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Agile approach in a transforming organization, a descriptive study of chosen Polish companies with rapid revenue growth

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Abstract

Research background: Recent decades may undoubtedly be deemed as a period of exceptional transformation on a global scale. One element of this transformation is the reorganisation of traditional ways of business management (on all ontological levels). As a result, agile approach is increasingly often considered one of the key aspects of building the competitive advantage of a company. In this paper, agile approach is understood as the businesses' capability of responding promptly to market needs.

Purpose of the article: The aim of this paper is to present the research results on the use of agile approach in chosen organizations. More specifically, the main purpose of this article is to describe how organizations are transformed with use of the agile approach.

Methods: In accordance with the goal of the article, the organizations selected for empirical research are characterized by revenue increase levels of over 100% (such organizations undergo a dynamic transformation caused by growth), and employment ranging from 10 to 50 employees. The studied companies operate mainly in the IT industry and use technologies to organize the processes of identification and tracking of customer behaviour to a large

extent. Several research methods were used in this paper: literature studies, expert interview, participant observation, and Spearman's rank correlation coefficient.

Findings & Value added: The article describes the usage level of the agile (and linear) approach in the organizational transformation (through the dynamic growth of revenues), and presents the agile approach model, which can be used as an accelerator of the business' development. In addition, the authors undertook the first (limited and unrepresentative) attempt to evaluate the use of agile approach in the context of such indicators as: communication with customers, profit increase, and minimization of the risk related to introducing a new product on the market.

Introduction

At present, the agile approach is a widely recognized concept in the field of project management. The authors attempt to use its assumptions to define the agile approach for the entire organization on all of its ontological levels. They consider the application of an agile approach for the purpose of business transformation as an optimal adjustment of the organization to the needs of its clients (based on identifying and tracking their behaviour). This takes place in sprints (optimally defined time intervals), continuously implementing the cycle: build, measure, learn.

The article is comprised of three stages. First: Compiling/Gathering the results of the agile approach literature analysis, where the authors attempt to answer the question of what the scientific output in the indicated field is. Second: Compiling the results of empirical research, which was carried out in the period of 2014–2016. The scope of research included 10 companies operating in Poland, mainly in the IT sector with an annual revenue growth of over 100% (all of which were using technology to identify and track customer behaviour on a large scale). The purpose of presenting empirical research in this article is to determine the basis which would allow to create the model of agile approach application in a transforming organization. Third: The last part of the article offers the model which could increase the organizational agility (the swiftness of answering the market needs) of companies in some cases.

Research methodology

The research results presented in this article are of a descriptive-exploratory nature, in accordance with qualitative methodology (Yin, 2004, p. 6), and although correlation coefficients are also presented, they do not serve as a solution the research problem, but merely as a supplement. To be able

to consider these results as representative and utilize them as such, it is necessary to carry out quantitative research as well.

In order to achieve the aim of the paper, which is to answer the question of how organizations are transformed with the use of agile approach, several research methods were used:

- Literature studies;
- Expert interview and participant observation;
- Chosen descriptive statistical measures.

The literature analysis of the main field has been conducted during a short-term research stay in Shippensburg University in the USA in 2016, and was based on the library databases therein. The literature studies summarised the data comparing linear and agile approaches, and the research contribution was identified.

Empirical research data were collected in the period between 2014 and 2016. The scope of research included a total of 10 companies operating in Poland. The selected test sample is not representative. However, due to the descriptive research approach and the structure of the studied organizations (mainly by the accepted criterion of over 100% of annual revenue growth), it is possible to use them to answer the main research problem of the article: to describe how organizations are transformed with the use of an agile approach. Such an exploratory approach was previously adopted by Cheng-Hsui Chen (2001) and Sultan and Rohn (2004) in order to identify the influencing factors for chosen processes or models in a marketing strategy. A similar approach was used by Skulme and Praude (2016).

For the study, the authors carried out a series of direct interviews with representatives of management boards of companies and participant observations in the chosen organisations. Data has been collected on notes and memos during the interviews and participant observations. Afterwards, the collected information was reduced and displayed in a manner to help answer the research question, as it is recommended in a qualitative approach (Walliman, 2011, p. 130; Taylor & Bogdan, 1998, pp. 102–130). The reasoning behind choosing these research methods is that the qualitative approach can yield more extensive results than quantitative research methods (Taylor & Bogdan, 1998, pp. 102–130). This kind of approach provided researchers with additional information (Yin, 2004, pp. 5–6) that helped to understand the role of agile approach in transformation of companies.

Organizational transformation with agile and linear approach — theoretical take

Many authors point out and describe the necessity of transformation in business management. Among them is V. Kumar, who concludes that currently one of the most important strategic results of activity is not the maximization of sales, but the maximization of Customer Lifetime Value (CLV, defined as the sum of discounted cash flow from a given customer, or segment of customers) (Kumar, 2008, pp. 8–9). According to the recommendations of this notion, one should monitor the behaviour of customers and subsequently calculate (forecast) the difference between the possible profit gained from the customers and their acquisition cost. This is done in order to as quickly as possible — agilely — tailor the offer of the organization to the environment.

Following this line of reasoning, is it possible to find an analogy in the claim of Eric Ries that “the core idea is that every new business rests on a series of hypotheses — we use the word hypothesis to remind ourselves that building a business is actually a scientific enterprise, (...) and we conduct experiments to find out whether we are really on the path to a sustainable business” (Euchner, 2013, p. 13). E. Ries also refers to his approach as: “validated learning”. Therein, individual iterations determine future decisions regarding business development. He also argues that when operating in the modern business environment, the most important aspect is swiftness in reacting to the needs of the customers — agility, not meticulous linear (cascade) activity within the framework of a repetitive structure: a long-term plan and its realization. Where in extreme cases, all activity conforms to the realization of a strategic goal, and “deviations” from the designated values are measured and corrected as necessary.

Apart from the presented views, modern conceptions have also surfaced, where the main premise is to attempt to increase the agility of an organization's activity, such as:

Lean startup methodology (Ries, 2011):

- The Goal of a newly built company (startup) is to verify the hypothesis of growth (which means that enough iterations for your business model have to be conducted in order to ascertain if scaling it is the proper course of action).
- The Main aim of the management actions is to decrease the time between a new idea and its verification (conducted in cycles: build, measure, learn).

Customer development (Blank, 2006):

- Search phase (including: customer discovery and customer validation) and execution phase (customer creation, company building) should be separated. The Goal of the first one is to verify customer behaviours (in reflection to the business model), the second one is dedicated to scaling the profit gain of the business model.

Customer lifetime value (Kumar, 2008):

- Companies of the XXI century are those which manage customers using three main strategies: acquisition, maintenance and outflow.
- The Main goal is to measure and increase customer lifetime value (it is understood as a sum of future forecasted profit gained from: a single customer, segment, or market).

Examining these ideas, one can notice a rather clear trend in the transformation of the approach to organization management. In the traditional way of running a business, plan-driven models were applied, whereas the Agile approach is more "plan and build on the fly" (Boehm & Turner, 2004). The agile approach to running a business was primarily defined on the basis of terminology borrowed from the software development sector, where for differentiation purposes the term Stage-Gate is used as the traditional alternative to agile approach.

Table 1 might serve as one of the bases for defining the differences between particular approaches for the purpose of constructing processes of software development. The authors, using additional sources of literature, extended these conclusions to the context of the entire organization (Table 2). In order to distinguish different areas of interest, the term Stage-Gate has been replaced with the expression Linear approach.

While summarizing the differences between traditional and agile approaches, it is worth referring to the Agile Manifesto (2001), where the following principles are formulated: (1) working software should be delivered quickly and iterated frequently (in cycles of weeks rather than months), and that (2) working software is the principal measure of progress. In the case of transforming an organization where the agile approach was to be applied, these principles might have the following wording: products should be delivered to the market quickly and customer response should be examined frequently, having a viable product is the principal measure of progress.

It is also worth noting that various attempts are being made to define the structure of the best agile approach practices, with reference to the whole organization: Scaled Agile Framework, Agility strategy construct (Sherehiy & Karwowski, 2014, p. 247), or adjusted to larger projects, called: large-

scale agile (Dingsøyr & Moe, 2013, pp. 38–39; Paasivaara *et al.*, 2008 pp. 527–544; Berger & Beynon-Davies, 2009, pp. 549–570).

However, one of the authors of the manifest explains that in his view agile is merely an approach to task realization, where the following actions are performed (Thomas, 2015): find out where you are, take a small step towards your goal, adjust your understanding based on what you have learned, repeat. Thomas (2015) points out that additional — more specific — instructions for agile actions should be understood only as advice, and should not be strictly followed in organization management. Naturally, due caution is necessary when following these recommendations, as due to the time frame of activity and scale of business, the character of individual iterations may vary radically.

As evidenced in the literature analysis, it is possible to find a clear trend describing organization transformation where the agile approach is distinguished from the traditional one, called: linear, sequential, cascade, waterfall, stage-gate. Consequently, the following part of the article reports the results of the research which has been conducted on the basis of a descriptive analysis of the application of agile approach. This research allows to illustrate the current state of utilizing linear and agile method actions in selected organizations operating in Poland.

Comparative analysis of utilizing agile and linear approach in transforming organisation

A total of 10 companies took part in the research. Each of them met the requirement of increasing revenues by more than 100% annually. This requirement was specified due to the assumption that the best research results would be obtained in companies that are well managed and in a phase of rapid growth. Each of the examined companies employed from 10 to 50 employees. The research was carried out between the years 2014 and 2016.

In the first stage, a list was created defining activities characteristic of linear and agile behaviour, and each of them was assigned grades. A total of 8 variables has been specified, respectively:

- for linear approach;
 1. Environment analysis with desk-research method (in the research it was assumed that on a five-grade scale of assessment one point is awarded for one area of the studied environment);
 2. Defining long-term goals (one point for each year);

3. Designing and developing the marketing-mix program (first point for awareness of marketing-mix program, remaining four points for developing each area);
 4. Applying marketing research based on consumer opinions (one point for each marketing research ran annually);
- for agile approach;
 1. Consciously shaping and verifying the unique selling proposition (first point for awareness of unique selling proposition in the company, additional points for each annual verification);
 2. “Unfair advantage” (awareness of unfair advantage — definition taken from: Lean Business Model Canvas, points awarded as above);
 3. Customer orientation (acquired customer data, and the conscious management of their life cycle, points awarded on each tool used to track customers) (Kumar, 2008);
 4. Conducting market experiments (understood as launching product prototypes on the market — called: Minimum Viable Products, points awarded for each experiment carried out annually with new MVP) (Kumar, 2008).

Additionally, the authors defined variables which could be used to measure a company's ability to develop:

- Communication with customers (each point awarded for maintaining a communication channel with customers);
- Ability to increase profits (points awarded for the ability of scaling profits in a conscious manner);
- Minimization of the risk related to introducing a new product on the market (points awarded for the ability to predict sales results).

On this basis, individual variables were assessed. These were defined through statistical means of expert interviews with management board representatives of chosen organizations, and then additionally during participant observations, which allowed to verify the veracity of the answers. Each of the above-mentioned categories was assigned specific numeric values ranging from one to five, where one meant that the activity is not being realized at all, while five meant it is being fully realized. The same method was used to assess the level of business ability to communicate with the customers, increase profits, and minimize the risk related to introducing a new product on the market. The acquired data is presented in Table 3.

In Table 3, the categories b2c and b2b should be understood as: business to customer and business to business, while s. stands for service offer and p. for product offer. The average of the achieved scores was calculated separately for actions classified as specific for linear and agile approaches.

It must be pointed out that the research sample was not checked for representativeness. Despite that, this research allows to formulate initial assumptions for further research. For the given sample, correlation levels were calculated between the statistical mean score for linear and agile actions performed in companies and the organizations' ability to communicate with customers, increase profits, and minimize the risk of failure when introducing a new product on the market, which has been presented in Table 4. Due to the lack of any basic assumptions about the frequency distributions of the underlying variables, limited data in the sample, and adopting a qualitative research approach, Spearman Rank Correlation was chosen to analyze the variables.

Even though the presented results are not validated in a quantitative research, they can lead to certain a conclusion (especially in chosen organizations), namely that activities classified as agile in the chosen organizations are much more correlated to the values of particular abilities than linear activities. The Spearman Rank correlations achieved a high positive correlation (Janoskova & Krizanova, 2017, p. 109), which is more than 0.83, between agile actions and all chosen variables. Statistica software¹ was used to calculate the correlation between identified variables, providing additional information about the statistical significance of obtained results, with p-value being lower than 0.05 only in comparison with the agile variable.

In conclusion, the gathered results indicate that in the case of the chosen companies, it can be supposed that performing agile approach actions has a positive effect on the organization's ability to communicate with customers, increase profits, and minimize the risk of failure when introducing a new product on the market.

The model of agile approach implementation in a transforming organisation

On the basis of the research which has been presented in the previous section of this paper, the authors produce the initial version of a model which can serve as the basis for implementing agile approach in a company. The crucial stages of the model should include the realization of the following: identifying the unique value proposition and unfair advantage, and conducting experiments. For this purpose, two main stages of the model were defined:

¹ Statistica. 13.3. 2017. TIBCO Software Inc.

- the first stage, involving the description of the business model — on the basis of Lean business model canvas,
- the second stage, involving the preparation of MVP (minimum viable product) and the realization of an experiment process preceded by forming a hypothesis and concluded with an evaluation.

This has been illustrated in Figure 1.

The implementation of agile approach in transforming an organisation can be carried out with the following actions:

- Explaining the nature of the model at meetings with managers, employees and clients, during which the relevant literature is recommended.
- Carrying out a pilot application in one of the products. At this stage, one can attempt to answer the following questions:
 - a. What does the customer sales funnel (the theoretical route a potential customer takes until the moment of purchase) look like?
 - b. How to monitor the behaviour of customers?
 - c. How to check if the model implementation has influenced the organization's ability to communicate with customers, increase profits, and minimize the risk related to introducing a new product on the market?
 - d. How long does it take before it can be judged whether introducing the agile approach model has yielded the desired results, and what are those results?

The model presented by the authors is of a basic nature, therefore, an attempt should be made to optimize it in the space of the following months. This should take into consideration the business abilities of monitoring the behavior of customers and a structure of even quicker response to their purchasing decisions. Moreover, in order to form the basic conclusions regarding model implementation efficiency, it is necessary to have conducted a sufficient number of experiments. For each organization, this value will be determined differently.

Conclusions

In the article, the authors presented the results of research on the description of the use of agile and linear approaches in selected organizations (characterized by an annual increase in revenues by over 100% and employment from 10 to 50 employees). Despite resorting to qualitative methodology of research, the authors have attempted to quantify their observations. The result of that is a Spearman's rank correlation analysis, which presents a comparison between the statistical mean values of actions from

the two selected approaches and the ability of organizations to communicate with the customers, increase profits, and minimize the risk related to introducing a new product on the market. This served as a base for describing the model of implementing agile approach. In future research related to this topic, a broader quantitative verification could be undertaken of the research concerning the relation between agile approach and the described organizational abilities.

The contribution of an article to science is based on the presentation of the results of literature analysis and a systematization of concepts widely present in business practice. The literature analysis allowed to determine two extreme (but not mutually exclusive) approaches to supporting business development — linear and agile. The authors believe that the effort made to define the most characteristic activities for each of the approaches can be the basis for further scientific work, both descriptive and explanatory. In further research, the authors would like to consider whether organizational agility is an activity affecting shareholder value (Rappaport, 1999, p. 77). The paper also provides input into business practice through the model of agile approach implementation in a transforming organisation. The proposed model is an input to the change management (CM) approach, leading to such benefits as: quality of communication with customers, profits, and minimizing the risk related to introducing a new product on the market. Assuming that the value of an organization can be determined by its ability to achieve key indicators (Ivanov & Avasilcăi, 2014, pp. 1190–1193), the subject of the agile approach seems to be particularly interesting also for investment funds, where the dependence of the organization's value on its agility (the ability to respond to clients' needs in a timely manner) can be an important element of the valuation.

Research limitations are directly related to the descriptive approach used in the research. Above all, when conducting such research, one cannot speak about the representativeness of the conclusions. At this stage of the research it was only possible to present the modest observations of the authors. It would be necessary to increase the research sample, select the studied organizations in a targeted manner, and use statistical methods precisely, before recognizing the necessary hypotheses as verified. Until these criteria are satisfied, the conclusions drawn in this work can only be used as justification for further research.

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Annex

Table 1. Characteristics of Stage-gate vs. agile

	Stage-Gate	Agile
Type	Macroplanning	Microplanning, project management
Scope	Idea to launch	Development and testing, can be expanded to pre-development
Organization	Cross-functional team (R&D, marketing, sales, operations)	Technical team (software developers, engineers)
Decision model	Investment model – go/kill decisions involve a senior governance group	Tactical model -- decisions about actions for next sprint made largely by a self-managed team

Source: Cooper (2016, pp. 21–29).

Table 2. Agile approach and linear approach — comparison

Category	Linear approach	Agile approach
Realization process	The first stage involves formulating a plan (specification) with areas of activity defined as accurately as possible. On that basis, in the second stage the realization of the plan commences and is not modified until the long-term goal is completed.	Releasing a new product on the market as quickly as possible (Minimum Viable Product)(Ries, 2011, p.28) in order to gauge the interest of the consumers. Basing on the behaviour of the consumers, either further modifications are implemented, or a pivot occurs - the given idea is abandoned and an entirely new solution is designed.
Goal	Reaching the goals according to the specification.	Designing a product which fulfils the needs of the customers as much as it is possible.
Known	Scope, resources, duration of the project. Works begin after clearly defining these three integral elements. Achieving the intended result with the assumed resources is the goal in itself.	Financial resources, duration of the project, and its final scope are unknown before works have begun or during them. The only element left to define is the budget with which the creators are meant to run as many iterations (market experiments) as possible. Should any of the products meet the expected market interest, the value of the investment is increased and the business model is scaled.

Source: own elaboration based on Cooper (2016, pp. 21–29), Dikert *et al.* (2016, pp. 87–108), Ignatius (2016 p. 10), Pope-Ruark (2015, pp. 112–113), Wendler (2013, pp. 148–169).

Table 3. Comparison of average values from performed linear and agile approach actions and ability levels

Org.	Offer	Statistical mean score of LINEAR actions	Statistical mean score of AGILE actions	Evaluation of the ability level of:		
				Communicating with customers	Increasing profits	Minimalizing the risk related to introducing a new product on the market
1	p. b2c	1.5	3.5	4	4	3
2	p. b2c	1.5	3.5	4	4	3
3	p. b2c	3.0	1.3	2	2	1
4	p. b2c	1.0	1.3	1	1	1
5	p. b2b	1.0	1.3	2	2	1
6	p. b2b	1.5	2.3	3	5	4
7	s. b2b	1.3	2.3	2	2	1
8	s. b2c	2.0	4.5	4	5	4
9	s. b2c	1.3	4.8	5	5	5
10	s. b2c	1.0	2.0	1	3	1

Table 4. Spearman's Rank Correlation between the statistical mean values of performing particular actions in the linear and agile categories and the organizations' abilities

Pair of Variables	Spearman R	p-value
LINEAR & Minimalizing the risk of failure when introducing a new product on the market	0.415108	0.232907
LINEAR & Increasing profits	0.442308	0.200555
LINEAR & Communicating with customers	0.519231	0.124046
AGILE & Minimalizing the risk of failure when introducing a new product on the market	0.858822	0.001461
AGILE & Increasing profits	0.838133	0.002458
AGILE & Communicating with customers	0.882580	0.000720

Figure 1. Model of transforming organizations towards the agile approach

