



PROJECT MANAGEMENT MATURITY IN COMPANIES OPERATING ON POLISH LOGISTICS MARKET

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ABSTRACT. Background: The complexity and uncertainty of the modern world encourage companies to use nowadays project management practices. Research of project management maturity allows assessing how well companies are prepared to run projects. The main motivation behind the article was lack of project management maturity assessment on the Polish logistic market. In the article, the authors describe research that gives an overview of the subject which was conducted in logistics companies operating on the Polish market.

Methods: Quantitative approach delivered by an online survey was chosen as a method of research. Purposive sampling research strategy was used. Researchers surveyed 60 biggest logistics companies operating on the Polish market (according to revenue) receiving 13 responses from which 12 were used.

Results and Conclusion: In the perception of responding managers from the biggest logistics companies operating on the Polish market, they are functioning in a volatile and uncertain environment with a strong need for successful changes and project implementation.

Even though one could think that therefore researched companies are mature in the project management or the innovation management area, our research showed otherwise. Project management maturity is still in development phase and innovation management is nearly non-existing, which shows that logistic companies operating on the Polish market are in painful process "learning of project management by experience".

Key words: project management, project management maturity, dynamics of the industry, management system, project management readiness.

INTRODUCTION

How advanced in project management maturity are logistics companies operating on the Polish market? That was the initial research question. Project management maturity, even though it is not a new concept [Ibbs, Kwak 2000; Cooke-Davies, Arzymanow 2003], seems to be an important area for researchers and practitioners – both on general level [Görög, 2016, Brookes, et al. 2014] as on specific industry one [Backlund, Chronéer, Sundqvist, 2014, Spałek, 2015]. In the Polish market, this topic was also researched [Górecki, 2015, Jelonek, Nowakowska-Grunt, Ziora, 2014]. However, in the logistics industry except for some general conclusions

in [Witkowski, Rodawski, 2007; Kisperska-Moroń, 2008] authors were not able to find empirical studies trying to measure the level of project management maturity in logistics companies.

A detailed search of most popular databases using EBSCO multiple database search and Google Scholar tool showed that on the one hand, there is much research around project management in logistics (also around Polish market) [Biernat-Jarka, 2014; Goździewska-Nowicka, Antoszak, 2017, Hadas, Stachowiak, Cyplik, 2011] but on the other there is a lack of knowledge about how mature in project management logistics companies operating on the Polish market are now. That is the knowledge niche that authors decided to

analyse concentrating on the biggest logistics companies operating in the Polish market. The main purpose of this article is to answer the question: “Whether the biggest logistics companies operating on Polish market see the need for project management, how mature are they in this area, and finally are they organizationally ready to run them?”

THEORETICAL BACKGROUND

Logistic companies are perceived as process-oriented, and their maturity is mainly perceived by supply chain process maturity [Oliveira et al. 2012; Lahti, Shamsuzzoha, Helo, 2009]. However, in the turbulent environment “ability to change” or “ability to adapt to changes” also becomes an important factor [Cyfert, Bełz, Wawrzynek, 2014] that should be taken into account when assessing the company's maturity. It is also known that there are many challenges ahead of the logistics industry [Abdullah, et al. 2018; Lineth, Da Cunha, 2018] that will require implementation through projects.

There are many maturity models to assess maturity in change management or project management [Cooke Davies, 2004; Lam, 2011]. All of them propose long lists of factors that are needed to obtain a detailed picture of project/change management maturity measure. Since detailed maturity measure is not the purpose of this study, authors decided to simplify these models to some crucial factors that would give overview of the maturity level of logistic companies, opening a way for further, more detailed researches.

Project management maturity importance for supply chain integration

According to [Fawcett, et al., 2006] “Supply chain management is defined as involving process management and project management to meet customers' needs collaboratively” – this shows, that project management plays an important role for a supply chain.

To understand project management maturity influence on supply chain integration

consequences of following definition: “supply chain integration (...) is the degree to which a manufacturer strategically collaborates with its supply chain partners and collaboratively manages intra- and inter-organizational processes, in order to achieve effective and efficient flows of products and services, information, money and decisions, to provide maximum value to the customer” [Foster, Wallin, Ogden, 2011] will be discussed by authors in this article. If one considers a market without integrated supply chain, then, to increase integration, logistic companies have to implement changes to its internal logistic processes to align their processes with their business partners. It is known that it is happening on the level of material and information flow [Prajogo, Olhager, 2012]. This drives to two conclusions:

- Logistic companies increase supply chain integration by the implementation of changes according to its business surrounding expectations;
- Changes on the market (changes in processes of some supply chain participants) within the integrated supply chain will require changes from the rest of supply chain participants to keep supply chain integrated.

Project management is the method to implement big, time-consuming changes [Hornstein, 2015] therefore project management maturity plays an important role in the supply chain integration process.

The second factor that will also be discussed further is the perception of market changes. If the company can recognise market changes and its influence on its logistic processes, then from companies operating on fast-changing market one probably could expect higher project management maturity.

Project management maturity description

Trying to answer the question “Whether the biggest logistics companies operating on Polish market are organizationally ready to run projects?” authors will focus on the word “organizationally” since it shows whether the organisation is prepared to run projects. To be able to verify that statement one of the most

popular definitions of the organisation by H. J. Leavitt [Firlej, 2007] will be used.

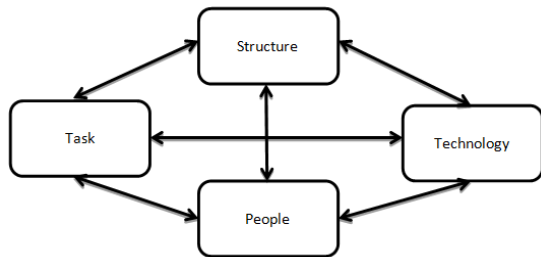


Fig. 1. Leavitt's Diamond organisational model

Above Leavitt's Diamond is not only used to define phenomena of the organisation but also – as originally mentioned by Leavitt – it defines critical success factors in change management.

Taking Leavitt's perspective, authors propose at least four elements that existence needs to be checked, to ensure there is an organisational readiness to implement projects:

- procedures or other work rules source that define requested tasks in project management;
- people dedicated to project management;
- some organisational structure element dedicated to project management;
- technology that supports project management.

Authors decided to refine above statements as follows:

- According to [Parker, et al., 2013] in the first statement, one may ask about procedures or project methodologies;
- According to [Larson, Gray, 2015] people dedicated to project management are Project Managers;
- According to mentioned maturity models [Cooke Davies, 2004] and [Dai, Wells, 2004], conclusion can be drawn, that in the literature of the subject, the organisational structure element dedicated to project management is called Project Management Office (PMO);
- According to [Anbari, Money, 2008] authors propose to reduce “technology that

supports project management” to check if there is project management software.

Authors would also like to extend above list with one more, cultural factor and check if:

- there is a common awareness of what a project is.

Since if there is no such awareness, then the organisation is not able to recognise if there is a project that should be managed.

Need for project management

According to [Mavondo, Chimhanzi, Stewart, 2005; Augier, Teece, 2009; Kontoghiorghes, Awbre, Feurig, 2005] authors drawn the conclusion that the need for project or change may come from three different approaches:

- active - as the effect of the internal innovation process that has no source on the market event;
- adaptive - as the effect of adaptation to market events;
- predictive - as the effect of prediction of market events.

This will be used in research to answer the question: “Whether the biggest logistics companies operating on the Polish market see the need for project management?”

Innovation process

To consider if the organisation can “hear the need” for project management (or change management), Leavitt's diamond model will be used again. However, this time authors will consider it for innovations or change requests to check, if the company organizationally is able to produce, catch and evaluate ideas/proposals for changes what, after [Galanakis, 2006] will be called “innovation process”.

According to the previous section, elements that are needed to be checked seem to be as follows:

- procedures that define requested tasks in the innovation process;
- some organisational structure element dedicated to the innovation process;

- technology that supports the innovation process;
- people dedicated to the innovation process.

Authors propose the following interpretation:

- According to [Prajogo, Pervaiz, 2006] organisational structure element dedicated to the innovation process is just Research and Development Department.
- Since the innovation process may request many different technologies, otherwise than in the previous section, authors decided not to narrow technology to information technologies this time.

Proposing operationalisation of the element “people dedicated to innovation process” it has to be considered that according to [Kontoghiorghes, Awbre, Feurig, 2005; Prajogo, Pervaiz, 2006] (and many other sources), all employees should be engaged in the innovation process. Therefore, to check if employees are able to participate in this process, authors propose a commonly known and simple approach “skill-will matrix” [Obolensky, 2017] checking ability and motivation for expected behaviour.

Therefore, instead of asking about dedicated people authors will check if:

- there is a common awareness of how to propose innovation or change;
- innovation and ingenuity of employees is appreciated

as the main success factors for engaging employees in the innovation process.

Market changes perception

To check an organisation’s perception of market dynamics and need for adaptation authors will refer to commonly known [Dobbs, 2014] Porter's five forces framework. According to this framework, it will be checked how the organisation perceives changes in its industry:

- level of competitiveness (level of competitors’ actions that request adaptation);
- the frequency of changes in customer expectations;

- the frequency of changes in offers of suppliers.

According to findings from the previous section, authors will also treat the market in the industry as some system without stable structures and check perception of:

- the frequency of regulatory and legal changes (as the source of task rules for organisation acting on the market);
- the frequency of technological changes (changes coming from element “technology”);
- employee turnover in the industry (changes coming from element “people”).

Authors will also ask if in management perception:

- market changes will be more frequent;
- there will be a need to implement organisational changes faster and more effectively than nowadays

what corresponds to the situation in which the organisation wants to increase its project management maturity not as a result of market changes but predicatively, in advance of market changes.

SURVEY METHODOLOGY

Quantitative approach delivered by an online survey was chosen as a method of research.

Purposive sampling was used. Researchers planned to conduct the survey in 65 biggest logistics companies operating on polish market (or subsidiaries of international companies operating on the Polish market) ordered by revenue according to polish journal *Dziennik Gazeta Prawna* [Brdulak, 2018]. Authors were driven by the approach that in general, the companies in the ranking represent the vast majority of logistics companies operating on polish market regarding overall revenue [Brdulak, 2018].

The mentioned ranking was the 23rd edition and it is being yearly delivered by prof Halina Brdulak from Warsaw School of Economics in cooperation with *Dziennik Gazeta Prawna*

newspaper. The main ranking criterion is the revenue of the company. Companies that are invited into the ranking have to have revenue of more than two million Polish Zloty from logistics and it has to be no less than 51% of their overall revenues [Brdulak, 2018]. The companies in the 2018 edition have the revenue from 4 million up to over two billion of Polish Zloty, however, the vast majority of them (over 70%) exceeded 100 million of Polish Zloty [Brdulak, 2018].

Google Forms on-line survey was used as a tool to conduct this research. The survey was conducted in Polish. All questions were then translated to English for the purpose of this paper. The survey was sent directly to a targeted company representative on so-called “c-level” or managerial level, having in mind that for managers it is easier to have comprehensive overall knowledge about the company and company’s market perception. Surveys were sent to only one representative from each company, who were carefully selected firstly through LinkedIn.com portal (name of the company and position) and then sent by either LinkedIn integrated messenger or through company e-mail. In the survey there was an explicit request not to resend the survey and to fill it only by one employee of the company – researchers wanted to have one answer from each company. The survey was anonymous.

Finally, due to problems with finding appropriate representatives contact data in a very small number of companies (3) and technical problems (like not-working e-mails - 2) survey was finally sent to 60 companies’ representatives in Poland – more or less half by LinkedIn messenger and e-mail. The survey response rate was around 22% - 13 from 60 surveys were correctly filled in. The survey was conducted in November 2018 over a week. One entry was rejected in the final analysis, because, according to the metrics, one person who sent it was not on the managerial or c-level position.

The survey contained 25 questions divided into three sections. First one was linked to the surveyed organisation, the second one to market dynamics perception of the person who filled the survey and the third section was

metrics. Apart from metrics, all questions were using a Likert-type scale from one to five, where one was: “strongly disagree”, and five was: “strongly agree”.

Final survey questions were as follows:

Section I: In my company...

1. ...there is a project management procedure specifying project management rules;
2. ...there is a project management office or other office that is performing the same function as PMO;
3. ...there is common knowledge about what project is;
4. ...projects are led by certified project managers;
5. ...IT tools supporting project management are used;
6. ...there is a procedure specifying innovation management or ideas management;
7. ...there is a unit responsible for R&D in the company;
8. ...there is common knowledge about how one may report a new innovation or a new idea;
9. ...employees’ innovations and ideas generation are appreciated;
10. ...there are necessary technologies and tools needed to generate and assess new ideas for innovations or changes.

Section II: I believe that in my industry...

11. ...there is strong, intensive competition;
12. ...law regulations linked to our business are stable;
13. ...as a company we must constantly invest in new technology to be competitive in the market;
14. ...customer expectations are changing fast;
15. ...suppliers and subcontractors dynamically change their product offer;
16. ...the bargaining power of subcontractors and suppliers is growing;
17. ...there is a high staff rotation;
18. ...the dynamics of changes in company environment will increase;

19. ...to achieve company goals there will be a need to implement organisational changes faster than nowadays;
20. ...to achieve company goals there will be a need to implement organisational changes more effectively than nowadays;

Section III: Metrics:

21. I work in a logistics company (yes/no);
22. Number of company employees (below 10, from 10 to 49, from 50 to 249, from 250 to 2000, above 2000);
23. Position (c-level – board member, managerial position, without a managerial position);
24. Age (in years);
25. Gender (female / male);
26. If you want to receive a link to the article, that will be prepared based on this research, please leave here your e-mail address.

EMPIRICAL DATA

First five questions in the Section I were directly linked to the topic of project management maturity within the researched organisation. On the Figure 1, there is a summary of answers. The number above the bar shows the number of answers, and the

colour of the bar corresponds to the Likert scale.

In general, over 67% of respondents agreed (strongly agree + agree) that there is a project management procedure specifying project management rules in their companies. The mean answer was 3,75 with median and mode 4. Project Management Office is working exactly in half of the researched companies. One respondent was not sure, and 42% of them disagreed (strongly disagree + disagree). Respondents were not sure about the fact whether there is common knowledge about what project is – answers were distributed nearly evenly with average 2,5 and two as a median. What is interesting here is that the correlation coefficient between those two last data sets (question 2 & 3) is only 0,24 (with p-value 0,448), which means that there is no correlation between having a Project Management Office and having a common knowledge about projects within the researched logistics companies.

In most of the researched companies project were either not led by certified project managers (58% - strongly disagree + disagree) or respondents were not sure about this. Only 25% of respondents agreed or strongly agreed with this statement.

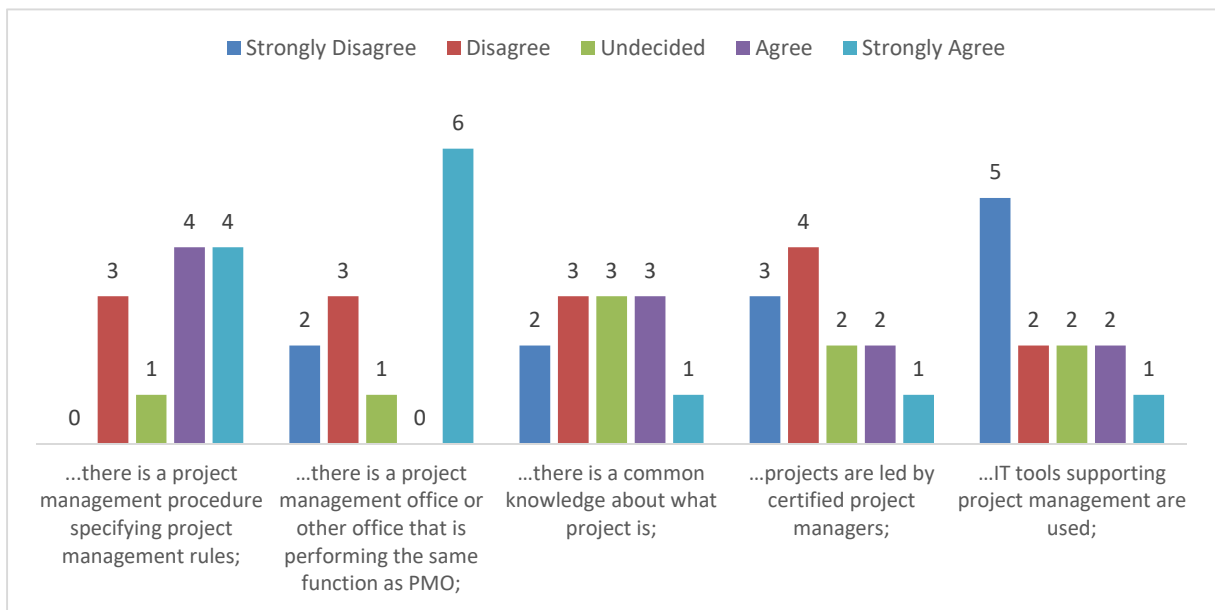


Fig. 2. Project management maturity in researched organisations

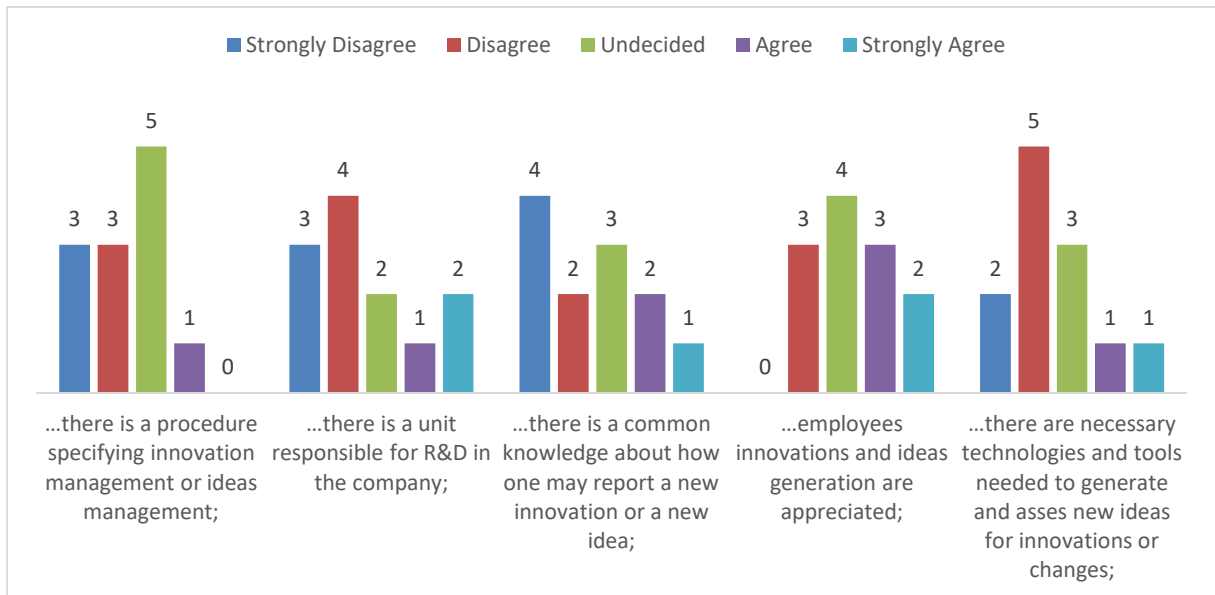


Fig. 3. Innovation management in researched companies

What was interesting for researchers is that less than a quarter of our respondents agreed that IT tools supporting project management are used within companies with nearly 42% strongly disagreeing with this statement – that was the strongest disagreement in the whole survey.

The next five questions in the conducted research were about innovation management and new ideas generation in logistics companies (Fig 3). Innovation management was much harder to assess from the point of view of respondents.

In general, in the question related to innovation and ideas management procedure people were less sure with answers (42% undecided) than in this related directly to project management procedure (8% undecided). There was only one respondent agreeing that there is a formal procedure in the researched area, and 50% disagreed or strongly disagreed.

Most of the respondents stated there are no units responsible for R&D in their organisations (58% disagreed or strongly disagreed), and only in the quarter of them, there is a unit like that. The knowledge about how to report innovation or new idea is not common within researched companies with the mode being 1, 50% respondents disagreeing or strongly disagreeing with this statement and

only around a quarter agreeing or strongly agreeing.

Respondents were divided about whether innovations and ideas generation by employees is appreciated – even though there wasn't any strongly disagree answer the average was around 3,3 with median and mode being 3. Finally, technology again looks like Achilles' heel of logistics companies with only 17% of respondents agreeing or strongly agreeing that there "are necessary technologies and tools [...]".

In the second section of our survey, authors researched the logistics companies' managers' perception of market dynamics (graph – next page). All our respondents agree or strongly agree that from their perspective ("I believe that in my industry...") there is strong, intensive competition in the industry of logistics companies operating on the Polish market. Most of the respondents also disagree that the law regulations are stable (58%, average 2,58, mean and mode – 2). Nearly 70% of our respondents believe (agree or strongly agree) that that as a company they should invest in new technologies to be competitive in the market.

Respondents were not clear about the fact that customer expectations are changing fast. Even though 50% agreed with this statement, still the average was only 3,58 with median 3,5

and mode 3 suggesting that is not a common belief in the industry. In general, the same uncertainty was expressed in case of suppliers

and subcontractors dynamically changing their product offer with average 3,41 and median and mode being 3.

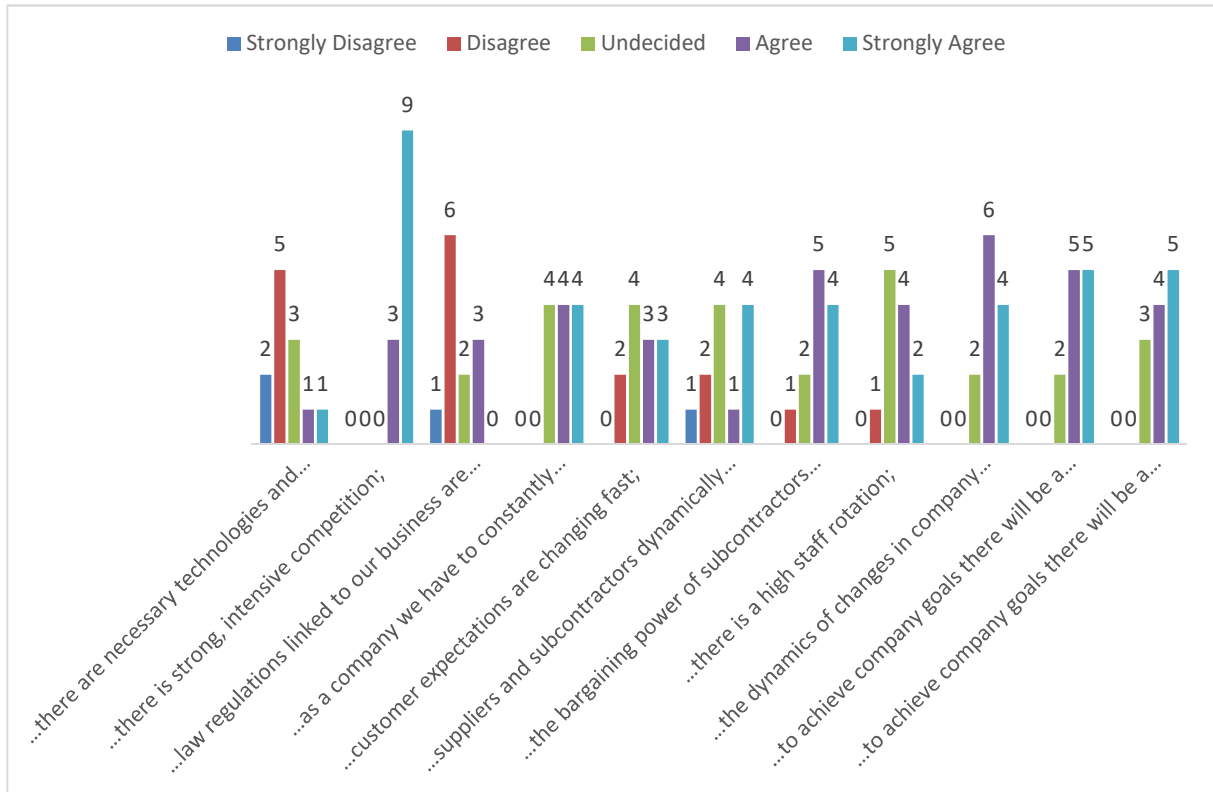


Fig. 4. Perception of market dynamics by managers of logistics companies

However, in case of the growing power of subcontractors and suppliers – respondents were very clear – 75% agrees or strongly agrees that this is happening with only 8% disagreeing.

It shows that in logistics industry right now the power of partners is growing. Also, it looks like that the employees’ rotation might be a problem with 50% of respondents agreeing and only 8% disagreeing with the statement. However, it is important to note the high level of undecided answers (42%).

Last three questions strongly support authors’ hypothesis about increasing dynamics and uncertainty in the logistics industry in Poland. Over 83% of respondents agreed or strongly agreed that the dynamics of changes in company environment will increase. Also, 83% agrees that to achieve company goals companies will have to implement

organisational changes faster than nowadays. Finally, 75% of respondents agreed that there also will be a need to implement changes more effectively than nowadays. No respondents disagreed or strongly disagreed with any of last three questions.

The last section of the research was metrics. All answers were delivered by people from logistics companies. As it was stated before one of them was removed from further analysis due to the fact that the respondent was not on a managerial position (therefore all data are presented without this record). The most of respondents were from big companies with 250 employees+. The age of respondents was between 32 and 60 years with the majority of men (only three female respondents). Two respondents did not want to provide, age or gender. Seven people left an e-mail address to receive the results of research.

Before the final interpretation of presented data, the research team decided to build one more data analysis model which base on the aggregation of data according to the logic presented at the beginning of this paper. Therefore, authors aggregated the questions into three groups:

- The first one – project management maturity within researched companies that base on questions 1 to 5 from Section 1;

- The second one – innovation management within researched companies that base on questions 6 to 10 from Section 1;
- Perception of market dynamics that base on questions 11 to 20 from Section 2, where responses in Q12 have been reversed, to obtain market dynamics perception on the same scale as for the other questions in the section.

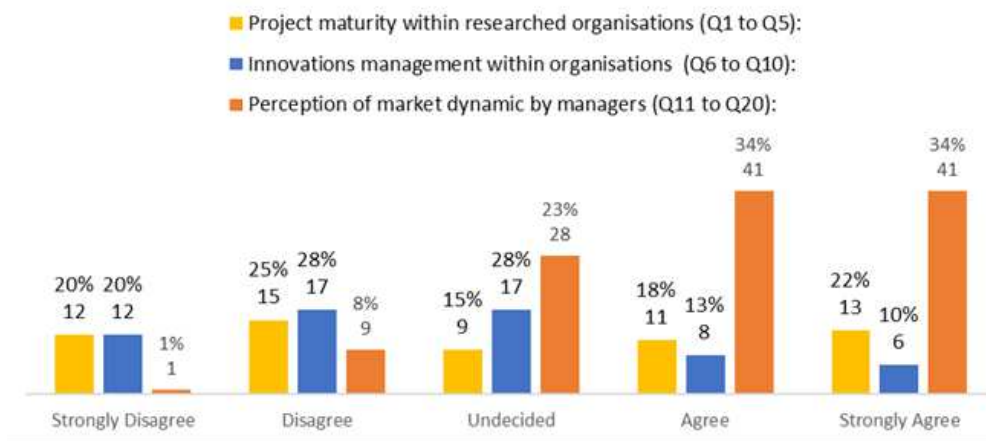


Fig. 5. Aggregated data from our research

Aggregated data confirm the general picture that was emerging from overall analysis. Most of the researched managers (68% strongly agree and agree) perceive market as dynamic in comparison to only 9% disagreeing with it. However, this is not corresponding with project management maturity, and innovation management in aggregated data. Overall only 40% of responses were for “agreed” or “strongly agreed” options linked to project

management maturity in comparison to 45% against them (with 15% undecided). With innovation management is even worse – 23% for “agreed” or “strongly agreed” options linked this area of interest in comparison to 48% against them (with 28% undecided which is also an interesting observation).

Table 1. Average response in survey sections and company scale

Respondent	PROJECT MANAGEMENT (A)	INNOVATION MANAGEMENT (B)	MARKET DYNAMICS PERCEPTION (C)	COMPANY SCALE
1	3,6	1,6	3,5	5
2	4,4	2,6	4,3	4
3	3	3	4	4
4	4	2,2	3,3	4
5	1,4	1,4	3,6	2
6	1,6	1,8	3,5	4
7	3	4,6	4,1	4
8	3,8	3	3,8	4
9	3,4	3,8	4	4
10	2,4	2,2	4,6	5
11	2,8	2,6	4	4
12	2,2	3	4,5	4

Table 2. Correlations and p-values for data in Table 1

	correlation:	p-value:
A-B	0,29	0,354
A-C	-0,04	0,891
B-C	0,43	0,163

In the table 1, average response in sections of questions mentioning Project Management, Innovation Management, Market dynamics perception and the scale of a company based on numbers of employees of responding organisation have also been placed:

1. below 10,
2. from 10 to 49,
3. 50 to 249,
4. from 250 to 2000,
5. above 2000.

There are no strong correlations in the above dataset, which shows, there is no correlation between perceiving logistic market as turbulent by managers and preparing the company for changes by increasing project management maturity.

CONCLUSIONS

The data analysis shown that the answer to the question “Whether the biggest logistics companies operating on Polish market companies see the need for project management, how mature they are in this area, and finally are they organizationally ready to run them?” is “They see the need for project management according to perceived market dynamics and need for implementation of changes but are only partially ready to run projects”.

Our research has shown that from the perspective of their managers, logistics companies operating on the Polish market are functioning in a volatile and uncertain environment with a strong need for successful changes and project implementation. Even though one could think that therefore researched companies are mature in project management or in innovation management our research showed otherwise.

Project management maturity in researched companies is still in the development phase, and innovation management is nearly non-existing. Authors believe that the biggest problem is lying not in the formal procedures (that many companies have according to research, at least partially for projects) but in their promotion within employees, increased pressure on employee training and project management certification and last but not least usage of supportive technology both for project and innovation management.

This result suggests that one may expect on the market some number of failed logistic projects until companies increase their level of maturity. It is also interesting why - having so many experiences from other industries and worldwide – polish logistic industry seems to be during painful and slow process of “learning of project management by experience”. Authors think that above research due to a surprising conclusion and because of the relatively small size of research sample should be subject for some new, more detailed and comprehensive studies in this area.

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DOJRZAŁOŚĆ ZARZĄDZANIA PROJEKTAMI W FIRMACH LOGISTYCZNYCH DZIAŁAJĄCYCH W POLSCE

STRESZCZENIE. Wstęp: Złożoność i niepewność współczesnego świata zachęca firmy do używania współczesnych praktyk zarządzania projektami. Analiza dojrzałości zarządzania projektami pozwala ocenić jak dobrze firmy są przygotowane do prowadzenia projektów. Główną motywacją dla niniejszego artykułu była niedostępność badań nt. poziomu dojrzałości zarządzania projektami na polskim rynku logistycznym. W artykule autorzy opisują badanie, które dotyczy tego tematu i które zostało przeprowadzone w firmach logistycznych działających w Polsce.

Metody: Jako metoda badawcza wybrane zostało podejście ilościowe przeprowadzone za pomocą ankiety internetowej. Przeprowadzono badanie w 60 największych firmach logistycznych działających w Polsce (według przychodu), otrzymując 13 odpowiedzi, z których 12 zostało wykorzystanych.

Wyniki i wnioski: W postrzeganiu ankietowanych menedżerów, firmy logistyczne działające na polskim rynku funkcjonują w zmiennym i niepewnym otoczeniu, z wyraźną potrzebą wdrażania zmian i realizacji projektów. Wydawałoby się, że z tego powodu badane firmy będą dojrzałe w zarządzaniu projektami lub zarządzaniu innowacjami, jednak nasze badania wykazały, że jest inaczej. Dojrzałość zarządzania projektami jest nadal w fazie rozwoju, a zarządzanie innowacjami praktycznie nie istnieje, co pokazuje, że polskie firmy logistyczne są obecnie w bolesnym procesie "uczenia się zarządzania projektami przez doświadczenie".

Słowa kluczowe: zarządzanie projektami, dynamika branży, system zarządzania, dojrzałość w zarządzaniu projektami, gotowość do zarządzania projektami

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