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EDITOR'S NOTE **VOL 6, NO 2 (2016)**

User perspectives on business intelligence

The research articles in this issue are related to business intelligence in one way or another.

The article by Salmasi, Talebpour and Homayounvala is entitled "Identification and classification of organizational level competencies for BI success". In their research the authors have identified competencies that can be used as a measure to evaluate an organization's status with regards to business intelligence success. Since the study done by Adamala and Cidrin (2011) this journal has shown a strong interest in user evaluations of business intelligence systems.

The article by Ghasemi and Rowshan presents a new approach to the early warning literature. Entrepreneurs are the group that more than anyone else are seeking out early insights and also rewarded by their ability to look ahead. In the literature this is known as "entrepreneurial alertness." Science can never accept that some people are simply born entrepreneurs or have "eureka" moments: we want to understand why and how. From an intelligence perspective picking up early signals can be seen as a signal for which entrepreneurs to follow and listen to. The ability to gather data from social media through the use of BI tools should make this possible once these entrepreneurs are identified. The article by Ghasemi and Rowshan does not go in this direction, but such research would be welcome in the future.

The article by Avner entitled "Study on competitive intelligence in Isreal: 2016 update" is a status report for competitive intelligence within Israeli firms. The results are compared with a study conducted by the same author in 2006. The study shows that there has been no significant change in CI practices in Israel during the past ten years. It also confirms that competitive intelligence is primarily a tool used by larger organizations. This means that Israeli companies have been slower to adopt new business intelligence software, and this is something that respondents see as a problem.

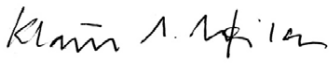
The article by Solberg Søilen entitled "Users' perception of data as a service (DaaS)" is an investigation into a new market related to business intelligence. On one hand this is a survey addressing one particular type of users—namely market intelligence (MI), competitive intelligence (CI) and business intelligence (BI) professionals and experts—and their preferences. On the other hand, this is a critical analysis about the consequences of the issues addressed by users. It is also an attempt to present DaaS in a shorter historical perspective.

The case study on Qoros automotive manufacturing by Ahmadinia and Karim is an analysis of how the company could enter the European market. It has now been more than a year since JISIB decided to publish case studies as articles. The Qorors case is not only a good teaching case, but is also a good illustration of how intelligence topics can be tied to marketing questions and the larger question about competitive advantage.

As always, we would above all like to thank the authors for their contributions to this issue of JISIB. Since the beginning of the year the journal has been supported by a three year grant from the Swedish Research Council (VR). This has allowed us to increase the quality in layout design and review the English grammar.

On behalf of the Editorial Board,

Sincerely Yours,



Prof. Dr. Klaus Solberg Søilen
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Study on competitive intelligence in Israel: 2016 update

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ABSTRACT This paper investigates the state of competitive intelligence among Israeli firms in 2014. The methodology used was self completion questionnaires, which were responded to in May and June of 2016. A response rate of 26% was achieved with 39 questionnaires returned of the 69 questionnaires that were sent out to 65 local firms, most of them with an annual turnover of greater than 100 million USD. The results indicated that there were insignificant changes in the use of competitive intelligence in Israel in the last 10 years, since a survey conducted in 2006. Initially it looked as if the use of competitive intelligence was expanding, but the actual findings shows that the contribution of competitive intelligence to the decision making process was not progressing as it was expected to and there were difficulties in making competitive intelligence an integral part of the decision-making process and having it reach an influential position. The results indicated that the recent global downturn evidently had only a minimal effect on the competitive intelligence scheme and in 75% of the firms there were actually almost no changes in the competitive intelligence programs. Clearly, competitive intelligence was primarily a tool used by the larger organizations and most of the firms that responded (60%), were among those who competed in the global markets. I have also attempted to look into the quality attributes of competitive intelligence performance, and it seemed that the low use of analytical tools was an indicator that we cannot ignore. Only 33% of the competitive intelligence professionals were using these tools regularly as part of their analysis work and in presenting their findings.

KEYWORDS business strategy, CI in Israel, competitive intelligence, Israeli firms

1. INTRODUCTION

Business research literature deals extensively with competition between firms, and global competition has made the competition a more dynamic environment (Grant 2005, Chan Kim & Mauborgne 2004). Business strategy literature deals with the early detection of competitors' intentions and capabilities (Fellman & Post 2010) and recognition strategies of their objectives, strengths and weaknesses combined with trends in the markets and among consumers. Hughes, Le Bon & Rapp (2013) explain that they all are critical components in the success of corporations. A study of 800 firms showed that an important factor in the success of companies is the special expertise of customers' requirements and competitors' moves (Nunes & Breene, 2011).

The importance of monitoring the business environment (external environment) arises with respect to rapid technological developments (Grant 2005). It is impossible to win competition strategy (strategic competition) without introducing competitors, warning of threats (Henderson, 1981) and analyzing information on the competition environment (Fleisher, Right & Allard 2008; Chernev & Kotler 2012).

The basis for competitive intelligence was the need for environmental scanning of information about activities that happen around firms and have an impact on their

performance (Aguilar 1967). The increase of environmental uncertainty gradually strengthened the demand for information processing activities within firms (Daft & Macintosh 1981; Culnan 1983). Firms' skills to adjust to market conditions largely rely on their competences in processing relevant information, mainly on market conditions. Broud (2006) went on to connect competitive intelligence and environmental scanning in the process of building scanning capabilities to affiliate firms' strategy with important changes in the external environment.

Competitive intelligence (CI) is a process involving the gathering, analyzing and communicating of environmental information to assist strategic decision- making (Dishman & Calof 2007). Although there are calls (Hoppe 2015) to move away from a narrow perspective of the practice to pursue a broader understanding of intelligence as an organizational discipline, the above definition of CI is widely recognized by most scholars who are doing research on competitive intelligence and related areas like business strategy and information sciences. Intelligence as part of strategy, (Solberg Søilen 2015) mainly marketing as an instrument to increase a firm's competitiveness in its strategic planning process, has been long recognized (Montgomery & Weinberg 1979) and is also backed strongly by Porter (1979, 1980).

Many scholars have proposed theories about intelligence processes in business. From environmental scanning (Aguilar 1967), strategic intelligence (Montgomery & Weinberg 1979), competitor analysis (Ghoshal & Westney 1991) and market intelligence (Maltz & Kohli 1996), Day and Schoemaker (2006) brought forward the concept of "peripheral vision" which is near to the concept of CI in its broader sense. Most works (Bulger 2016) look at CI as an essential requirement for better strategic planning and execution. The literature shows evidently that CI is not only about competition but covering the whole business environment.

More firms were aware that one of the keys to success was intimate knowledge of the global markets (Bulley, Baku & Allan 2014) by ongoing monitoring of the changes, and it was not enough to offer advanced technological solutions (Prescott 1999) and prevent business failures as a result of intelligence downfalls in business (Tsitoura & Stephens 2012). Many corporations already understood that CI (Blenkhorn & Fleisher 2005) can be of a great help in reaching a competitive advantage and sustaining it (Global Intelligence Alliance 2009, 2011). It is evident that companies with poor information about competitors are stuck being reactive (Le Bon 2013). Contrary to findings by Reinmoeller and Ansari (2016), CI added value can be assessed mostly by strategic planning and decision making (Hambrick 1982; Fingold, Carlucci & Page 2005; Grant 2005) although it is not an easy task as the CI discipline is broadly based on qualitative evaluation.

The growth of the Israeli economy was highly dependent on its exports, mainly high-technology industries and the ability to develop new technologies and applications that would be attractive in the global markets (Central Bureau of Statistics 2014). The use of CI in Israel can be found mostly in large-size companies. It was moving forward slowly, according to recent studies (Barnea 2006, 2009). It seems that the discipline of CI in Israel is still looking for its position of influence, since it is focused on management practices and fulfilling the immediate needs of the corporation rather than working closely with the strategic planning and the senior decision-makers. It is largely focused on formal intelligence activity through CI units, while there are those who believe (Hoppe 2015) that in most organizations intelligence is constructed informally.

2. PAST STUDIES ON COMPETITIVE INTELLIGENCE IN ISRAEL

There were a few studies on competitive intelligence in Israel conducted in previous years. The first one was conducted in 2003 (Barnea 2003) and was published in Israel (in Hebrew) which was followed by an English version that was also updated (Barnea 2004). The next ones were published in 2004 (Belkine 2004; Shirtz 2004). Both studies showed that competitive intelligence in Israel was in its early stages, more in the stage of ad hoc approaches, but they identified the move towards established activity. It pointed towards the potential of the progress of competitive intelligence in Israel as the needs were obsevered.

The next study was published in 2006. It was titled "Why start-up companies failed to adopt competitive intelligence" (Barnea 2006). The key conclusion was that the absence of competitive intelligence awareness was one of the main reasons why Israeli start-up companies failed in the global markets during

the 1990s. The author has offered different ways to change the situation: one of the primary ways was to appoint a senior executive to take care of this issue, as monitoring the international markets was a critical factor for such companies. The author has recommended also that the investment ventures that usually heavily support these initiatives encourage these ideas and act to implement them, and by doing so they could save a lot of money and help to make better decisions.

The next study was concluded in 2006 (Barnea 2006). Its focus was on competitive intelligence in large Israeli exporters. The key findings were that CI was used by almost 50% of the companies and that CI professionals were succeeding in bringing added value through their activities, mainly tactical insights. The study stated that ad hoc solutions were still common but there was a growing understanding of the need of CI expertise. The findings showed that the use of Open Source Intelligence (OSINT) was wide while the use of primary sources was limited, mainly due to a lack of awareness of its potential. Another important result was that the use of expert tools (i.e. software) was very rare, while the expectations of the developers of such tools were higher, as Israel had a strong orientation toward using information technology tools.

In 2008 and 2009, two short studies on CI in Israel by Barnea were published (in Hebrew) in two Israeli management magazines. The key findings were that CI in Israel is moving forward slowly while the main obstacle is the lack of awareness by senior executives who expect to present their intelligence needs and the needs of other units. The conclusion was that without their firm support the creation of durable intelligence capabilities will be difficult.

Another study that has looked at CI in Israel mainly from the aspects of using expert tools (Barnea 2009) has revealed that "local firms were not prepared to invest in new CI tools that would enable CI professionals to perform better. As a result, most CI professionals have to continue using generic tools such as Office (Microsoft), which offers unsatisfactory solutions to their CI program needs". And also that "the high level CI solution has not reached its potential target market due to a lack of support by senior executives who did not see it as critical to move CI forward in their firms".

In 2015, research on the use of Open Source Intelligence by Israeli firms (Markovich 2015) showed that there is an intensive use of these sources, but the added value to the corporate decision-making process was low. It overlooked the entire picture of CI in the Israeli business scene.

It was therefore challenging to conduct a new study of CI in Israeli companies, especially in the time after the global downturn (2008/9). The objective was to compare the results with previous studies, to evaluate the latest findings to see what still has to be done and to try to indicate the directions that CI in Israel may have to take in order to strengthen its position. Research conducted by The Federation of the Israeli Economic Organizations (2011), showed that the global financial crisis almost had limited affect on Israeli global corporations. The depression moderated the growth of Israeli companies abroad. Despite the economic crisis, Israeli multinational companies showed impressive economic strength.

***Research objectives*:**

1. To evaluate the existing use of competitive intelligence within Israeli companies, primarily large companies with annual revenues of 100 million USDand above.
2. To compare the findings with previous studies and to recommend what has to be done in the future to support the use of CI.

3. METHODOLOGY

The study was based on a questionnaire of 25 questions that was sent out to 65 Israeli companies.
The directory of the companies included in this research was based on records of participants in competitive intelligence conferences held in Israel in the last five years.

The questionnaire was divided into six sections:

1. General questions about each firm,
2. Questions about the characteristics of the competition in the relevant industry,
3. How CI is conducted,
4. The value that CI was delivering to the firm,
5. The state of the competition in the recent global downturn
6. Recent changes in the mode of CI activity.

The data was collected by self-completion questionnaires. They were sent directly to CI

managers that have been identified in each company. Sixty-nine questionnaires were sent out. Thirty-nine completed questionnaires (56%) were received. These questionnaires were analyzed. The high rate of response is related to my personal acquaintances with the responders.

The actual meaning was that all companies studied had active CI functions.

4. LIMITATIONS

The limitations of this study were as follows:

The results were based only on the self experience of the CI managers rather than on their superiors.

It was impossible to know how much these replies represented the view of senior executives in these companies about some of the questions, for example the added value of CI.

5. DATA ANALYSIS

The profiles of companies that responded and participated in this study by sector are shown in Figures 1-5.

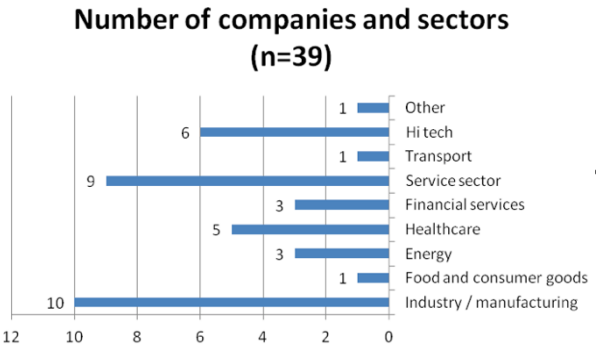

Figure 1 Sectors (industry type) of responding companies.

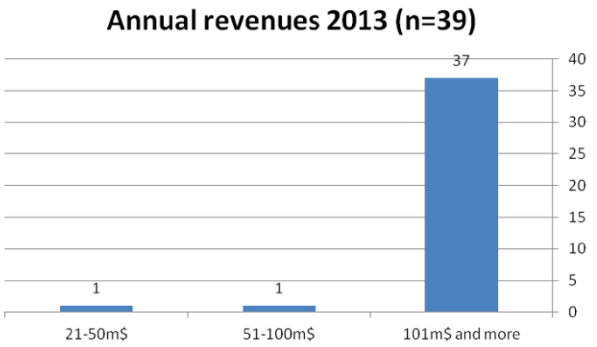

Figure 2 Annual revenue (2013) by company. A company with annual revenues exceeding 100 million USD (100 m$) is usually considered to be a large corporation in Israel.

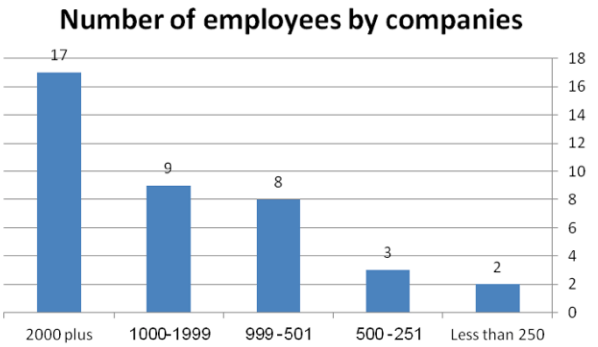

Figure 3 Number of employees by company.

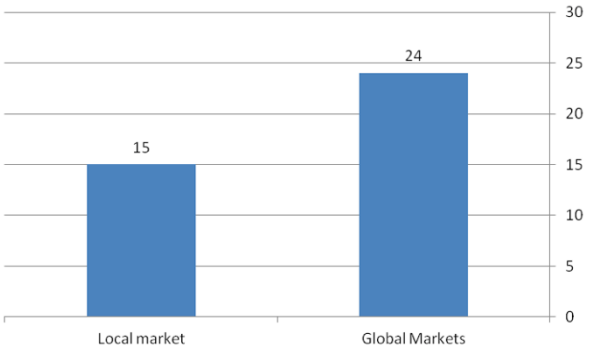

Figure 4 Primary markets where the companies compete. A few companies operate in both markets: global and local. The questionnaire instructed the respondent to indicate the primary market.

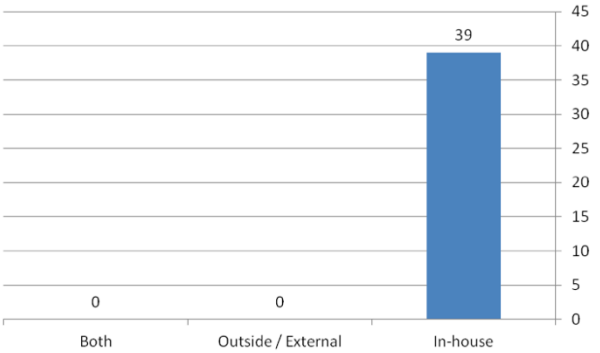

Figure 5 Where CI is done (internally or externally)

All CI managers that responded indicated that their CI units were operating in –house, meaning that they were part of the company's structure and located in the company's premises and thus interacted continuously with its people. None of these units was operating externally. Obviously, many of these companies were receiving input from external suppliers, mainly information gathered from public domains. In comparison, the "global study on large companies" (Global Intelligence Alliance, 2009) has stated that 71% of the intelligence activities were produced within the company.

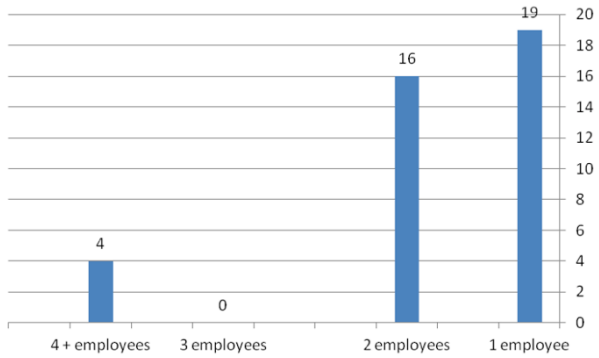

Figure 6 The size of the CI unit: number of employees per unit.

The results in Figure 6 indicate that the size of the competitive intelligence units in Israel were usually small. In 90% of the firms the CI units were two people or less. There were no differences in the size of the units between companies who focused on the local market and those that were competing in the global markets. The hypothesis that Israeli companies in the global market needed larger CI units than in the local markets due to the scope of the intelligence tasks was not supported by the results of this survey. As CI units were small, CI was usually fulfilled through a centralize unit.

It is possible that Israeli companies in the global markets were using outsourcing services by information professionals more intensively than those operating internally, but this was not substantiated in the results of this study.

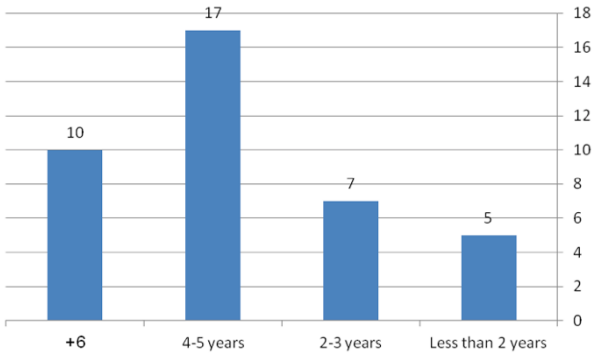

Figure 7 The profile of competitive intelligence units: how old is the CI unit in your organization?

It was found in this study (Figure 7) that 69% of the units are more than four years old while the rate of new CI units in the last three years was only around 30%, meaning that in this period the growth of CI in Israel was slowing. These results were contrasted with my initial assumption that CI is growing in Israel in the last three years faster than in the years before.

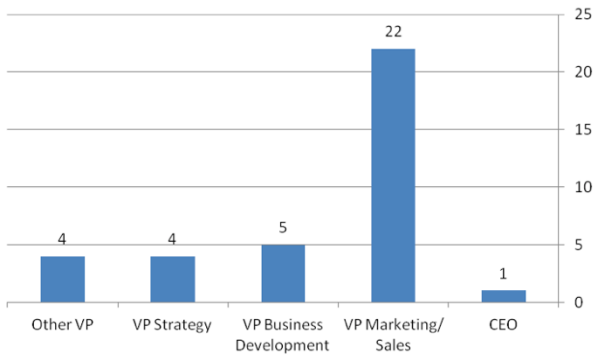

Figure 8 To whom the CI director reports.

The majority of CI directors in Israel were reporting to the senior level management, i.e. to VPs (Figure 8). It seems that CEOs preferred not to manage the CI function directly, mainly as a result of a lack of ability to allocate management attentiveness. In most of the firms, CI was part of the marketing or sales units, and their directors were reporting to the VP level. Second most common were CI units that operated under the guidance of the VP business development. The VPs of strategic planning were getting continual support from CI, but usually were refraining from taking direct control of CI.

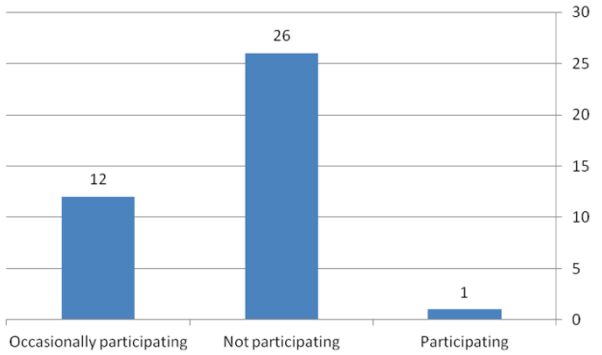

Figure 9 The participation of CI in major decisions.

The question here was referring to the rate of participation by CI directors in the regular meetings of the senior management and the results showed that the level of participation on a regular basis was low while the participation on an occasional basis was 30 percent (Figure 9). It was not satisfactory but it revealed that the awareness of the importance of the contribution of CI is growing. The following question regarding the level of satisfaction from the contribution of the CI activity added a better perspective on this issue (Figure 10).

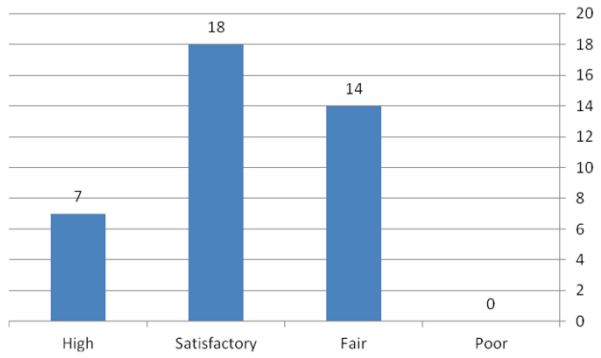

Figure 10 To what extent does the CI provides added value to the firm?

Figure 10 indicates that most of the CI directors were aware of the situation that their units were not graded very highly by their executives. These results also exhibited that the CI managers were aware of the need to improve their performance. Although the results came from the CI managers, it was reasonable that they took into account the feedback they received regularly from their "internal customers", mostly the executives.

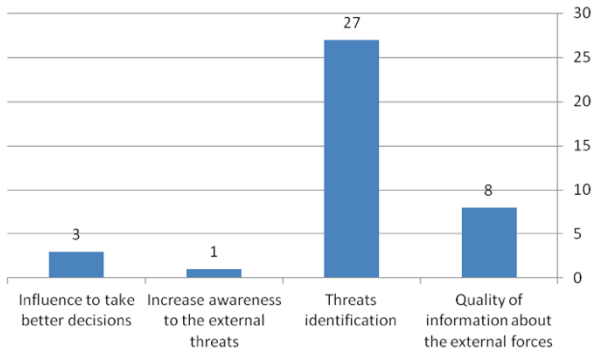

Figure 11 The advantages the firm is gaining from CI.

The primary advantage of CI (approximately 70%) was placed on the identification of threats (Figure 11). This may also be pursuant to the directions they got from their superiors. It was intriguing and annoying to find out the low rate (8%) that CI received in improving the decision making process. It is possible to deduce that the most important advantage was threat identification, while they felt a lesser need to support in the decision-making process.

Figure 12 Primary users of CI products.

The results of the question shown in Figure 12 remained in firm correlation with the results in Figure 8. Evidently, CI was primarily serving the needs of marketing or sales. As a result of a lack of awareness and resources, the service to other functions was low as CI was incapable of looking simultaneously in other directions, mostly due to a lack of resources.

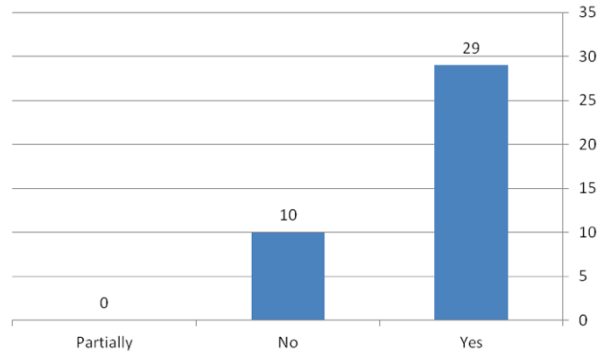

Figure 13 The existence of a systematic process of establishing KITs.

The results show undoubtedly that setting up a systematic process of KITs has been executed very well (Figure 13). It shows also that the routine of ongoing amendments was working properly. CI directors had intense awareness of the significance of keeping their attention on the real needs of their firms. It remained unclear why 25% of the CI directors were not operating using the same procedure. I tend to believe that this was a lack of awareness, which had an impact on their level of expertise in the CI discipline. In comparison to the global scene, 87% of the companies were systematically collecting and analyzing information.

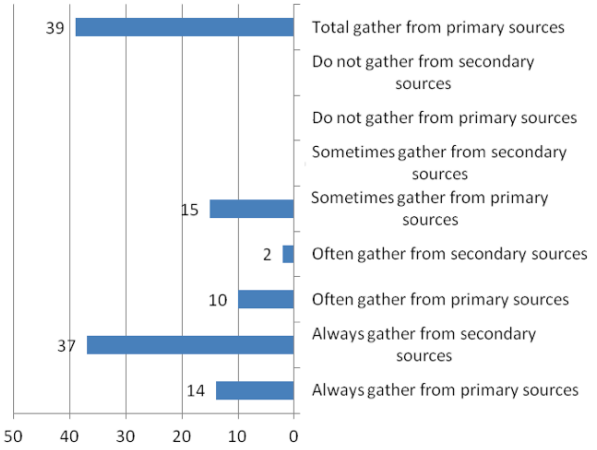

Figure 14 The use of information from primary and secondary resources.

The results in Figure 14 show that using secondary resources was a standing procedure while using primary sources was less frequent. These results correlated with the difficulties of building a primary source network, which could be a result of the lack of capabilities by the CI professionals and/or a result of difficulties in establishing themselves in their firms.

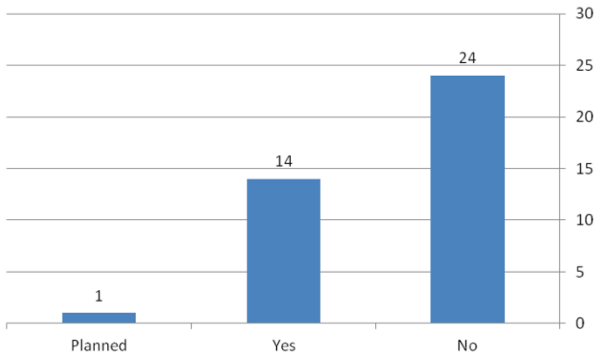

Figure 15 The use of CI dedicated information technology tools.

Although Israel was positioned high in the development and the use of advanced information technology tools, the rate of CI units that were using these tools was low, only one third of the companies (Figure 15). The prospects for the future were not promising. It is relevant to add that there were three local companies that provided excellent CI dedicated tools (Barnea 2009). The results in Figure 15 did not match the results of "the global study on large companies" (Global Intelligence Alliance, 2009), stating that 64% of the firms utilized technological CI tools and 9% were intending to do so. The difference between the results in this survey and the one by GIA is high, especially while Israel is considered to be advanced in using new technologies. The findings from the Global Intelligence Alliance survey on Market Intelligence in Global Organizations (2011), did not relate to this issue.

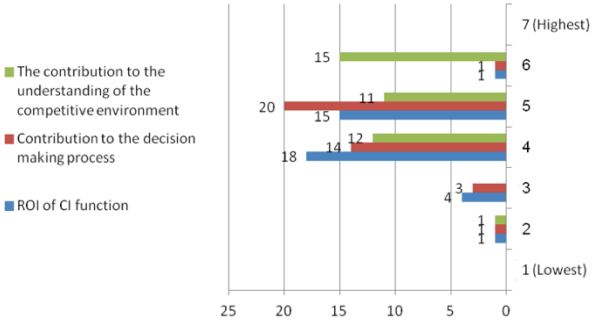

Figure 16 This figure relates to three questions: 1) Return on investment (ROI) of the CI unit (financially), 2) the contribution of CI to the decision making process, and 3) the contribution of the CI to the understanding of the competitive environment.

Looking at the question of the ROI, (blue bars, Figure 16), the results did not supply any hard figures to support the estimation of the ROI grades. The replies expressed the perspective of the CI managers and their observations. It looks as if the high grades (4 and 5) that have exceeded 84% of the replies, may be too high, and it would be possible to accept them only if we had substantial data to support them. However, it is possible to say that CI managers believe that the CI units had proven themselves also from a financial perspective. I did not use specific models to measure the ROI (Faran 2003) and thought that the above results were sufficient.

The other two questions (green and red bars in Figure 16), reviewed the involvement of the decision makers that were expressing high satisfaction to the CI managers regarding their position and their abilities to contribute to the firmsquestion no. 2: 87% in grades 4,5 and question no. 3: 66% in grades 5, 6. The results to question no. 3 were extremely high – almost all the replies, except one, ranked the contribution as 4, 5, or 6. The results of the global study on large companies (2009) indicated that 98% of companies are utilizing CI while making key decisions.

The results of these three questions (Figure 16) show the high satisfaction of the CI managers with their contribution to the firms and to the internal process of the decision-making. These figures were also in firm correlation with the results in Figure 10. Comparing them to the results in Figure 9 revealed that CI managers were not pleased with the level of their participation in the decision making process, and they seem to believe that they could be more effective.

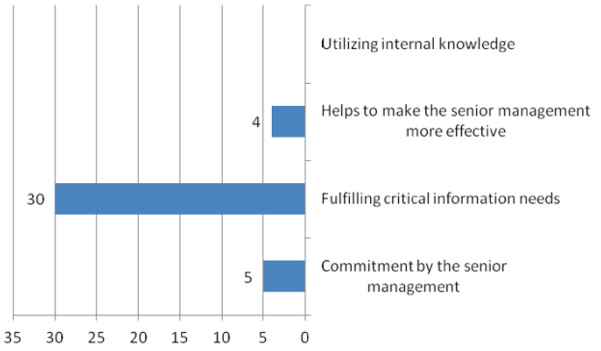

Figure 17 The key success factors of CI function.

It is clear from Figure 17 that the ability of the CI function to fulfill the immediate needs of the management was leading by far. This means that CI was perceived mostly as a tactical tool. CI managers did not think that CI would be more effective if it was pushing for sharing the information it acquired and encouraged different management layers to use it. It could be an indicator that CI managers were not yet fully aware of their role to push for sharing the information horizontally and vertically. Another conclusion from the results in Figure 17 was that CI managers may not feel that they had the support of the senior management to make CI prosperous. From the point of view of the firm, as long as the CI managers were provided with immediate information, it was good enough.

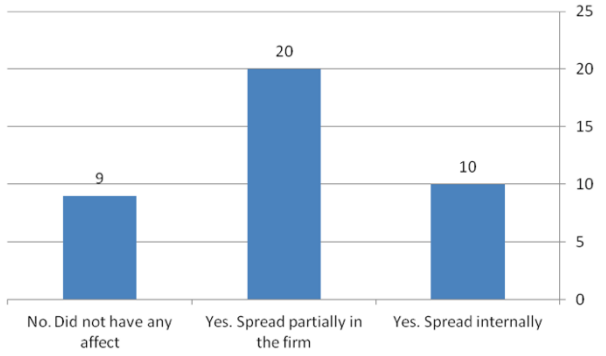

Figure 18 The improvement of the culture of sharing of information.

Although the CI managers did not think that sharing information was one of the KSFs of CI as we saw in Figure 17, actually the results of Figure 18 showed that while CI was active in the firm, it still had a significant effect on the development of the culture of the sharing of information, as one of the by-products of this activity.

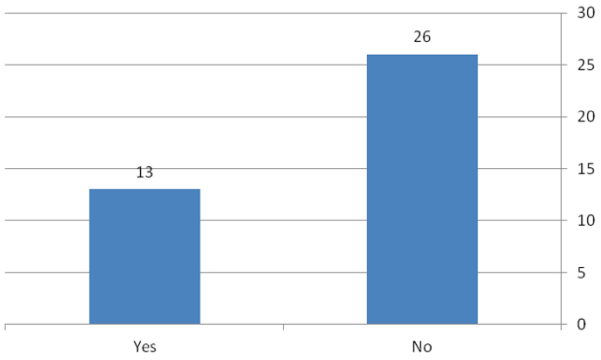

Figure 19 The use of analytical tools (such as: 5 forces, SWOT, scenario analysis, benchmarking/gap analysis, financial analysis, profiling).

This question referred to the use of one (or more) of the analytical tools that are the most familiar and practical (Figure 19). The results were very disappointing as most of the CI managers (67%) admitted that they did not use even one of them on a regular basis. The question which was left unresolved was how they still fulfill their analytical objectives.

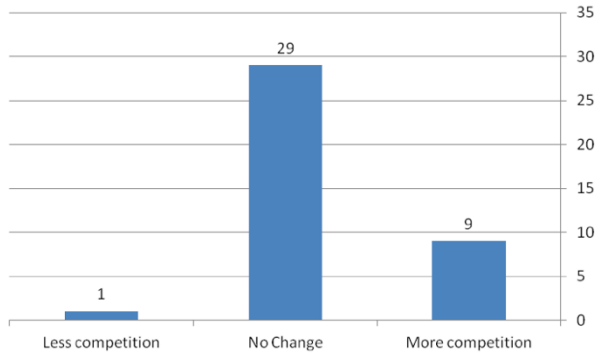

Figure 20 Changes in the intensiveness of the competition since the downturn.

Most of the CI managers (75%), have indicated that they did not spot any changes in the magnitude of the competition in the various fields where they were competing since the economic slowdown (Figure 20). However, 23% have felt more competition since the recent economic events.

In the "global study on large companies (2009)", 45% of respondents felt strongly that CI activities have increased significantly after the global downturn in their industry. The average increase across all industries is 17%, almost similar to the results acquired in Figure 20.

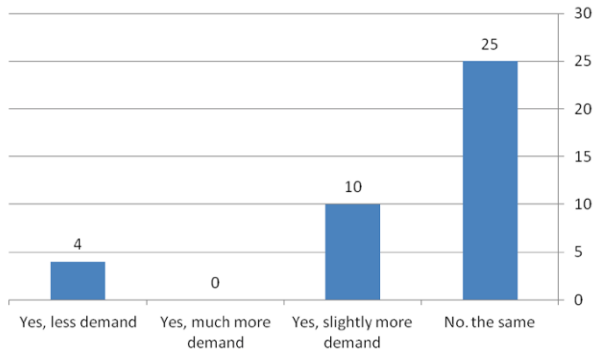

Figure 21 Changes in the demand for intelligence products as a result of the economic slowdown.

Most of the replies (65%) in Figure 21, suggested there were no changes in the character of the needs and products these CI units produced. These results were in correlation with the results of Figure 8, which showed no indications of significant changes in the volume of the competition.

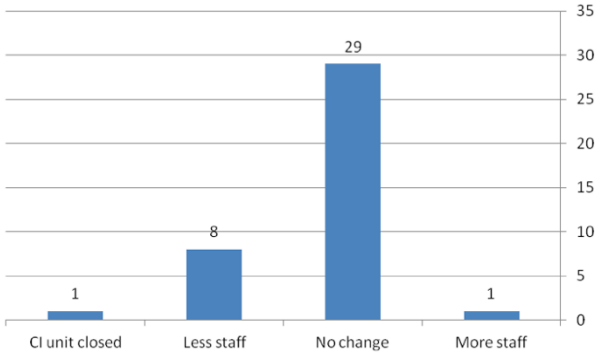

Figure 22 Did the CI function change since the global downturn?

The results in Figure 22 show that the recent global downturn had almost no effect on the size of the CI functions. Those CI units that have been downgraded (20%) were affected by the general downsizing of many organizations due to the slowing of the world economy. It seems that CI units did not have to make internal modifications in their modus operandi, while most of them were successful in protecting their staff against dismissals.

6. CONCLUSIONS

As a result of the recession into which the global economy slipped in 2008, budgets have been cut in most corporate functions, with intelligence activities being no exception. Yet simultaneous with the thinning resources, the demand for high quality information has stayed intact.

We have learnt from the results of this research conducted in Israel that CI units are operating mainly inside large companies in almost all the main sectors in the Israeli economy. Most of the companies (75%) have had CI functions for less than five years. It is evident that CI is growing slowly in Israel.

According to the results, CI in Israel is considered to be mostly a tactical tool to identify immediate threats. Around 70% of the responses mentioned this as the prime advantage the companies were gaining from CI. CI directors thought (77%) that they were successfully fulfilling this task. After following CI in Israel for several years, I have noticed that CI is not considered to be a meaningful tool for strategic decisions. This may also be a result of the relative weakness of the performance of strategic planning in Israel. In the US and Europe (Kahaner 1997; Prescott & Miller 2001), intelligence management is a business needs oriented process that transforms data into intelligence allowing companies to make better strategic decisions. It is a key task for the overall company's strategic management focusing on the observation of the external environment. This does not take place in Israel. Business strategy literature emphasizes the crucial need to monitor the competitive environment to utilize information more effectively (Grant 2005, 1997) while competitive intelligence is the major tool used to fulfill this fundamental management challenge (Herring 1992).

Almost 80% of the respondents assessed CI as performing fair or satisfactory and only less than 20% thought that the overall performance was high. This is another indication that CI managers are not aware of the need to improve their contribution to the corporate decision making process. Still, around 70% of the CI directors indicated that they were not participating in major decisions, and it is hard to say why the rate of involvement of CI was so low. CI managers had to be bothered as these results were possibly projecting their unsatisfactory performance. The position of the CI unit under the VP of marketing and/or sales, as seen in almost 70% of the firms, did not have any impact towards better performance of the CI as a second tool for better comprehension of the marketplace. The CI function has to become part of the firm's organizational structure as other units and thus conclude the forums and crossroads in which it officially participates. This research did not enter into CI's ROI through a deeper survey, by using different models (Rouach & Santi 2001).

The process of carrying out CI is performing well – 75% of the companies declared they had a systematic process of setting up key intelligence topics, meaning that their gathering efforts are well in place. Unfortunately, the use of primary sources,

mainly the internal network, was found to be not good enough, and it may be an outcome of a lack of awareness by the CI directors and/or a result of insufficient resources. Still, 77% of the CI managers thought that they were playing a major role in expanding the organizational culture of sharing of information internally. Thus, it is necessary to improve the collection of information, through a better use of primary sources and the internal networks.

This research reveals multiple phases of creating meaningful intelligence within the process. It also discovered that the practice of competitive intelligence, while strong in the area of information collection, was weak from a process and analytical perspective.

The research identified an actual problem in the performance of the analysis by the CI function. The use of analytical tools was relatively low but these results did not stop CI managers from mentioning strongly that CI functions were a valued investment and that their contribution to the decision making process and the understanding of the external environment was fairly good.

CI directors were not satisfied with of their involvement in major decisions. The low rate of the use of CI dedicated IT tools (36%) could not be just a result of a lack of budget, but instead a result of a lack of pressures on the CI managers who may think that they can manage with ordinary tools instead of using advanced ones. There is a need in Israel to fulfill advanced tools such as dedicated software for gathering, analysis, and dissemination to improve CI performance. The CI global survey has achieved different results, presenting data that show 64% utilize technological CI tools and 9% intend to do so.

And finally, CI managers firmly declared that they noticed only a small amout of growth in their activity since the recent downturn. Most of them kept their staff while the profile of their tasks remained intact and the magnitude of the competition had almost no influence on them. The global survey on CI (2009) indicated different results. From this, 45% of the respondents felt strongly that CI activities have increased significantly after downturn in their industry. The average increase across all industries was 17%.

And a final note – Israel is unique in the sense that many of the executives have been exposed to the benefits of the intelligence discipline in their military service. Thus, one could expect that the penetration of competitive intelligence would be faster and its influence on strategic moves in addition to tactical ones would be more visible. However, the results are different. Maybe this is a result of an Israeli business culture marked by high self-confidence, by strong capabilities of fast adjustments to changes instead of careful planning and by believing that they are actually utilizing informal CI in their daily performance and thus do not perceive the benefits of CI as a strategic focus function.

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Identification and classification of organizational level competencies for BI success

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ABSTRACT Business intelligence is a technology-oriented solution that businesses need to survive in today's competitive and constantly changing market. To gain the benefits of BI systems, it is important to evaluate, assess, and improve factors that have an influence on BI success. Organizational competencies can provide answers to the question of how companies could gain more benefits from BI systems. While investment in BI systems is increasingly growing, measures to evaluate effective organizational competencies leading to BI success are gaining more importance. Therefore, this research identified a number of effective organizational competencies that contribute to BI success. Using the developed questionnaire for determining the effect of organizational level success on BI success, the research data was gathered for the study. A chi-square test confirmed the effectiveness of all nineteen identified competencies. Then, an exploratory factor analysis (EFA) was carried out on the data in order to identify the underlying dimensions. In addition, competencies were grouped into six categories, namely data management, information system/information technology (IS/IT) development, financial resources, relationship management, IS strategy and human capital policies. As a result, these competencies can be used as a measure to evaluate an organization's status in holding some of the effective factors for BI success.

KEYWORDS BI success, business intelligence, exploratory factor analysis, organizational level competencies

1. INTRODUCTION

1.1 BI success

Business intelligence (BI) is a modern information technology that helps organizations to collect, manage and analyze structural or non-structural data (Lin, Tsai, Shiang, Kuo, & Tsai, 2009) (Nyblom, Behrami, Nikkilä, & Solberg Søilen, 2012). BI has a fast growing market (Abzaltynova & Williams, 2013) that continuously introduces new trends such as cloud BI, social BI, and mobile BI and in the future "customized" BI (Wang, 2015). Nowadays, business environments are constantly changing (Hoppe, 2013), highly competitive, and increasingly uncertain (Banerjee & Mishra, 2015) that organizations' solutions for avoiding bankruptcy depend on successful BI (Ranjan, 2008). In addition, organizations that utilize BI successfully can gain competitive advantages.

In successful BI, information technology and the business process and strategies must be aligned together, so enterprises can manage and benefit from their investments in BI by allocating BI resources, prioritizing projects, and minimizing the risk associated with BI implementations (Ranjan, 2008). Successful business intelligence can help organizations to make the best decision at the best time through integrating and analyzing data with decision support systems (Muntean, Gabriel Cabau , &Rinciog, 2014). Furthermore, successful BI provides the right information to the right people throughout the organization to improve strategic and tactical decisions (Li, Shue, &

Lee, 2008). Company return from IT investment is an important part of successful BI. In other words, when a BI system is successful, the company gains tangible benefits from their investments in it.

The opposite side of successful BI implementation is BI failure. Reports of BI failures can highlight the importance of successful BI. About 50%- 80% of business intelligence applications fail due to technological, organizational, cultural and infrastructural issues (Adamala & Cidrin, 2011). In addition, they report that most BI failures happened because of a number of issues, such as ignoring BI as a cross organizational business initiative, lack of management and sponsor commitments, lack participation of the business side and representatives, unavailable skilled staff, ignoring business analysis activities, lack of appreciation of the impact of dirty data on business profitability and lack of understanding of the necessity for and the use of meta-data (Chuah & Wong, 2013). All the failure reasons show that a number of organization and staff characteristics, which are called 'competencies,' play a crucial role for BI success. Competencies are related characteristics that prepare an organization to attain certain objectives. These characteristics can be categorized in two levels: organizational and individual. The effect of organizational level competencies on BI success is the topic of our study. As Worley et al. (2005) mentioned "Competencies can be analyzed at the level of an individual, gathering all the techniques allowing to facilitate the emergence, maintenance and development of personal competencies, but also at a collective level or even at an organizational level" (Worley, Chatha, Weston, Aguirre, & Grabot, 2005). Individual competencies are human resource capabilities that lead to better achievement of the predetermined objectives such as human resource skills, motivations, and behaviors that influence their performance and at least productivity. Although individual competencies are also very important in applying BI systems we limited our research scope to organizational level competencies. In general, organizational competencies are an organization's ability for optimizing use of available resources, setting short- and long-range goals, and developing the strategies and policies to achieve such goals. The concept of competencies first found its way into IS/IT studies in an attempt for supporting organizational IT/IS goals. Competencies have been found to have the potential to impact organizational success and to be relative to BI in particular. Specifically, it has been related to an organization's ability to derive benefits from their investment in IS (Chasalow, 2009).

The aim of this research is to determine the organizational level competencies that are necessary for BI to be applied successfully according to the BI success factors. Since the major reason that a large number of BI projects are considered to be failures is related to ignorance of organizational characteristics, the emergent competences identified in this research can help organizations understand the competencies that they need to build in order to benefit from their BI investments (Chasalow, 2009). Therefore, this research is directed towards developing a theoretical model for BI success. Although BI success is the positive value that an organization obtains from its BI investment, its definition differs from one organization to another. It depends on what benefits that organization expects (Sabanovic & Solberg Søilen, 2012) from its BI initiative. Benefits that are gained from improved profitability, reduced costs, and improved efficiency can be defined as BI success in an organization. For the purpose of this research, BI success is defined as the positive benefits of BI, which the organization may achieve as a result of implementing BI competencies as important elements in the success of information systems, and appear to have the potential to be of particular value in explaining achieving benefits from BI. This research will therefore seek to develop a model to help explain the organizational level competencies that would support the attainment of business value from BI. The developed model can be used as an instrument to improve the likelihood of an organization achieving benefits from their BI investments.

2. LITERATURE REVIEW

There are few studies about competencies that affect BI success. In this section, we study organizational level competencies related to IS/IT in addition to BI related competencies. First, competencies are described and then competency related research studies are introduced. The literature review is summarized in Table1 and Appendix A.

2.1. Competencies

"Competencies have been studied from two different perspectives: (i) As assets, skills, or

resources belonging to the company that allow an activity to be performed systematically (ii) As the activities themselves, that is, the operations that the firm is able to carry out by integrating a series of assets, emphasizing what the company *does* as opposed to what the company *has"* (En Escrig-Tena & Bou-Llusar, 2005).

Previous literature includes studies that have adopted different competency-derived approaches such as the strategic management field (Anderson & Sohal, 1999;Penrose, 1959; Selznick, 1957), the resource-based view (Danneels, 2002; Montealegre, 2002; Tyler, 2001; Wilcox kingl & Zeitham, 2001), the Dynamic Capability Theory (Huang, 2011), the competency-based competition (En Escrig-Tena & Bou-Llusar, 2005), the knowledge-based theory (Harzallah & Vernadat, 2001), core competencies of strategic business units (Bhamra, Dani, & Bhamra, 2010; Prahalad, 1994; Wang, Lo, & Yang,2004), competency for developing human resource (Worley, Chatha, Weston, Aguirre, & Grabot, 2005; Lee, 2010), and competency management within—and at the intersection of—knowledge management (Javanmard, Mashayekhi Nezamabadi, & Larki, 2010), project management (Crawford & Hassner Nahmias, 2010), supply chain competencies (SCC) (Green Jr., Inman, Birou, & Whitten, 2014), and computer science (Zouine & Fenies, 2015). Some of these studies on competency deal with IS/IT. Since the early 1990s, the researchers considered the sustainability of competitive advantage from IT (Peppard & Ward, 2004). The present research addresses the competencies studied in the IS/IT field. These competencies can be related to organizational factors or introduced as IS/IT capabilities that lead to better achievement in an organization.

Competencies are usually divided into two groups: organizational level competencies and individual competencies. Organizational competency is a term that has been used in the world of performance management for many years. It is routinely used by human resource professionals and by organizational change consultants to refer to the variety of employee skills (Nienabera & Sewdassb, 2016) that the company must have in order to achieve their plans (Coates & Associates, 2008). The current research focuses on non-individual competencies (organizational level competencies) studied in the IS/IT field.

2.2. BI related competencies

Competencies within the sphere of BI first appeared in the BI practitioner literature beginning with the Business Intelligence Competency Center (BICC). BICC encompasses a lot of issues: better use of BI across the organization, greater alignment and collaboration between business units, a BI strategy that supports the corporate strategy, standardized BI processes and initiatives, consistency of definitions, processes, and methodologies, and higher ROI from BI (Miller, Bräutigam, & Stefani, 2006). Miller and et al. (2006) introduced comprehensive competencies modeled in three dimensions: business skills, analytical skills, IT skills to support the development and support of BI in an enterprise. But, these competencies are primarily technical in nature and their focus is not on organizational level competencies (Miller, Bräutigam, & Stefani, 2006).

Furthermore, Chasalow (2009) presented five competency factors on the organizational level: learning organization, participative leadership style, clearly defined business goals, technological resource availability, and financial resource availability. He argues that these five factors have an impact on business intelligence success (Chasalow, 2009). As Chasalow mentioned in his dissertation, his work is one of the few studies that have been done on organizational factor effects on IS systems and also these studies are still in an initial stage. Also, his study did not attended to some factors like relationship management that have been introduced in this research and are one of a company's challenges for implementing information systems in some organizations.

In addition to that, Ghazanfari (2011) presented an expert tool to evaluate the BI competencies of Iranian enterprises and identified six factors for his evaluation model: analytical and intelligent decision-support, access to related experimentation and integration with environmental information, optimization and recommended model, reasoning, enhanced decision-making tools, and finally, stakeholder satisfaction (Ghazanfari, Jafari, & Rouhani, 2011). Their view of BI competencies is limited to BI specification. Their study is not about organizational level competencies, but they mention some competencies like stockholder's satisfaction that we recognize as organizational level competencies.

Furthermore, Isık et al. (2013) studied the effect of the decision environment on business intelligence capabilities for achieving BI success. According to their study, technological capabilities such as data quality, user access and the integration of BI with other systems are necessary for BI success (Isık, Jones, & Sidorova, 2013). Although their study focused on technical capabilities, some of the capabilities, like data quality, are grouped into organizational level competencies in other studies like Chasalow's study.

2.3. Studies on organizational level competencies in the IS/IT field

Because there are few research studies in the field of BI-related competencies, organizational level competencies in the IS/IT field have been studied too. Since BI is an IS system, not only studies about competencies in the IS/IT field have been studied in our research, but they can make our literature review more inclusive. Competencies related to an IS facilitate the relationships between organizational processes and structures for beneficial use of IS resources in order to accomplish organizational tasks and obtain organizational goals (Tarafdar & Gordon, 2007). One of the most cited articles about IS related capabilities is by Feeny and Willcocks (1998) in which they offer a competency model (Feeny & Willcocks, 1998). Their model, which was revised in 2006, suggested four tasks and nine capabilities that grouped into three categories: business and IT vision, delivery of IT services, and design of IT architecture that can help a company benefit from the technology (Willcocks, Feeny, & Olson, 2006).

Furthermore, there are other studies that have addressed the problem of value creation from IS investments in an organization as opposed to an IS functional perspective. Peppard, Lambert & Edwards (2000) developed a framework for mapping macro competencies and identified their related micro competencies. Four years later, Peppard and Ward (2004) offered an IS model that identified six domains of IS competencies which are themselves composed of micro IS competencies—25 in all. These domains involve strategy, IS contribution definition, IT capacities definition, exploitation, solutions and supply.

IT projects that help operational performance of the organization go back to 30 years ago (Doherty & Terry, 2009). As such, Wade and Hulland (2004) defined three IS resources and capabilities that can be used for gaining market opportunities. They also proved that IS resources rarely have a direct effect on sustained competitive advantage (SCA), but they can indirectly lead to sustained performance (Wade & Hulland, 2004). In another study, Doherty & Terry (2009) examined the impact of IS capabilities on competitive positioning at the process level. Also, Ravichandran (2007) presented how IS capabilities can offer digital options that lead to firm agility by investing in IT. Similarly, Tarafdar and Gordon (2007) illustrate how six IS competencies could affect the conception, development and implementation of process innovations. On the other hand, some studies addressed IT competencies as components of other concepts. For example, Ngai, Chau and Chan (2010) defined IT competencies (IT integration and flexibility) as supply chain competencies. Also, the theory of competency rallying (TCR) was presented for the first time by Katzy and Crowston (2000). Crowston and Scozzi (2002) then introduced the TCR model and tested it in the context of OSS projects as a virtual organization (Ghapanchi, 2013).

While all the studies on IS/IT discussed above have adopted the resource-based view of IS/IT competencies, some other research studies have introduced different views. For example, Caldeira and Dhillon (2010) categorized organizational competencies into two groups: facilitating competencies and fundamental competencies that lead to information technology advantages within organizations (Caldeira, Mário; Dhillon, Gurpreet, 2010). Additionally, Chen & Wu (2011) developed a model of IT management capability of CIOs and found that information technology competencies affect IT management activity.

Although these IS related studies did not consider some competencies that are more important for BI like data quality or metadata that are mentioned in BI related competencies, they mentioned important competencies that are necessary for BI implementation as an IS system. IS related studies are summarized in this research, because considering IS related studies beside BI related competencies can show their similarities and differences.

A review of the related literature is summarized in Table 1.

Table 1 Constructs for IS/IT competencies

Source	Competency constructs	Dependent variables
Feeny & Willcocks, (1998) and Willcocks, Feeny & Olson (2006)	IS/IT governance, Business system thinking, Business-IS relationship building, Designing technical architecture, Making technology work, Informed buying of IT services, Contract facilitation, Contract monitoring, Vendor development	None
Peppard & Ward (2004)	Strategy formulation (Business strategy, Technology innovation, Investment criterion, Information governance) IS strategy (Prioritization, IS strategy alignment, Business process design, Business performance improvement, Systems and process innovation) IT strategy (Infrastructure development, Technology analysis, Sourcing strategies) Exploitation (Benefits planning, Benefits delivery, Managing change) Solutions (Applications development, Service management, Information asset management, Implementation management, Business continuity and security) Supply	Organizational performance
Doherty & Terry (2009)	Outside-in (External relationship management, Market responsiveness) Spanning (IS-business partnerships, IS management/planning) Inside-out (Infrastructure provision, IS technical skills, IS development, Cost-effective IS operations)	Sustainable improvements to competitive positioning
Wade & Hulland (2004)	External relationships management, Market responsiveness, IS business partnerships, IS planning and change management, IS infrastructure, IS technical skills, IS development capability, Operational efficiency	
Ravichandran (2007)	Digital Option (IT infrastructure flexibility, Application platform scope), IS Capabilities (Planning sophistication, Development capability, Support maturity, Operations capability), IT Investment Orientation	Organizational agility
Tarafdar & Gordon (2007)	Knowledge Management, Collaboration, Project Management, Ambidexterity, IT/Innovation Governance, Business-IS Linkage, Process Modeling	Process innovation
Ngai, Chau, & Chan (2010)	IT integration, IT flexibility	Supply chain agility
Caldeira & Dhillon (2010)	Fundamental competencies in delivering IT benefits which entail the following capabilities (Conducting IT strategic thinking and planning, Aligning IT with business processes and objectives, Deploying cost effective applications and systems, Conceptualizing the maintenance of data integrity and confidentiality, Facilitating behavior enrichment for technology adoption, Ability to ensure compliance with standard IT methods and procedures) Facilitating competencies in delivering IT benefits include the following capabilities (Selecting and managing IT staff, Providing ongoing IT training, Acquiring top management support in IT projects, Designing business processes for effective use of IT expertise, Maintaining systems consistency, Involving users in IT projects, Instituting SLAs (Service Level Agreements) with IT suppliers, Identifying and setting IT standards and procedures, Developing software in-house, Selecting and contracting IT vendors and IS consultants, Deciding on software sourcing strategies, Maintaining or decreasing system response time, Ensuring user application knowledge, Identifying business IS requirements, Increasing the credibility of the IT department, Increasing service accountability, Developing an IS architecture)	Delivering IT benefits
Chen & Wu (2011)	IT infrastructure, Business application, Business technology integration	IT management Activity effectiveness
Miller, Brautigam, & Stefani (2006)	Business skills (Linking to business strategy, Defining priorities, Leading organizational and process change), IT skills (Data quality), Analytic skills (The ability to discover and explore, Developing business rules, Developing user skills), Business skills, IT skills, and Analytic skills overlap (Defining BI vision, Managing programs, Controlling funding, Establishing standards, Technology blueprint, Mythology leadership, Adaptable infrastructure, Extracting data, Identifying data)	Business needs Organization and processes Tools and applications Data integration
Chasalow (2009)	Individual competencies (Strategic HR Management) Organizational competencies (Learning organization, Participative leadership style) Decision making (Clearly defined business goals, Technological resources availability, Financial Resources availability, Human Resources availability)	BI success
Rouhani, Jafari, & Ghazanfari, (2011)	Analytical and intelligent decision-support, Providing related experiment and integration with environmental information, Optimization and recommended model, Reasoning, Enhanced decision-making tools, Stakeholders' satisfaction	BI success
Popovic, Hackney, Simoes Coelho, & Jaklic, 2012	Data integration, Analytical capabilities, Information content quality, Information access quality, Use of information in business processes, Analytical decision-making culture	BI systems maturity
Isık, Jones, & Sidorova, 2013	Data quality, Integration with other systems, User access quality, Flexibility, Risk	BI success

3. RESEARCH METHODOLOGY

To answer the research question of "what are organizational level competencies for BI success?", first we identified organizational level competencies from the literature review. Then a questionnaire was designed to answer the question "Are these identified competencies effective in BI success?"

In order to test whether the designed questionnaire was valid and reliable, and

effective for answering the research question, we performed a validity test like EFA that classified constructs. The research steps as are follows in Figure 1:

(1) Specifying the domain of the construct, (2) identifying the competencies by literature review and making the Semi-structured interviews, (3) constructing an initial framework, (4) designing the questionnaire, (5) Collecting data (6) testing the hypotheses, (7) Assessing construct validity and reliability of the measures. In the following sections, each step is elaborated in more details and some of the steps are explained in Section 4: data analysis and results.

3.1 Specifying the domain of the construct

According to what is described in the literature review, there are different competency-derived approaches. Moreover, competency-based studies on BI are in their infancy and limited. However, there are more research studies on IS/IT related competencies in the literature. Therefore, additional competencies were extracted from other competency-based studies including both BI and IS/IT, which use a more resource-based approach to competency indices. The literature identifies two levels of competencies: individual level and organizational level. The present paper addresses the organizational level.

3.2 Identification of the competencies from the literature review and interviews

The first step is to identify the competencies. This can be done through adopting either a qualitative or quantitative approach. In our case, the competencies were developed through reviewing the literature on IS/IT and BI-related competencies. Initially, 35 IS/IT-related competencies at the organizational level were identified.

The next step was to examine the competencies identified for content validity. Content validity is whether or not the elements in a given construct represent the underlying concept to be measured. In our case, we used two methods for determining content validity:

1) Conducting interviews to investigate if variables are transparent enough, appropriate and relative. Some variables like knowledge management, project management, and change management that are more reflective than formative were eliminated. As a result, 19 competencies were extracted from a total of 35 by eliminating or merging the elements. Appendix A outlines these 19 competencies and provides their related sources.

2) Developing an initial theoretical framework by grouping competencies in relevant constructs by an inductive reasoning method and via the help of experts who reviewed the elements in each group that are explained in the following sections.

3.3 Constructing an initial framework for determining the importance of competencies in BI success

Concepts comprise categories which in turn create the basis for the formation of a theory (Allan, 2003). The aim of categorizing competencies is indirectly to determine the importance of competencies in BI success, that is, how these 19 competencies lead to BI success.

The competencies were grouped into three BI related categories: IT infrastructure, IT governance, and resources. These categories and their variables are shown in Appendix A.

a) IT Infrastructure group: Miller et al. (2006) argue that "infrastructure refers to the hardware, software, networking tools, and technologies that create, manage, store, disseminate, and apply information".

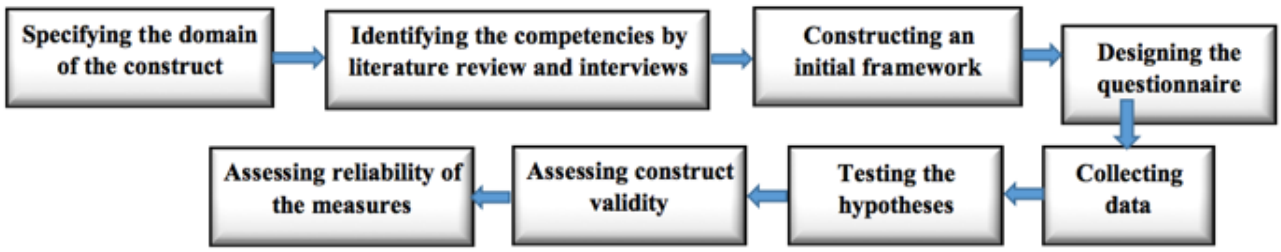

Figure 1 The research steps

A business intelligence infrastructure has to be responsive to various needs of a business on demand and in real time. Also, well-defined infrastructure ensures data quality and availability. The V_1 to V_7 group of variables was assigned to the IT infrastructure category as critical IT assets. It is crucially important to build and expand the necessary data and analytic infrastructure that is agile, stable, scalable, and integrated. Data quality and stewardship especially are important for developing metadata (Miller, Bräutigam, & Stefani, 2006).

b) BI Governance: this is a new term that a few references mentioned it. Turban et al. (2010) used BI governance for prioritizing BI projects and appropriate planning and forming an alignment with the business strategy as a factor for BI success. Beth (2006) also developed a BI governance framework and application portfolio that deals with the funding process, exceptions process, BI development process, tracking and measurements, and communications plan as governance mechanisms. The V_8 to V_{15} group of variables were assigned to the BI governance category, emphasizing the importance of strategy thinking to both sides of IS and business alignment to ensure BI success. It is evident that IS strategy is critical, however, it would be a waste of resources for both sides to overlook the business needs, and the alignment of business and IS strategy.

c) Facilitating Resource: this is critical for determining the relative success or failure of IT adoption. In fact, resource facilitation supports fundamental competencies (Caldeira, Mário; Dhillon, Gurpreet, 2010). Chasalow (2009) refers to financial resources and strategic human resources as organizational competencies for business intelligence success. Moreover, Miller et al. (2006) describe human capital as an important factor for BICC. V_{16} and V_{17} as financial resources and V_{18} and V_{19} were grouped into the human capital policies category that was included in Facilitating Resources. The implementation of BI systems does not just occur on one day and end there; they rather take place gradually over time and through data collection, hence there is the need for more financial support and budget allocation. On the other hand, even the best systems without utilizing skilled users could not amount to much, as a study asserts that inadequate education and training and lack of employees' morale and motivation cause the failure of ERP projects (Amid, Moalagh, & Zare Ravasan, 2012).

3.4 Questionnaire design

In the third step, a questionnaire was designed with three main sections. The first section of the questionnaire consisted of questions about the characteristics of the interviewees. The content of the second section entailed the description of BI success as described in the literature review. And the third section of the questionnaire included questions about the effect of the 19 competencies on BI success using a five-point-Likert scale ranging from (5) "highly effective" to (1) "highly ineffective", and additionally an "uncertain" option. The third section of the questionnaire was designed to measure the effect of the 19 organizational competencies on BI success in the organization.

3.5 Sample size and data collection

Using purposive sampling, the target population of this study was determined to include consultants and IT department members of the Ministry of Industries Mines and Trade. This study was conducted in Iran, because the environment in which Iranian organizations operate today is becoming more and more complex. Moreover, organizations and departments that are situated inside organizations face problems such as reduced budgets and amplified pressure from top managers to increase performance and profit and also from markets and consumers to lower the prices. In this kind of environment, managers must respond quickly, innovate, and be agile. Both private and public organizations are cognizant of today's business environment and pressures (Turban, Sharda, Delen, & King, 2010).

In October 2011, the ministry approved a sizable budget for BI implementation that came into effect. The sample size was a major

limitation in our study in terms of the available time. Additionally, some experts were not interested (e.g. due to lack of familiarity with the research subject) in cooperating with the research, especially, with the electronic form of the questionnaire. Consequently, the data was collected from questionnaires which were distributed among the minimum sample size of 80 individuals after removing none approved samples. There are different ideas about the minimum sample size in factor analysis. According to Lawley & Maxwell (1971), 51 more cases than the number of variables are enough.

Although the subject-to-variables (STV) ratio of the sample size is 4.2 (that is under 5), expletory factor analysis was conducted because the KMO is 0.62, which is above the "average" threshold of 0.5 (Amid, Moalagh, & Zare Ravasan, 2012; Kaiser, 1974), and the Bartlett test p-value is less than 0.05, which suggests a good correlation. Demographically, 5.8% of the respondents had a PhD degree, 46.37% had an M.E. degree, and 47.83% had a B.E. degree. Of these, 4.48% of the respondents were classified as university professors, while 41.79% were executives/managers, and 53.73% were IT department employees that they had work experience in the area of BI tools.

4. DATA ANALYSIS AND RESULTS

In this stage, the collected survey data from the questionnaire was used for testing the research hypothesis. It was necessary to determine the statistical distribution of the collected data from the third part of the questionnaire. Subsequently, based on the distribution of data, either a parametric or non-parametric test was performed to prove the hypothesis:

H_1: Do V (i=1 to 19) competencies have effects on BI success?

The next step in the development of this type of measurement was to test the construct validity and reliability. Construct validity exists if the items accurately represent the underlying concepts that are being measured (Boudreau, Gefen, & Straub, 2001).

Therefore, some tests were performed on the data collected from the third part of the questionnaire.

4.1 Hypothesis test

In order to evaluate the effectiveness of 19 competencies on BI success, the results should support the hypothesis. As previously mentioned, these 19 items were included in the third part of the survey questionnaire constituting the hypothesis: H_1. Do V (i=1 to 19) competencies have effects on BI success?

One of the most accepted ways to identify the distribution of the data, statistically, is the one-sample Kolmogorov–Smirnov test. The Kolmogorov–Smirnov test compares the observed cumulative distribution function for a variable with a specified theoretical distribution, which may be normal, uniform, Poisson or exponential (Lilliefors, 1967). Many statistical parametric tests require normally distributed variables. The one-sample Kolmogorov–Smirnov test can be used to test whether or not a variable is normally distributed (Hollander & Wolfe, 1973). According to our test results, the p-value of all 19 items was less than 0.05, which shows that their distribution was not normal; hence there was a need for a statistical non-parametric test to prove H_1. Therefore, a chi-square test was used to determine whether the frequencies of the upper categories of Likert questionnaire, (5) "highly effective" and (4) are higher than other categories (i.e. 1, 2, and 3). That is, the residual (R^2) values of categories (5) and (4) of the Likert scale are to be higher than categories (3), (2), and (1).

The chi-square test procedure (Cochran, 1954) tabulates a variable into categories and computes a chi-square statistic. This goodness-of-fit test compares the observed and expected frequencies in each category to test whether all categories contain the same proportion of values or test that each category contains a user-specified proportion of values.

A significance level below 0.05 for all the 19 items indicates that the observed frequencies differ from expected frequencies in each category and the average rate of frequencies do not significantly differ by category. On the other hand, the residual (R^2) of each category of items, which is equal to the observed frequency minus the expected value, shows that differences between observed frequencies (nonparametric tests, chi-square test) in (4) and (5) are a lot more than the expected frequencies and are completely positive. Thus, based on the significance level and residual test for all items, it can be concluded that all of the 19 competencies are highly effective for BI success in an organization.

4.2 Exploratory factor analysis

In this study, we use an exploratory factor analysis (EFA) as a statistical approach to determine the correlation among the variables in a dataset. This type of analysis provides a

factor structure (a grouping of variables based on strong correlations). EFA is good for detecting "misfit" variables. In general, an EFA prepares the variables to be used for cleaner structural equation modeling. An EFA should always be conducted for new datasets (Statwiki, 2012).

An EFA was used to examine the dimensions evidenced in the data and the loading of the items on the empirically specified dimensions of effective organizational competencies for success.

Principal component analysis was used to extract the factors with the Varimax rotation method to simplify the interpretation of the factors. The Guttman-Kaiser rule was applied to determine the number of capability factors. At this point, only factors with Eigen values of one or more were retained. A Kaiser-Meyer-Olkin (KMO) and Bartlett's test were conducted prior to the EFA. In addition, the KMO (Kaiser, 1958) examines whether the partial correlations among variables are small (Momeni & Mehrafzoon, 2013). Bartlett's test determines (Bartlett, 1950) whether the correlation matrix is an identity matrix, which would indicate that the factor model is inappropriate. The KMO is 0.62, which is above the "average" threshold of 0.5 (Amid, Moalagh, & Zare Ravasan, 2012; Kaiser, 1974), and the Bartlett test p-value is less than 0.05 which suggests good correlation. According to Hair et al. (1998), factor loadings over 0.3 meet the minimal level, over 0.4 are considered more important, and 0.5 and greater are practically significant. It is also suggested that the loadings over 0.71 are excellent, over 0.55 good, and over 0.45 fair (Amid, Moalagh, & Zare Ravasan, 2012). The factor analyses conducted in this study are assessed according to these criteria and because the chi-square test proved the effectiveness of the factors before the EFA, factor loadings over 0.45 are considered suitable for EFA.

The 19 variables were grouped into six categories of factors which had an Eigen value greater than one and factor loading greater than 0.45, and the interpretation variable was 70.8. Moreover, the extraction variances of the 19 variables were greater than 0.61. Table 1 summarizes the results of factor loading.

Table 2 The results of EFA and reliability test

	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6
Factor (1), Data management:						
V_7: Metadata tools availability	0.8					
V_6: Data quality improvement	0.78					
V_5: Well-defined data environment including stewardship and metadata	0.74					
V_4: Integration of data sources	0.48					
Factor (2), IS/IT development:						
V_3: Applications development		0.84				
V_2: IT flexibility		0.81				
V_1: IS architecture framework		0.64				
Factor (3), Financial resources:						
V_{16}: Funding for acquiring BI tools and building related systems			0.82			
V_{15}: Sourcing strategy			0.74			
V_{17}: Funding for building and maintaining an analytical data environment			0.73			
Factor (4) Relationship management:						
V_8: External relationship management				0.8		
V_{11}: Stakeholder planning and management				0.66		
V_{10}: Service level definition				0.65		
V_9: IT vendor and consultant development				0.51		
Factor (5) IS strategy:						
V_{12}: Business processes and IS/IT alignment					0.77	
V_{13}: IS strategy alignment					0.77	
V_{14}: IS prioritization strategy					0.46	
Factor (6) Human capital policies:						
V_{19}: Ongoing IT training						0.85
V_{18}: selection, evaluation and management of (especially IT) staff						0.71
Eigen value	5.08	2.51	2.04	1.44	1.24	1.14
% of variance	26.75	13.21	10.73	5.58	6.52	6.02
Cronbach's alpha	0.79	0.8	0.77	0.69	0.6	0.61

4.3 Factor denominations

The factors were named based on the meaning and functionalities of the competencies that were related to each factor (Momeni & Mehrafzoon, 2013). The names and content of the six factors are shown in Table 2. The following section offers an elaboration of each of the factors, which are based on explanations or model dimensions of their criteria-related resources.

Factor (1) Data management: This refers to capturing, storing and maintaining a large volume of data to support BI analysis (Chasalow 2009). Qualitative data is the most important part of an analysis. Capturing and storing metadata helps to create various reports from various dimensions. Here, data management is defined as how data can be integrated and validated in a proper way to be more profitable.

Factor (2) IS/IT development: This refers to the competencies that allow an organization to develop or experiment with new technologies. So, infrastructure must be flexible and IS architecture has to be designed in a way that allows development (Wade & Hulland, 2004).

Factor (3) Financial resources: First described by Chasalow (2009), financial resources deal with the availability of financial resources to support the collection and maintenance of BI tools. Many IS implementation projects failed because of a lack of financial resources. Although availability of the resources facilitates BI success, financial resources are an important competency that determines success and failures of these projects.

Factor (4) Relationship management: The aim of relationship management is to increase the connectivity with consumers, suppliers and other trading partners. One of the IS systems' (like SCM, CRM) tasks is facilitating relationships of organizations with their partners (Aziza, Oubrich, & Solberg Søilen, 2015). So well defined management systems can lead to IS systems like BI. Schaarschmidt, Walsh, Kortzfleisch (2015) mentioned interacting with external parties on a macro level of governance, which we considered a relationship management factor in IT governance groups.

Factor (5) IS strategy: This is defining organizational strategies in a way that integrates IS with business (Peppard & Ward, 2004). For BI success in an organization, organizational strategies must be well defined in a way that information systems meet the business needs. Besides, business strategy must consider IS needs.

Factor (6) Human capital policies: This is a very well defined system that can benefit an organization without well trained users. The human resources importance for IS success, especially in BI, is clear as described before and is considered to be individual competencies. But, human capital policies are permanent and continuing policies and the processes of an organization for selecting, evaluating and training IT and business staffs in a way that helps BI implementation and usage.

Table 2 illustrates which competency (V_i) has been grouped into which factor (j). On the other hand, Appendix A illustrates relationships of the initial theoretical framework with competencies (V_i) and factors (j). As described earlier, the research theoretical framework groups competencies into three categories. The framework was then revised by EFA, so competencies which were assigned to the IT infrastructure category were divided into factor (1) and factor (2); the BI governance category was divided into factor (4) and factor (5); the facilitating resources category was divided into factor (3) and factor (6). V_{15} (Sourcing strategy) which was primarily grouped as one of the IT governance category, by EFA has been grouped into factor (3). Figure 2 also shows the factors and the initial framework relationships.

4.4 Reliability

Reliability is another aspect of the measurement scale to be evaluated in this step. This concept refers to the extent to which repeated use of the measurement scale would give the same results (Straub, 1989). The analysis of reliability is reported in Table 2 as composite reliability, and was entirely consistent with the factor analysis. Table 1 outlines Cronbach's alpha based on standardized items where values above the minimum of 0.6 for F_4, F_5, and F_6 are unacceptable, and above the minimum of 0.7 for F_1, F_2, and F_3 are considered acceptable.

For the reliability of the questionnaire, the Cronbach's alpha was estimated to be 0.86 (greater than 0.7), which implies good reliability of the instrument (Amid, Moalagh, & Zare Ravasan, 2012; Nunnally, 1978).

4.5 Discriminant validity

Discriminant validity refers to the extent to which factors are distinct and uncorrelated. The rule is that variables should relate more strongly to their own factor than to another factor. Two primary methods exist for determining discriminant validity during an EFA. The first method is to examine the pattern matrix. In order to have discriminant validity, variables should load significantly only on one factor.

The second method is to examine the factor correlation matrix, as shown in Table 2. Correlations between factors should not exceed 0.7. A correlation greater than 0.7 indicates a majority of shared variance (0.7 * 0.7 =49% shared variance) (Statwiki, 2012). As can be seen from the factor correlation matrix in Table 3, correlations between all factors are under 0.7 which supports the discriminant validity.

Table 3 Correlation matrix of factors

	F(1)	*F(2)*	*F(3)*	*F(4)*	*F(5)*	*F(6)*
F(1)	1.000					
F(2)	.361	1.000				
F(3)	.260	.512	1.000			
F(4)	.122	.278	.357	1.000		
F(5)	.338	.425	.385	.356	1.000	
F(6)	-.161	.170	.295	.215	.220	1.000

5. DISCUSSION

This paper presented a competency model as illustrated in Figure 2. Interpretations of factors and practical usages of this model are discussed in the following sections.

5.1 Interpretation of factors

According to our findings, there is no similar research that has presented effective competencies for BI success by studying previous research in IS fields. One of the differences between research studies about IS and BI related competencies is the emphasis of BI related research studies on data management and its factors that also were shown in EFA results. EFA shows that the data management factor has the highest variance, among other factors. This is due to the fact that a BI system's goal is analyzing data for exploring useful information for decision makers and it makes data management a critical factor for BI success. The importance of data management is highlighted in many sources and articles, such as Işık (2010) who defined data sources, data types, and data reliability as BI capability; or Cox (2010) who identified information availability, information quality, and information quantity as effective elements that improve decision-making speed and quality.

Factor (2), IS/IT development, is an organization's ability to develop applications, architecture and infrastructure of IS without which data cannot be gathered and managed perfectly. Therefore, this factor is considered to be a base or infrastructure for data

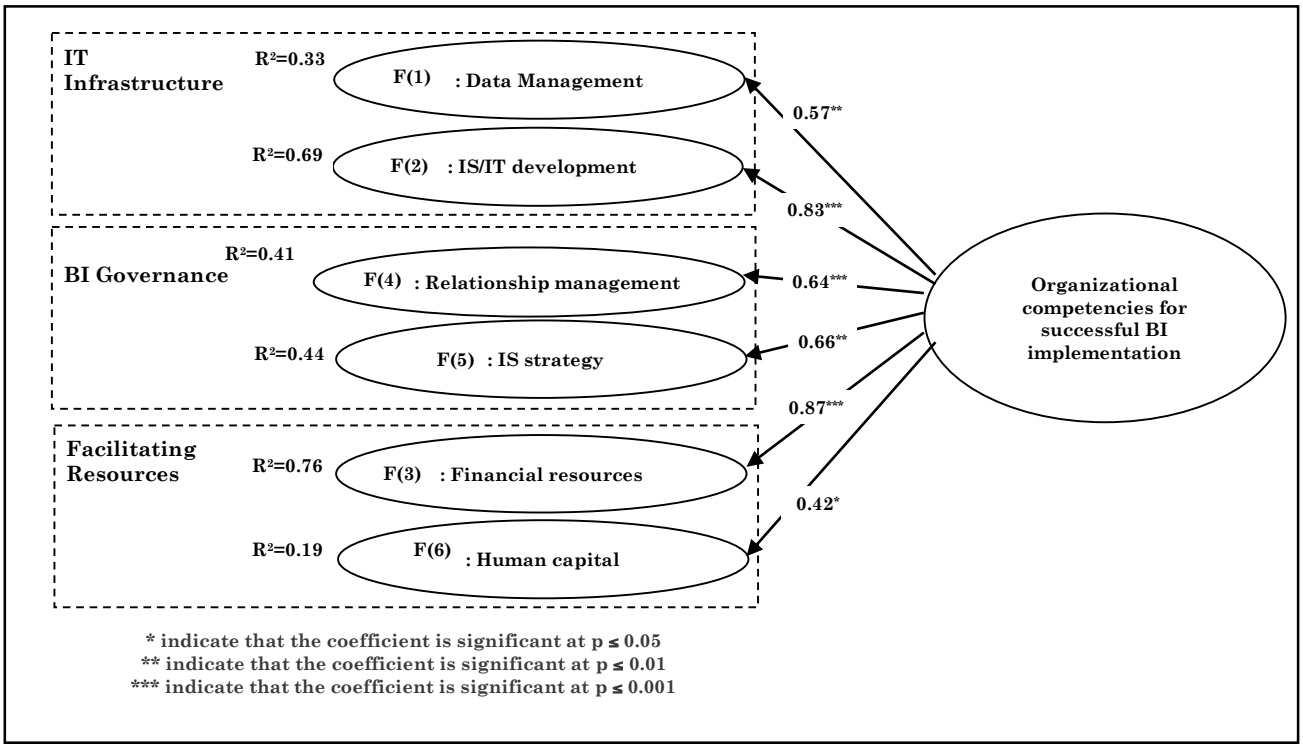

Figure 2 The model of organizational level competencies effects on BI success

management. Most of the articles in which Factor (2) is referred to have mentioned application development capability as a competency and they have ignored the importance of architecture and system flexibility for implementing new information systems or developing new features for existing systems. In this article, IS/IT development refers to both soft (application) and hard (infrastructure) abilities and their flexibility of an organization for BI success.

Financial resource is not considered to be an IS ability, however, it provides the ground for other capabilities and because of their importance in IS implementation, we cannot overlook them, especially in BI implementation which is a time-bound development process. The importance of financial resources ignored in most articles related to IS competencies except Chasalow's study that emphasized its importance. As an initial classification, the sourcing strategy is classified into IT governance groups and funding for acquiring BI tools funding for building and maintaining an analytical data environment, classified into resource facilitation groups. Sourcing strategy that is classified into financial resources refers to both sides of the funding strategies of sourcing and selection of supplies. By grouping the sourcing strategy competency into financial resources factors, the first side of the competency (funding strategies of sourcing) was highlighted.

Both internal and external data gathered from suppliers and stakeholders are important to determine BI success. On the other hand, continued relationships with IT vendors (Solberg Søilen & Hasslinger, 2012) and consultants are necessary for having a better understanding of an organization's IT needs. Therefore, relationship management is another important ability, as well. It is one of the top and long-running concerns of the senior management that the organizational strategies are in alignment with the business strategy as well as the IS strategies. Research studies show that businesses rely on IT to execute the company strategy and the top priority is building the foundation for execution, which is the IT infrastructure and digitized business processes that automate the core capabilities of the enterprise.

Businesses should have strategic directions about IS investments that lead to alignment between IT strategy and business processes (Peppard, Lambert, & Edwards, 2000). The requirement for alignment of the organization's IS/IT strategy with the business's underlying goals and objectives was apparent. In IS strategy definition, IS/IT governance imply an important role for integrating the IT effort with business strategy and processes (Willcocks, Feeny, & Olson, 2006). In a similar way, BI governance responsible for arranging strategies, structures, processes, and activities of BI for a business is an important factor for BI success. Factor (5), IS strategy, is a strategy part of BI governance that refers to IS and business strategy and their alignment. This factor is the most referred to, directly and indirectly, among other factors that suggests the importance of IS and business strategies and their alignment.

Human resources determine how BI has been used in the organization. Skill, knowledge, and motivation of users (both business and IT users), such as IT skills, statistical and analytical knowledge, creativity and market knowledge are critical for working with BI systems, which are achieved through selecting, evaluating, and managing staff and ongoing IT training. Although human resource abilities refer to individual competencies, management of individual competencies and an organization's policies for directing them refer to organizational level competencies. Some articles like Peppard & Ward (2004) or Chasalow's study have mentioned human resource strategy and development importance. There is more need for specific studies about its importance in information systems; the gap is obvious among research studies in this subject area.

5.2 Practical usages

The results of the factor analysis indicate that the organizational competencies for BI success can be evaluated based on six main factors. To measure the maturity of these factors, an organization should be evaluated by nineteen criteria through questions about organizational competencies. Using the extracted loads of each criterion within its factor, the maturity of the organizational competencies can be measured and depicted on a chart (for the six factors). By comparing the "as is" situation of these six factors with the "to be" situation the probability of BI success can increase as revealed through interviews with the experts of the studied organizations.

Since BI success criteria may differ from one organization to another, in addition, the criteria defined for BI success have influence on the importance of defined competencies; BI

critical success criteria must be defined in the organization first. Also, defining BI success criteria helps the organizations that is going to implement BI to measure the fulfillment of these criteria. Periodic evaluation of success criteria and their relative competencies can lead to continuous system performance improvement and better utilization of the information system.

The present research introduced a new measurement instrument by using a competency-based approach to BI, which helps companies achieve BI success. It should be noted that the authors utilized a case study to propose a valid measurement model. Nevertheless, it is believed that it can be generalized to apply to similar organizations, which plan to implement BI. The authors believe that the results of this research can help organizations make better decisions with regard to implementing BI, and shed light on effective organizational competencies according to critical success factors (CSFs) of BI implementation.

6. CONCLUSION AND FUTURE RESEARCH

The purpose of the study was to introduce new competency measurements on the organizational level for BI success. In this way, first we reviewed related literature about competencies and BI success. After we specified our research domain to the organizational level and IS/IT or BI related competencies, competencies of presented models in this domain were extracted and decreased to 19 competencies by combining and interviewing. Then, the questionnaire was developed that asked about the 19 competencies effect on BI success in its Part 3, which contains an explanation of the BI success definition in Part 2 (Part 1 was assigned to the respondent profile). All 19 of the competencies effects on BI success was approved by a chi-square test. An EFA, conducted to test the validity, grouped the 19 competencies into six factors that are grouped in the initial framework (IT infrastructure, BI governance, and Facilitating resources). The six factors are named and described completely in this article.

BI systems are new to Iranian companies and there are only limited numbers of companies that are familiar with BI systems. That was a limitation for this study. On the one hand, the number of experts who were qualified enough for participating in the study was limited. Nonetheless, some experts declined to participate and answer the questionnaire.

Indeed, this study is not comprehensive in relation to organizational competencies for BI success. This is because the scope of the study is limited due to the elimination of some competency constructs: knowledge management competencies (Alpar, Engler, & Schulz, 2015) that incude the capturing, filing and categorization of the information (Oubrich, 2011), business process competencies, project management competencies, and learning organization competencies (which were among the 40 competencies explored). Since these competency constructs can be in turn defined as independent study projects for future research, we found them to be beyond the boundaries of a single study.

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8. APPENDIX A

The organizational competency descriptions and related sources.

	ID	Competency	The ability	Related sources
IT Infrastructure	V_1	IS architecture framework	The type of IS architecture framework determines the development and maintenance ability of the system	(Caldeira, & Dhillon, 2010)(Chasalow 2009)(Feeny, & Willcocks, 1998)(J. Miller, Bräutigam, & Stefani, 2006)(Peppard & Ward, 2004)
	V_2	IT flexibility	IT flexibility is a part of the IT infrastructure ability that facilitates quick and easy adaption of new technology launches (some references mentioned connectivity, compatibility and modularity as IT flexibility factors)	(Miller, Bräutigam, & Stefani, 2006)(Ngai, Chau& ,Chan, 2010)(Ravichandran, 2007) (Agostino, Solberg Søilen, & Gerritsen, 2013)
	V_3	Applications development	To develop/acquire and implement information, systems and technology solutions that satisfy business needs (not only to develop applications in-house but also to contract out IT products and services)	(Caldeira, & Dhillon, 2010)(Doherty & Terry, 2009)(Peppard & Ward, 2004)(Peppard, Lambert, & Edwards, 2000)(Wade & Hulland, 2004)
	V_4	Integration of data sources	To link information systems and share information among different functions and parts of a supply chain	(Chasalow, 2009)(Chen & Wu, 2011)(Miller, Bräutigam, & Stefani, 2006)(Ngai, Chau& , Chan, 2010)
	V_5	Well-defined data environment including stewardship and metadata	To manage and maintain metadata and to administer technical metadata and ensure its adjustment with business metadata (stewardship)	(Chen & Wu, 2011)(Miller, Bräutigam, & Stefani, 2006)
	V_6	Data quality improvement	To have and improvement cycle for collecting, correcting, accreting, and validating data and improving data quality	(Caldeira, & Dhillon, 2010)(Chen & Wu; 2011)(Miller, Bräutigam, & Stefani, 2006) (Fourati-Jamoussi & Niamba, 2016)

	V_7	Metadata tools availability	To have and use metadata tools regularly across the organization	(Chen & Wu, 2011)
BI Governance	V_8	External relationship management	To manage linkages between the IS function and stakeholders outside the firm	(Doherty & Terry, 2009)(Peppard & Ward, 2004)(Peppard, Lambert, & Edwards, 2000)(Wade & Hulland, 2004)
	V_9	IT vendor and consultant development	To have an outreach list and contact IT/e-business service suppliers. The ability to have long relationships with vendors and consultant that sure supporting the implemented system	(Caldeira, & Dhillon, 2010)(Feeny, D.F; Willcocks, L.P, 1998)(J. Miller, Bräutigam, & Stefani, 2006)(Willcocks, Feeny, & Olson, 2006)
	V_{10}	Service level definition	The establishment of service level agreements, and their monitoring, evaluating, measuring, and managing; which is an element of informed buying	(Caldeira, & Dhillon, 2010)(Feeny, & Willcocks, 1998)(J. Miller, Bräutigam, & Stefani, 2006)(Peppard & Ward, 2004)(Peppard, Lambert, & Edwards, 2000)
	V_{11}	Stakeholder planning and management	To identify key business, human resources, and technical stakeholders to clarify the benefits of the change; and planning and managing their expectations	(Caldeira, & Dhillon, 2010)(Ghazanfari, Jafari, & Rouhani, 2011)(Miller, Bräutigam, & Stefani, 2006)(Peppard & Ward, 2004)
	V_{12}	Business processes and IS/IT alignment	To integrate IT efforts with business purposes and activity and to determine how IS can deliver the 'best practice' in operational processes and organizational activities	(Caldeira, & Dhillon, 2010)(Peppard & Ward, 2004)(Tarafdar & Gordon, 2007)(Wade & Hulland, 2004)(Willcocks, Feeny, & Olson, 2006)
	V_{13}	IS strategy alignment	Business strategies should support and be aligned with IS strategies and vice-versa (i.e. strategic alignment). According to the alignment IS and business are in the same direction	(Caldeira, & Dhillon, 2010)(Miller, Bräutigam, & Stefani, 2006)(Miller, Bräutigam, & Stefani, 2006)(Peppard & Ward, 2004)(Peppard, Lambert, & Edwards, 2000)
	V_{14}	IS prioritization strategy	To prioritize technology investments and to balance information technology demand and resource requirements to maximum return from investments	(Chen & Wu, 2011)(Miller, Bräutigam, & Stefani, 2006)(Peppard & Ward, 2004)(Peppard, Lambert, & Edwards, 2000)
	V_{15}	Sourcing strategy	To stablish criteria and processes to evaluate the cost-benefit of supply options and contracts with suppliers, to outsourcing IT services, and custom designed applications	(Caldeira, & Dhillon, 2010)(Feeny, & Willcocks, 1998)(Willycocks, Feeny, & Olson, 2006)
Facilitating Resources	V_{16}	Funding for acquiring BI tools and building related systems	To provide and anticipate required funding to develop an enhanced use of the systems	(Chen & Wu, 2011)
	V_{17}	Funding for building and maintaining an analytical data environment	Funding for maintaining or improving systems' response time and the level of IT service delivery and funding for improving data quality and availability	(Chen & Wu, 2011) (Agostino, Solberg Søilen, & Gerritsen, 2013)
	V_{18}	Select , evaluate, and manage (especially IT) staff	To recruit an individual who was involved in BI projects and evaluate their technical skills	(Caldeira, & Dhillon, 2010)(Miller, Bräutigam, & Stefani, 2006)(Peppard & Ward, 2004)(Peppard, Lambert, & Edwards, 2000) (Amara, Solberg Søilen, & Vriens, 2012)
	V_{19}	Ongoing IT training	To develop staff skills to use computers and software applications and to deploy their skills to ensure technical, business and personal skills meet the needs of the organization	(Caldeira, & Dhillon, 2010)(Chen & Wu, 2011)(Peppard & Ward, 2004)(Peppard, Lambert, & Edwards, 2000)

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Early warning: the role of market on entrepreneurial alertness

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ABSTRACT Given the growth and role of entrepreneurship today, it is becoming increasingly important to understand how new entrepreneurial opportunities get developed. Discussions of the emergence of new entrepreneurial opportunities often include "eureka" moments, but our understanding of how new opportunities get brought forward is limited. We attribute the difference to a loosely defined quality that Kirzner called "entrepreneurial alertness". Other market actors do not have the responsibility to create innovative market opportunities although they do have an obligation to consider such opportunities once they are available in the marketplace. Consequently, understanding the opportunity identification process represents one of the core intellectual questions for the domain of entrepreneurship. So question of this paper is how are market environments represented and interpreted in the mind of the entrepreneur such that opportunity identification occurs? and what factors impress on it? To achieve this goal we distribute questionnaires between 115 M.A. students from Economics and Management college of University of Sistan & Baluchestan for the years 2012 and 2013. Analysis was done by correlation test. Results showed that there is significant relationship between market disequilibrium, accuracy vs. timeliness, schema complexity, counterfactual thinking, frame-breaking and sensitivity to profit potential and student's entrepreneurial alertness; but the relationship between ignorance of new resource and excessive optimism or pessimism about resource and student's entrepreneurial alertness was not significant.

KEYWORDS counterfactual thinking, early warning, entrepreneurial alertness, frame-breaking, market disequilibrium, sensitivity to profit potential

1. INTRODUCTION

Entrepreneurship research is dominated by the fundamental questions of why it is that only some people see new business opportunities and only some people take actions to exploit the opportunities they do see (Shane and Venkataraman, 2000; Venkataraman, 1997). As pointed out by https://core.ac.uk/download/pdf/6836212.pdf "Empirical observation suggests that individual people can differ widely in their ability to see new business opportunities within a given situation. Some see nothing but constraint and status quo, while others see attractive new opportunities lurking everywhere. The social and economic impact of these differences is enormous, as the economic actions taken by entrepreneurs can have wide-ranging effects on the provision of valued products and services, on the creation and smooth operation of new markets, and on regional socio-economic development".

Once spotted, the opportunity may be recognized as essentially complete in itself or requiring additional development and creative acts by the entrepreneur to become an opportunity worth exploiting. Much recent research has been devoted to better understand the diverse range of opportunity types and the corresponding entrepreneurial actions (e.g., Eckhardt and Shane, 2003; Sarasvathy et al., 2005). But these are ex post distinctions that only arise once the entrepreneur has already perceived or enacted the initial market need or underutilized resources, recognized a fit between market need and underemployed resources, and created a new fit (Ardichvili et al., 2003).

In a reciew by Gaglio & Katz the authors explain: "Shaver and Scott (1991) pose the salient psychological questions: how are market environments represented and interpreted in the mind of the entrepreneur such that opportunity identification occurs? Do these representations and interpretations differ from those of other market actors? If so, in what ways?

"Kirzner (1979) asserts that the mental representations and interpretations of entrepreneurs do indeed differ because they are driven by *entrepreneurial alertness*, a distinctive set of perceptual and cognitive processing skills that direct the opportunity identification process".

The key question of this paper is how market place represents and interprets in the mind of entrepreneur and what factors impress on it?

2. LITERATURE REVIEW

2.1 Entrepreneurial alertness

Alertness has been central in the context of the recently developing area of "opportunity" in entrepreneurship research. Some of this research argues that either opportunities are discovered or they are created (Short et al., 2010). Another approach parcels it into the three areas of opportunity recognition, opportunity discovery, and opportunity creation (Sarasvathy et al., 2003). Research on entrepreneurial alertness was initially developed by Kirzner (1973, 1979), who characterized individuals who were more alert as having an "antenna" that permits recognition of gaps with limited clues.

According to Kirzner, entrepreneurial alertness refers to "the ability to notice without search opportunities that have hitherto been overlooked" (Kirzner, 1979, p. 48), "a motivated propensity of man to formulate an image of the future" (Kirzner, 1985, p.56), "an attitude of receptiveness to available, but hitherto overlooked, opportunities" (Kirzner, 1997, p.72), or "a sense of what might be 'around the corner', i.e., the sense to notice that which has hitherto not been suspected of existing at all" (Kirzner, 2008, p.12). Building on Kirzner's work, Kaish and Gilad (1991) saw alert individuals as having a "unique preparedness" in consistently scanning the environment ready to discover opportunities. Later Kirzner argued that alertness includes creative and imaginative action and may "impact the type of transactions that will be entered into future market periods" (1999, p.10).

These various definitions, while intuitively illustrative, lack an explicit theoretical underpinning. Clearly, though, entrepreneurial alertness is presented as conceptually distinct from the subsequent development of the opportunity, and from the activities undertaken to subsequently exploit the opportunity. And, while entrepreneurial alertness may work in conjunction with explicit environmental information search behaviors, it is more generally a state of mind that is open to opportunities at all times (Busenitz, 1996, p.43).

An entrepreneur must be highly sensitive to the key characteristics of schemas, so that he can quickly and accurately activate schemas in an ambiguous scenario to notice the emergence of opportunities. The alertness is reflected by the efforts spent to gather information, or the abstraction from such information of clues indicating commercial opportunities. It is also a kind of "sharp evaluation" that enables entrepreneurs to capture the flash of insight when facing opportunities to perceive the potential opportunities quickly.

Baron (2006) makes the case that this alertness to new opportunities is based on pattern recognition. He argues that what makes an entrepreneur alert is some cognitive capacity to support the recognition that one situation is similar to another in a meaningful way, that at some abstract level the two situations both resemble some common template or cognitive framework. From this recognition of a common pattern, the entrepreneur can make reasonable predictions of the future and can use these to plan new business moves. But Baron's argument leaves open the questions of what these frameworks are and how they are developed and used.

Entrepreneurial alertness is not solely the domain of the equilibrium-seeking arbitrageur entrepreneur ascribed to Kirzner, but applies equally to the equilibrium-destroying creative-destruction entrepreneur of Schumpeter (1942). Both types of entrepreneur need to be alert to opportunities, whether in the conditions of the present or in the conditions of the hypothesized future (Kirzner, 2008).

2.2 Market

2.2.1 Recognizing events of disequilibrium

What would an alertness schema contain and how would it work if it were to lead to a more accurate or superior assessment of a market situation? Kirzner (1979, 1985) posits that the alert individual is especially sensitive to signals of market disequilibrium, which can occur at the macroeconomic and microeconomic levels.

Macroeconomic disequilibrium is the most common form at the moment and in Kirzner's theory, the less considered form. In this situation, market disequilibrium arises from disruptive changes brought about because of new technology, knowledge, demographics, or social values that, as Drucker (1985) observed, force industries to reinvent themselves through radical innovation.

Therefore, it seems logical to expect an alertness schema to include mental models of these kinds of changes and specifically extensive representations of the kinds of signals or cues that would indicate not just the presence of these disruptions but more importantly, to their *potential* presence.

Indeed, it is probable that an alertness schema directs attention and focus to search for anomalies, the unexpected or anything remotely new or different. Non-alert individuals are not necessarily oblivious to major disruptions in the marketplace.

When anyone encounters something different or unexpected that is signaled in a clear, unambiguous, strong and persistent way, he or she will attempt to accommodate the new information (Fiske, 1993). Weick (1995) notes that these kinds of disruptions trigger extensive "sensemaking" efforts within organizations; research suggests that the context or framework used for sensemaking may lead non-alert actors away from the conclusion that an entirely new assessment is needed.

While disruptive macroeconomic market changes are forceful and generally more easy to discern, they are only one source of market disequilibrium. The other source is microeconomic – a less dramatic form but one that has the advantage of being ever present because it is inherent in the marketplace. Ongoing microeconomic market disequilibrium arises from the everyday mistakes market actors make in their investment, production, and distribution decisions and actions.

These mistakes create pockets of disequilibrium, which become evident as underpriced products, unused capacity, unmet needs, and so on. In more popular terms, these pockets represent market niches, the favored spawning ground of new business opportunities.

Once again, the key question is what would an alertness schema contain such that it facilitates the anticipation or detection of these mundane pockets of disequilibrium? It is entirely possible that alert entrepreneurs simply recognize the fact that misapprehension and bad judgment occur and they try to capitalize on it. We predict:

H1: There is a significant relationship between recognizing events of disequilibrium and student's entrepreneurial alertness.

2.2.2 Changing schema vs. information

Schema theory assumes that people engage in a kind of pattern matching between environmental stimuli and the information stored in the activated schema (Fiske and Taylor, 1991; Mitchell and Beach, 1990). If the pattern match is good enough, attention turns to action and developing a response. If the pattern match is not good enough – that is, when the individual detects something unusual or unexpected, then additional cognitive processing is required.

When actors are motivated to be accurate, they usually try to integrate the new information within their existing schema by creating new subcategories or new causal links that increase the differentiation and complexity of their schema (Fiske and Taylor, 1991; Sherman et al., 1989). If the actor places a higher value on quick action or if he or she feels it is socially desirable to adhere to a schema, then the actor will either discount the new information or engage in elaborate re-interpretations that maintain the structure and dynamics of the existing schema (Fiske, 1993; Kiesler and Sproull, 1982). Given the nature of this cognitive dynamic, the theory of alertness would predict:

H2: There is a significant relationship between changing schema vs. information and student's entrepreneurial alertness.

2.2.3 Cognitive error control

The failure to recognize and integrate information regarding market disequilibrium are not the only kinds of cognitive mistakes non-alert actors can make. Kirzner (1985) identified several other assessment mistakes non alert individuals may make: (a) failure to recognize that assumptions were never or no longer are appropriate; (b) ignorance of new resource availability; (c) excessive optimism or pessimism about resource availability; (d) excessive optimism or pessimism regarding probable results of actions or decisions. The common thread in all these mistakes appears to be inaccuracy. The chain of inaccurate processing may begin with the non-alert individual simply following the human tendency to uncritically accept and use information only in its original form (the "concreteness principle," Slovic, 1972) or to unquestioningly accept the initial frame of reference (the "framing effect," Kahneman and Tversky, 1986). If alert individuals are not making these kinds of cognitive processing mistakes, then it seems logical to conclude than an alertness schema includes a dynamic that induces skepticism about information perceived and that questions, if not challenges, the initial frame of reference. In fact, Gunderson (1990) maintains that veridical perception simply means a willingness to challenge assumptions and perceptions, much like a good scientist. This leads to hypothesis 3:

H3: There is a significant relationship between ignorance of new resource and excessive optimism or pessimism about resource and student's entrepreneurial alertness.

2.2.4 Accuracy vs. timeliness

Kirzner examines at considerable length the theoretical proposition that alert individuals have veridical (accurate) perception and interpretation. For example, the four forms of inaccuracy discussed above represent one type of threat to veridical perception. Therefore, it would seem logical to conclude that accuracy is a major component of an alertness schema, perhaps even the driving force of the schema.

From a psychological perspective, the issue of accuracy is somewhat problematic because accuracy can also be considered part of an individual's motivation that *triggers* the activation of a particular schema. A central tenet of cognitive psychology is that people employ information processing tactics that best facilitate their goals (Fiske, 1993; Showers and Cantor, 1985) and that one of the first decisions people must make, implicitly or explicitly, in any information processing episode is whether their goal is to be completely accurate or to act quickly.

This stark choice minimizes a crucial and distinctive element of opportunity identification, that is its time limitedness. Pockets of microeconomic disequilibrium can quickly change, be filled, or become exhausted. The window of opportunity when viewing macroeconomic changes is also limited and shrinks substantially as other actors see the opportunity and visibly exploit it. Thus there is a need to balance perceptual accuracy with time-to-action or timeliness. Even managers embedded in a corporate context recognize the time-limitedness of opportunities. Weick (1979) argues that managers need to process information in ways that are just good enough to determine the course of action. He suggests that most managers stop their sensemaking activities when they have found the first plausible explanation or framework regardless of its accuracy (Weick, 1995). Isenberg's (1986) detailed analysis of managerial decision-making appears to confirm Weick's supposition that managers feel more pressure to act than to be absolutely accurate in their analysis. In other words, what is proposed and observed in managerial decision-making is a simple application of March and Simon's (1958) satisficing concept where enough analysis is done to satisfy personal and peer expectations of adequate consideration and therefore, adequate accuracy. This leads to hypothesis 4:

H4: There is a significant relationship between accuracy vs. timeliness and student's entrepreneurial alertness.

2.2.5 Schema complexity

As noted earlier, an observable difference between experts and novices or between creative and non-creative individuals is the degree of schema elaboration, content complexity, and cross linkages with other schema.

Research into expert performance suggests that, beyond a certain level of preparation (which will vary by domain), experience and education do not inevitably lead to more elaborate and complex schema (Bonner and Pennington, 1991; Camerer and Johnson,

1991). What does lead to the increase in complexity necessary to achieve expert status are increasingly complex and hence veridical or realistic mental representations of causal patterns and interacting factors. The availability of these complex patterns as a single unit of information is the mechanism that produces comparatively more accurate, albeit very fast opportunity identification and problem solving in experts than in the novices (Chase and Simon, 1973; Chi et al., 1982). Therefore, we predict:

H5: There is a significant relationship between schema complexity and student's entrepreneurial alertness.

2.2.6 Schema change – counterfactual thinking

Counterfactual thinking (e.g., what if; if only, etc.) is a fairly normal response to unexpected events (Roese and Olsen, 1995). However, we would expect alert and non-alert people to use counterfactual thinking in different ways. Non-alert individuals most likely use the typical strategy for dealing with the unexpected which is to mentally undo the unusual circumstance that caused the unexpected outcome. Mentally undoing the unusual highlights its abnormal quality but also shifts focus back to the usual, that is, towards normalcy. This kind of counterfactual thinking may be one of the cognitive mechanisms for discounting. On the other hand, if alert individuals increase the complexity of their schema and change their schema to accommodate novel events, we would expect alert individuals to mentally maintain the unusual circumstance and use counterfactual thinking to undo other elements in the causal sequence as he or she imagines how the unusual information will affect other elements or other schema. Furthermore, it is possible that alert individuals undo several causal links, which would lead them to break the existing means-end framework. Therefore, we would predict:

H6: There is a significant relationship between schema change – counterfactual thinking and student's entrepreneurial alertness.

2.2.7 Schema change – frame-breaking

The alert individual's extraordinary abilities in discernment that lead to a conclusion about changing times and events, while necessary, do not inevitably lead to the identification or creation of entrepreneurial opportunities. Opportunity identification at this level (that is, breakthrough or innovative) depends on the alert individual using his or her insights about disequilibrium to recognize when it becomes necessary to radically reconfigure his or her understanding of the industry, or society, or the marketplace, or more probably, all three.

Kirzner (1985) refers to this as breaking the existing means-ends framework. He considers this step to represent the heart and soul of entrepreneurial alertness and to be the strongest point of difference between entrepreneurs and other market actors. Non-entrepreneurial decision-makers focus on how to work effectively within the existing framework; that is, they attempt to make good decisions about how to allocate their scarce

resources in order to maximize return. The belief that breaking the existing mean-ends framework is a necessary step for genuine innovation can also be found throughout the creativity empirical literature (Amabile, 1983; Csikszentmihalyi, 1996).

Given the central importance of frame-breaking to the theory of entrepreneurial alertness, we would predict that alert individuals would be more likely to break the existing means-ends framework and indeed, there is some preliminary evidence that this is a crucial step in the identification of entrepreneurial opportunities (Gaglio, 1997).

H7: There is a significant relationship between schema change – frame-breaking and student's entrepreneurial alertness.

2.2.8 Sensitivity to profit potential

Finally, there is one more perceptual and cognitive component to an alertness schema based on Kirzner's theory of entrepreneurial alertness: the individual's sensitivity to profit potential. This sensitivity can be reflected in the schema in at least two ways. First, the individual may direct his or her attention to find under-priced products, services, processes, and so on. Secondly, the individual may include the question "how can I make money at this" as part of the assessment process itself. This situation is analogous to the differentiation in the innovation literature between invention and innovation.

Invention may involve the identification of a new idea or opportunity but it only becomes an innovation when the invention or idea is translated into a form that demonstrates its economic potential (Kirzner, 1979; Schumpeter, 1971; Timmons, 1999). Kaish and Gilad (1991) tried to test this proposition in

their early study of alertness and found quite the contrary: founding entrepreneurs appeared to be more sensitive to downside risk while corporate managers were more attracted to the market potential. However, the data collection method used in their study (survey of past behaviors) relies on retrospection; this technique confounds the processes of opportunity identification and opportunity evaluation so, in fact, the question of sensitivity to profit potential still requires a definitive empirical test. It is entirely possible that alert individuals are more sensitive to commercial value of ideas and are able to quickly identify or create entrepreneurial opportunities but as they move on to implementation, they become more sensitive to the downside risks as it becomes more apparent that their careers are on the line with each new venture launch (Ronen, 1983).

Mindful that theory development requires making important analytical distinctions such as that between opportunity identification and evaluation, we predict that at the identification state, alert individuals will be more sensitive to the commercial value or profit potential of facts and ideas.

H8: There is a significant relationship between sensitivity to profit potential and student's entrepreneurial alertness.

3. RESEARCH METHOD

3.1 Sample and procedures

The sample was composed of 115 M.A. students from the University of Sistan & Baluchestan for the years 2012 and 2013. To measure student's attitudes towards these factors we use a questionnaire that contains four items in demographic information and 43 items in Likert's methods from 1 (Very low) to 5 (Very much). To ensure validity of the scale content, the components of the attitude area were determined. Then, the researcher formulated for each section of the scale. These items were classified and arranged according to the content of each section of the attitude scale.

Before putting the scale in its final form, the researcher validated the scale by submitting it to a panel of experts in the area of research. The experts were requested to evaluate the items of the scale, and to suggest any changes they considered appropriate in terms of the objectives of the scale, item formulation, and their suitability to the level of the students. To estimate the reliability of the scale, the Cronbach alpha test was used, being one of the most appropriate methods to measure the reliability of attitudinal scales. The result was 0.72, which is considered a high value for reliability. The analyses were conducted using SPSS 22.

3.2 Analysis and results

Table 1 shows demographic information of these samples.

Table 1 Demographic data of samples.

	Type	Result
Gender	Male	40.9
	Female	59.1
Age	20-30	95.7
	30-40	4.3
Field	Management	43.5
	Economic	20
	Accounting	13
	Entrepreneurship	23.5
Year of Entrance	2012	37.4
	2013	62.6

3.3 Hypothesis testing

Table 2 represents mean, variance accounted and the Pearson's correlations among all variables. All tests done on a level under 1% *($p<0.01$)*. Results show that alertness is significantly correlated with recognizing events of disequilibrium, changing schema vs. information, cognitive error control, accuracy vs. timeliness, schema complexity, schema change – counterfactual thinking, schema change – frame-breaking and sensitivity to profit potential.

Table 2 Means, standard deviations and correlation among variables.

Variable	Mean	S.D.	Pearson Correlation	Sig.
Market disequilibrium	3.76	.91	.309	.001
Ignorance of new resource	2.76	1.08	.016	.867
Excessive optimism or pessimism about resource	2.88	1.09	.086	.381
Accuracy vs. timeliness	3.95	.73	.412	.000
Schema complexity	4.17	.75	.245	.008
Counterfactual thinking	3.87	.93	.306	.001
Frame-breaking	3.58	.99	.338	.000
Sensitivity to profit potential	3.98	.84	.245	.006

According to the data collected and based on assessments, six factors which have the most

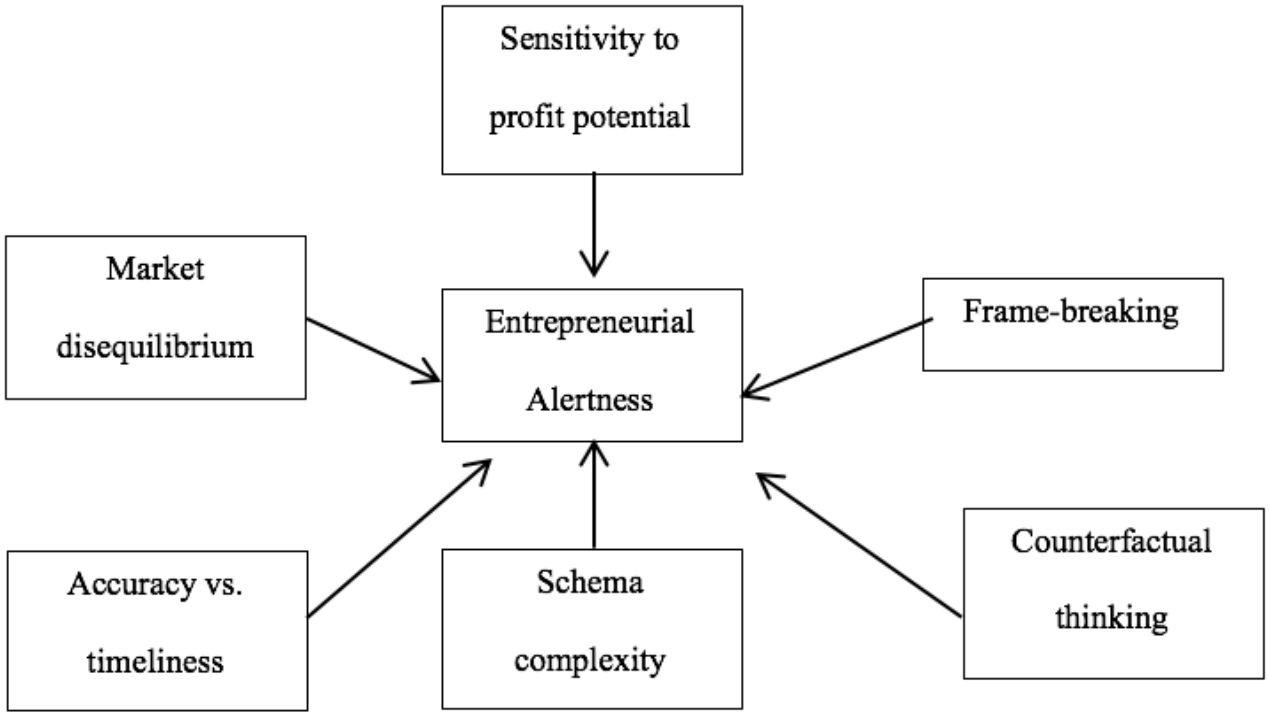

Figure 1 The role of market on entrepreneurial alertness

significant effect on the entrepreneurial alertness summarized in Figure 1.

4. RESULTS AND DISCUSSION

Hypothesis 1 predicts that recognizing events of disequilibrium is significantly related to student's entrepreneurial alertness. As expected, the effect of recognizing events of disequilibrium on student's entrepreneurial alertness was positive and significant *(r=.309, p<0.01)*. the results corroborate the Kirzner (1979, 1985) study that the alert individual is especially sensitive to signals of market disequilibrium, which can occur at the macroeconomic and microeconomic levels.

Hypothesis 2 indicates that changing schema vs. information is significantly related to student's entrepreneurial alertness. As expected, the effect of changing schema vs. information on student's entrepreneurial alertness was positive and significant *(r=.412, p<0.01)*. Fiske (1993), Kiesler and Sproull (1982) assert that if the actor places a higher value on quick action or if he or she feels it is socially desirable to adhere to a schema, then the actor will either discount the new information or engage in elaborate re-interpretations that maintain the structure and dynamics of the existing schema.

Hypothesis 3 predicts that ignorance of new resource and excessive optimism or pessimism about resource is significantly related to student's entrepreneurial alertness. As expected, the effect of ignorance of new resource and excessive optimism or pessimism about resource on student's entrepreneurial alertness was not positive and significant *(r=.016, p<0.01; r= .086, p<0.01)*. the results corroborate Kirzner (1985) study that identified several other assessment mistakes non alert individuals may make: (a) failure to recognize that assumptions were never or no longer are appropriate; (b) ignorance of new resource availability; (c) excessive optimism or pessimism about resource availability; (d) excessive optimism or pessimism regarding probable results of actions or decisions.

Hypothesis 4 predicts that accuracy vs. timeliness is significantly related to student's entrepreneurial alertness. As expected, the effect of accuracy vs. timeliness on student's entrepreneurial alertness was positive and significant *(r=.412, p<0.01)*. A central tenet of cognitive psychology is that people employ information processing tactics that best facilitate their goals (Fiske, 1993; Showers and Cantor, 1985) and that one of the first decisions people must make, implicitly or explicitly, in any information processing episode is whether their goal is to be completely accurate or to act quickly.

Hypothesis 5 predicts that schema complexity is significantly related to student's entrepreneurial alertness. As expected, the effect of schema complexity on student's entrepreneurial alertness was positive and significant *(r=.245, p<0.01)*. the results corroborate Chase and Simon (1973) and Chi et al. (1982) study that the availability of these complex patterns as a single unit of information is the mechanism that produces comparatively more

accurate, albeit very fast opportunity identification and problem solving in experts than in the novices.

Hypothesis 6 predicts that schema change – counterfactual thinking is significantly related to student's entrepreneurial alertness. As expected, the effect of schema change – counterfactual thinking on student's entrepreneurial alertness was positive and significant *(r=.306, p<0.01)*.

Hypothesis 7 predicts that schema change – frame-breaking is significantly related to student's entrepreneurial alertness. As expected, the effect of schema change – frame-breaking on student's entrepreneurial alertness was positive and significant *(r=.338, p<0.01)*. Kirzner (1985) and Gaglio (1997) predicted that alert individuals would be more likely to break the existing means-ends framework and indeed, there is some preliminary evidence that this is a crucial step in the identification of entrepreneurial opportunities.

Hypothesis 8 predicts that sensitivity to profit potential is significantly related to student's entrepreneurial alertness. As expected, the effect of sensitivity to profit potential on student's entrepreneurial alertness was positive and significant *(r=.245, p<0.01)*. Kaish and Gilad (1991) tried to test this proposition in their early study of alertness found that entrepreneurs appeared to be more sensitive to downside risk while corporate managers were more attracted to the market potential.

As noted earlier, in the question of paper, anyone claiming an interest in the opportunity identification process among entrepreneurs would have to address the essential issues of how market environments are represented in the minds of entrepreneurs and whether these representations differed from those of other market actors in any substantial way. This article has detailed a conceptual model and research agenda designed to answer these questions based on a comprehensive and cognitive approach to the theory of entrepreneurial alertness.

Logic and expediency dictate that compelling answers to the first and last issues should be formed before pursuing the remaining questions. Furthermore, the issue of motivation for both alert and non-alert actors will require more consideration than time and space permit here. It is our hope that this article prompts a fruitful line of research and debate that will lead to improvements in theories about alertness, opportunity identification, and entrepreneurship.

Ultimately results showed that there is significant relationship between market disequilibrium, accuracy vs. timeliness, schema complexity, counterfactual thinking, frame-breaking and sensitivity to profit potential and student's entrepreneurial alertness; but the relationship between ignorance of new resource and excessive optimism or pessimism about resource and student's entrepreneurial alertness was not significant.

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Users' perceptions of Data as a Service (DaaS)

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ABSTRACT In this study, 190 market intelligence (MI), competitive intelligence (CI) and business intelligence (BI) professionals and experts were asked about Data as a Service (DaaS). Findings show there were few limits or restrictions on what kind of data users could imagine buying or renting, if all types of data were available. Data that is more sensitive—personal data and private data—will be difficult to buy, users think. Company secrets and most data for business-to-business (B2B) industries is especially difficult to obtain. The major concerns for DaaS from a user perspective are confidentiality, quality, reliability, security and accessibility. Besides, it is often pointed out by users that when everyone has much of the same data competition will increase. Users want to see more on company metrics, less expensive, more secure and more flexible data solutions. The analysis reveals that the ethical dimension are a major concern as DaaS develops. An extensive discussion follows, which also addresses new points.

KEYWORDS business intelligence as a service, DaaS, data governance, data steward, DBaaS, ethics, Intelligence as a Service (IaaS), management of data

1. INTRODUCTION

Intelligence today is inseparable from information technology (IT) systems, special software (business intelligence) and big data. Now one can buy or rent data, and this is referred to as Data as a Service (DaaS). Many suppliers only want users to see the actual intelligence or end analysis, not the raw data, as they are afraid that customers could sell it on or make their own analyses. Like many analysts, DaaS providers are hesitant to describe their scientific method and calculations, hoping instead that users will accept their business models and trust them.

DaaS is a cloud-assisted service that delivers data on demand through an Application Programming Interface (API) (Vu et al. 2012). DaaS can also be said to be the shifting philosophy of data ownership to data stewardship (Rajesh et al., 2012, p. 26). DaaS was first used primarily in web mashups (Rajesh et al., 2012). A mashup in this context is a web page, or web application that uses content from more than one source to create a single new service displayed in a single graphical interface. Many early business intelligence companies are built on the same technology, like Agent24 in Sweden.

DaaS can be seen as ready-made, or tailor-made intelligence packages. The connection to intelligence is strong for vendors, for example in Oracle. For them DaaS is "intelligence from external sources", to create "action", meant as something wider than decisions. DaaS can also be seen as a logical step from previous aaS-products from Infrastructure aaS (Amazon Web Services), Platform aaS, Software aaS (Google Email, Google Doc.) and Database aaS. For DBaaS see Curino et al., 2011 and Seibold et al., 2012.

Database-as-a-Service (DBaas) was brought forward as traditional relational database systems proved to be unable to efficiently manage big data datasets. It was first with cloud computing that the opportunity arose, especially with the model

known as DBaaS (Abourezq and Idrissi, 2016). With DBaaS one still owns the data. This is not so with DaaS. To have one's own database feels safer that placing data in the cloud, so the question still remains open as to just how bright the future of DaaS is. When it comes to valuable information, consumers are particularly concerned about privacy-protection. The problem has been studied and a solution was suggested by Canard and Devigne (2016).

There is also Business Intelligence as a Service (Chang, 2014). It offers data access through a web interface, where the implementation and details are hidden from users. The business processes are orchestrated in a simpler and faster manner (Sano, 2014).

What has created the right conditions for DaaS is the growing desire to seek competitive advantage from the use of big data and the challenge of managing increasingly complex and heterogeneous data landscapes (Pringle et al., 2014, p. 29). DaaS is being brought forward by advances in cloud computing as it avoids the overly scaled computer infrastructure that includes not only dedicated space, but expensive hardware and software (Sharma, 2015).

Users' perceptions of business intelligence (BI) have been studied many times, for example by Sabanovic and Solberg Søilen (2012) and by Nyblom et al. (2012). No one has studied customers' perceptions of DaaS empirically. It's essential for suppliers to know how to package and sell different DaaS products. Before that can happen suppliers need to know what potential customers think about DaaS. First they must understand what it is, and what its potential, challenges and future may be. For this an exploratory study is requested. For intelligence studies it is of interest to know how MI, CI and BI experts see DaaS today and how they see it developing in the future. Another study should look at if MI, CI and BI experts see these questions differently from other analysts and IT experts.

State and military intelligence organizations have become efficient at sharing intelligence, especially since September 11th, and the appearance of the new global threat of Islamic fundamentalist terrorism. These organizations are sharing and exchanging intelligence not only at national levels but also internationally. New and faster performing information technology in the form of networks (infrastructure), hard disks (storage) and devices (working stations) is making these interactions easier and more attractive.

Private organizations too are realizing the potential value in sharing intelligence even though the most common form of obtaining intelligence so far is to buy data from a third party, not sharing intelligence with competitors and third parties. In the future, we can imagine that private organizations will mark documents, reports and analyses that they want to sell to others and make them available on the web. Companies who excel in intelligence work will be able to finance part of their own capabilities through the sales of their own intelligence reports, much like consultancy companies (such as KPMG) or journals (such as EIU) today. Instead of conducting their own research—which is costly and demands special competencies—companies are more often looking to buy or rent that information.

The most common product to sell is credit reports. The most common analysis is for target marketing, placing consumers into segments.

Companies who either sit on large amounts of data, like social media sites, or who send this data around, like Ericsson and Huawei, are eager to enter this new business segment. We hear companies talking about redefining their business models, like at Ericsson, are now afraid that Huawei will overrun them if they only focus on their core business.

Facebook, LinkedIn and Twitter are all in the same business, making money by capitalizing on our personal data. What they sell—connections to friends, colleagues or anyone who cares to listen and follow us—is less important for these companies than the amount of traffic (user activities) they gather. Their income is related to how well they package and present this data to advertisers. So far they have had significant success as users, like you and me, are telling them everything about ourselves in terms of what we search for, making segmentation easier and more accurate. As a consequence, they are becoming experts in getting us to "check-in" several times a day. On the surface it is all about friends, work or political debates, but as a business the data we leave can be packaged and sold. Moreover, there is little information for the user about what is done with their data.

In the market of market intelligence this kind of data is nothing new. For decades there

have been data brokers: companies who gather data in secret and sell it off, much without direct interaction with consumers. Data brokers gather data from hundreds of millions of consumers, including data about characteristics, preferences, health and financial situation. They do not only gather data about home addresses and phone numbers, but also about what car they drive, how much and what they watch on TV and on the internet, and what sports they participate in. They sell products that identify financially vulnerable consumers divided into categories such as "Rural and Barely Making It," "Ethnic Second-City Strugglers," "Retiring on Empty: Singles," "Tough Start: Young Single Parents," and "Credit Crunched: City Families" and score each person accordingly. Data brokers have been systematically criticized for not disclosing their sources. Examples of such companies today are Acxiom, Experian, and Epsilon.

From the point of view of a researcher producing science it is unthinkable not to disclose sources or to give a detailed description of the method for gathering data. The scientific article will simply not pass the review process. Serious journalists also have some rules of thumb when it comes to the truth, like checking with two independent sources. The same issue of reliability and validity that we see among data brokers is also found in other industries, for example among consultancy companies and among survey companies. These organizations are not primarily focused on disclosing the truth, but instead on selling and profits.

Many survey companies, like Novus in Sweden, refuse to disclose their scientific method, viewing it as a trade secret. In a country like Sweden, a hand full of survey companies set much of the political agenda, which again shapes political opinion as their findings and publications make the backbone of TV news and debates in the established newspapers.

Many survey companies pay respondents to fill in e-surveys as the response rate is otherwise too low. This development is increasing as internet users are less willing to take time to fill in questionnaires. Thus we have a situation today were particular respondents who are attracted to e-surveys work for the money are overrepresented. As the method is not described and data are not shown, the reader never learns that respondents are not representative of the population, even though many companies have banned respondents from certain countries in Western Africa to avoid more blatant biases. The problem is that these surveys are likely to gain different answers from another group of respondents, which is referred to as a problem of reliability. There is no one to redo surveys and research. By the time the reports are out they are soon forgotten and replaced by new ones, but the damage to the democratic system is already done as politicians are quick to take on new results from the news and shape their policies accordingly. Surveys are hardly ever called back and apologies due to surveys errors are never made by news organizations.

This is the same problem we face with DaaS, as suppliers are selling and renting data without giving the customer the possibility to investigate the scientific method or the raw data and its calculations. This leads to higher chances of manipulation.

2. RESEARCH QUESTIONS

Among the research problems mentioned in the literature we find the question of what types of vendors are available for DaaS. Ovum (2014) distinguishes among three types: large technology vendors like IBM, Microsoft, Oracle and SAP with substantial experience in the management of data (1), full service advertising agencies, like Dentsu/Aagis Media, Havas, Interpublic, PublicisOmnicon and WPP, who combine technological capabilities with business consulting (2) and data players like Axciom, Experian and Neustar with a substantial track record in managing vast and varied data sets (3). Companies see an interesting business model in combining business know-how with technological capabilities, as in the cooperation between Qlik, HP and Intel. This year the Swedish BI company Qlik was sold to Thoma Bravo for three billion USD. The question becomes: how do you best bundle data and software?

To that end, what we do not find in the literature today is what users and customers exist for DaaS, what they are looking for and what they see as strengths and weaknesses with the products available today. Intelligence professional of all kinds would be potential customers for DaaS, just as they represent a major group of customers for business intelligence products and are working with many of the same issues around quality of data and analysis. It would therefore be of

interest for researchers to contact MI, BI, and CI professionals to get their ideas.

Another research question of interest is: what kind of data sets and software do these customers want? DaaS addresses a number of long-standing concerns in the CI field. For example, DaaS could be said to be a response to those who think companies spend too much time and money building and maintaining their own systems and data. Companies need to focus more time on creating value with the data instead, it is often said in boardrooms. As we have seen there is one major assumption in this equation: that the data DaaS provides and the analyses they perform are good. The DaaS providers are basically asking us to trust them, which from a critical point of view is impossible if they do not show their method, raw data or analyses. However many companies are ready to place that trust and many will receive intelligence that is good. Given that the price is not too high DaaS will be attractive to certain groups of consumers or users. To identify and locate this group then becomes an important question.

"Garbage in garbage out" (GIGO) is becoming a big problem for big data. Big data can be divided into transaction data (ERP, CRM), interaction data (logs, social feeds, click streams) and observation data (internet of things such as sensors, RFID chips, ATM machines). When we look at the large quantity of big data produced today, most comes from social media, e-commerce, internet of things and sensors. This includes YouTube (1000 TB of new data per day), FB (600 TB), eBay (100 TB), and Twitter (100 TB) (Abourezq, Manar and Idrissi, Abdellah (2016, p. 159). Yet with all their computer power, Amazon is still not able to tell me what book I will buy next.

What DaaS vendors offer first is this data, GIGO, not intelligence. What the customer wants, on the other hand, is the opposite: intelligence, or strategic and actionable information. This is a major challenge for suppliers in this industry. It's not an impossible equation, but it's clear that intelligence has little to do with the sheer quantity of data. If data brokers have been able to do it so can DaaS companies. The question is how.

In many cases, another challenge is to get customers to accept to receive not the actual data itself - the raw data - but a graph or some output where that raw data is simply used.

Another challenge is to get buyers to accept the idea of renting – not owning – the data.

So research should try to find out what types of buyers may accept these different terms and what they are willing to pay for it.

For many customers DaaS will make sense. Most businesses don't have all that many trade secrets. They succeeded because they were first, built loyalty and delivered customer value, or simply because they never gave up. Now they are looking for better demographic data. They can try to get it themselves, but it takes too much time and they are unsure about statistics.

Many of these companies will rent the data if it's much cheaper. It will be good enough for a presentation at work. The next question then is how low the price must be given the drawbacks of DaaS listed above. From the supplier's side the question becomes how they can produce products that are more cost efficient. There are obvious advantages in this business with economies of scale, but how does this business model look? Suppliers will probably be tempted to explore lock-ins and develop sophisticated schemes for up-selling, a bit like Apple does; if you have the hardware you can only access their data through their store. DaaS companies can offer you the hardware, the software and the data, and the total IT provider. A possible advantage with this is that customers can move from one dataset to another more easily, as long as they move within the system. For some this will be fine.

From the perspective of intelligence studies maybe Intelligence as a Service (IaaS) is a more interesting domain to explore than Data as a Service (DaaS); an open web based service where intelligence is bought or exchanged. From a CI perspective a market with a few big vendors seem far less ideal. Ideally we would like a marketplace for intelligence where everyone is a buyer and a seller, not least because every company has some intelligence to sell and there should be no middle men to take a profit or delay the process, but the development is not there yet.

Another problem with the term DaaS is that it can stand for two separate phenomenons, and also includes Desktop as a Service (DaaS) and to make things worse the latter meaning is, for the moment, more popular than the first.

Table 1 Research questions

#	*Questions*	*Dimension*	*Perspective*
1	Do you know what Data as a Service (DaaS) is?	Control question	Method
2	Can you explain in your own words what DaaS is?	Control question	Method
3	What kind of data could you imagine buying/renting through DaaS?	What to buy: customers' needs based on offers	Business
4	What kind of data do you think it's difficult to buy/rent through DaaS?	What not to buy: customers potential needs that cannot be fulfilled	Business
5	What are the biggest challenges you see with DaaS from an intelligence perspective?	What weaknesses and challenges today: CI customers potential needs that cannot be fulfilled	Business
6	How would you like to see DaaS develop from an intelligence perspective?	The ideal state, how customers would like it to be in the future: customers' needs	Business

Another problem is what to do with stolen data, which is a market in itself. Data breaches are sometimes referred to as Hacking as a Service (HaaS) (McAffee). It can be individual hackers operating as lone cowboys or hackers engaged by companies or states. Most popular are financial data; credit cards and information regarding users. This market is so large today that it has already been segmented and products priced. According to the McAffee report a credit card and information about its user in the US will cost you 15 USD. The same in the EU costs 35 USD. The second most popular data are login access, followed by identities. There are thousands of hackers trying to get this intelligence from us right now through various techniques, everything from data fishing to old fashion theft. Market intelligence and CI professionals have a constant demand for this kind of data. As a result, companies specialize in these murky waters, like Kroll and its offspring, K2 Intelligence. These companies work on both sides of the table, helping to advise how to protect data from attackers and gathering data by dubious means. Thus the learning curve is just steeper. They do not solve the ethical dilemma, but hide it under a veil of secrecy. This is also the realm of private information warfare. DaaS is, by its very definition, a part of this world and we have to make ethical choices accordingly.

We cannot tackle all of these research questions here, but must start somewhere from the bottom. Based on the problems and research questions mentioned above we can define six questions for this study (Table 1). Q1 and Q2 are control questions, to see if respondents know what DaaS is before their answers are used. Q2 is a control that checks that the answer in Q1 is true. Q3 is a market question, finding out what types of data customers may want to acquire. Q4 is the opposite question, what kind of data customers think it is difficult for DaaS providers to keep and sell. Q5 asks about what customers see as weaknesses and challenges with DaaS today, and Q6 is an open question about what customers think about DaaS in the future. These more exploratory questions should then open up to more advanced and specific studies in the future.

3. THE METHOD

The population is defined as possible users of DaaS. The sample size is defined as a particularly strong group of possible users for DaaS, namely CI, BI and MI experts and professionals.

Five larger groups of users on LinkedIn were selected related to business intelligence, competitive intelligence, market intelligence and intelligence studies. These were from: 1. Business Intelligence Professionals (BI, Big Data, Analytics, IoT), 2. Veille Stratégique, e-

réputation et Intelligence Economique, 3. Strategic and Competitive Intelligence Professionals (SCIP), 4. Competitive/Market Intelligence Professionals and 5. Journal of Intelligence Studies in Business (JISIB). For the four first groups the surveys ware posted as a "conversation" in the dataflow. For the last group the survey was sent as an in-mail to all users registered for the group. The five groups have 222,000 users, but many are the same so it can be estimated that there are no more than 150-200,000 unique users.

The five groups in more detail, including their self-descriptions:

1. Business Intelligence Professionals (BI, Big Data, Analytics, IoT) with 183,000 members (Business Intelligence Professionals is the knowledge repository for BI, analytics, big data and mobile BI technologies),
2. Veille Stratégique, e-réputation et Intelligence Economique, 7,244 members (Ce groupe rassemble tous les professionnels de la veille stratégique, veille concurrentielle, veille technologique, de l'e-réputation et du social media monitoring),
3. Strategic and Competitive Intelligence Professionals (SCIP), 25,139 members (Strategic and Competitive Intelligence Professionals (SCIP), formerly the Society of Competitive Intelligence Professionals, is a global nonprofit membership organization for everyone involved in the practice of competitive intelligence and its related areas.)
4. Competitive / Market Intelligence Professionals, 6,167 members (This group is for people that were and/or are involved in CI/MI in their professional lives - whether they're researching, analyzing or acting on intelligence.)
5. Journal of Intelligence Studies in Business (JISIB), 721 members (JISIB is a peer-reviewed, no-fee Open Access Journal. The journal publishes articles on topics including market intelligence, marketing intelligence, strategic intelligence, business intelligence, competitive intelligence and scientific and technical intelligence, and their equivalent terms in other languages.)

There are reasons to think that we would get the same result if we studied the same sample size again (reliability), even though these are questions to which the answers change with time as DaaS develops. The questions listed in Table 1 correspond to the answers we are looking for (validity). As the research is primarily exploratory a qualitative method was chosen. At this stage we are more interested in understanding a phenomenon.

The questionnaire was pretested and no weaknesses detected, so no changes were made to the final questionnaire. Once launched, the initial response rates were very low, partly related to the fact that it was summer vacation but maybe more related to the fact that social media users have become more reluctant to answers surveys. The surveys were therefore sent out four times to each network during the next two months. At the end we obtained about 206 responses. Out of these, 16 were removed because of incomplete or illogical answers.

Respondents, especially on e-surveys, tend to answer with or without knowing a topic. As we wanted experts and professionals, we started the survey with two control questions. We asked if the respondent knows what DaaS is (Q1). If they did not no further answers were collected from that respondent. To be sure that the respondent answered correctly he or she was also asked to define what DaaS is (Q2). If he or she did not answer correctly given a broad margin for interpretation, the rest of their answers were taken out of the analysis part.

E-surveys are an easy way to gather data when it works, but it has become more problematic. Respondents seem to be less interested in completing e-surveys as these become more frequent. Chances are they do it quickly and without much reflection on actual questions. Longer surveys are not completed. In many cases anonymous internet users are less sincere, are opinionated, promote their own interests, and do not answer questions directly. This may be related to the way the internet has developed. For our purpose it has meant that we have had to discard a large number of responses. In future research other methods should be explored, like interviews at conferences.

4. FINDINGS AND ANALYSIS

The analysis builds on 190 complete responses, summarized in Table 2.

Table 2 Empirical findings

Questions	Answers	Brief Analysis
1. Do you know what Data as a Service (DaaS) is?	47.37% Yes 21.05% No 31.58% don't know	There were few correct definitions, but about 50% give an explanation of what DaaS is that is more or less correct. It corresponds to the number of people who said they knew what it is. Those who don't know if they know, did not actually know. In other words respondents were honest on this point. We may assume their answers to the other questions were honest too.
2. Can you explain in your own words what DaaS is?	Access to multiple data sets irrespective of the platform it is stored on, or the platform that you use for analysis, it is an access to a data warehouse through an interface, it is related to cloud computing, it might be about accessing huge amounts of data about a sector for example, paid access to data, it is a distribution model that disintermediates data from the platform/software allowing you to integrate it into your own web applications, data can be provided as on demand, a way to keep together, in a framework, the same data about a topic, pay to save our data in a safe place, provisioning of data via the cloud in a protected and affordable way to users that they can work with it on demand, data used as a service for decision making, its sharing of information, buying information from supplier, buzzword	
3. What kind of data could you imagine buying through DaaS?	Market information, demographics, information about competitors, financial developments, market changes, specific products consumed each minute with a cross section of colors and geography, text, statistics, raw data of any kind, video, all data that is captured and stored digitally, documents, photos, records, videos, codes, programmes, economic, tourism, politics, company information and profiles, news and publication subscriptions, data from custom webscapes, geolocation & metadata enrichment, all kinds of quant data, social media data, any data that is collected by others; spend data, geographical data, company information, personal information, any kind of structured data, products prices, data related to the behavior of consumers, principally consumer data and multiple transaction data, analytics	There were few limits or restrictions about what kind of data suppliers could imagine buying, if it was all available.
4. What kind of data do you think it's difficult to buy through DaaS?	Operational, qualitative information about B2B customer needs, or competitor intentions, more personal and private data, specific fine-tuned data, data not collected, like illicit drug use, anything that is not on the deep web, military, competitors' plans, new planned products, secret info, HUMINT, really valuable information that will give you an edge	Data that is more sensitive, personal and private will be difficult to buy, users think. Company secrets and data for B2B will be especially scarce.
5. What are the biggest challenges you see with DaaS from an intelligence perspective?	Connectivity and performance of the various data sources, it has limited B2B applications since the quantity of information may be limited, secrecy of the companies, to create understanding/insight from data, data homogenization, overcoming privacy rights, updating patterns might be late of managed to be late by the acknowledged user, manipulation is also possible to generate false leads, knowing what to look for in your aggregated and combined data, counterintelligence = your activity is registered from which intel requirements can be inferred, data quality, the level of collecting, mapping, keeping and distributing, big data, bank of data, speed and accuracy, confidentiality, quality, reliability, security, accessibility, pricing, what happens when everyone has the same info? then competition will increase	The major concerns from users' perspectives are confidentiality, quality, reliability, security, and accessibility. Besides, when everyone has much of same data competition will increase.
6. How would you like to see DaaS develop from an intelligence perspective?	More information about B2B transactions and company metrics, cheaper, secure, flexible, first it is interesting to develop methods to create intelligence through the acquired data to help decision making. secondly the legislation should follow the development of DaaS to protect users and private data, more data mining oriented, more focus on field verification, object-based production / activity-based intelligence using resource description framework metadata models will better exploit DaaS, become more comprehensive, moving from renting to buying and owning data, develop connectivity based on formats between data to connect data silos and enrich the basis for analysis, more useful and timely info, more tailor made data, great flexibility from DaaS companies, non-standard deliveries	Users want to see more on company metrics, less expensive, more secure and more flexible data.

In more detail, we find a number of concerns: How do you as user measure the value of the data you are thinking about buying or renting? By the time the company's financial results are recorded it may be difficult to go back and see where the value added was created in the value chain. Marketing departments may become lazy, preferring to rent the data instead of getting it themselves. Field work will suffer. The risk is that marketers and other users forget about the craft of how to obtain good data and analyze it. Thus chances are that those who present the figures become less critical and make wrong inferences. Chances are users will defend DaaS not because it is better for the company, but because it makes their jobs easier.

Legal issues are a set of problems by themselves and already of great concern in some industries, like health care. In health care there already is some legislation in place as to how to handle private data, but it has proven difficult to enforce so far.

As competitors subscribe to the same data they can expect to arrive at similar conclusions, even when these conclusions are wrong. Thus we get a situation of higher competition but also a risk of systematic failure in analyses.

The skills of how to produce good data and analysis are in jeopardy. With a few large DaaS providers, these skills will be placed in the hands of a few people. The chances of manipulation increase, as these statisticians and analyses are not checked by outsiders.

Big data itself is worrying as there is confusion about what it can do and what it cannot do. Big data is good at sorting in existing data, such as when it comes up with the logarithm for a Google search, but is poor at predicting the future, such as when Amazon suggests what you may want to buy. The risk is that DaaS providers will not tell customers about the difference, promising too much of the data they are selling. The reason for this has to do with probability statistics, R.A. Fischer and the math of small numbers (Ellenberg, 2015). With plenty of data we can predict the course of an asteroid, but we can only predict the weather the next week or two and we have very little chance of predicting human behavior at all. As an example there is a very small chance that the NSA can find a terrorist by looking at our internet behavior. The chances are much greater that they will suspect innocent people. The same logic goes for commercial data. DaaS providers will make false predictions about who our customers are.

5. FUTURE STUDIES

In our discussion numerous research projects have been suggested, primarily related to the user perspective. It would be of interest to see if there are differences in different groups of users, where MI, CI and BI experts belong to one group. It may be that they see these questions differently from other analysts and IT experts. What data do companies want to share? What data do companies not want to share? Will there be a future Amazon or FB of DaaS, one dominating company, one winner takes it all or a large group of suppliers? Economies of scale and big data may suggest large players have an advantage. There are already some "super aggregators" among national signal intelligence agencies with the same reason, like the NSA. In the private side, Oracle offers 7.5 trillion marketing data transactions delivered per month, 200 billion social data operations processed per hour. Do customers accept only renting data, while not being able to download it? How short of a time do customers accept renting data for? In many cases renting data only means being allowed to read the data. This is different from traditional data delivery. How will customers react to this new packaging? How much are they willing to pay for it? These are some of the questions that future studies could address.

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Competitive intelligence: a case study on Qoros automotive manufacturing

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ABSTRACT In this paper, Qoros automotive manufacturing company, which is aiming at expanding their market in Europe, will be analyzed. In this case, the challenges that the aforementioned company has faced will be explained and some recommendations regarding marketing, strategy, production methods and other related issues based on competitive intelligence models like SWOT, Porter's Five Forces Analysis, ADL Matrix, and other related theories will be provided.

KEYWORDS Qoros automotive, competitive intelligence, market analysis

1. INTRODUCTION

Qoros Auto Co., Ltd. established in 2007 as a Chinese automotive manufacturing company headquartered in Shanghai, China. The company design and produce different cars, which specialize in international quality, design, safety, and other remarkable connected services. The company aims at hiring the most talented personnel either in the field of engineering or business to gain competitive advantages in terms of having the most creative and talented people in their production and marketing teams. (Bloomberg, 2015)

They are trying to offer the best products for the current markets by having such a creative team. The company has two main offices in Germany and China, with their

operational hub in Shanghai. The company has several international partners such as Bosch, Microsoft, Harman, and Neusoft-Alpine. The main idea behind this is that the company is trying to have world-leading technology and use the best service companies to keep their competitive advantages in a close and long-term partnership with their key collaborative partners. These partnerships play a vital role for the company to be a creative, innovative and internationally recognized car factory that provides the highest quality cars and services for their customers[1].

In order to have a better analysis of the case, we provide more information related to the company structure in the following parts of this report.

2. BRAND

The company sold their cars under four main brand names: Chery, Karry, Rely, and Riich[2]. The company embedded in their brand a changed driver progressive production method by which they try to drive the changes within an upward and progressive trend in the car industry. In the company, they share values such as that the technology that they are using in their production process must make life simpler and better for their customers. They are trying to implement the aforementioned spirit to be the first premium Chinese car brand that provides the highest

[1] http://www.qorosauto.com/en/Company

[2] "Chery's "Outstanding 4+1" Pattern Exhibits the "Chinese Power"". Chery Inc. 2010-04-23.

possible quality cars to make their customers feel that they are "living in a modern metropolitan lifestyle with a customer experience that goes beyond driving"[3].

3. PRODUCTS

The main products of the company could be categorized into small box-shaped passenger vans, passenger cars, and high-performance four-wheel drive cars built on a truck chassis. These cars sell under either the Chery or Karry brands (Xing, 2002). The most significant progress in these cars, compared with other chic cars, is that the Qoros 3 sedan has become the first Chinese-developed car with a five-star safety rating by Euro NCAP, which plays a role as a key competitive advantage for the company[4].

Moreover, the company is considered to be the largest Chinese passenger car exporter and the tenth-largest Chinese car manufacture, since 2003 and 2012, respectively (The Global Times, 2012). The assembly of the cars and their component manufacturing facilities are mainly in China and approximately fifteen other countries all around the world. Moreover, the main company location has two local R & D research centers and the company allocate about 7% of their total income to the process of product development (Dyer, 2006). As a significant development in their products, the company also designed and developed some hybrid and electric vehicles[5].

4. TECHNOLOGY

The company uses state of the art technology introduced by Microsoft to offer new stylish, safe, international quality standard cars to the global market. The company, with this collaborative production, introduced a new idea into the car manufacturing industry: the "connected car". This term refers to using internet technology via various means such as mobile phones and tablet, so that the user has the opportunity to access different driving services[6]. Apart from this technology they also offer a new electronic bike, known as "*Ebiqe"*.

It is an electric bike that offers several electronic facilities and applications to its rider. These facilities are available via a permanent 3G internet connection and a five inch touchscreen monitor[7]. The main idea behind these bikes is more than having an electronic engine; the new concept mainly targets new technologies to offer a modern navigation system and to be ready to ride in any off-road situations as well[8].

5. PRICE AND SALES

The company considers several developments in expanding their markets in various parts of Europe, to cope with the company vision and long term target of the company to be recognized as a successful brand in the car manufacturing industry. In this case, the Executive Director of Sales, Marketing and Product Strategy at Qoros Automotive Co mentioned that "The value is not a matter of price, but mostly the combination of product and services in line with customer requirements" (Pietro, 2014). He also argued that this value is estimated by the level of satisfaction that the company's cars will offer to the buyers. For example, the price of their cars ranges from 22,470 to 28,900 USD for the Qoros 3 City SUV, and 19,000 to 27,000 USD for the Qoros 3 Hatch[9].

6. FUEL

Recently, most car manufacturing companies are trying to offer new cars with alternative fuel powered engines. In this case, we consider them to fall into seven engine groups: diesel, gasoline, bi-fuel-CNG, bi-fuel – LPG, hybrid – gasoline, battery electric vehicles (BEV) – owned batter, and BEV – leased battery (Valeri, and Danielis, 2015). Qoros Auto Co., like other car manufacturers, offer cars with petroleum fuel engines; however, they recently allocated considerable fund to their R & D department to develop modern hybrid and full-electric cars. In this case a new technology called the "start-stop system or stop-start system" is used in the recent products of the company to reduce fuel consumption and emissions from gas as a new step toward the expanding process of green marketing in the company. Therefore, the car automatically

[3] http://www.qorosauto.com/en/aboutqoros/brand

[4] http://www.caradvice.com.au/253375/qoros-3-sedan-first-five-star-euro-ncap-rated-chinese-developed-car/

[5] "China's fuel subsidy costs the world". Reuters. 2008-06-04.

[6] http://blogs.microsoft.com/business-matters/2015/03/04/automakers-innovate-connected-cars-with- microsofts-tech/

[7] https://www.electricbike.com/qoros-ebiqe/

[8] http://www.qorosauto.com/en/newscenter/news/article41

[9] http://www.carnewschina.com/tag/qoros/

shuts down and restarts the internal combustion engine, and the amount of time the engine needs to spend ready will be decreased and consequently less fuel will be consumed in general[10].

7. MARKETING

The company has different marketing strategies in different parts of the world. On one hand, the Executive Director of Sales, Marketing and Product Strategy at the company expressed that for European markets they promote the Qoros 3 sedan, hatchback, cross and now also the suburban utility vehicle and the station wagon. Furthermore, the company has a gradual marketing plans to introduce the Euro 6 TGDI and diesel engines onto the market. On the other hand, the company has a special marketing plan for China. In this case, they are targeting the starting development in metropolitan areas by having special partnerships with recognized expert dealers. Through this collaboration the company can provide technical support and IT platforms for the management of the information from both technical and customer points of view (Montagna, 2014).

8. STRATEGY

The recent marketing strategy of the company announced at the 2015 Geneva International Motor Show indicated that "the company has a plan to export some selected models to Central Europe and the Middle East within 12-18 months" (Gedalyahu, 2015). Furthermore, the company representative argued that they are going to expand their markets through a step-by-step plan. However, their current target is to expand their market thorough their sales network in China. Not to be left behind, the chief executive of the company mentioned that another significant change in the long-term strategy of the company is hiring more Chinese staff as local employees rather than having many costly international expert personnel who are working as catalysts to market the company's cars (Murphy, 2015).

9. AFTER SALES

The company has three main after-sales support methods for their customers, as follows:

1. One touch system as an innovative sales services for the customers, by which they can be in touch with the car service department of the company, register for an appointment with a chosen company service center, and have all the relevant information about the car's current situation on-screen. This system has several merits, such as time saving for servicing the car with less effort from the customer, which brings a new service experience to them.
2. The product is covered by a 36 month or 100,000 km warranty for all terms.
3. Finally, the company implemented special facilities to support their customers, such as "roadside assistance," which is available via a special phone number, 24 hours per day year-round[11].

10. SUSTAINABLE BUSINESS MODEL

The company has an especially environmentally and user friendly business model for its productions. The main idea of the company is not only to produce a brand new car for the market, but the company also aims at producing a different one. For this, the company implemented a new approach, which should be more user-friendly for the drivers and should bring a better driving experience to them. Therefore, the company developed a new digital eco-system business model for their value chain.

The business model has the following benefits to the customers:

1. Provides interactive information in the car without any stress for the driver.
2. Expresses any relevant information to the driver through universal gestures for all critical actions that don't require looking t the screen.
3. Easy access to any of the key areas in the software such as navigation and entertainment.
4. Simple and contextual information (Villanti, 2013).

In this part of the report we discuss the European automotive market, its size, key players and current trends. It is undoubtedly

[10] "Chery wins three awards including "Influential EV Manufacturer of the Year"". Chery Inc. 2011-12-31. Archived from the original on 2 April 2012.

[11] http://www.qorosauto.com/en/aftersales-service/Overview

important for Qoros management to analyze the European automotive market before planning to penetrate it. This analysis will help the company to understand the industry size, key players, opportunities and the current trends in product design and customer preferences. Having a proper analysis of the industry and the pocket market of Slovakia will help them understand their own position. The management can then assess their strengths, weaknesses, opportunities and threats. A proper analysis of the industry and self-assessment has a better chance of producing a more appropriate business plan.

11. THE EUROPEAN AUTOMOBILE MARKET

The European automobile market is the largest automobile manufacturing market in the world. The European Union is the largest automobile market with an annual passenger car registration of approximately 13 million per year by its manufacturers; close to one quarter of all cars in the world are manufactured in Europe. It is needless to say that the industry also experiences fierce competition in terms of sales volume, market share and profitability. The major companies also compete in terms of design, technology, CO_2 emissions and safety. In order to analyze this industry from Qoros's perspective we will focus on the passenger car segment and exclude commercial vehicles. The objective of this phase of the report is to have a clear understanding how promising or otherwise the market is for Qoros.

The European automobile industry is large and sophisticated. They boast about their cleanliness, safety and speed. The turnover generated by the automotive sector represents 6.9% of EU GDP. Hence it has ripple effects throughout the economy, supporting a vast supply chain and generating an array of business services. Automobile manufacturers operate some 290 vehicle assembly and production plants in 25 countries across Europe. In total, 16% of worldwide passenger car registration is done in Europe. However, there exists a big challenge in this particular region. Unlike the US market, there has been a decline in the sales figures for a prolonged period of time. Russia experienced a sales drop of 25% and the whole of the region is emerging fitfully from a six-year sales period with noticeable deterioration in performance and quality. However, on the contrary, some business analysts argue that the European automobile market still holds the potential for 6% annual growth in the passenger car segment (Campestrini, & Mock, 2011).

However, it is evident that the market and the consumers are changing. Three powerful forces driving the change are shifts in consumer demand, expanded regulatory requirement for safety and fuel economy, and expansion of the availability of data and information[12].

12. SHIFTS IN CONSUMER DEMAND

The consumers have recently shifted from being extremely loyal to the brands and have started considering them to be a transportation machine; so they are looking for more comfort, safety and sophistication in a competitive price. This might not directly affect the sales but it has an effect on the consumers' willingness to pay. This basically indicates that the customers have become more demanding. Customers are becoming more "value for money" centric, where they want additional value for the additional expenses[13].

13. EXPANDED REGULATORY REQUIREMENTS

Regulators are mandating the most safety-related facilities. For example, features in the cars, such as backup cameras are recognized as standard equipment on new models, adding further to costs. Globally, the regulatory bodies have started being more concerned and are giving substantial importance to the safety and security of citizens. As a result, they are also implementing stricter road and traffic laws and they require the vehicle manufacturers to comply by producing vehicles that have technology and designs that provide enough safety. Moreover, they are concentrating on CO_2 emissions and imposing laws that force car manufacturers to produce more environmental friendly vehicles[14].

14. INCREASING AVAILABILITY OF DATA AND INFORMATION

Availability of information is creating a big change in consumer behavior. These days,

[12] http://www.strategyand.pwc.com/perspectives/2015-auto-trends

[13] http://drmsriram.blogspot.com/2015/02/business-special-2015-auto-industry.html

[14] http://www.chinapartsfactory.com/2015-auto-industry-trends/

consumers are exposed to all sorts of information about the car, its brand, price, specifications, discounts, quality and performance. All of these factors relate to the automotive value chain and are interested in collecting more customer and car data, but uncertainty about how to use it is still considered to be a matter of doubt. These driving forces are creating an impact on the entire automobile industry. In order to manage them and satisfy both the customers and other stakeholders, it is imperative to understand how these forces are affecting the other variables of the industry (Campestrini, Mock 2011).

15. INCREASED ELECTRONICS AND SOFTWARE CONTENT

In the past few decades the cost of software and electronics was only 20% of the entire cost while now it has risen to 35%. Now 90% of the innovations and new features are contributed by the electronic systems and new software. Infotainment supplies an opportunity for OEMs and suppliers to differentiate their products. The latest Consumer Reports survey showed that infotainment equipment was the most difficult to deal with feature in 2014 for vehicles, making a proposal for a powerful upside for companies that can arrange superior systems[15]. The increasing popularity of infotainment and telematics is forcing the traditional OEM and suppliers to change their business thinking and become more innovative and comply with the products and services of the industry's key players. Recently, developments in software are considered to be as important as hardware innovations, and global competition also emphasises nontraditional factors. Ever more vital software content has also accelerated the pace of change in products and features. Whereas the time frame for new vehicle launches is typically three to four years, the cycle for new software iterations, often driven by interactivity with mobile devices, is measured in months (Campestrini, Mock 2011).

16. PRODUCT-MIX CHANGES TO COPE WITH REGULATORY NEEDS

Regulations and laws are becoming stricter and more concerned about the environment. As a result, the governments and other regulatory bodies are creating pressure on the car manufacturers to comply more with sustainability issues. In order to create a greener environment and to reduce CO_2 emissions, the governments are encouraging companies to manufacture hybrid and environment friendly cars. For instance, CAFE standards in the United States that will go into effect in 2016 are planned to add as much as US$1,000 to the production cost of a vehicle, according to the National Automobile Dealers Association. However, the challenge is that only a few of the automobile buyers are willing to pay more for environmentally friendly choices. Thus the cost pressure is falling heavily on the OMEs. This, however, paves a path towards innovation. In order to make the car more fuel efficient, the companies are reducing the weight of the cars. This is dramatically evidenced by Ford's decision to allocate a considerable amount of steel with aluminum to the 2015 version of its F-150 pickup truck.

17. NEW DEVELOPED PLATFORMS AND PLATFORM MODULARIZATION

The pressure of consumer preferences has made car manufacturers become more responsive and flexible. In order to reduce cost and to cater to the want of segmented vehicles, the OMEs are adding a number of models at the same time, reducing the number of vehicle architectures and thus improving product commonality. Volkswagen, GM and many other companies are increasing their number of platforms. It might initially increase the cost but the additional expense is outweighed by savings from the sharing of common components between cars and platforms, and increased volume.

18. THE CHANGING FACE OF RETAIL

Along with the core product and technologies, the sales channels are also changing. Customers want a smooth purchase experience including financing, insurance and all other formalities. While most of them are interested in taking a test drive some are looking for an instant purchase from the internet. Although it is an emerging sales channels, the dealers prefer a sale through a test drive. Accommodating these shifting attitudes about buying a car will require equal changes to

[15] http://www.chinapartsfactory.com/2015-auto-industry-trends/

dealers' processes, including investment in new technology[16].

Apart from these forces responsible for the above mentioned changes, some additional historic data trends might also be important for Qoros in order to design strategy. In this phase we discuss the current trends in the industry and major concerns such as passenger car industry size, price, market share and major players, annual sales volume and sales trends, CO_2 footprint and technologies.

19. NUMBER OF VEHICLES:

After a major decline in sales in 2009, registration of passenger cars steadied in 2012 and 2013 to 12 million, which is still 20% below the volume before the economic crisis. Before this crisis, the average volume hovered around 15.5 million annually. For some countries like Spain and Russian, the dent was even higher; 50% for Spain and 25% for Russia. The historic data says the market is more concentrated in a handful of countries. In total 75% of the total new car registration is taking place in Germany, France, UK, Italy and Spain and 50% of the market is captured by the top seven brands. Germany holds the title of market leader, having 25% of the total new car registration volume (Campestrini, & Mock, 2011).

20. FUEL CONSUMPTION AND CO_2 EMISSIONS

Under the new EU regulations, 95% of the new vehicle fleet must comply with the 95 g/km target by 2020 (Campestrini, Mock 2011). 2013 was the first year in which the target of CO_2 emissions from passenger cars dropped to 130 g/km. From 2021, the manufacturers' average will be monitored. In percentage term, all manufacturers are given a target of reducing CO_2 emission by 27% from 2015 to 2021 (Campestrini, & Mock, 2011).

21. TECHNOLOGIES

EU or Europe is yet to gain maturity in the environmentally friendly hybrid car segment. There are significant differences among the member countries; Belgium, France, and Spain have diesel take-up rates of around 65%, while in the Netherlands the rate is much lower, 29%. Surprisingly, 53% of cars newly registered in 2013 were powered by diesel, which is quite different from the US, Chinese and Japanese markets, which are dominated by gasoline powered cars. On the other hand, hybrid car registration is experiencing growth and reached a level of 1.4% in 2013. However, it is still relatively low compared to the Netherlands (5.7%) and France (2.6%). If we look into the hybrid shares, brand wise, one-fifth of all new Toyota vehicles sold in the EU were hybrid-electric. Plug-in hybrid (PHEV) and battery-electric vehicles (BEV) make up about 0.4% of vehicle registration in the EU, with notable differences among the member states. In the Netherlands, a stunning 4.1% of all new sales were PHEVs in 2013, and another 1.4% were BEVs (Campestrini, Mock 2011). The underlying reason for this shift in manufacturing is directly correlated with the government imposed CO_2 based vehicle taxation scheme where vehicle that emit less than 50 g/km of CO_2 receive tax rebates. PHEVs and BEVs accounted for 5.8% of all new car sales in Norway in 2013. And in 2014, that market share further increased to 14.6% during the first half of the year (ICCT, 2014d). This makes Norway the world's leading market for electric vehicles (in terms of market share, not absolute number of vehicles). Underlying reasons are, again, fiscal incentives provided by the Norwegian government. However, it is worth mentioning that the Europe market has experienced a sharp increase in gasoline direct injection (GDI) to obtain greater efficiency and lower CO_2 emissions. By 2013, the share is assumed to reach 30%. The top brand of hybrid cars is Toyota Prius. (Campestrini, & Mock, 2011).

Ninety percent of the vehicles in EU-28 are passenger cars and largely dominated by Germany, France and UK, holding 60% of all registrations of new cars. Germany holds the largest market share with 25%. After a dent in sales due to a government imposed scrappage scheme, the country has remained stable at around 3 million vehicles per year. For the first time in years, vehicle sales in Spain increased again in 2013.

The European market is very diverse in terms of brands, with the most registered brand, VW, commanding only 13% of the market. The top-five companies dominate about 65% of the market. The VW Golf remains the most popular car model in Europe. It accounted for about 3.8% of all new vehicle sales in the EU in 2013. The biggest segment

[16] http://www.strategyand.pwc.com/perspectives/2015-auto-trends

of the market is the small and lower medium segment, comprising almost 65% of the entire industry while luxury cars are only 10% of the total. A steady hike, however, is being observed in SUV and off road cars since 2009. After the crisis in 2009 where most of the brands either declined or stagnated, BMW and Audi continue to have a positive upward trend. (Campestrini, & Mock, 2011).

22. PRICE

Sales taxes in the EU are between 18% and 27%. In addition to the general tax, some member states have also introduced a special sales or registration tax for new cars. The price figures from 2001 to 2013 show that there has been a steady growth in price. The luxury brands, Audi, BMW and Mercedes-Benz, are the most expensive brands followed by VW and Ford. A positive picture is observed in the hybrid electric segment, where greener vehicles are in a declining price trend (Campestrini, & Mock, 2011).

23. MARKET IN SLOVAKIA

Slovakia is a small country in Europe born in 1993. It joined the EU in 2004 and the Euro Area in 2009. From 2001 to 2008, the economic growth of Slovakia was among the highest in the EU, heavily fueled by foreign direct investments especially in the automotive and electronic Sectors. The country has cheap skilled labor with low taxes and liberal labor laws along with a favorable geographical location.

The Qoros management has decided to first launch their product in Slovakia as a stepping stone to penetrate the European automotive market. Hence, learning about the Slovakian automotive market is as important as learning about the European automotive market. The Slovakian market started to grow more drastically when it welcomed new plants, and production grew to over one million units. The market comprises 70% of passenger cars. The downfall in the economy has maintained the market decreased of 4.7% from 2012. Skoda is the market leading brand with 19.9% market shares, followed by Volkswagen at 9.7%. Apart from that, the market has new entrants such as Hyundai and Kia, who have already managed market shares of 8.1% and 7.5% respectively[17].

Not only is the automotive industry growing but so is the entire economy of Slovakia. The main driving forces are rebound investment and an expansion in private consumption supported by improved labor market conditions. From the end of the 1st quarter of 2015, the automotive industry in Slovakia started to grow, with 11% growth from 2012. If Qoros can successfully penetrate the EU market and create a strong foothold there highly depends on five major forces. How the market is behaving, how the major players are performing, how the consumers are behaving, how the regulations are changing and how Qoros complies with these forces. It is of paramount importance for the Qoros management to analyze the industry, its target market and its competitors to design a well thought out strategy. Every activity Qoros management undergoes should be backed by a well-designed strategy that address the current trends and market demands and has a solution to those[18].

In the following phase we will discuss is how Qoros can use competitive intelligence methods and techniques to respond to the dynamic market and plan their next attempts[19].

24. MARKET IN THE UK

Another big part of the Europe market is the United Kingdome (UK) automotive market. Of all UK suppliers, more than 70% manufacture their products in the UK. At present, about 80% of all component types required for vehicle assembly operations can be procured from UK suppliers. The UK automotive supply chain typically generates £4.8bn of added value annually. There are around 2,350 UK companies that regard themselves as 'automotive' suppliers, employing around 82,000 people (2009 data). (SMMT, 2012).

It is estimated that every job in the UK vehicle assembly supports 7.5 elsewhere in the economy. UK-based OEMs are actively committed to increasing local sourcing practices to support new model programs and facility expansion. The UK boasts a production of 1.6 million cars and more than 2.5 million engines yearly. 1.58 million vehicles and 2.5 million engines were produced in the UK last year, and of these, 81% of the total vehicles and 62% of engines were exported. UK automotive is an important part of the UK economy and

[17] http://focus2move.com/slovakia-car-industry-2014-outlook/

[18] http://focus2move.com/slovakia-car-market-outlook-at-july-2012-skoda-wins-in-a-flat-market/

[19] http://focus2move.com/slovakia-light-vehicle-sales/

normally generates more than £55 billion in annual turnover, along with £12 billion in net value-added to the economy. The automotive industry is the UK's largest sector in terms of exports by value. It generated £27 billion of revenue for the UK in 2011. On average, the sector exports to over 100 markets worldwide and accounts for around 11% of total UK exports yearly[20].

Average new car CO_2 emissions fell to a new low of 133.1g/km in 2012, and have fallen by over 20% in the last 10 years. UK automotive is at the forefront of the low carbon agenda, investing in R&D and new technologies that will deliver ever cleaner, safer and more fuel-efficient cars. The automotive industry is subject to numerous national, EU and global laws and regulations, including those relating to vehicle safety and environmental issues such as emissions levels, fuel economy and manufacturing practices.

25. KEY ENVIRONMENTAL LEGISLATION

There are several recent environmental policies that are now impacting the automotive industry including: in 2009, legislation was passed that committed European car manufacturers to cut fleet average CO_2 emissions from new cars to 130g/km by 2015 and 95g/km by 2020. From November 1, 2011 all new types of approved vehicles were required to have electronic stability control fitted as standard and from November 1, 2014 all newly-registered vehicles must also comply.

The highest selling car in the UK is Nissan followed by Land Rover. The most popular model is Ford Fiesta. UK car manufacturing peaked in 1972 at 1.92 million units, and 2003 saw the highest car output in recent years, totaling 1.65 million units. Although car manufacturing levels have not yet matched pre-recession levels, full year 2012 figures verify that UK car manufacturing reached its highest since 2008 and broke all-time export records[21]. The volume of cars export to other countries exceeded 1.2 million units, up 8% on 2011. The highest registrations of new cars are observed in west midland followed by Scotland. The supermini and lower medium segments are the biggest segments, comprising 60% put together. The mini segment is led by Hyundai i10 followed by Volkswagen. The supermini segment is led by Ford Fiesta followed by Volkswagen Polo. The lower medium segment is led by Ford Focus.

Overall, there has been an increment in the usage of cars in the UK market. Compared to 2011, 2012 experienced 0.4% more traffic on the roads on average with a maximum spike of 0.9% in the south-west region. A recent study showed 12.6% of CO_2 emission is caused by cars in the UK. Addressing that a concern in 2011, UK vehicle manufacturers reduced energy consumption per vehicle produced by 14%. In addition to producing ever more efficient powertrains, manufacturers have designed various innovations to help drivers save fuel and lower CO_2 emissions. Stop-start technologies automatically cut the engine when a vehicle is stationary. The engine is re-started by releasing the brake or depressing the clutch. Tire pressure monitoring systems measure the pressure of each of the tires and will give a warning through the dashboard display if they become underinflated. Gear shift indicators show the driver the optimum time to change gear (up and down) while driving. Low rolling resistance tyres are designed to improve the fuel efficiency of a vehicle by minimizing the energy wasted when the tyre rolls down the road. The new industry tire labeling scheme indicates fuel efficiency using a rating scale from A(most efficient) to G (least efficient). The difference between an A rating and a G rating could be a reduction in fuel consumption of up to 7.5 % (SMMT, 2013).

26. QOROS AUTOMOBILE-IMPLEMENTING COMPETITIVE INTELLIGENCE MODEL TO ASSESS: STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS (SWOT)

Founded in 2007, Qoros Automobile, the Chinese car manufacturing company, has decided to penetrate and gain a foothold in the European automobile industry. It is worth mentioning that several attempts to penetrate the European market were made by different Chinese car manufacturers in the past few years. However, most of them did not succeed. Learning from the past, the Qoros management has crafted its strategy well considering all the probable pros and cons. In this phase of the report we will make a SWOT analysis in order to understand the current position of the company and how it can plan to

[20] http://www.cordantrecruitment.com/cordant-focus/driving-the-automotive-industry

[21] http://blogs.matchtech.com/engineering/automotive/beginners-guide-uk-automotive-industry/

overcome its threats and weaknesses and capitalize its on its opportunities and strengths. This competitive intelligence method will help the company to narrow down its plans and implement appropriate business activities where necessary.

26.1 Threat

Qoros, being a Chinese brand, will experience heavy competition from the other key players in the industry. Brands like Volkswagen, BMW and Mercedes Benz have been operating in the European market from the beginning. This means the company needs to compete with the world's greatest car manufacturers in their own market. This means the company needs to focus on product differentiation and out of the box marketing and communication plans.

At the moment, the timing is not the most appropriate. The European market is experiencing a slight decline, while the Chinese market is also stagnant. This might create a liquidity crisis for the company.

Another threat is that, making radical innovations in gasoline powered engines is not easy. This implies that the company should also concentrate on hybrid or green powered cars.

26.2 Opportunity

Starting business in Slovakia on a test basis was a smart move. This country can be quite a big market. With 324 cars for every 1000 citizens, the market has yet to grow and Qoros can take the opportunity. However, it will have to face Skoda, which happens to be the top choice there.

The company has initiated an activation plan of describing the cars to its customers over a cup of coffee. This has somewhat positive feedback. The conversion rate of Qoros is 6% to 8% while the industry average is not more than 5%.

There is a market for a social car. The new customers require comfort, sophistication and digital connectivity. The Qoros cars have a digital ecosystem that allows the car to connect with the owner's mobile devices via an app and features a touchscreen "infotainment" system.

26.3 Strength

Qoros has a state of the art manufacturing facility with the capacity of making 350,000 cars. They have strong experience in this market as a player in the largest automobile market: China. They also have a sophisticated design center in Munich and engineering facilities in Austria.

The hatchback introduced has twice the power of VW Golf, the most popular brand in the EU. The sedan has a competitive price, considering the power and the features. The price is around 20K, while a car with that power usually prices around 27K. Apart from that, they designed unique connectivity with an eight-inch touch screen and a cloud connected platform that enables customers to access social networks and book service appointments.

Qoros has integrated leading talent around the world across all engineering, commercial business functions and at all levels of management. The management team has been crowned by various automobile business experts and veterans working for long periods in organizations such as Volkswagen, BMW and Mercedes Benz.

The company has already achieved a 5 star score in the Euro NCAP safety testing in 2013, which marks the first time for any Chinese brand to gain this ranking.

They have also received the Red Dot Design honor award. This means the cars and the brand are in the process of gaining more acceptability and credibility for their end users.

Unlike other Chinese companies, Qoros is a venture between Israel's richest man and the state owned Chinese automaker Cherry Automobile.

It has advanced and modular architecture to enable the rapid development of a full range of new models and variants and to allow for the adoption of hybrid technologies.

It is supported by major global suppliers including Magna Steyr, TRW, Continental, Bosch, Valeo, Microsoft and Icon Mobile.

26.4 Weaknesses

Qoros could not make online purchases easy. It is rather complex and not user friendly.

This is due to too much emphasis on engineering, and less effort in business and brand building. This refers to the fact that the company made less effort in marketing and communications.

The biggest weakness that Qoros will face in the European market is the deeply rooted social stigma against a "Chinese brand". This reflects the lack of trust and confidence in the brand, and thus the core product itself.

After a detailed analysis of the company, its desired market and its assessment, we will now

discuss how we can use competitive intelligence and its various methodologies to create a dynamic strategy for Qoros. In this part of the report we will discuss a few competitive intelligence techniques that the management of Qoros could use to analyze the industry structure and competitiveness, customer intelligence, growth path analysis and competitive strategy exploration.

27. INDUSTRY STRUCTURE AND COMPETITIVENESS

27.1 ADL Matrix

This analysis helps one understand how an industry's maturity and competitive position affect strategy. It compares two axes: industry maturity (ranging from embryonic, growing, mature, to aging) and competitive position (from dominant to weak).

From the discussion of the European automotive market and Slovakian automotive market we can conclude that while the EU market has reached maturity, Slovakia is still in the growth stage. On the other hand, with the SWOT analysis, we can state that in this particular situation Qoros is in a favorable position in Slovakia but in a tenable position in the EU market. There are a number of challenges due to the social stigma against a Chinese brand but it has got an outstanding product portfolio with a five star rating and a very positive conversion rate. According to the ADL matrix, the management will have to consider the European market and the Slovakian market separately. Slovakia is a growing market (324 Vehicle for every 1000 citizens) and Qoros has a favorable position, the management will have to concentrate on an attempt to improve its position and push for a market share.

In order to improve its position in the market, the management will have to craft outstanding marketing and communication strategy. The aim of these activities will mostly include attempts to reduce the social stigma against Chinese brands and highlight the five star rating to increase credibility and trust. They would have to remember that Qoros will be facing Skoda, which has been the favorite brand for a long time with an enviable market share. In order to acquire a market share, it is important to have some similarities and some points of differences with Skoda. The parameters could be price, design or more infotainment and electronic features. Going for hybrid cars in this market might not be the smartest step at the moment. Although there is an opportunity, the market may get price sensitive when it comes to hybrid vehicles.

On the other hand, the EU Market, being a mature one and Qoros being in a tenable position, the management must act a bit less aggressive. The company must gradually build its brand image, slowly and steadily. The best choice at the beginning might be to create a comparatively smaller niche and build the trust of that group. This would disseminate positive word of mouth, which would complement the international ranking scores they are awarded. Repeated communication about credibility and quality can help build up the trust of the end users, which might mitigate the negative social stigma.

27.2 Porter's Five Forces Analysis:

We also analyzed the case via Porter's five forces as a conceptual framework, which will examine the level of competition within the industry.

In the following part of this essay, the position of the company compared to its competitors via Porter's five forces theory is analyzed:

1. **Buyer Power:** As statistics show, for example, in China the company could sell only 7,000 models while the total number of sold cars in the same year exceeded 19 million units (Fusheng, 2015); It is strongly suggested to the company to allocate considerable funds to increase their production rate per year. Therefore, they will be able to draw more customers to their products. However, the company must keep the price of production as low as possible, compared to other manufactures in the luxury car market to have the competitive advantages as to the highest cost for buyers to switch from their products to those of the others providers. Moreover, eventually the company will be able to increase the number of cars sold per year. In this case, the company will be able to cope with the market demands in terms of their state of the art cars.
2. **Supplier Power:** The main car manufactures operating in the European market that provide competition are Volkswagen, BMW and Mercedes Benz. In this case, the company needs to provide specific cars

with state of the art facilities to cope with the market demands in this really competitive market (Lanza, 2014). Also, it is suggested to the company to allocate considerable finds to expand its public advertising and special plans for marketing its products. Not to be left behind, as a Chinese firm the company should focus on both the quality and cost of production to gain and keep its position in the market as a brand new international car manufacturer. In this case, the company can achieve a competitive advantage over these main suppliers by focusing their strength and control over businesses through high-tech cars as well as the lowest cost of production. Finally, the cost of switching from one car manufacturer to another one for the customers will be really competitive for the company.

3. **Industrial Rivalry:** There is a significant rivalry among the company's cars and the other car manufactures in terms of price and productivity. For instance, Qoros 3 hatchback will compete directly with VW's Golf, while the sedan takes on the German automaker's Jetta (Tschampa, 2014). In this case, it is strongly suggested to the company to focus more on expanding their products and state of art facilities in daily operations by hiring the most talented staff. Therefore, as the company has many competitors that offer equally attractive products and services, keeping an upward trend in product quality and facilitating the latest technology will bring them more competitive power compared to their competitors. This is because suppliers and buyers will go somewhere else if they don't get a good deal from the company. On the other hand, if none of the other companies can provide the same quality cars as the company is providing, then the company can have enormous strength in the market.
4. **Threat of Substitution:** As is mentioned in the "Industrial Rivalry" section, the company must put more emphasis on their production technology and their products' state of the art technology, as well as productivity and user friendliness of their cars. In this case, the company can have the merit of making it hard for their customers to find an equal substitution for their cars in terms of productivity and user friendliness. For instance, it is expected that average fuel economy (CAFE) standards will be 54.5 miles per gallon (23.2 kilometers per liter) by 2025. Fuel economy is about maximizing the number of miles your vehicle can travel on a gallon of fuel. The cost of fuel has a major impact on fuel economy. Consequently, it is really important for the company to work on expanding such technologies in their production line. In this case if they can make the substitution for their cars easily possible, then this will be a big strong point for the company.
5. **Threat of New Entry:** By using some local raw materials provided in China (as a country full of natural and human resources needed in car production) the company would make a big challenge for a new entry into the car industry. Also, it is really good practice if the company focuses more on the Chinese's market which has a really big market of approximately 1.3 billion consumers, which could impact the biggest manufacturers and retailers in the world. Furthermore, China's huge population would bring a strong competitive advantage for the company against the most dominant players in the outsourcing industry (Evans, 2014).

28. CUSTOMER INTELLIGENCE

28.1 Journey Map

"Customer journey maps allow you to walk in your customers' shoes by traveling with them as they interact with your company. When based on sound research, they provide an accurate outside-in view, focusing on desired outcomes from the customer's perspective. You'll see what customer needs are at each interaction, how well you meet them, and where opportunities for improvement lay.
With this understanding, these are 10 points any company contemplating, planning, or already undertaking a customer journey mapping initiative should consider:

- "**Be clear on what you want to accomplish:** Having a precise strategy.

- **"Know whose journey you are mapping:** Being more customer centric and using their point of view.
- **"Talk to your people:** Gather information about customers from the front end employees.
- **"Talk to your customers:** Clear, transparent and frequent interaction with customers and potential customers.
- **"Must-haves:** The most important matter in this process; understanding what the need of the customer is. What are the "must have" attributes they are looking for?
- **"Nice-to-haves:** This part discusses the wants of the customers. How they think and feel and what are the features they consider to be "nice to have" and are willing to pay for.
- **"The importance of design:** This is a customer analysis tool to gather information and turn it into intelligence. So designing this entire process to be simple and easy to understand is very important. This will ensure more qualitative data, which can be very vital in product designing.
- **"Socialize and share:** This study needs to be communicated throughout the organization with a pivotal aim. First, all employees must have a clear idea about the target customers and what they want and need. Second, it will keep all the employees on the same page when giving the customers any service. This helps an organization to be more customer centric and responsive.
- **"Take action:** This is not a customer entertainment tool. So after proper analysis, actions should be taken in order to fill the gaps and implement improvements where necessary.
- **"Avoid analysis paralysis:** Too much analysis not only wastes time but can also dilute the aim of the study and can shift the focus. The aim of this too is to find out what's most important to them–bringing the data (and your customers) "to life" as they pursue their goals. Hence it will have to be quick and simple yet effective"[22]

The reason this competitive intelligence method will be instrumental for the Qoros management is that, as a new entrant in the market, it is imperative for them to understand the core customers' needs and wants. Without a thorough knowledge of customer preferences, this company can never achieve its goals.

29. COMPETITIVE STRATEGY EXPLORATION

29.1 Innovation Ambition Matrix

The innovation matrix in competitive intelligence is often called an Ansoff matrix[23]. This model helps an organization to understand where to compete and how to compete. This model consists of three innovation horizons and three levels of ambition.

In this matrix, when the organization is operating in an existing market with its existing products the strategies can be a line extension or optimization of the existing products. This strategy can be useful for Qoros while maintaining business in China. China is the largest automotive market and Qoros can concentrate more on optimizing its existing brands/products by introducing new series of its existing models of the hatch back and the sedan. They might also consider revitalizing the market of the electronic bike they manufacture.

The second horizon consist of an adjacent market with existing business. This is Qoros in Slovakia. Since it is a new market and there are opportunities to grow, the management will have to consider expanding with their existing brands. Here more focus is needed in marketing and communication in order to create awareness and buzz.

However, Qoros's long term plan is to enter the European automotive market, which is a new one for the organization. This market has strong players, hence there will be entry barriers. In order to overcome these hurdles, the company will have to develop breakthroughs. The management will have to consider that this market is not necessarily price sensitive, so low pricing might not help and will rather damage the brand image. In this case they will have to add features to their

[22] http://www.mcorpcx.com/customer-journey-mapping-10-tips-for-beginners/

[23] http://www.strategyhub.net/2012/05/framework-of-week-81-innovation.html

products, which will be unique and at the same time they will have to be competitive in price. Along with this, proper communication about the brand, its safety and its features should be continuously communicated through proper channels.

30. CONCLUSION

From the overall discussion we can observe Qoros is planning to penetrate the biggest automotive region in the world that has fierce competition amongst famous brands like Volkswagen, BMW, Ford and Mercedes Benz. The market overall is huge, hence it still has the opportunity to grow (6% annually) in the passenger car segment. It is not price sensitive but it has a very demanding customer pool. Moreover, the regulatory bodies are concerned about sustainability and instructing the OMEs to manufacture more environmentally friendly automobiles with lower weight, higher mileage and lower CO_2 emissions. On the other hand, Qoros, being a Chinese brand, will have to penetrate the market while facing the challenge of a negative social stigma. Moreover, the structure of the UK automotive market is completely similar to the European automotive market. Therefore, the company can use the same strategy for the European car market. Not to be left behind, the consumer base might be totally different from the UK market and that might be considered to be a powerful factor in changing its marketing and communicational strategy of the company. The customer engagement plans need to be changed accordingly. Therefore, the company's management team might keep the penetration strategy unchanged, but customer engagement and communication will have to be tailored. In this case, managing the social stigma against Chinese brands might be even higher, as this is mainly due to the fact that people from the UK tends to have a strong preference for products made in their country or region and are less open to brands from other countries. In order to enter this market and have a strong foothold, the company needs to develop a precise and sustainable business plan. They have shown sensibility by starting with a smaller market where opportunity exists. This will help them create a niche and create awareness. Qoros management should analyze both the EU and the Slovakian markets very carefully. Learning from Slovakia will help it to be more effective and smart in the EU market. The company should also analyze the end consumer and should add features to its products that will give them a new experience. The idea of the café was brilliant and can have a positive outcome since vehicles are high involvement products. So, along with improvements in technology and design, the company should also engage different regulatory authorities to test their quality and safety levels. Later these testimonies will be instrumental for building trust in the consumer's mind. Regular communication of the brand would mitigate the bad reputation of a "Chinese brand". These strategies might not get them an immediate piece of the market share but they can create a niche market and Qoros can then capitalize on that.

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