368        |              | 0.004 |
| 12. | Cooperation (CP2)                 | 3.75 | 1.02 | <b>0.486</b> | <b>0.503</b> | <b>0.469</b> | <i>0.785</i> | 0.390  | <b>0.512</b> | <i>0.740</i> | <i>0.642</i> | <i>0.746</i> | <b>0.608</b> | -0.338       |       |

Source: Own editing

The table 7 shows (see table 3) the outstanding role of information exchange in the domestic sample, as this is the factor that correlates with the most other factors /e.g. with coordination factors (6)-(9)/. These results are in line with previous studies focusing on factors affecting the optimization of the sales-marketing interface (Cometto et al., 2017). Cooperation's high correlation with information exchange suggests that the more efficient information exchange between SM is, the better their cooperation will probably be. The strong correlation between coordination elements such as common and clearly defined roles and responsibilities and cooperation seems to support earlier research (Lee, 2004) also undelying the importance of these influencing factors.

The strong correlation between vision, clear roles and responsibilities and common goals (Hughes et al., 2012) suggests that a clearly defined vision makes it easier to define roles and responsibilities, set common targets and also provide the necessary conditions for better communication between the two parties.

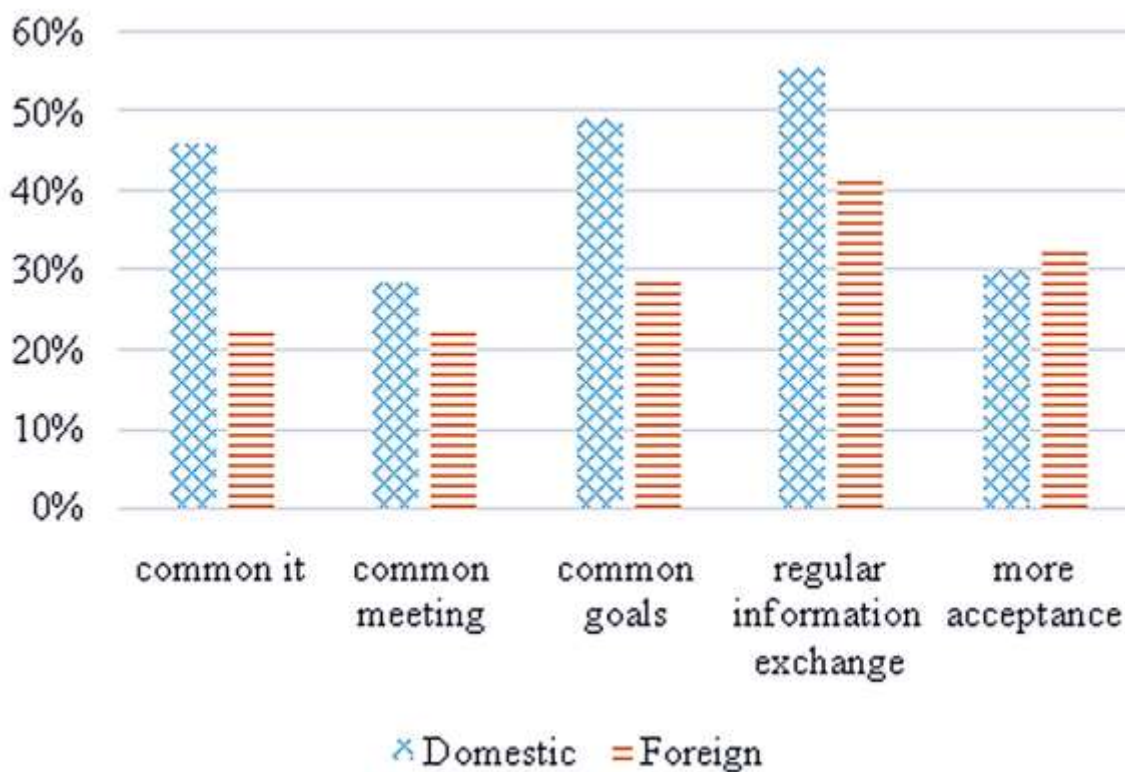
**Table 8: Descriptive statistics of the measured variables of the model for foreign employees**

|     | Variables                         | M    | Std  | 1            | 2            | 3            | 4             | 5             | 6            | 7      | 8             | 9            | 10           | 11     | 12    |
|-----|-----------------------------------|------|------|--------------|--------------|--------------|---------------|---------------|--------------|--------|---------------|--------------|--------------|--------|-------|
| 1.  | Vision (VC1)                      | 3.42 | 1.08 |              | 0.039        | 0.025        | 0.161         | 0.534         | 0.856        | 0.942  | 0.594         | 0.016        | 0.754        | 0.477  | 0.697 |
| 2.  | Communication of the vision (VC2) | 4.45 | 1.43 | 0.361        |              | 0.000        | 0.750         | 0.963         | 0.710        | 0.396  | 0.807         | 0.378        | 0.428        | 0.267  | 0.452 |
| 3.  | Communication (VC3)               | 3.46 | 1.03 | 0.431        | <b>0.665</b> |              | 0.450         | 0.585         | 0.707        | 0.499  | 0.314         | 0.007        | 0.324        | 0.060  | 0.686 |
| 4.  | Information exchange (II1)        | 4.10 | 0.77 | 0.267        | 0.062        | 0.152        |               | 0.595         | 0.164        | 0.490  | 0.028         | 0.519        | 0.025        | 0.004  | 0.001 |
| 5.  | CRM (II2)                         | 3.72 | 1.36 | 0.120        | 0.009        | -0.110       | 0.103         |               | 0.213        | 0.961  | 0.154         | 0.720        | 0.764        | 0.023  | 0.440 |
| 6.  | Training (CR2)                    | 3.38 | 1.12 | 0.035        | 0.072        | 0.076        | 0.266         | 0.238         |              | 0.104  | 0.007         | 0.170        | 0.121        | 0.220  | 0.004 |
| 7.  | Common goals (CR3)                | 2.48 | 1.09 | 0.014        | 0.164        | 0.136        | 0.134         | -0.009        | 0.308        |        | 0.008         | 0.115        | 0.028        | 0.679  | 0.222 |
| 8.  | Meetings (CR4)                    | 4.21 | 0.86 | 0.103        | 0.047        | 0.201        | <b>0.409</b>  | 0.272         | <b>0.490</b> | 0.485  |               | 0.126        | 0.522        | 0.001  | 0.078 |
| 9.  | Roles and Responsibilities (CR1)  | 3.79 | 0.94 | <b>0.444</b> | 0.170        | <b>0.509</b> | 0.125         | -0.069        | 0.262        | 0.299  | 0.291         |              | 0.368        | 0.946  | 0.026 |
| 10. | Ideal customer (CP1)              | 3.83 | 0.93 | 0.057        | 0.143        | 0.197        | 0.416         | -0.058        | 0.294        | 0.408  | 0.124         | 0.174        |              | 0.162  | 0.013 |
| 11. | Conflicts (CF1)                   | 2.48 | 1.09 | 0.137        | 0.213        | -0.367       | <b>-0.519</b> | <b>-0.422</b> | -0.235       | -0.080 | <b>-0.586</b> | 0.013        | -0.266       |        | 0.047 |
| 12. | Cooperation (CP2)                 | 4.17 | 0.66 | 0.076        | 0.145        | 0.081        | <b>0.571</b>  | 0.149         | <b>0.513</b> | 0.234  | 0.333         | <b>0.414</b> | <b>0.455</b> | -0.371 |       |

Source: Own editing

Similarly to the Hungarian sample, in foreign companies (see table 8), the strong correlation between corporate vision and communication and roles and responsibilities entails similar conclusions. The two samples also showed similarities in the significantly positive relationship between cooperation and the clear definition of roles and responsibilities and information exchange. In the foreign sample there is a lot less correlation between factors than in domestic companies. The strongest correlation between the communication of the vision and general corporate communication is in line with earlier theoretical claims (Hallahan, 2015).

Respondents were asked what areas they would want to change the most, in order to improve cooperation.

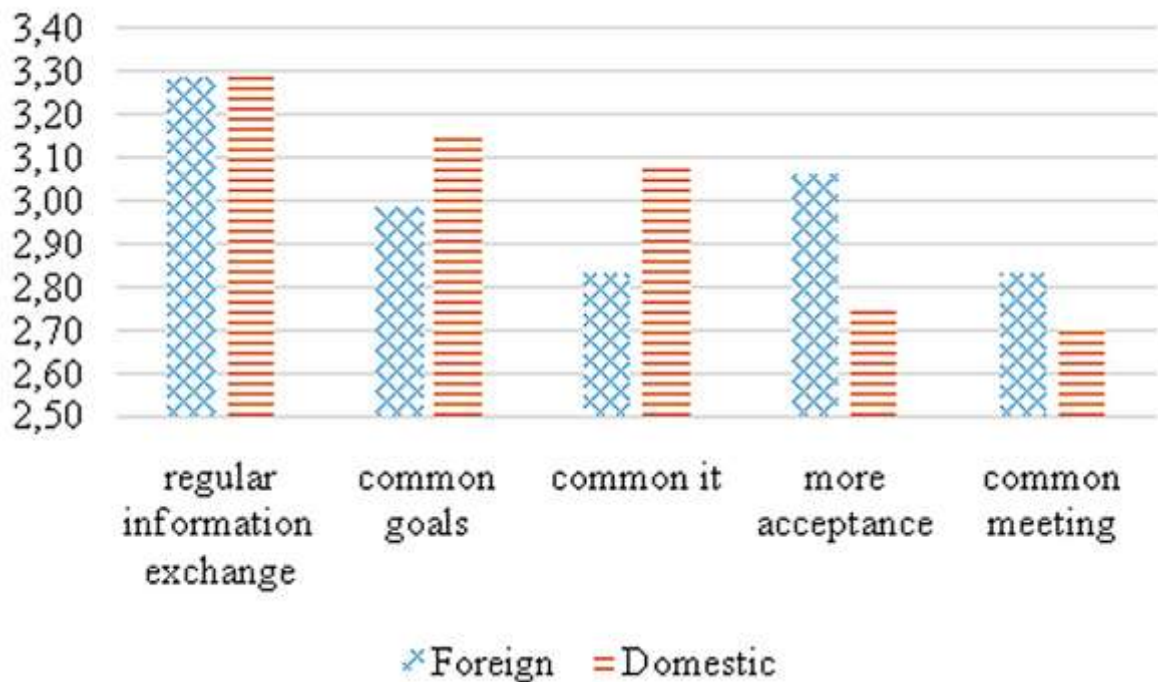


**Figure 4: Proportions of areas to change (%)**

Source: Own editing

Figure 4 above shows the proportions of domestic and foreign respondents that marked each specific factor as areas they would like to change in order to make the sales-marketing cooperation more efficient. I ran the Chi square test on the differences in proportions and found that there is no significant difference between the two groups ( $\chi^2=2.23$ ;  $p=0.704$ ).

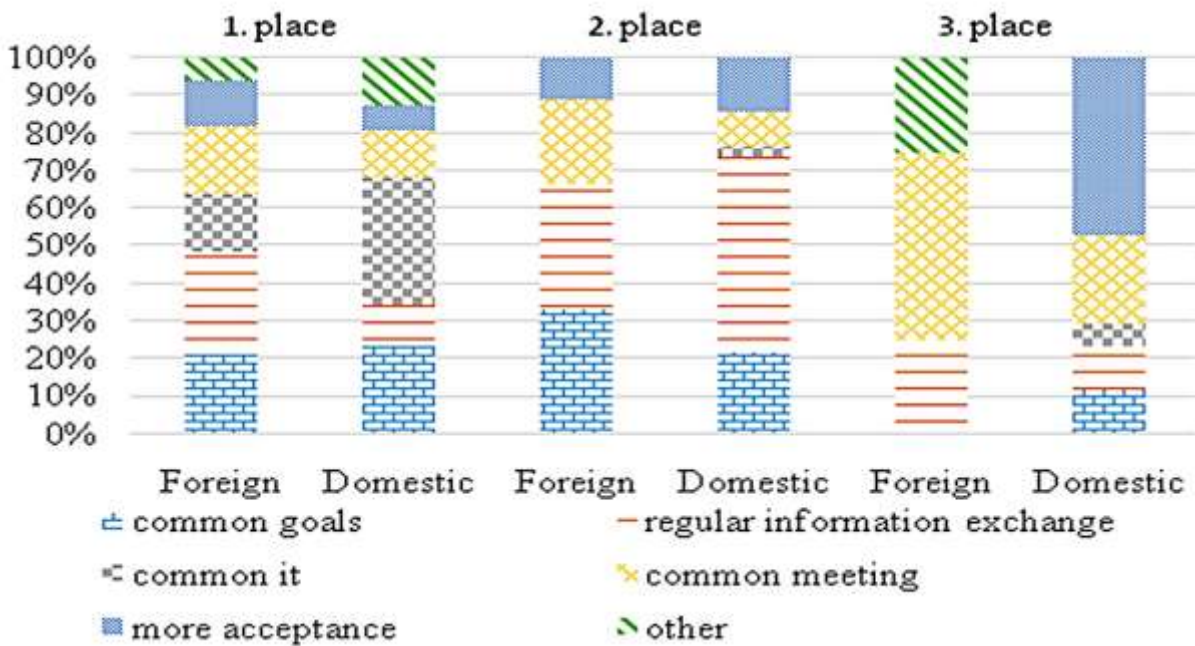
Both Hungarian and foreign respondents would like to change regular information exchange the most (marked by 56% in the Hungarian sample and 42% in the foreign sample).



**Figure 5: Average ranking numbers of areas to change in the Hungarian and foreign samples**

*Source: Own editing*

The above figure 5 also shows the average ranking numbers associated with the individual factors. The least important area in both samples was meetings. However, Kendall's concordance test showed that there was no unanimity in the foreign sample with regards to the ranking of these factors ( $\text{Chi}^2 = 3.76$ ;  $p=0.440$ ;  $W=0.028$ ), whereas Hungarian respondents were in agreement with regards to ranking ( $\text{Chi}^2 = 15,35$ ;  $p=0,004$ ;  $W=0,253$ ).



**Figure 6: Response proportions of areas to change in the Hungarian and foreign samples (%)**

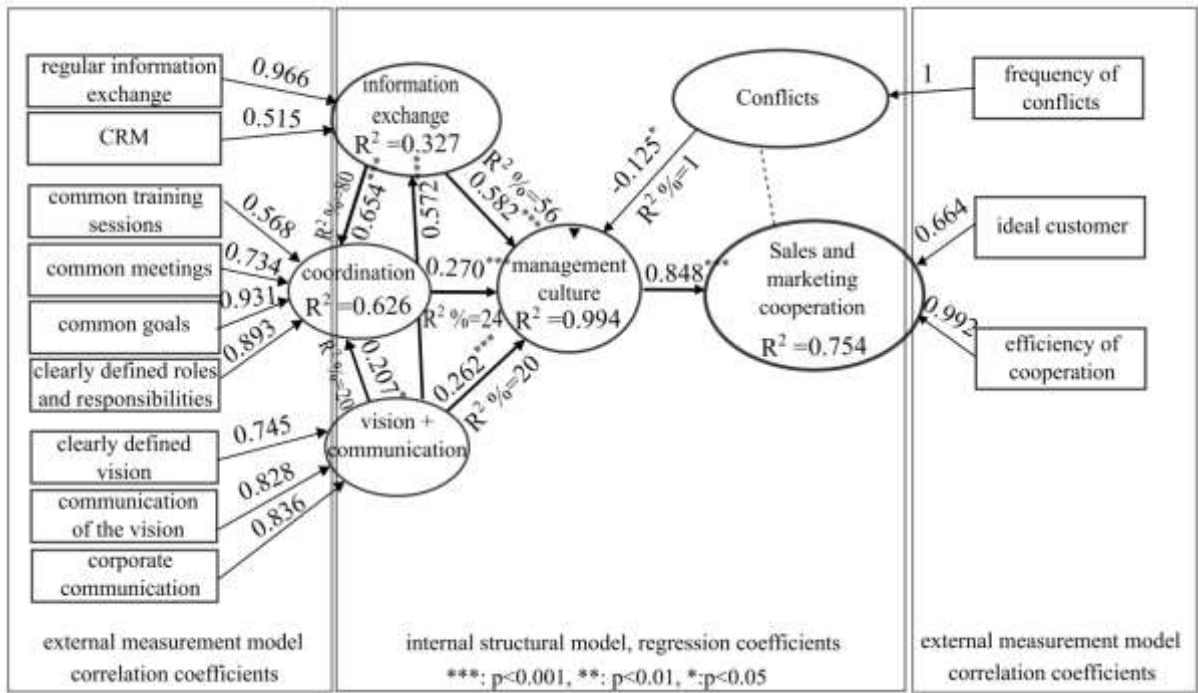
Source: Own editing

Respondents could mark more than one area to change, and I also considered how many times each factor was marked and whether they were ranked first, second or third. The differences in proportions in each case were shown by the Chi square test (20,5 and  $p=0.001$ ; 15,13 and  $p=0.004$ ; 103,41 and  $p<0,001$ ).

The Mann-Whitney test showed a 90% reliable significant deviation in the levels of satisfaction with the cooperation of SM in Hungarian and foreign respondents ( $Z=-1.828$ ;  $p=0.068$ ). Foreign respondents were relatively more satisfied (average=4.17) with this factor than Hungarian employees (average=3.87).

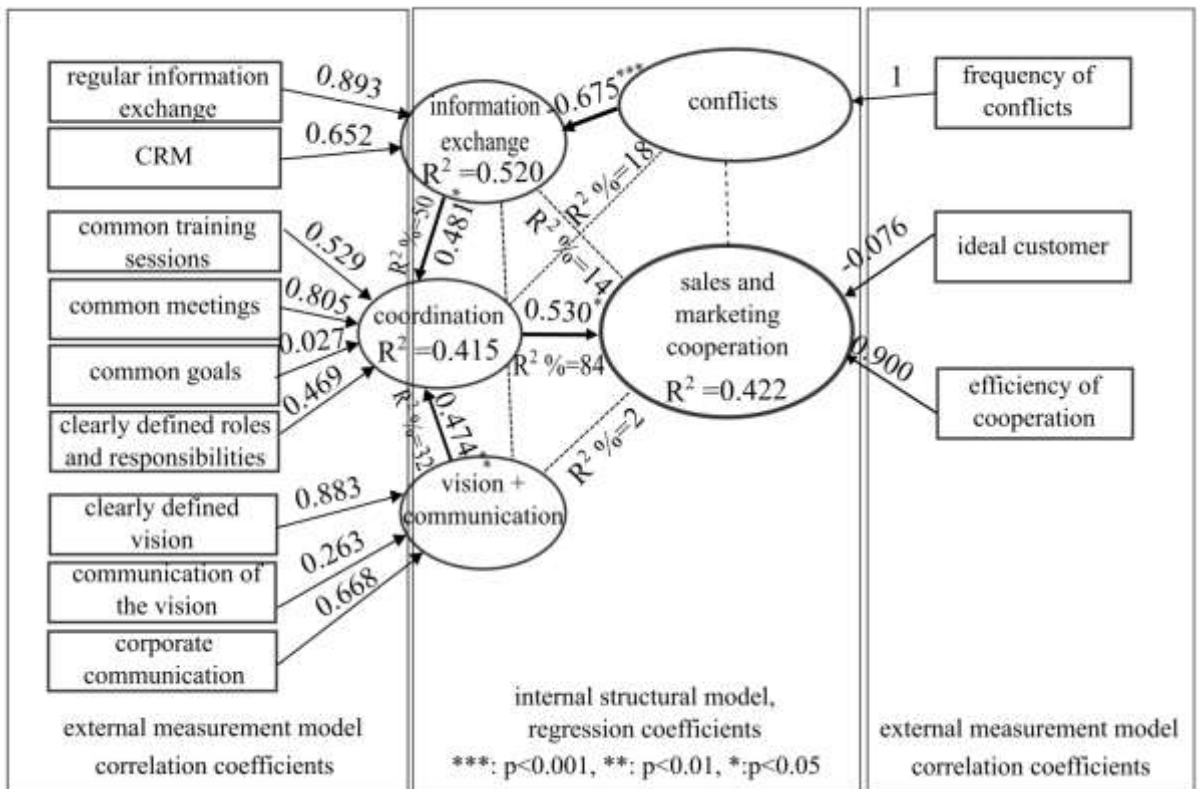
### 6.1.1. Models for Hungarian and foreign employees

Figures 7 and 8 show the summary of all major blocks of variables, latent variables and items linked to them as well as their relations, with regard to Hungarian and foreign employees. The model has two main parts. First, an external factor model that shows how strongly the items in each block are linked to the single latent variable summarising the block. Second, an internal structural model that only carries the relations between the latent variables representing the blocks. The two models need to be assessed together, and they need to be estimated iteratively.



**Figure 7: Estimated LVPLS model and its parameters for Hungarian employees**

Source: Own editing



**Figure 8: Estimated LVPLS model and its parameters for foreign employees**

Source: Own editing

Ovals represent the latent variables (blocks), and squares stand for the measured variables. The external measurement model (factor model) contains correlation coefficients, while the internal

structural model includes the regression coefficients. All the links (arrows) are significant with 99% reliability, whereas the dotted lines represent non-significant links.

I created a superblock for Hungarian employees, where I included the latent variables vision, coordination and information exchange in a superblock called management culture. The model does not include a superblock in the foreign sample as it had no significant impact on coordination, so I linked the individual elements of management culture to cooperation separately.

I applied the Bootstrap simulation for the validation of the above models, where I created 500 random samples by sampling with replacement based on the original data. This means, that I estimated the correlation coefficient of both the internal and the external model in all 500 samples, and calculated the average and standard error (Chin, 1998). Model parameters where the average is more than double the standard error (SE) are considered statistically significant. Based on this criterion, the regression coefficients of the sample were proved valid. Below when discussing the data I will also show the SE.

I created a latent variable for each block, which summarises all the items in the block as one index. The reliability of the blocks was tested with Dillion Goldstein's RHO index. AVE means the average variance extracted of the items in the block by the latent variable. R2 means the explained variance proportion in case of the regression of the latent variable.

### 6.1.2. Results of the model created for Hungarian employees

It is evident from table 9 that each latent variable explains at least an average of 50% of the deviation of the items linked to it and the model does not conflict the Fornell and Larcker criterion.

**Table 9: Key descriptive statistics of the LVPLS model for Hungarian employees**

| Latent variable          | R <sup>2</sup> | RHO   | AVE   | 1            | 2            | 3            | 4          | 5            |
|--------------------------|----------------|-------|-------|--------------|--------------|--------------|------------|--------------|
| Vision (1)               | n.a            | 0.850 | 0.647 | <b>0.804</b> | <0.001       | <0.001       | 0.332      | <0.001       |
| Coordination (2)         | 0.626          | 0.892 | 0.632 | 0.582        | <b>0.795</b> | <0.001       | 0.485      | <0.000       |
| Information exchange (3) | 0.327          | 0.779 | 0.599 | 0.572        | 0.773        | <b>0.774</b> | <0.001     | <0.001       |
| Conflicts (4)            | n.a.           | n.a.  | n.a.  | -0.114       | -0.082       | -0.402       | <b>n.a</b> | 0.005        |
| Cooperation (5)          | 0.754          | 0.878 | 0.713 | 0.566        | 0.846        | 0.822        | -0.322     | <b>0.844</b> |

n.a= no data, cannot be calculated

Source: Own editing

The proportion of variance explained in the two regression models by the coefficient of determination or R squared is outstanding. With regard to the 'management culture' superblock, the GoF of the internal structural model was 0.675, the GoF value of the external model was 0.610 and the entire model has a GoF of 0.642, which shows an excellent fit. Assessment of the hypotheses for Hungarian employees is as follows:

H1: The regression coefficient ( $\beta=0.582$ ) for information exchange ( $t=32.35$ ;  $p<0.001$ ,  $SE=0.018$ ) is significant. Based on these results H1 is confirmed, information exchange has a positive effect on the relationship of the two departments.

H2: The regression coefficient ( $\beta=0.270$ ) for coordination ( $t=16.37$ ;  $p<0.001$ ,  $SE=0.017$ ) is significant. Based on these results H2 is confirmed, coordination has a positive effect on the relationship of the two departments.

H3: The regression coefficient ( $\beta=0.262$ ) for a clear corporate vision ( $t=16.37$ ;  $p<0.001$ ,  $SE=0.017$ ) is significant. Based on these results H3 is confirmed, a clear corporate vision has a positive effect on the relationship of the two departments.

H4: The results show that a clearly communicated and implemented corporate vision ( $\beta=0.207$ ;  $t=2.34$ ;  $p<0.022$ ,  $SE=0.088$ ) and regular information exchange ( $\beta=0.654$ ;  $t=7.39$ ;  $p<0.001$ ,  $SE=0.088$ ) have a positive effect on the coordination of the SM departments. Information exchange explains 80% of the variance of coordination, whereas vision and communication made up 20%, i.e. the two factors have a different effect on coordination. Based on these results H4 is accepted.

H5: The regression coefficient ( $\beta=0.848$ ) is significant ( $t=13.67$ ;  $p<0.001$ ,  $SE=0.062$ ). Based on these results H5 is confirmed, management culture has a positive effect on the cooperation of the two departments.

H6: Model estimates suggest that information exchange is the most important factor of corporate culture explaining 56% of variance, followed by coordination that affects cooperation through management culture and explains 24% of variance. Based on these results H6 is rejected.

H7: The regression coefficient of conflicts ( $\beta=-0.125$ ) proved significant ( $t=-2.25$ ;  $p<0.028$ ,  $SE=0.011$ ). Based on these results H7 is confirmed, conflicts have a negative effect on the cooperation of the two departments.

H8: The regression coefficient of a clearly communicated and implemented corporate vision ( $\beta=0.572$ ) is significant ( $t=5.92$ ;  $p=0.001$ ,  $SE=0.097$ ). Based on these results H8 is

confirmed, a clearly communicated and implemented corporate vision boosts information exchange between SM.

### 6.1.3. Results of the model created for foreign employees

Table 10 shows that each latent variable explains at least an average of 50% of the deviation of the items linked to it.

**Table 10: Key descriptive statistics of the LVPLS model for foreign employees**

| Latent variable          | R <sup>2</sup> | RHO   | AVE   | 1            | 2            | 3            | 4          | 5            |
|--------------------------|----------------|-------|-------|--------------|--------------|--------------|------------|--------------|
| Vision (1)               | n.a            | 0.871 | 0.432 | <b>0.657</b> | 0.082        | 0.237        | 0.447      | 0.875        |
| Coordination (2)         | 0.491          | 0.764 | 0.287 | 0.334        | <b>0.536</b> | 0.006        | 0.014      | 0.004        |
| Information exchange (3) | 0.499          | 0.766 | 0.611 | -0.231       | 0.506        | <b>0.782</b> | <0.001     | 0.024        |
| Conflicts (4)            | n.a.           | n.a.  | n.a.  | 0.150        | -0.457       | -0.694       | <b>n.a</b> | 0.063        |
| Cooperation (5)          | 0.333          | 0.812 | 0.408 | -0.031       | 0.527        | 0.425        | -0.356     | <b>0.639</b> |

n.a= no data, cannot be calculated

Source: Own editing

The main diagonal of the matrix of the numbered columns shows the explained deviation, which expresses the percentage of the deviation that a given latent variable explains from the items linked to it. The items under the main diagonal are the correlations between the individual latent variables, i.e. how much a given latent variable explains from the deviation of another latent variable. The items above the main diagonal show the significance of the correlation coefficients.

The two main regressions of the model are the estimated cooperation by information exchange and vision (R<sup>2</sup>=0.491), and the estimated information exchange by the other latent variables (R<sup>2</sup>=0.499). The proportion of variance explained in the two models by the coefficient of determination or R squared is strong, the R squared value for cooperation is 0.333, which is only considered moderate variance explained.

The Bootstrap simulation proved the regression coefficients of the model valid. With regard to the ‘management culture’ superblock, the GoF of the internal structural model was 0.441, the GoF value of the external model was 0.435 and the entire model has a GoF of 0.435, which, although lower than the Hungarian sample, shows a good fit. Assessment of the hypotheses for foreign employees is as follows:

H1: The regression coefficient ( $\beta=0.114$ ) for information exchange ( $t=0.514$ ;  $p=0.612$ ,  $SE=0.222$ ) is insignificant. Based on these results H1 is rejected, information exchange has no significant effect on the relationship of the two departments.

H2: The regression coefficient for coordination ( $\beta=0.530$ ) is significant ( $t=2.31$ ;  $p<0.001$ ,  $SE=0.229$ ). Based on these results H2 is confirmed, coordination has a positive effect on the relationship of the two departments.

H3: The regression coefficient ( $\beta=-0.182$ ) for a clear corporate vision is insignificant ( $t=-0.89$ ;  $p=0.379$ ,  $SE=0.203$ ). Based on these results H3 is rejected, corporate vision has no significant effect on the relationship of the two departments.

H4: The results show that a clearly communicated and implemented corporate vision ( $\beta=0.474$ ;  $t=3.17$ ;  $p=0.004$ ,  $SE=0.150$ ) and regular information exchange ( $\beta=0.481$ ;  $t=2.34$ ;  $p=0.028$ ,  $SE=0.206$ ) have a positive effect on the coordination of the SM departments. Information exchange explains 50% of the variance of coordination, whereas vision and communication made up 32%, i.e. the two factors have a different effect on coordination. Based on these results H4 is partly accepted.

H5: Not all three factors have a positive effect on the cooperation between the two departments, only coordination does. Based on these results H5 is rejected, management culture has no significant positive effect on the cooperation of the two departments.

H6: Model estimates suggest coordination is the most important factor of corporate culture explaining 84% of variance, followed by information exchange explaining 24% of variance. Based on these results H6 is confirmed, of all aspects of management culture, coordination has the most significant role in improving cooperation.

H7: The regression coefficient of conflicts ( $\beta=-0.675$ ) proved significant ( $t=-4.71$ ;  $p<0.001$ ,  $SE=0.143$ ). Conflicts have an indirect negative effect on cooperation through information exchange and coordination. Based on these results H7 is partly confirmed, conflicts have an indirect negative effect on the cooperation of the two departments.

H8: The regression coefficient of a clearly communicated and implemented corporate vision ( $\beta=-0.130$ ) is significant ( $t=-0.908$ ;  $p=0.373$ ,  $SE=0.143$ ). Based on these results H8 is rejected, a clearly communicated and implemented corporate vision has no significant effect on information exchange between SM.

## 6.2. Differences between pharmaceutical and non-pharmaceutical manufacturing firms

The numbered columns of the table 11 and 12 show the Spearman correlation table. The values below the main diagonal of the correlation matrix are the actual correlations, whereas the values above the main diagonal are significance values corresponding to the correlation coefficient. There are no values in the main diagonal as each individual factor fully correlates with itself and the value of the correlation coefficient would be 1. I highlighted all correlation values above 0.4 in bold, these are considered moderate correlations. All correlations above 0.6 were marked in italics, these are considered strong correlations.

My pharmaceutical company model aims to explore the relations between the blocks of variables (communication and vision, information exchange, coordination, conflicts, cooperation). Respondents were asked to rank the below 12 items on a scale of 5 to reflect their perception of the extent to which the individual factors are present in the subject company.

**Table 11: Descriptive statistics of the measured variables of the model for pharmaceutical manufacturing firms**

|     | Variables                       | Average | Standard deviation | 1            | 2      | 3            | 4            | 5             | 6            | 7            | 8            | 9            | 10           | 11     | 12     |
|-----|---------------------------------|---------|--------------------|--------------|--------|--------------|--------------|---------------|--------------|--------------|--------------|--------------|--------------|--------|--------|
| 1.  | Vision (1)                      | 3.89    | 1.07               |              | <0.000 | 0.001        | 0.063        | 0.859         | 0.037        | 0.012        | 0.017        | <0.000       | 0.104        | 0.100  | 0.034  |
| 2.  | Communication of the vision (2) | 4.42    | 1.36               | <b>0.582</b> |        | 0.009        | 0.071        | 0.665         | 0.350        | 0.060        | 0.577        | 0.014        | 0.234        | 0.369  | 0.250  |
| 3.  | Communication (3)               | 3.58    | 0.92               | <b>0.483</b> | 0.388  |              | 0.069        | 0.015         | 0.001        | 0.134        | 0.006        | 0.001        | 0.097        | 0.417  | 0.014  |
| 4.  | Information exchange (4)        | 4.16    | 0.94               | 0.282        | 0.275  | 0.276        |              | 0.316         | 0.007        | 0.003        | <0.000       | 0.014        | 0.001        | 0.056  | 0.000  |
| 5.  | CRM (5)                         | 3.43    | 1.44               | 0.028        | -0.067 | -0.363       | 0.155        |               | 0.700        | 0.615        | 0.955        | 0.791        | 0.890        | 0.003  | 0.208  |
| 6.  | Training (6)                    | 3.21    | 1.34               | 0.316        | 0.144  | <b>0.466</b> | <b>0.404</b> | -0.060        |              | 0.002        | <0.000       | 0.003        | 0.003        | 0.310  | <0.000 |
| 7.  | Common goals (7)                | 3.77    | 1.18               | 0.377        | 0.286  | 0.230        | <b>0.433</b> | -0.078        | <b>0.448</b> |              | 0.001        | 0.006        | <0.000       | 0.148  | 0.004  |
| 8.  | Meetings (8)                    | 4.14    | 1.09               | 0.357        | 0.086  | <b>0.408</b> | <b>0.682</b> | -0.009        | <b>0.512</b> | <b>0.495</b> |              | 0.005        | 0.063        | 0.300  | <0.000 |
| 9.  | Roles & responsibilities (9)    | 3.79    | 1.06               | <b>0.613</b> | 0.366  | <b>0.475</b> | 0.367        | -0.041        | <b>0.435</b> | <b>0.407</b> | <b>0.412</b> |              | 0.024        | 0.283  | <0.000 |
| 10. | Ideal customer (10)             | 3.75    | 0.94               | 0.249        | 0.183  | 0.254        | 0.493        | -0.021        | <b>0.434</b> | <b>0.596</b> | 0.283        | 0.339        |              | 0.602  | <0.000 |
| 11. | Conflicts (11)                  | 2.49    | 1.08               | 0.251        | 0.139  | 0.125        | -0.290       | <b>-0.432</b> | 0.157        | 0.222        | -0.160       | 0.165        | -0.081       |        | 0.236  |
| 12. | Cooperation (12)                | 4.02    | 0.83               | 0.321        | 0.177  | 0.366        | <b>0.682</b> | 0.194         | <b>0.674</b> | <b>0.425</b> | <b>0.587</b> | <b>0.581</b> | <b>0.531</b> | -0.183 |        |

Source: Own editing

The table 11 shows (see table 11) the outstanding role of training, as this is the factor that correlates with the most other factors; cooperation also shows a high correlation with training ( $r=0,674$ ). This suggests that the more common trainings the employees of both departments participate in, the better their cooperation will be. In general, cooperation correlated rather strongly with all elements of coordination /factors (6)-(9)/, i.e. excellent coordination will most probably increase the probability of efficient cooperation significantly. One of the strongest correlations in the table is between cooperation and information exchange ( $r=0,682$ ), the reason for which is the fact that regular information exchange will have a positive effect on cooperation. Vision and clearly defined roles and responsibilities are also strongly correlated ( $r=0,613$ ), i.e. a clear vision makes it easier to define roles and responsibilities. There is also a strong correlation between information exchange and meetings ( $r=0,682$ ) as well as various other elements of coordination (training, common goals), which suggests that information exchange encourages coordination to a significant extent.

**Table 12: Descriptive statistics of the measured variables of the model for non-pharmaceutical manufacturing firms**

|     | Variables                         | M    | Std  | 1            | 2            | 3            | 4             | 5             | 6            | 7            | 8            | 9            | 10           | 11            | 12     |
|-----|-----------------------------------|------|------|--------------|--------------|--------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|---------------|--------|
| 1.  | Vision (VC1)                      | 3.42 | 1.08 |              | <0.001       | <0.001       | 0.194         | 0.008         | 0.052        | 0.012        | 0.214        | 0.005        | 0.034        | 0.467         | 0.015  |
| 2.  | Communication of the vision (VC2) | 4.45 | 1.43 | <b>0.478</b> |              | <0.001       | 0.002         | <0.001        | 0.052        | <0.001       | 0.066        | 0.001        | 0.021        | 0.304         | 0.001  |
| 3.  | Communication (VC3)               | 3.46 | 1.03 | <b>0.469</b> | 0.491        |              | 0.001         | 0.002         | 0.022        | <0.001       | 0.075        | <0.001       | 0.002        | 0.131         | <0.001 |
| 4.  | Information exchange (II1)        | 4.10 | 0.77 | 0.179        | 0.409        | 0.508        |               | 0.001         | 0.001        | <0.001       | <0.001       | <0.001       | <0.001       | <0.001        | <0.001 |
| 5.  | CRM (II2)                         | 3.72 | 1.36 | 0.358        | <b>0.458</b> | <b>0.420</b> | <b>0.444</b>  |               | 0.195        | <0.001       | <0.001       | 0.004        | <0.001       | 0.012         | <0.001 |
| 6.  | Training (CR2)                    | 3.38 | 1.12 | 0.266        | 0.266        | 0.312        | <b>0.441</b>  | 0.179         |              | 0.001        | 0.002        | <0.001       | 0.050        | 0.246         | 0.001  |
| 7.  | Common goals (CR3)                | 2.48 | 1.09 | 0.338        | 0.451        | <b>0.525</b> | <b>0.809</b>  | <b>0.544</b>  | <b>0.427</b> |              | <0.001       | <0.001       | <0.001       | 0.029         | <0.001 |
| 8.  | Meetings (CR4)                    | 4.21 | 0.86 | 0.172        | 0.252        | 0.245        | <b>0.613</b>  | <b>0.468</b>  | <b>0.413</b> | <b>0.682</b> |              | <0.001       | 0.001        | 0.056         | <0.001 |
| 9.  | Roles and responsibilities (CR1)  | 3.79 | 0.94 | 0.379        | <b>0.435</b> | 0.537        | <b>0.637</b>  | <b>0.385</b>  | <b>0.496</b> | <b>0.693</b> | <b>0.549</b> |              | <0.001       | 0.455         | <0.001 |
| 10. | Ideal customer (CPI)              | 3.83 | 0.93 | 0.289        | <b>0.315</b> | 0.414        | <b>0.600</b>  | <b>0.485</b>  | <b>0.268</b> | <b>0.635</b> | <b>0.430</b> | <b>0.695</b> |              | 0.277         | <0.001 |
| 11. | Conflicts (CF1)                   | 2.48 | 1.09 | -0.101       | -0.142       | -0.208       | <b>-0.487</b> | <b>-0.341</b> | -0.160       | -0.297       | -0.262       | -            | 0.104        | -0.151        | <0.001 |
| 12. | Cooperation (CP2)                 | 4.17 | 0.66 | 0.329        | <b>0.447</b> | <b>0.486</b> | <b>0.748</b>  | <b>0.555</b>  | <b>0.434</b> | <b>0.768</b> | <b>0.603</b> | <b>0.694</b> | <b>0.551</b> | <b>-0.469</b> |        |

Source: Own editing

The table 12 shows (see table 12) the outstanding role of information exchange in the sample, as this is the factor that correlates with the most other factors /e.g. with coordination factors (6)-(9)/. These results are in line with previous studies. Similar to the pharmaceutical manufacturing firms, cooperation's high correlation with information exchange and common goals suggests that the more efficient information exchange between SM is, the better their cooperation will probably be and common goals helps to support efficient information exchange. The strong correlation between coordination elements such as common meetings and goals and clearly defined roles and responsibilities and cooperation seems to support earlier statements. The strong correlation between vision and communication suggests that a clearly defined vision resulted in a better communication between the two parties.

Table 13 shows (see table 13) that a high percentage of all respondents marked regular information exchange, common goals and a common IT platform, i.e. these are the areas they would like to change the most. More acceptance was marked the least frequently, compared to the other factors. The three most significant factors show similar tendencies across both company types, and the Chi square test showed no significant difference between the two groups either (Chi<sup>2</sup>=3,65;p<0.601).

**Table 13: Proportions of areas to change in the sample**

| Factor                                     | % of Respondents         |                |                 |
|--|--------------------------|----------------|-----------------|
|  | Entire sample<br>(N=421) | PMC<br>(N=144) | NPMC<br>(N=277) |
| <b><i>Common IT platform</i></b>           | <b>34.3</b>              | <b>31.2</b>    | <b>36.8</b>     |
| Common meetings                            | 23.8                     | 18.8           | 28.1            |
| <b><i>Common Goals</i></b>                 | <b>38.1</b>              | <b>37.5</b>    | <b>38.6</b>     |
| <b><i>Regular information exchange</i></b> | <b>45.7</b>              | <b>39.6</b>    | <b>50.9</b>     |
| More acceptance                            | 27.6                     | 20.8           | 33.3            |
| Other areas                                | 13.3                     | 8.3            | 17.5            |

Source: Own editing

The Chi square test and cross table analysis were applied to further investigate the differences in response frequencies for areas to change between the individual departments. In PMC distributions can be considered different (Chi<sup>2</sup>=21.46;p=0.018) with 95% reliability. Table 14

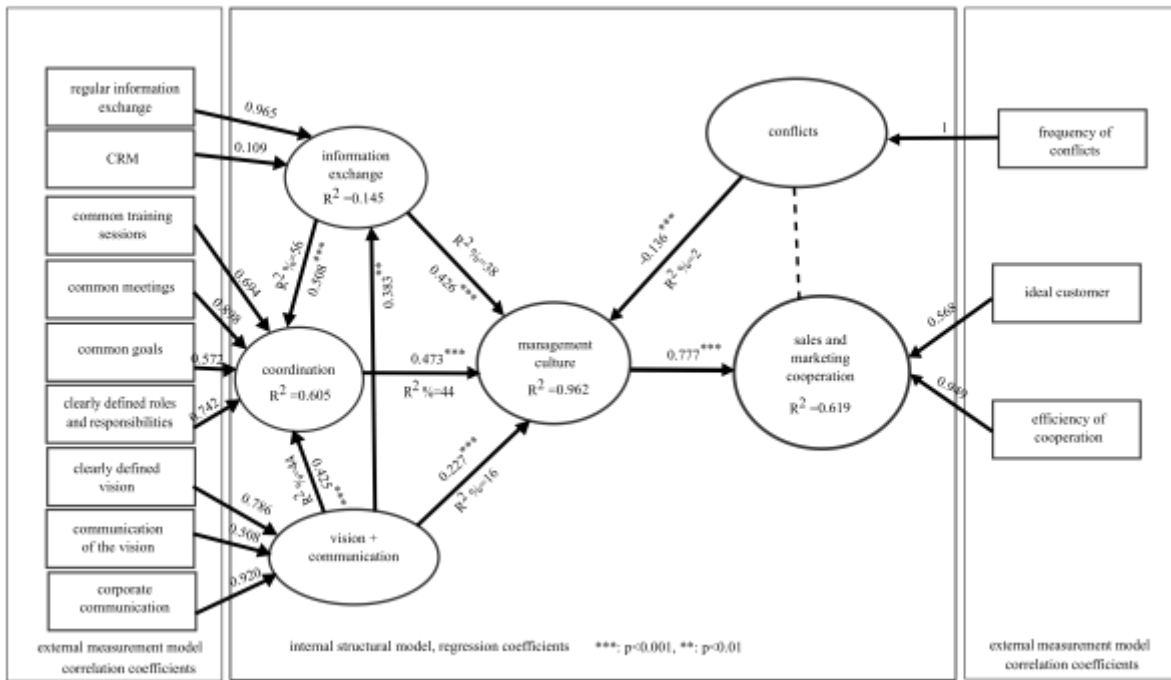
shows (see table 14) that the largest differences occurred in the case of regular information exchange and common goals. Sales require common goals relatively less, but would want to see changes in terms of regular information exchange more than the other two groups of respondents. In addition, management would require common IT and more acceptance relatively more. NPMC showed no significant difference in response proportions (Chi2=13.86;p=0.179).

**Table 14: Proportions (%) of areas to change per field of work and company type**

| Factor |            | Common IT | Common Meetings | Common goals | Regular Information exchange | More acceptance | Other |
|--------|------------|-----------|-----------------|--------------|------------------------------|-----------------|-------|
| PMC    | marketing  | 18        | 12              | <b>30</b>    | 21                           | 12              | 6     |
|        | sales      | 17        | 14              | 17           | <b>34</b>                    | 14              | 3     |
|        | management | 31        | 8               | <b>23</b>    | 15                           | 15              | 8     |
| NPMC   | marketing  | 23        | 18              | 9            | <b>27</b>                    | 14              | 9     |
|        | sales      | 17        | 13              | 20           | <b>24</b>                    | 16              | 10    |
|        | management | 16        | 12              | 24           | <b>24</b>                    | 20              | 4     |

*Source: Own editing*

Figure 9 shows (see figure 9) a summary of all major blocks of variables, latent variables and items linked to them as well as their relations for the PMC subsample. The model has two main parts. First, an external factor model that shows how strongly the items in each block are linked to the single latent variable summarising the block. Second, an internal structural model that only signifies relations between the latent variables representing the blocks. Ovals represent the latent variables (blocks), and squares stand for the measured variables. The external measurement model (factor model) contains correlation coefficients, while the internal structural model includes the regression coefficients. All the links (arrows) are significant with 99% reliability, while the dotted lines depict non-significant links. The reliability of the blocks was tested with Dillion Goldstein's RHO index.



**Figure 9: Estimated LVPLS model and its parameters in PMC**

Source: Own editing

AVE means the average variance extracted of the items in the block by the latent variable. R2 means the explained variance proportion in case of the regression of the latent variable.

It is evident that each latent variable explains at least an average of 50% of the deviation of the items linked to it and the model does not conflict the Fornell and Larcker criterion. The proportion of variance explained in the two models by the coefficient of determination or R squared is outstanding. The discriminant validity was assessed using the Fornell and Larcker criterion (Ab Hamid et al., 2017). Results for this assessment including AVE indicators is shown in table 13.

**Table 15: Key statistics of the LVPLS model for PMC**

| Latent variable          | R <sup>2</sup> | RHO   | AVE   | 1            | 2            | 3            | 4      | 5            |
|--------------------------|----------------|-------|-------|--------------|--------------|--------------|--------|--------------|
| Vision (1)               | c.b.c          | 0.852 | 0.574 | <b>0.758</b> | <0.001       | 0.010        | 0.192  | 0.006        |
| Coordination (2)         | 0.605          | 0.851 | 0.542 | 0.620        | <b>0.736</b> | <0.001       | 0.987  | <0.000       |
| Information exchange (3) | 0.145          | 0.732 | 0.472 | 0.383        | 0.671        | <b>0.650</b> | 0.249  | <0.000       |
| Conflicts (4)            | c.b.c          | c.b.c | n.a.  | 0.200        | -0.003       | -0.178       | c.b.c  | 0.238        |
| Cooperation (5)          | 0.619          | 0.867 | 0.660 | 0.406        | 0.735        | 0.643        | -0.182 | <b>0.812</b> |

c.b.c=cannot be calculated

Source: Own editing

It is apparent from table 15 (see table 15) that all latent variables explains at least 50% of the variance of the items belonging to them and the model does not violate the Fornell Larcker criterion. Correlation of conflict was not significant ( $p>0.05$ ) with any of the indicators. The two main regressions of the model were the estimation of coordination based on information exchange and vision ( $R^2=0.605$ ) and the estimation of cooperation based on the other latent variables ( $R^2=0.619$ ). As  $R^2$  values are high the explanatory power of the model can be considered high too.

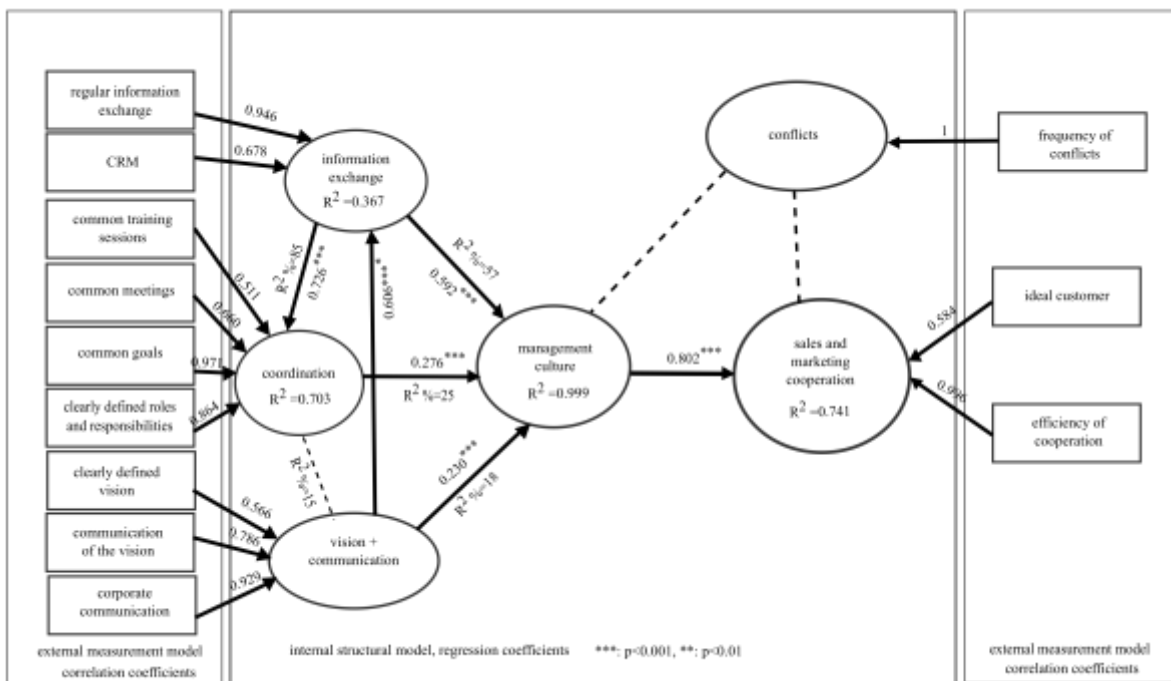
The Bootstrap simulation was applied for the validation of the above model, where 500 random samples were created by sampling with replacement based on the original data. This means that the correlation coefficient of both the internal and the external model was estimated in all 500 samples, and the average and SE was calculated (Chin, 1998; Samart, Jansakul & Chongcheawchamnan, 2018). Model parameters where the average is more than double the SE are considered statistically significant. Based on this criterion, the regression coefficients of the sample were proved valid. In order to verify that during the discussion of the path coefficients the standard errors will always be provided as well. With regard to the 'management culture' superblock, the GoF of the internal structural model was 0.583, the GoF value of the external model was 0.521 and the entire model has a GoF of 0.551, which shows an excellent fit.

'Cooperation between sales and marketing' was the first result variable in the model that was directly affected by the elements of management culture (Information exchange, clear corporate vision, coordination). Model estimates suggest that coordination is the most important factor of corporate culture, with an effect of 44%, followed by information exchange that affects cooperation through management culture at 38%. The regression coefficient of management culture is 0.777 ( $t=7.95$ ;  $p<0.001$ ,  $SE=0.098$ ) with regards to cooperation. Within management culture, a significant regression parameter was estimated ( $\beta=0.426$ ) for information exchange ( $t=9.80$ ;  $p<0.001$ ,  $SE=0.091$ ), coordination ( $\beta=0.473$ ;  $t=9.52$ ;  $p<0.001$ ,  $SE=0.089$ ) and clear corporate vision ( $\beta=0.227$ ;  $t=5.15$ ;  $p<0.001$ ,  $SE=0.110$ ). The regression coefficient of conflicts was -0.136 ( $t=-4.10$ ;  $p<0.001$ ,  $SE=0.033$ ) with regards to management culture.

External measurement models also provide important information. Rather strong correlations were found between the most important factor 'coordination' and the items in the block. Coordination is most strongly affected by common meetings ( $r=0.898$ ;  $t=13.22$ ;  $p<0.001$ ) and clear roles and responsibilities ( $r=0.742$ ;  $t=7.17$ ;  $p<0.001$ ). Latent variables 'vision' and 'communication' are most strongly linked to corporate communication ( $r=0.920$ ;  $t=15.21$ ;  $p<0.001$ ) and the definition of the vision itself ( $r=0.786$ ;  $t=8.24$ ;  $p<0.001$ ). Latent variable 'sales and marketing cooperation' obviously has the strongest correlation with the

efficiency of cooperation ( $r=0.949$ ;  $t=19.51$ ;  $p<0.001$ ). A rather weak, non-significant correlation was found between CRM and information exchange ( $r=0.109$ ;  $t=0.71$ ;  $p=0.481$ ).

In comparison, the analysis and the research model was applied to NPMC as well, the results of which are shown in figure 10 below. The Bootstrap simulation was also applied for the validation of the above model with 500 random samples by sampling with replacement based on the original data. The average of the model parameters was more than double the standard error and can be considered statistically significant. Based on this criterion, the regression coefficients of the sample were proved valid. With regard to the ‘management culture’ superblock, the GoF of the internal structural model was 0.703, the GoF value of the external model was 0.603 and the entire model had a GoF of 0.651, which shows an excellent and better fit compared to the model of the PMC.



**Figure 10: Estimated LVPLS and its parameters in NPMC**

Source: Own editing

The proportion of variance explained in the two models by the coefficient of determination or R squared is outstanding. Similarly to the model for PMC, the discriminant validity was assessed using the Fornell and Larcker criterion (Ab Hamid, Sami & Sidek, 2017). Results for this assessment including AVE indicators is shown in table 16 (see table 16). The ‘marketing and sales cooperation’ factor is directly and significantly affected by the elements of the management culture (information exchange, clear corporate vision, coordination). However, model estimates revealed a difference as compared to the PMC model, since the key factor

affecting cooperation through the management culture was not coordination but information exchange (57%).

**Table 16: Key statistics of the LVPLS model for NPMC**

| Latent variable          | R <sup>2</sup> | RHO   | AVE   | 1            | 2            | 3            | 4      | 5            |
|--------------------------|----------------|-------|-------|--------------|--------------|--------------|--------|--------------|
| Vision (1)               | c.b.c          | 0.861 | 0.600 | <b>0.775</b> | <0.001       | <0.001       | 0.149  | <0.001       |
| Coordination (2)         | 0.703          | 0.885 | 0.597 | 0.369        | <b>0.773</b> | <0.001       | 0.041  | <0.001       |
| Information exchange (3) | 0.367          | 0.825 | 0.678 | 0.367        | 0.684        | <b>0.823</b> | <0.001 | <0.001       |
| Conflicts (4)            | c.b.c          | c.b.c | c.b.c | 0.039        | 0.078        | 0.259        | c.b.c  | <0.001       |
| Cooperation (5)          | 0.741          | 0.860 | 0.667 | 0.308        | 0.706        | 0.688        | 0.217  | <b>0.817</b> |

c.b.c=cannot be calculated

Source: Own editing

It is clear from table 16 (see table 16) that all latent variables explains at least 50% of the variance of the items belonging to them and the model does not violate the Fornell Larcker criterion. Correlation of conflict and information exchange was significant ( $p < 0.01$ ). The two main regressions of the model were the estimation of coordination based on information exchange and vision ( $R^2 = 0.703$ ) and the estimation of cooperation based on the other latent variables ( $R^2 = 0.741$ ). As  $R^2$  values are high the explanatory power of the model can be considered high too. The regression coefficient of management culture is 0.802 ( $t = 10.17$ ;  $p < 0.001$ ,  $SE = 0.074$ ) with regard to cooperation. Within management culture, a significant regression parameter ( $\beta = 0.592$ ) was estimated for both information exchange ( $t = 55.67$ ;  $p < 0.001$ ,  $SE = 0.137$ ) and coordination ( $\beta = 0.276$ ;  $t = 29.27$ ;  $p < 0.001$ ,  $SE = 0.119$ ), as well as clear corporate vision ( $\beta = 0.230$ ;  $t = 35.63$ ;  $p < 0.001$ ,  $SE = 0.061$ ). My results have revealed further differences with regard to clearly communicated and implemented corporate vision ( $\beta = 0.168$ ;  $t = 1.75$ ;  $p = 0.087$ ,  $SE = 0.135$ ). This factor did not contribute to the better coordination and integration of the sales and marketing departments since it explained only 15% of the variance of coordination, whereas information exchange made up 85%. Similarly to PMC, however, a clearly communicated and implemented corporate vision ( $\beta = 0.606$ ;  $t = 5.49$ ;  $p < 0.01$ ,  $SE = 0.074$ ) encourages information exchange between sales and marketing. However, this impact is much stronger in NPMC than in the pharmaceutical ones. Further significant differences were seen in the case of conflicts ( $\beta = -0.006$ ;  $t = -1.051$ ;  $p = 0.298$ ,  $SE = 0.076$ ), which showed no significant negative effects.

The comparison of the external measurement models reveals only one significant difference between pharmaceutical and non-pharmaceutical companies. Common goals have the most





the necessity of harmonising the SMI to foster organisational goals and benefit the company as a whole. Figure 14 shows some of the strongest correlations between words in the answers given to Question 3.

Obviously strong correlations can signal collocation of the pairs of words. In the above picture “regular” and “meetings” are collocated in the form of “regular meetings” in most segments (It was checked with the Collocates tool). Not all, because in that case the correlation would be one. The same applies to “weekly” and “meeting”, “telephone” and “conference” and meetings (regular, weekly) seem to be a crucial factor in the optimisation of the SMI. Looking at the correlating pairs of words it seems apparent that the strongest correlations are present between words that refer to some form of communication (meetings, conference, communication, telephone).

Figure 15 shows three topics variations of the answers given to Question 3. It has to be noted that the LDA algorithm randomly assigns words (number can be set) to topics (number can be set) when it is started. Thus, each time the algorithm is run there will be slight differences in the results. Besides setting the number of topics and the number of words per topic to model the text on it is also possible to set the number of iterations for the algorithm. The default is 50, but the present results were obtained after 200 iterations. The more iterations are run, theoretically, the more accurate the topics will reflect clusters in the text.

| Term 1      | ← | → | Term 2       | Correlation (r) | Significance (p) |
|-------------|---|---|--------------|-----------------|------------------|
| conference  |   |   | telephone    | 0.89871705      | 0.0004067596     |
| meetings    |   |   | regular      | 0.8982954       | 0.00041335827    |
| background  |   |   | campaign     | 0.8849847       | 0.00066491275    |
| campaign    |   |   | materials    | 0.8849847       | 0.00066491275    |
| effective   |   |   | person       | 0.8849847       | 0.00066491275    |
| goals       |   |   | perform      | 0.875           | 0.0009160936     |
| meetings    |   |   | weekly       | 0.8728716       | 0.0009774802     |
| campaign    |   |   | organization | 0.8728716       | 0.0009774802     |
| common      |   |   | communica... | 0.8517522       | 0.0017599578     |
| cooperation |   |   | help         | 0.8479983       | 0.0019358585     |

**Figure 14: Correlations of words in the answers given to Question 3**

Source: Own editing using [www.voyant.tools.org](http://www.voyant.tools.org)

| Topic  | Topic   |
|--|---|
| meeting department managerial consensus provide stakeholders respond | department managerial consensus provide stakeholders conference respond |
| cooperation tasks joint company effective marketing organization     | cooperation joint company marketing tasks effective organization        |
| sales team marketing conflicts teams regular help                    | sales team marketing respect problem conflicts teams                    |
| company organization organizational units goals background materials | company organizational units organization background materials goals    |
| meetings regular communication common sales telephone information    | meetings regular communication common meeting sales telephone           |
| management goals perform designing goal achieve corporate            | goals perform corporate designing achieve management consultation       |
| marketing email sales departments work newsletters department        | marketing sales departments work newsletters department directives      |

**Figure 15: Topics variations from the answers to Question 3**

*Source: Own editing using [www.voyant.tools.org](http://www.voyant.tools.org)*

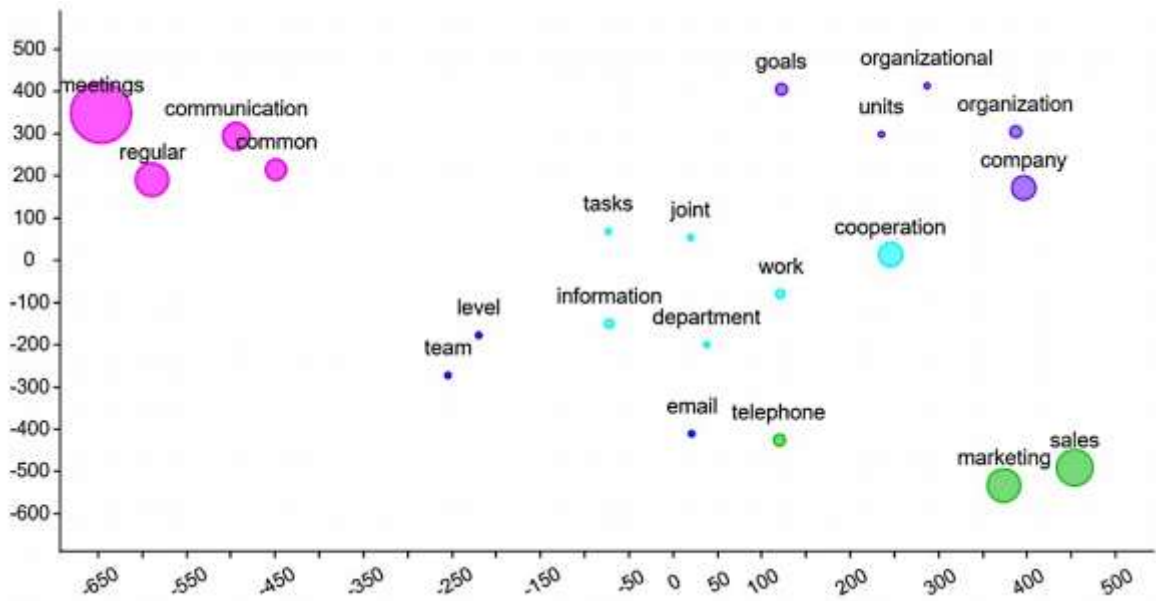
Each seven topics in Figure 15 contain all the words in the corpus, but only the top seven words are displayed. The order of the words is important. The first words in each topic contribute more to the topic than the other words, thus the seven words in each topics demonstrates an order of importance as well. There are some inferences that can be made from these topics. Both iterations yielded topics in which “meetings” appear as the organizing force of the topic. In the first iteration (on the left) it appears twice in first position. As the question was about how SM cooperation is realised and managed, it seems that common meetings for the two departments play an important role in optimising SMI. The fact that the word “cooperation” occurs in both topics sets in first position is probably attributable to the main focus of the question being the nature of cooperation between SM. The term “marketing” is in first position in both versions but “sales” is in first position in only one of them. This is a typical case to demonstrate why exercising caution with results is warranted. At first glance this occurrence pattern of “marketing” and “sales” might suggest that marketing is somewhat more important in these companies than sales. However, the numbers of respondents in the sample were considerable higher from the marketing departments than from sales, which might be the real cause of this occurrence pattern. The term “company” also appears in both sets as being the most important word of the topic together with other words such as “organization” or “goals”. It might suggest that the harmonious relationship between SM significantly affects the company at large. At the same time, there might be a reverse interpretation, namely, the company and its goals have a significant influence on the relationship between SM. In order to come to valid conclusion a close consultation of the answers is unavoidable. Having consulted the answers, it is clear that both interpretations hold true at the same time. It has to be noted that the 124 answers to Question 3 represent a relatively small corpus, which can be read through in a relatively short time. In a different sampling scenario where there are thousands of answers to open-ended questions the topics tool of Voyant might become a much “heavier weapon” in the hand of the researcher.

The scatter plots (Figures 16,17,18) were created by the t-SNE tool.

The tf-idf (term frequency-inverse document frequency) weighting method was used for the analysis. It is an option that can be set by the analyst besides the other two methods “raw frequencies” and “relative frequencies”. It is a method that determines how important a word is to a document and is largely dependent on how often a word appears in a document. As there is only one document in my case, the algorithm divides the corpus into 10 segments and examines word frequencies in each segment. As it was noted earlier t-SNE is an award-winning method and the cluster plots that it is able to create can encourage jumping to conclusions that might not at all be sound. There are several reasons for this. The two that I consider the most important is discussed here. These two factors are the level of perplexity and the number of iterations. Figures 16, 17 and 18 show the results of the t-SNE algorithm run at three different levels (5, 50, 100) of perplexity. All three scatter plots below (Figures 16, 17, 18) were obtained after 5000 iterations. In order to test how the model changes at different levels of perplexity it was necessary to keep the number of iterations constant. Looking at the three scatter plots it is apparent that perplexity level 50 yielded the most convergent result, that is, the various clusters are the clearest in Figure 17. Perplexity levels 5 and 100 (minimum and maximum levels respectively) resulted in less convergent clusters. It seems obvious that the level of optimal perplexity is largely dependent on the data set. There is no fixed level that can be suggested to be used in general and beginner users of t-SNE in Voyant might need considerable time to get the best results (Wattenberg, Viégas & Johnson, 2016). Attempts have already been made to automate the selection of the perplexity parameter and thus make analysis much easier for the novice user. (Cao & Wang, 2017).

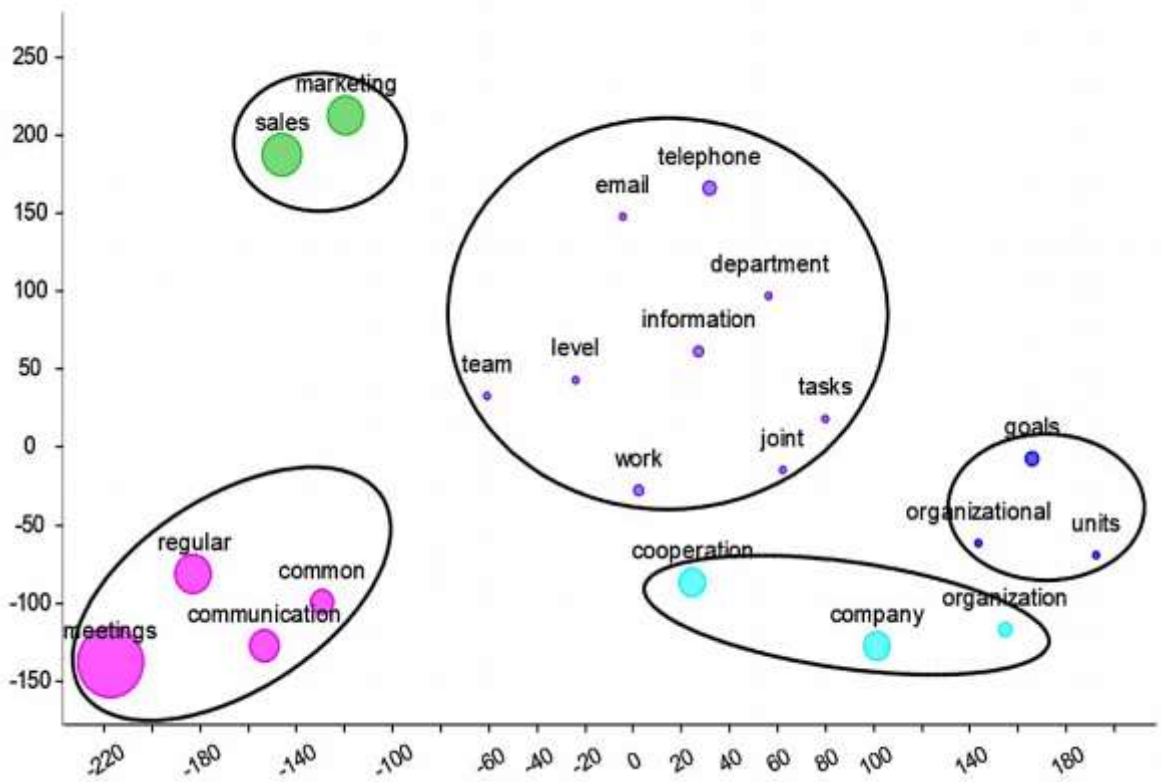
The above results gained with altering the level of perplexity seem to support the claim of the inventors of the t-SNE method who said that the t-SNE method is fairly robust to changes in the level of perplexity (Van Der Maaten & Hinton, 2008; Van Der Maaten, 2014). There are no dramatic differences between the models of the three different levels of perplexity.

The number of iterations the tool will use to create the model can be set between 100-5000. If we take a look at Figures 19, 20, 21, 22 (100, 600, 900, 5000 iterations respectively) the same can be stated as about the level of perplexity earlier. There is no linear relationship between.



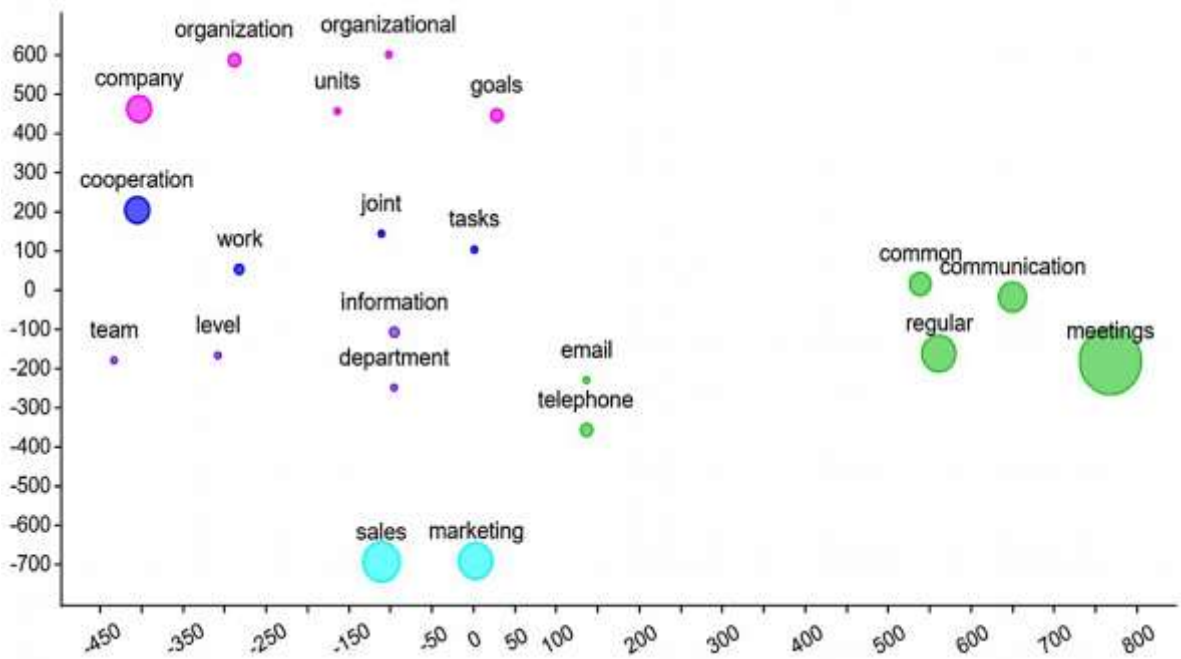
**Figure 16: t-SNE generated clusters for the answers to Question 3 at perplexity level 5**

Source: Own editing using [www.voyant.tools.org](http://www.voyant.tools.org)



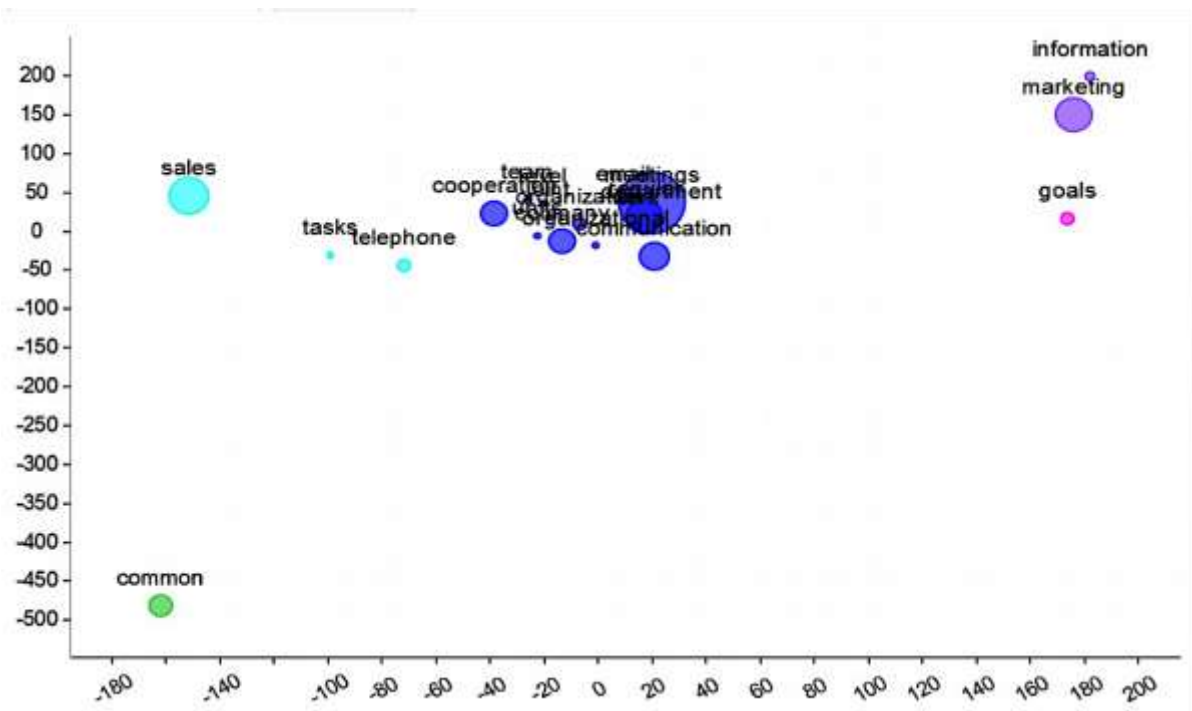
**Figure 17: t-SNE generated clusters for the answers to Question 3 at perplexity level 50**

Source: Own editing using [www.voyant.tools.org](http://www.voyant.tools.org)



**Figure 18: t-SNE generated clusters for the answers to Question 3 at perplexity level 100**

Source: Own editing using [www.voyant.tools.org](http://www.voyant.tools.org)



**Figure 19: t-SNE generated clusters for the answers to Question 3, 100 iterations**

Source: Own editing using [www.voyant.tools.org](http://www.voyant.tools.org)

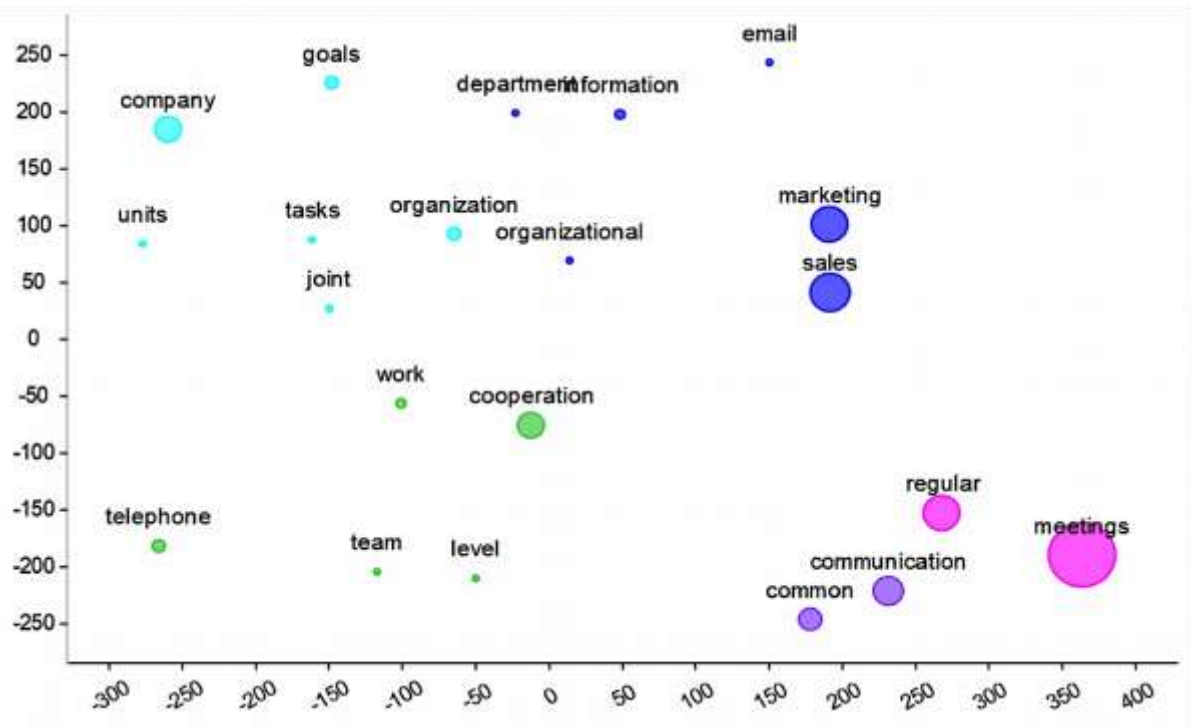


Figure 20: t-SNE generated clusters for the answers to Question 3, 600 iterations

Source: Own editing using [www.voyant.tools.org](http://www.voyant.tools.org)

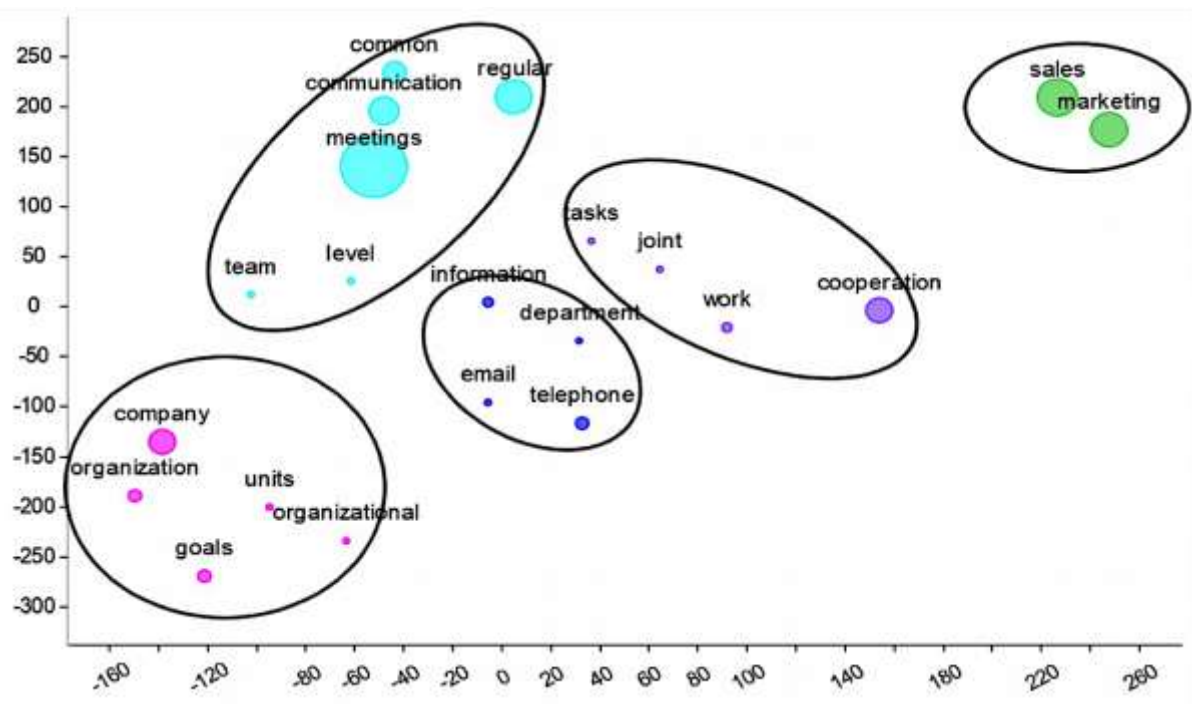
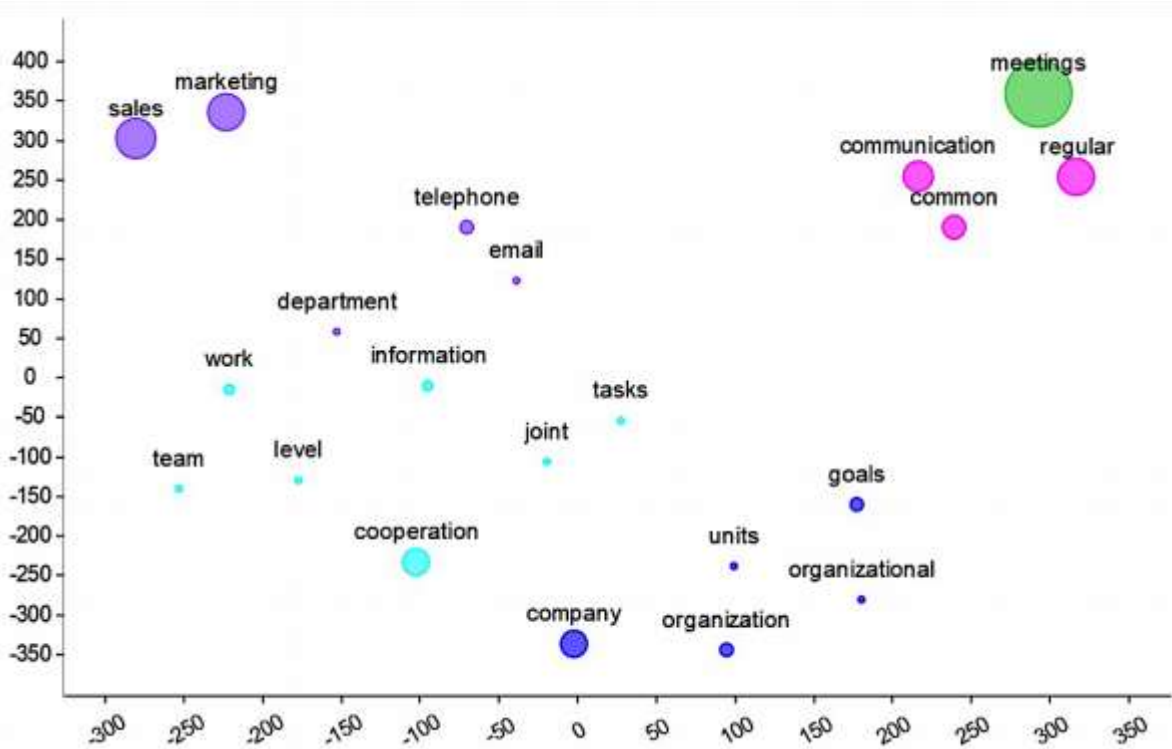


Figure 21: t-SNE generated clusters for the answers to Question 3, 900 iterations

Source: Own editing using [www.voyant.tools.org](http://www.voyant.tools.org)



**Figure 22: t-SNE generated clusters for the answers to Question 3, 5000 iterations**

*Source: Own editing using [www.voyant.tools.org](http://www.voyant.tools.org)*

The number of iterations and the convergence of the model, even though as the number of data points grow (bigger data sets) the number of iterations required for the model to converge will grow too (Linderman & Steinerberger, 2017). 900 iterations yielded the best result with the clusters being the tightest (Figure 21). This model version is even better than the model in Figure 17 with the same level of perplexity but a much higher number of iterations (5000). The colours reflect data points (words in this case) that belong to the same cluster, while the size of the points is proportionate to the relative frequency of words. SM seems to be strongly related, which might be attributable to the nature of the question. There is a clearly detectable cluster that is about communication. Regular meetings and appropriate communication in general can significantly improve cooperation (Madhani, 2016) and reduces conflict (Snyder, McKelvey & Sutton, 2016). Communication and information sharing between SM is considered to be one of the keys to an effective management of the SMI (Biemans, Brenčić & Malshe, 2010). In Figure 21 there is a separate cluster that contains the most important information sharing methods in the two departments (telephone, email). Points marked in lilac signal the importance of joint tasks and work as well as cooperation between SM departments. It is interesting that there is a “corporate level” cluster with terms such as “company”, “organisation”, “goals” which highlights the significance of how corporate goals and vision can influence the efficiency of SM. It also supports earlier literature emphasizing corporate vision (Kumar, 2016; Groysberg, Lee, Price & Cheng, 2018).

## **7. CONCLUSION AND DISCUSSION**

### **7.1. Finding of the research for domestic and foreign employees**

Based on the results it is obvious that Hungarian employees of the SM departments in the examined international companies evaluate some of the twelve selected factors affecting the relationship of SM in a significantly different way than their foreign colleagues. As it is apparent from the ranking of elements to be improved in the future and also from the model for Hungarian SM personnel, Hungarian SM employees place a higher emphasis on the importance of information exchange in determining the quality of SM cooperation than their foreign colleagues. Further research is needed to identify the exact causes of this. Hypothetically it is suggested that the confidence of Hungarian employees using English or German as a common language of communication as well as the general level of self-confidence, self-efficacy and ability to work independently in an international corporate environment, might be potential background determinants. This latter three potential factors might also have to do with the fact that market capitalism has been around for thirty years in Hungary and the strong presence of international (multinational) companies is characteristic of the last twenty years only. This short history of international corporate culture in Hungary might also explain the striking difference between the importance Hungarian and Foreign SM employees attribute to shared targets for the two departments and the marked difference in the evaluation of the importance of clearly defined roles and responsibilities. For Hungarians, the more clearly defined common goals there are, and the clearer SM roles and responsibilities are defined, the stronger the coordination and cooperation will be between SM. The models also suggest that, while efficient cooperation for Hungarian SM staff definitely requires a common understanding of what the ideal customer is like, foreign SM staff does not consider this as a significant factor at all. For Hungarians the stronger the shared idea of the ideal customer between SM, the better the cooperation of the two departments will be. Again, the underlying factor behind this difference might lie in the fact that Hungarians have had a relatively short period of market-centered socialization whereas their colleagues of long developed market societies can view this issue as something completely obvious for both departments. The considerable negative correlations between information exchange, CRM and common meetings in the case of foreign employees signal that the malfunction of these areas is more likely to cause conflict than in the case of Hungarian staff where the three areas are also negatively correlated with conflicts but to a much lesser extent. The explanation of this might lie in the previously mentioned difference between long-established market societies (Austria, Germany, England) and young ones like Hungary. Foreign employees of these societies are, in their home countries, probably more accustomed

to efficient information exchange, IT systems or meetings than their Hungarian colleagues are in Hungary.

On the similarities side, it has to be noted that both Hungarian and foreign SM staff consider common meetings and training sessions as well as a common IT platform for the two departments important factors of efficient interdepartmental coordination and cooperation. In a fast changing global business environment gaining up-to-date knowledge and information is increasingly important, thus the shared emphasis on these factors. The clear definition and communication of a corporate vision positively affects the quality of SM cooperation through having a direct influence on the quality of coordination for both Hungarian and foreign staff. In the models the twelve variables affect cooperation through latent variables (factors). It calls attention to the importance of optimizing certain functions in a holistic way, taking into account the various elements that affect the efficiency and quality of SM cooperation in groups and as a whole, not only individually.

The managerial implications of the results can be manifold, however, caution is warranted as there are several limitations that restrict the generalisability of my results. These limitations include convenience sampling with a relatively small number of companies involved in the research. Based on the correlations of the twelve variables, it is apparent that in the case of the Hungarian sample the number of significant and stronger correlations is much higher. However, it has to be treated with caution as only less than one third of the sample were foreign employees. Also, my survey did not have questions to filter out various forms of biases. I decided not to include more questions because I had expected the willingness to complete the questionnaire will fall considerably with length and time requirements. The study is exploratory in nature and with this in mind there are a few implications that can safely be stated.

Even though the sample was restricted, the results seem to support earlier research establishing a strong connection between efficient functioning of international companies and the in-depth knowledge of how cultural differences such as nationality-related factors can influence company processes.

Future research in this area might focus on identifying the exact causes of the differences of how employees of various nationalities and cultural background evaluate factors of efficient interdepartmental cooperation. Also, it might be worth testing the PLS-PM technique on larger, preferably representative samples including various nationalities.

## 7.2. Finding of the research for PMC and NPMC

Based on the above results from the comparison of PMC and NPMC manufacturing firms, my initial research questions provide the following answers:

1. How does information exchange affect SM cooperation in PMC and NPMC?

Information exchange proved to be an important component of management culture, and hence an important factor affecting SM cooperation in both PMC ( $R^2=38$ ) and NPMC ( $R^2=57$ ), the latter being more emphatic. Results suggest that in NPMC improving the quality of information exchange is likely to enhance SM cooperation considerably more than in PMC. The more than 20% difference in explained variance is attributable to the effect IT (e.g. CRM) as a component of information exchange has, in PMC ( $r=0,101$ ) and NPMC ( $r=0,678$ ). PMC are subject to various GxP regulations (Wingate, 2016) which are not applicable in the case of NPMC. Validation protocols, including the validation of (e.g. CRM) systems, are extremely strict in PMC (Wingate, 2016; Elser & Richmond, 2018). Based on this, my results are counter-intuitive and need further investigation.

2. How does coordination (common meetings, training sessions, goals and clearly defined responsibilities) between SM affect SM cooperation in PMC and NPMC?

The marked difference in the variance coordination explains in management culture (PMC,  $R^2=44$ ; NPMC,  $R^2=25$ ) might be the result of the strict protocols in PMC mentioned above. It seems that in PMC the improvement of coordination is more likely to result in improved SM cooperation than in NPMC. Clearly defined roles and responsibilities are equally important elements of good coordination in both types of companies, however, in PMC it is common meetings, while in NPMC it is common goals that have the strongest correlation with coordination. Marking clearly defined roles and responsibilities as high priority to effective coordination runs counter to the practice of B2B companies where responsibilities of SM are overlapping, amorphous and emergent (Biemans & Makovec Brenčič, 2007; Biemans et al., 2010).

3. How does the company vision and its communication affect SM cooperation in PMC and NPMC?

Corporate vision and its communication has a very moderate effect on management culture and through this on SM cooperation in both PMC ( $R^2=16$ ) and NPMC ( $R^2=18$ ). What holds true on the company level (Madu, 2013; Tomek et al., 2016; Balmer, 2017) does not seem to be too relevant in an interdepartmental context for the SM relationship. Identifying the exact causes of this require further investigation that is beyond the scope of this study.

4. How does management culture (information exchange, coordination, vision) affect SM cooperation in PMC and NPMC?

The 'marketing and sales cooperation' factor is significantly affected by the elements of the management culture (information exchange, clear corporate vision, coordination). The proportion of variance explained in the two models by management culture expressed by the coefficient of determination or R squared is outstanding (PMC,  $R^2=0,619$ ; MPMC,  $R^2=0,741$ ). My hypothetical belief in the marked combined effect of the three variables seems to have been proved right. This finding calls attention to the importance of examining various factors affecting certain corporate functions not only in isolation, but also in groups where latent mechanisms might create either positive or negative synergies (Birkie, 2016).

5. How do conflicts between SM affect SM cooperation in PMC and NPMC?

Conflicts do not have any considerable effect on SM cooperation (PCM,  $R^2=2$ ; NPMC,  $p=0.298$ ) in either type of companies. Once again my findings do not seem to support earlier research emphasizing the importance of reducing conflicts to raise corporate competitiveness. Reasons for this might be many, convenience sampling being one possible cause for the discrepancy between earlier literature and my results. As Henry (2009) pointed out in an empirical study, a large part of the organizational conflicts arise because of interpersonal disagreement and resource scarcity within the company. He also emphasized, based on his results, that conflicts can have various positive effects as well. It might be the case that in the 47 companies surveyed personal disagreement or resource scarcity is not a significant source of conflicts. At the same time the positive effects of conflicts might counter the negative effects to a higher degree than in other researches. There might be effective conflict management mechanisms in the examined companies which considerably reduce the potentially negative effects of conflicts and amplifies their positive effects (Longe, 2015; Awan & Saeed, 2017).

6. How does a shared perception of the ideal customer affect SM cooperation in PMC and NPMC?

The shared perception of the ideal customer significantly and almost perfectly equally (PMC,  $\beta=0,568$ ; NPMC,  $\beta=0,584$ ) affect the SM cooperation in PMC and NPMC. While it seems quite obvious that SM departments cannot cooperate efficiently if their perception of what is in the centre of all SM efforts, that is, of the customer, is significantly different. There is no earlier research to rely on in discussing this finding. However, based on my findings and extending on what was said in the literature review section of the paper, it might be stated that as the examined SM departments use a common CRM platform they have access to the same customer segmenting and profiling information, which greatly help to form a shared perception of the

customers. As customer-centricity is increasingly important in corporate life in general (Ulaga, 2018) and in the pharmaceutical industry specifically (Panigrahi, Aware & Patil, 2018), the explanation might lie in PMC and NPMC devoting considerable attention to profiling customers and sharing these perceptions within the organization to enhance consistency in delivering value.

As the three variables of the internal models are determined by the eleven input variables of the external model, it can be stated that with the exclusion of conflict the SM cooperation is largely determined by information exchange, coordination, vision and communication and a shared perception of the ideal customer. PLS path modelling is an invaluable SEM technique to uncover latent mechanism in non-normally distributed ordinal level data. There are some obvious limitations of my research that restrict the generalisability of the results. Convenience sampling was used with a small number of PMC and NPMC. The questionnaire did not include any questions to rule out various response bias effects. In order to keep the response rate high a very short questionnaire was employed. In spite of these limitations, my study that comparing the SM interface of various types of companies, a seriously under-researched area at the moment, can yield results of not only theoretical, but practical significance. As the study was exploratory with a limited number of participants, managerial implications at this point cannot be stated with confidence.

### **7.3. Finding of the research using voyant-tools**

These voyant-tools might be valuable for professional and academic purposes for different reasons. In academic settings, where time constraints are not as pressing as in the business world they might serve as means of preliminary analysis prior to more conservative and traditional methods of qualitative data analysis such as directed text analysis or grounded theory techniques. In business settings where being time-effective directly impacts cost-effectiveness these tools can be invaluable to save time and energy. It is especially true in the case of large data sets such as thousands of pages of comments from a corporate page. The tools that this paper presented vary in degree of sophistication and explanatory power. The Cyrrus tool or the Correlation tool can reveal limited interactions within the answers. The Topics tool provides a higher level of intimacy with the text as besides frequencies ranking is also taken into account. The t-SNE tool provides the highest level of sophistication and the deepest analytical possibilities revealing how groups of terms are related to each other. The tools used also highlight the importance of joint tasks and work, as well as collaboration between MS departments, as well as the importance of how corporate goals and vision can affect the effectiveness of MS.

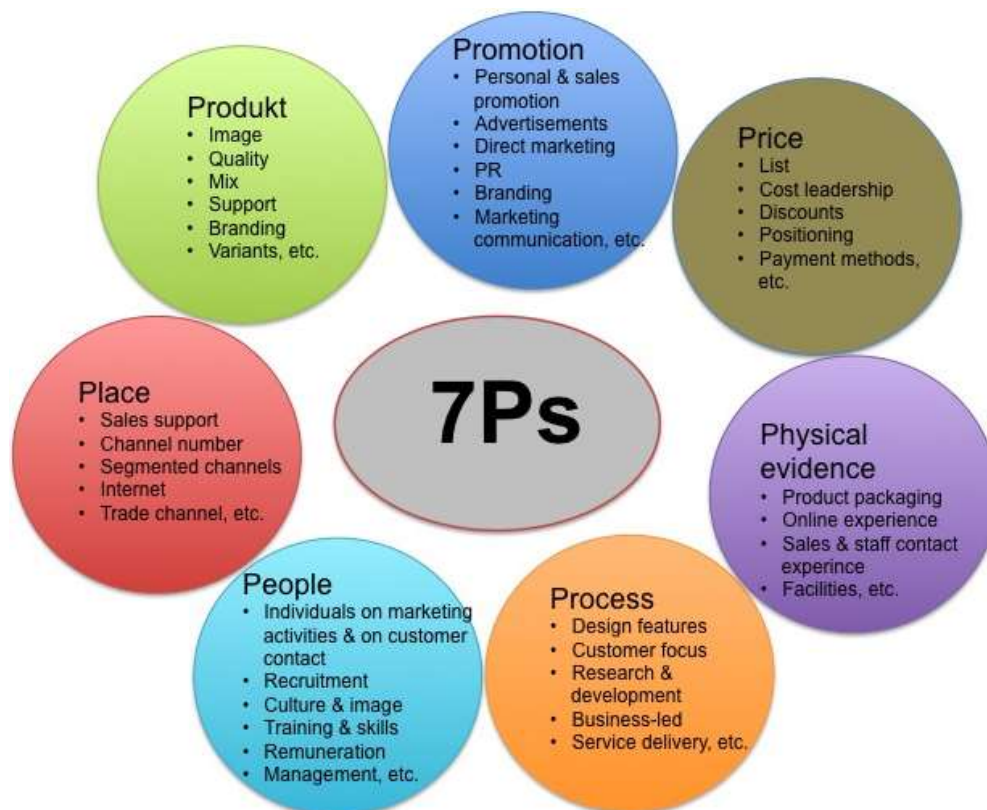
#### **7.4. Own experiences**

After graduating in Germany with a degree in business administration with focus on marketing, my goal was to be able to work in marketing, especially product marketing, as quickly as possible. I was mainly interested in the promotion of medical devices as I was working in such companies even during my college studies. It is well known that this industry, besides the pharmaceutical industry, is also very lucrative financially, so I was even more oriented towards this. However, in order to join a multinational, well-functioning company that manufactures and sells high quality medical devices and instruments, it has often been necessary to have sales experience. Eventually, I can fully understand this expectation. As a graduate, I sent out my applications widely, although I knew that the application process would be rather long, as the economic chaos and crisis that took place since 2007 had a major impact on companies' recruitment behavior. Finally, I managed to get into a medical company, where I gained a lot of experience and insight into what it means to sell and promote. After perceiving the tremendous amount of governmental regulations and the structures in the purchasing departments of the hospitals I had to recognize that sales as a discipline is a mixture of activities which are full of challenges, disappointments and demotivations, nevertheless, also successes.

After numerous years in my sales career, I decided to make the next step and changed to marketing. From the beginning, I tried to plan, organize and implement all marketing activities in such a way that the sales team is as much involved as possible, but least informed. Agreements in many cases were born, but in many cases, unfortunately, not. In addition, Bruce Tuckman's theory, first published in 1965, was perceived in many cases, not only within company-level projects, but also in case of smaller, operative marketing activities, such as organizing product exhibitions or hands-on workshops. One or two members of the sales team were mostly required to attend these events. I also considered this to be the correct organizational approach made by the management, as it could not have been easier for the sales to establish a personal relationship with the potential customer. Nevertheless, marketing, including myself, was able to work with future joint activities, lead generations and communications based on the principle of mutual benefits. The knowing, forming, storming, then reforming (norming) and performing phases were clearly perceived, but what made the whole thing exciting was the one that ended a „well-done” activity, which was later added by Tuckman to his theory, the adjourning stage. Luckily, we didn't have to experience the alternative stage, the so called mourning stage.

As I have already mentioned in this work, according to the previous literature reviews on sales, it is considered as a part of marketing in principle. It might be true. But, as we know, the reality

shows a completely different picture. I was always thinking that if the two of them were separately led of equal rank, then how could one be the part of the other. I sought the answer to my idea, but not only in the literature but also in practice. Eather in this work, it can be seen in the literature that the individual sales or marketing researchers are more likely to strengthen the collaboration of both than to strengthen the “one above the other” principle. Indeed, it is really shown how marketing is evolving, not only as a discipline, but also as a science, based on the well-known and applied marketing-mix nowadays. According to my studies, the marketing mix consisted only of 4P. Product, Price, Promotion, Placement. I found it interesting that neither during my studies nor during my work experience did I come across an update to the marketing-mix until I started researching myself. Today, this concept, published by E. Jerome McCarthy in his 1960 book, „Basic Marketing, a Managerial Approach” is known to all marketeers. The matrix (see figure 23) indicates that all the points which this work is described with are mainly to find under the point “People”.



**Figure 23: The 7Ps Marketing Matrix**

*Source: Own editing*

According to my interpretation, marketing as a science, which is visualized by the marketing-mix, cannot be equated with marketing as a discipline. The mentioned People point is that includes both the marketing and the sales. Accordingly, I could not discover any subordination or superiority between the two disciplines examined, either in principle or on the basis of my

experience. During the development of any concept, project or product, all the parties involved were present during my work. It was felt that the different approaches to what should be done, developed and sold were not always uniform. The point of views and opinions sometimes differed greatly, but considering the S.M.A.R.T. (Specific, Measurable, Assignable, Realistic, Time-related) goals, the results were satisfied by the participants, and this was what made the two sets together a powerful, effective organisational unit. Of course, this integrated collaboration has to work not only in product development but also in all marketing and sales activities. This will require further researches into this dynamically discipline, facing many changes. This development was also an excellent motivation for me to conduct this research. My German studies and the experience I gained there led me to the decision to study countries, such as Hungary or Austria, regarding the similarities, or differences in the integration mechanisms between marketing and sales.

## **8. NOVEL RESULTS OF THE THESIS, ITS PRACTICAL UTILITY**

This work had two objectives. On the one hand, in an exploratory fashion, it intended to examine how Hungarian and foreign employees of the SM departments of international companies differ in evaluating important factors determining in a large part the quality of cooperation between SM, further to examine how the selected factors affect SM cooperation in PMC and NPMC to highlight differences and similarities in these both manufacturing firmtypes. Further research might attempt to uncover causes of the differences between PMC and NPMC. Findings that run counter to earlier research or seem counterintuitive, such as the insignificant effect of conflicts and the weak effect of corporate vision, are especially intriguing and worth further investigation.

On several levels of statistical analysis ranging from descriptive methods of comparing mean values of variables to the complex modelling technique of PLS-PM it was demonstrated that besides the numerous similarities in how Hungarian and foreign as well as PMC and NPMC employees evaluate these factors, there were considerable differences too. On the other hand, it has also been shown that complex modelling techniques such as PLS-PM can reveal underlying mechanisms which are not inferable from descriptive statistics or correlation tables. To the best of my knowledge nationality differences as they affect SM has not been examined before. As the use of PLS-PM for the optimization of SM interface has not been used either my study definitely adds value to existing literature.

As Soltani, Ahmed, Ying-Liao and Anosike (2014) point out qualitative methodologies in operations management has been gaining significance in recent decades especially for fields like interfacing. One such interface challenge is the SM interface which the present paper uses as an example for the demonstration of the possibilities Voyant Tools can offer. Qualitative methods resulting in large textual data sets in the operations management paradigm include in-depth interviews, anthropological studies, participant observations, case studies or ethnographies. As operations management is increasingly dependent on Big Data analytics (Choi, Wallace & Wang, 2018; Guha & Kumar, 2018) like data mining, Voyant Tools can serve as useful and valuable supplementary technique. Integrating qualitative and quantitative analysis techniques in the analysis of qualitative data can result in a more solid foundation to build research conclusions on. Voyant-Tools offer an impressive array of tools to visualise the results of quantitatively analysed qualitative data. Visualisation tools might tempt the researcher to read suppositions into the data that do not reflect the true relationships of meaning units existing in the data set. As textual data is a coherent system of meaning units, care must be taken with interpreting results especially because there is a danger that quantitative analysis

of qualitative data necessarily leads to considerable loss of information. However, these quantitative methods can be invaluable tools of preliminary analysis and hypothesis adjustment. Their results should always be checked against the traditional content analysis techniques which are more sensitive to the complex structure of semantic units. These quantitative techniques are to help early exploration of textual data. As there is virtually no earlier literature on how quantitative data visualisation techniques can be used in marketing research, especially in the analysis of the SMI, utilisation possibilities of Voyant Tools and other quantitative data analysis and visualisation software for handling qualitative data is definitely a worthwhile area for further research.

## **SUMMARY**

The marketing and sales department plays a critical role in keeping up with the market. The two divisions are of paramount importance for launching and marketing products and services. Accordingly, the leader has a significant influence on the success of the organization from both departments. The effectiveness and quality of working together is a decisive factor that has been negatively impacted by personal, organizational and information deficits, as well as conflicts. Thus, the task of this work was to standardize the points of contact and to explore possible solution keys between the two departments, taking into account the harmonious tasks of employee relations.

Not only the most important factors in the management of interfaces, but also the facilitation steps, which include both strategic and organizational responsibilities, have been identified. From the analysis of the questions raised, it can be concluded that regular exchange of information (in any form), more common and interdisciplinary meetings, a clear communication and lively corporate vision contribute positively to the coordination and integration of marketing and sales department, influence. Thus, management's mission is to create a corporate vision as a comprehensive and clearly communicated leadership culture for everyone and thereby enhance the employee's sense of belonging. The employer should support every coordination effort for both departments. Improving the coordination processes in both areas, marketing and sales, has a strategically significant role, as is clearly segregating and assigning the responsibilities of the different departments.

Based on all this, it is very important that the corporate profit, which is very important for the employer, is based on the success of integrating these classes, which can be successfully achieved by optimally managing the factors presented in the thesis.

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## LIST OF OWN PUBLICATIONS

1. **HETÉNYI G.** - LENGYEL A. - SZILASI M. - SZÚCS E. (2019): Nationality differences affecting the cooperation of SM: PLS modelling of data from six international companies. *Selye e-studies*. 10 (2), 46-63.
2. **HETÉNYI G.** - LENGYEL A. - SZILASI M. (2019): Quantitative Analysis of Qualitative Data: Using Voyant Tools to Investigate the Sales-Marketing Interface. *J. Indus. Engin. Manag.* 12 (3), 73-89.
3. **HETÉNYI G.** - LENGYEL A. - SZILASI M. (2019): PLS Modelling of factors affecting the cooperation between sales and marketing in pharmaceutical and non-pharmaceutical manufacturing firms. *Market-Tržište*. 31 (2), 227-247.
4. **HETÉNYI G.** - LENGYEL A. - SZILASI M. (2019): A konfliktuspotenciálok elemzésének jelentősége a marketing és az értékesítés integrációjában. *Int. J. Eng. Manag. Sci.* 4 (3), 41-59.

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## APPENDICES (Questionnaires)

### Research questionnaire to analyse the cooperation between sales and marketing of data from six international companies

My name is Gabor Hetenyi, head of the present research involving two co-researchers Dr. Magdolna Szilasi and Dr. Attila Lengyel. Currently, I am working on my PhD dissertation. This survey supports my research and I would kindly ask you to fill it out. The survey is totally anonymous no personal data, except for demographics, is collected. All data is handled confidentially, third parties excluded. The aggregate results will be published in scientific articles.

*All questions are mandatory.*

Your gender:

Your age:

#### 1. 1. Which area do you work for?

Marketing                      Sales                      General Management

#### 1.2. Have you worked in other areas besides (sales or marketing) in the past?

Yes                                      No

#### 1.3. Is a clear corporate vision/values defined in your company?

Yes                                      No

#### 1.4. Are the corporate values clearly communicated for employees?

Yes                                      No

#### 1.5. How effectively and comprehensible are the corporate values and vision communicated?

1 – not effectively at all

5 – completely effectively

1

2

3

4

5

#### 1.6. Please describe your daily tasks in a few sentences. How is your relationship to the other department (sales or marketing)?

.....  
.....  
.....  
.....  
.....

**1.7. Are the tasks of sales/marketing clear to you?**

Yes

No

**1.8. What are the tasks of the other (sales or marketing) department?**

.....  
.....  
.....  
.....  
.....  
.....

**1.9. Please assess the following statements concerning your company!**

1 –not at all

5 –yes completely

- Marketing and sales share a mutual perception of the ideal customer:

1                      2                      3                      4                      5

- Marketing and sales have clearly defined, separate area of responsibilities:

1                      2                      3                      4                      5

- Regular opportunities enable an exchange between marketing and sales:

1                      2                      3                      4                      5

- Marketing and sales participate in mutual educational processes, e.g. job-rotation or trainings etc.:

1                      2                      3                      4                      5

- Marketing and sales share common targets and both are evaluated according to this:

1                      2                      3                      4                      5

- Cooperation between marketing and sales often leads to motivated discussions or even to conflicts:

1                      2                      3                      4                      5

- Interdisciplinary meetings take place regularly:

1                      2                      3                      4                      5

- The inter-divisional IT platform (CRM system) greatly helps information exchange:

1                      2                      3                      4                      5



## **Questionnaire items analysed in the research of data from six international companies**

### **Vision and communication**

VC1: "Is a clear corporate vision/values defined in your company?"

VC2: "Are the corporate values clearly communicated for employees?"

VC3: "How effectively and comprehensible are the corporate values and vision communicated?"

### **Cooperation**

CP1: "Marketing and sales share a mutual perception of the ideal customer."

CP2: "Please rate the cooperation between marketing and sales in your company."

### **Coordination**

CR1: "Marketing and sales have clearly defined, separate area of responsibilities."

CR2: "Marketing and sales participate in mutual educational processes, e.g. job-rotation or trainings."

CR3: "Marketing and sales share common targets and both are evaluated according to this."

CR4: "Interdisciplinary meetings take place regularly."

### **Information exchange**

II1: "Regular opportunities enable an exchange between marketing and sales."

II2: "The inter-divisional IT platform (CRM system) greatly helps information exchange."

### **Conflicts**

CF1: "Cooperation between marketing and sales often leads to motivated discussions or even to conflicts."

**Would you change ways of cooperation between the two departments in your company?  
If yes, how? If not, why not?**

.....  
.....  
.....  
.....  
.....

**Which improvements between marketing and sales would you desire?**

shared IT platform

mutual meetings

collective targeting system

regular exchange of information

more acceptance

other:.....





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