



Research Article

Implementing Agile IT Management: A Path to Enhanced Business Flexibility and Responsiveness

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ABSTRACT

In the last few years, many business organizations have adopted this strategic solutions delivery mechanism based on agile project management methods because of the ample advances that it has given to the software quality and customer satisfaction requirements. This has demanded the use of Agile in different categories of projects, not limited to software development only but in IT project management as well. Thus, this thesis is devoted to the consideration of the concept of agile IT management and its possible beneficial influence on the enterprise's flexibility and adaptability. Examining and identifying the necessity and goals of Agile methods regarding the IT service and support processes is the goal of the study to describe the alterations and new elements of Agile practice to typical working environments. Subsequently, it focuses on the challenges related to the introduction of agile IT management and examines possible impediments to success in the process. This paper combines a literature survey with detailed case studies to establish a list of core benefits of improving agile IT management, as well as key recommendations for organizations who would like to increase their capabilities to compete effectively in a difficult environment.

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1. Introduction

Business wants innovative and enhanced capabilities from IT, including business flexibility and responsiveness. At the same time, businesses want business/IT alignment and seamless and almost error-free operations, usually at a lower cost (Coram & Bohner, 2005). It expects from IT the same performance that successful consumer Internet companies have, fueled by scalable, modern, and robust technology infrastructures designed to support rapid innovation and enhanced capabilities at Internet speed. Unbalanced approaches to meeting these demands can be costly; overly prescriptive IT plans and overly formal IT governance can actually increase risks and costs to businesses, and the negative consequences of misalignment can be substantial (Chin, 2004). This paper focuses on innovative and enhanced capabilities achievable through the use of Agile IT techniques, which focus on achieving business flexibility and responsiveness. The implementation and monitoring of these Agile IT techniques are what we call Agile IT Management.

The main purpose of this paper is to provide the modeling framework proffered here that may be considered an extension of other models being adopted within a firm or as an initial model on which to build new implementations of agile practices. What is more, this approach will go far beyond the

mere reinvention of the tendencies or conventional business practices and will change such taboos as have become firmly entrenched over the years (Serrador & Pinto, 2015). Due to the modern demands on advertisements, the reconstruction and the renewed awareness of the entire structure will be carried out by the working teams of the respective fields. As the process develops over time, a qualitatively new level will appear, and in the process, people who design, develop, and maintain are essential for the success of the team. Thus, the integration of an Agile Management (AM) system into infrastructure and operating processes, no matter whether a company is small and starting from scratch or growing, represents the initial process of constant enhancement and organizational change (Hass, 2007).

1.1. BACKGROUND

AM is a type of working model originating from software development (Şarlak, 2020). Due to the method created to establish the software adaptability for change, the software that can be changed easily, which is open for innovation, can be built. The survey of the IT industry of Gartner Institute claims that 74% of IT projects are considered to have failed or to have exceeded cost/time targets. IT projects overspending is approved when reaching up to 200% of the expected budget, and such projects can complete only 75% of the expected

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features. Gartner group, in Technowledge SM 99 presentation found that 70 percent of the IT projects cannot deliver benefits that are expected. The AM philosophy adapted comes from the “kaizen” related to the permanent improvement and improvement of the processes, as well as the “lean” processes that try to simplify and centralize processes. With these inspirations, it has grown to this present form through the management of a large profession and all work in chunks. The literal translation of Kaizen is ‘change for better’, and the approach is in essence used to achieve a good result for a business by working towards the fine-tuning of the process. It ensures success and the improvement of manpower, cost, and time environmentally and gradually. Japanese have developed such a method because they possess the organizational culture closest to ‘Kaizen’ and far from ‘Kigendai’ meaning ‘Innovation’ of the process. These two phases often collaborate on projects – they perform the work in groups and increase one stage of the project while making slight changes to all the other stages. The information is not only gathered from the leaders or the project manager in issues concerning the project. After hearing the ideas and the problems of all the employees, the improvement phase is initiated. All employees are to be engaged hence Kaizen and all these lead to short-term ‘improvement’ and long-term ‘development’.

It is worth mentioning that sustainability is today the key driver of AM transformation in companies. Thus, in today’s technology, organizations transform by making revolutionary decisions in an effort to sustain themselves and transverse vertical structures by eliminating them. In this regard, as bureaucracy as much as possible has vanished in their respective organizations, they are in a position to take their decisions swiftly and carry them out. Since they are self-organizing and self-contained rather than bottom-up relationships, they discuss the possibilities till they arrive at the best decision and solution. The operation executes at the tempo and mobility that is characteristic of the epoch with the rationality of “Generating low quantities of value-added products within the shortest time possible so if there is an error, the customer is quickly made aware of the mistake”. AM which is solution oriented and motivates individuals enables teams to be proactive and to be developed. To highlight some points.

- AM supports cooperation. It integrates all the required features of a service development process, increases flexibility in teams’ work, and speeds up the process, also, it unites teams and removes silos.
- Namely, AM is a very transparent structure. Daily goals are set, and results are achieved and clearly, work is done and progress and workload is shared. Departmental affiliated conflicts such as “you do laundry, I’ll not; I will wash your car, you will not” are eliminated altogether. Everybody can easily discern why it has been done, why the option is not performed and where the shortcoming is.
- New roles and rituals initiate discipline with concentration resulting in a high level of productivity.

As a result from the basic principles of AM concept, several application techniques have been invented. Three main frameworks are Scrum, XP and Kanban (Sutherland et al., 2007). SCRUM belongs to the agile family of methodologies and was started in 1995 by Ken Swaber. It was applied before the announcement of the agile principles and values listed in the Agile Manifesto. Later, it became part of the agile methodology since it contained requirements that formed the foundation of agile development. From the literature, SCRUM has been used to help in the simplification of control of projects by increasing team iterations on aspects such as simple processes, easy-to-update documents, and extensive documents. KANBAN methodology was developed by Taiichi Ohno in the late 1940s to govern production between forms and to set up Just-In-Time (JIT) production at Toyota fabrication plants in Japan, and then, the smallest element was presented while attempting to assist a Microsoft group arriving shortly in 2003/2004 (Anderson & Roock, 2011).

Kanban in its very essence is an effort to avoid protecting the group from the stream of work assigned by the management and to embrace the rate of advancement, moving through adaptation as one of the Agile frameworks where the protection from change has been minimal (Saylam & Sahingoz, 2014). Kanban means “visual signal,” or “card” in Japanese. Actual Kanban card was employed by Toyota line workers to declare procedural actions of their producing processes. The highly graphic orientation of the system enabled teams to exchange information more effectively concerning which job had to be done and by when. It also defined how tips should be given and increased the efficiency of well-established processes that aided in cutting out wasteful methods. The XP methodology is an insignificant plan technique developed by Kent Beck, Ward Cunningham and other people. After claiming great successes, XP is stated to create enormous interest and provoke little talk, and the ‘P’ in Intrigue is owed to the realistic manner in which XP approaches development. Some of the key applications include merging programming, creating direct tests, rearranging a visit, continuous merge and refreshing the test. Some of the main standards include gradual principled improvement, partnering with the basic editing, eradicating all unneeded documentation and retaining batch code. In this case, the largest shortcoming before AM; is that the teamwork can extend out of the department. It has a dominant intervention in processes since it is a hierarchy. It is the emergence of a structure that does not make mistakes and fears only, but at the same time building something that is new and necessary. The word success and failure are heavily dangled only on specific individuals. More importantly, the situation is regulated within the strict guidelines of the building’s operation. These are the innovations that are associated with AM at this point; organizational structure in which each level works in coordination from top to bottom by rejecting the establishment of the hierarchy, the organizational structure that is constantly improving itself, the success and failure are accepted as a package deal and the flexible processes of each structure.

2. LITERATURE REVIEW

For the project management concept, some research areas of the process mining concept which uses an analysed discipline

to analyse and enhance real processes. However, in (Cristal et al., 2008) it was said that traditional methods do not fit simple tasks or mean standard tasks. The team itself is related to the opportunities of radical enhancement of software development and indeed adopted Scrum in order to potentially boost efficiency pointing to the necessity to address the ongoing shifts in the insurance industry digitalization. The intention was to realize a successful sub-project, (1) to deepen the cooperation of all developers and stakeholders (2) to learning about the development's objectives In transparency, and (3) to enhance self- organization and self- management of the team members. Therefore, it was assumed that one could forecast future performance prognoses extracted from the latest sprints; as well as agile modeling was beneficial in the short run. But, the problems, associated with the distribution of the tasks within the framework of such roles, were to appear soon, and some questions arose:

Here, while the AM process contribution is evidenced, the drawback of the process's invisibility in the long run remains a key concern. The objective (Bergmann & Karwowski, 2019) of this research is the analysis of various strategies in conditions of a limited time frame. The starting point is to make the actions agile in order to close down any potential gap that entrepreneurs and SMBs with severe resource limitations might exploit. This approach guided the agile impact of a business model with three parallel strategies: thus, the effect, causality and the lean startup method which highlighted how the effect theory can be incorporated in the agile development and business model theory. In the article, the authors pay attention to such problems and constraints that relate to the formation of a causal-focused business model. Nevertheless, the current study offers some indication that causality when combined with impact results in the creation of new methods that combine the best of both worlds – estimation, impact, and experiment in order to build a preferred future and the need for future scholarship in that direction is well justified. The study also recognizes the fact that the data in the Finland Challenge Finland does not include if financed innovation will lead to business success, and these results cannot be trusted because there will always be new factors and variables.

Xua and Koivumäkia pointed out that Information technology can provide the assurance of the agility of companies, however, there is very little know-how on how and under what conditions does Information Technology creates agility (Fernandez & Fernandez, 2008). In this study two assumptions of organisational agility, namely, the IT competence and innovation capacity of a firm were examined by isolation as well as when taken collectively on their impact on agility. In doing so, this study offers multiple practical implications. Thus, referring to the results of empirical research, this paper establishes that IT competence can create agility and underlines the need to focus on the cultivation of related competencies. While most of the senior executives agree with the strategic management of information technology, most of them say that a cost-oriented approach may be dysfunctional. Realizing the strategic importance of the IT platforms, the other senior executives should start orienting the other executives in the organization and try to search for funds with which to update and enhance the IT competencies of the firm. Since there is a

time endowment and path dependence in the process of formation on IT qualifications, the sustained effort for competence development will be more effective than the increasing and decreasing movements which are referred to as the boom and chest cycles of IT investment.

In Wells et al. (2015) there is information and analysis of the interconnectedness between the agile methodology of IT projects, system conflicts and adaptation theory. Every single project generates fresh results unique to the undertaking and alters the organization. Thus, regardless of approaches and opinions, the harmonization process is inevitable. Unfortunately, the current status is that almost every large-scale IT project in the world has already become a failure. Standish Group released a report in 2015 stating, projects completed on schedule, within the budget, and to the required quality were only 29 % while 19 % were total failures, 52% of the projects experienced difficulties or partial failures. That meant the larger a project was, the more likely it was to be a failure.

An initiative every company should make, according to Chekmarev, one stage of “digital transformation” is defined (Shaughnessy & Leadership, 2018). As the business entities tailor their systems for the purpose of competing indefinitely in the contemporary market environment, the organization in question should consider it equally important for the entire company to understand that the goal of their unceasing work is to create value for customers. The implementation of this goal at the required pace to be efficient and challenging will involve radical shifts in culture. With regards to values and work, it can be proposed to pinpoint a new set of applications, which will be aimed at the multifaceted, daily delivery of innovation instead of discussing several examples of digital projects. For effective implementation of cultural and technical changes, which are the key characteristics of digital transformations, several leading companies are an adaptation of an Agile framework meant for the momentum of small teams to be oriented towards customer-centric rapid iterations.

3. IT AGILE APPROACHES IN INFRASTRUCTURE OPERATIONS

The physical IT and, to some extent, organizational structure was traditional – rather rigid, hierarchical, with specific resources assigned to specific tasks following particular sequences. This leads to serious timing problems, where tasks are passed between groups with different task priorities or even different objectives. Every time a task is transferred it ends up at the bottom of the new group's queue and therefore may be delayed for a long time. The other challenge is that tasks are often sent back for reassessment, and this worsens the issue of delayed timelines.

Some of these inefficiencies include One of the ways of managing these is through the creation of Small Cross Functional Teams that are held accountable for delivering full services. Through the three mentioned teams above, organizations can effectively minimize or even completely eradicate the instances of hand-offs which will enhance the speed of the delivery of services. But as a company expands and begins to stock more products, the information technology

system becomes very complicated and some of the previous methods have to be reviewed.

For IT infrastructure and operations to achieve the desired dynamic, some of the bottlenecks that need to be fixed include cutting down on approval time that may not be necessary. This step goes beyond the adoption of Agile processes and implies a wide variety of changes in conventional business processes to establish a more flexible operational system. Implementing such drastic changes is not easy; it usually encounters some problems especially the issues that concern the internal community such as employees.

Thus, the motivation and participation of employees must be guaranteed. This implies that by motivating the employees to accept the new change, they will be able to bring positive impacts to the change. Therefore, any strategy integrating the change towards Agile infrastructure should undertake to strengthen the motivation of the human resource. That focus on motivation will be the way to go in the implementation of Agile practices related to IT infrastructure and operations.

3.1. Motivation

The concept of motivation has an immense significance for initiating change processes and improving employee performance especially within the framework of Agile IT management (Hoda et al., 2016). Considering motivation from other theories may help one to be able to understand the best way to motivate the employees during this change.

Process and Content Dilemma: Motivation can be elaborated process oriented and content orientated. The process-based route analyses all the phenomena that cause motivation and concentrates on the “way” of motivation. On the other hand, the content-based approach examines “what” it is that inspires people as being realized in practice with the acknowledgement that it may be in different measures among persons. For instance, while career opportunities the specific might be appealing to one person, it might be another specific factor to another person. Agile transformations differ from traditional ones in the idea that content and process of motivation need to vary in order to pursue the strategies that will be most effective with the individuals that constitute the team.

Awareness and Motivation: Perception also results in a similar kind of segmentation. Motivation can be defined into two broad categories: extrinsic and intrinsic (Cobb, 2011). The motivational name is employed where a person has information of all influences that may motivate him, for example, if the salary continues to work in a workplace for reasons he knows, for instance future promotions. However, it is very important to note that every individual has motivation and there are those which the individual cannot explain. Another self-organizing principle is the employees’ working environment. Nevertheless, everyone can have an exceptional experience of working environment with their own organizations. The motivation factors that comprise of the person’s likes and desires can also be requested without his/ her knowing.

Internal and External Distinctions: In motivating people, source can be self-generated or external. Intrinsic motivation is self-

generated from within the person for reasons that are internal like the curiosity of the person. In the IT sector, the intrinsic sources of motivation are the simple passion for the technologies used or for solving various kinds of problems (Lalsing et al., 2012). On the other hand, extrinsic motivation is related to external motivation such as a reward or a penalty. This knowledge is particularly important in Agile environments because intrinsic motivation is a definitive type of motivation for continued engagement and extrinsic motivation can be employed more frequently without negative impacts on employees using short-term approach (Stare & Sciences, 2014).

Thus, analyzing these aspects of motivation, organizations can develop relevant approaches that would fit into the framework of the requirements and motivations of their employees. In the context of recognizing Agile IT management, this means creating a motivational model that would fit the organizational agility principles and simultaneously would be connected to the motivational incentives based on employees’ motivation theories. As we shall see in sections that follow, this holistic perspective on motivation is central to effective Agile transformation since it addresses both sources and enablers for motivation in the context of today’s IT structures and systems.

3.2. Infrastructure Agile Modeling

In this particular paper, the LEAN-KANBAN approach has been adapted to pave way for schematic structuring of the IT infrastructure and operational processes peculiar to AM (Gustavsson, 2016). This is the concept that has the objective of making Lean simple and Visual, managing and standardising flow business processes and also creating a plan. A “good” flow prescribes how a system works, and a “bad” flow prescribes how work rarely gets done. Evolution is the core concept of this process, and it presupposes the necessity to initially recognize oneself, find issues, and concentrate on what we begin with. This concept known as the fluidity concept also highlights the need for a constant growth. While all other models are built around improving, AM specifically revolves around Iterative Progression, meaning that the present state you’re in is your starting point. In this case, the approach is stepwise actually.

- Identify and evaluate your current resources.
- Defining your team and the development of skills
- Get your goals out of the closet. Strategic mission statement/Conduct statement: The actions that are to be undertaken and for what purpose.
- Organise your services into categories to allow customers to have access to a simple list.
- Developing the structure in terms of the services provided and received and establishing the first model of work of a service’s traffic. Thus, this can be posed in the form of questions such as what service, for how long, when and so on.
- Establishing business priorities.

In order to find current and future issues and the activities that cause them, we have to define the work, service, team, and

processes to start with and generate the basic map (Stare & Sciences, 2014). This means defining the present value system, skills, and assets, and noting the existence of issues. These elements constitute the basis of the improvement process. The words of Plato “Managing yourself you discover the means to dominate the world” means that.

Initial step is to review much of the structure that you have in place at the moment. Some tasks that have to be performed in this analysis require enumerating and grouping all the problems that have been experienced so far. Explain to your team that they have to put the problems as headings on different pieces of paper and mix them; group them eventually. When grouping, set the time within which the organizational processes should be completed to the indicated step. This process will assist the organization in addressing efficient ways of organizing teamwork and making it conspicuous. The times you set will indicate its present state and may vary from time to time based on size, skills, processes of the current working team. It is crucial to remember that this process needs to be constantly reviewed and adjusted, this is a living structure.

After defining the business processes, consider which processes are being executed and for what purposes, so to attain transparency of goals for your teams. This evaluation will also aid in identifying which processes should be given precedence in terms of workflow patterns, and this factor will definitely be of great help in avoiding future acute workflow altercation. Also, it is crucial to expose all potential throughput and utilization issues that may appear in addition to the workforce capacity and ability values of the current team members. These processes should be supplemented by other measures and additional time must be estimated to meet the delivery time. Effort must also be made to consider and estimate impacts beyond one’s own team, employees realize it is possible that many unexpected challenges emerge. By increasing the visibility of these obstacles, the time they take to deal with is expected and the team prepared for this, the degree of customer dissatisfaction could be reduced significantly because of the extra margin that the obstacles take.

The final table that is made in the end after Flow and Process determinations shown in Table 1, is the one for the visual layer which was talked about earlier (Lee & Yong, 2010). This model is based on general infrastructure operation process management and includes the following elements:

Work Item: This means the extent to which a request received will be of a certain type (for instance, groupings that you set with your team).

Source: Work Item Type requests what is initiating the WI (e.g., product owner).

Target: The recipient of the business possibilities results for instance; product owner, system, network, software or end-user.

Arrival Rate: It is the number of requests that are presented in a given amount of time. If any quantitative data for an economic activity in the past is available, the use of graphs to forecast is recommended.

Delivery Rate: The amount of request that is passed through the system in a given time frame. Perform graphs on the delivery time and its flow efficiency through analysis of histories.

The Nature of Demand: The specifics of demand which can be recurrent, sporadic, emergent, cycle-related, unpredictable, intentional, unintentional, marginalifiable / optional, or non-marginalifiable.

Time: That includes the time according to the agreed schedule between your team and us for the delivery of the work.

Disaster Status: Emergency and contingency situations that do not directly relate to the typical work or organizational processes and an extra time estimation for possible issues which may arise.

Customer Expectation: Assuming expectations are met or not, delivery time, delivery rate, organisations service level agreements and expected service levels.

Status: The current status of the job for delivered, not delivered, pending meaning the current process which it is undergoing or canceled meaning the job failed for the following reason.

Table 1: Flow and Process determinations

Work Item	Source	Target	Arrival Rate	Delivery Rate	The Nature of Demand	Time	Disaster Status	Customer Expectation	Status
Identify and evaluate resources	Team Members	IT Dept.	Moderate	High	Recurrent	2 weeks	Emergencies may delay analysis	Minor adjustments may be needed.	Completed
Define team and development skills	Project Manager	Dev Team	Low	Medium	Sporadic	1 month	No direct emergencies expected	Ongoing skills development, on schedule	In Progress
Organize services into categories	Service Manager		High	High	Recurrent, cycle-related	3 weeks	Potential organizational changes	Accessible services list, streamline expected	Pending

The modeling created within the scope of these process concepts are shown in the following figure, namely, Fig. 1. The context of this modeling is all about naming the various steps in the work flow process. It means that the creation of the new structure is to increase its manageability, which in its turn, will improve the organization's performance and flexibility

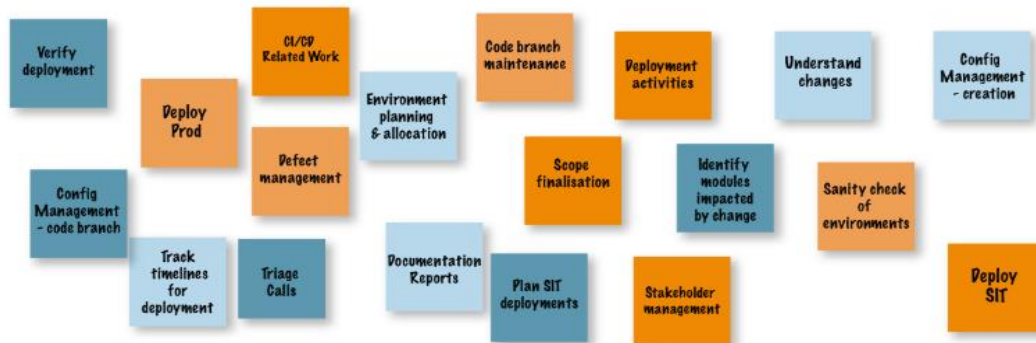


Fig. 1. Analyzing the source work item types

Next, group the services created with your teams and sort them based on the competency level of your team as indicated below. First, build the grouping services that address a similar type of need in the same category as depicted in Fig. 2. Label each group with a name that captures the ambit of services in the group. After that, distribute these groups depending on the competency levels of your team as this can play a critical role in demonstrating the differentiation of the business scope, as well as improving the organization of your team's tasks.

This approach also helps with the correct organizational placement of services and their correct allocation on the basis

of strengths of a particular team which in turn helps in the good management and effective operation of tasks.

Identification of Resources: The delivery patterns of each organization and company are not the same. It is important to identify which departments and teams are the recipients of requests as they constitute the first consumer here. This should be done together with the team as was the case with deciding on the Item Types. A filter on the source and on the item, type is also given again, so that in the future good reports for the processes can be created.

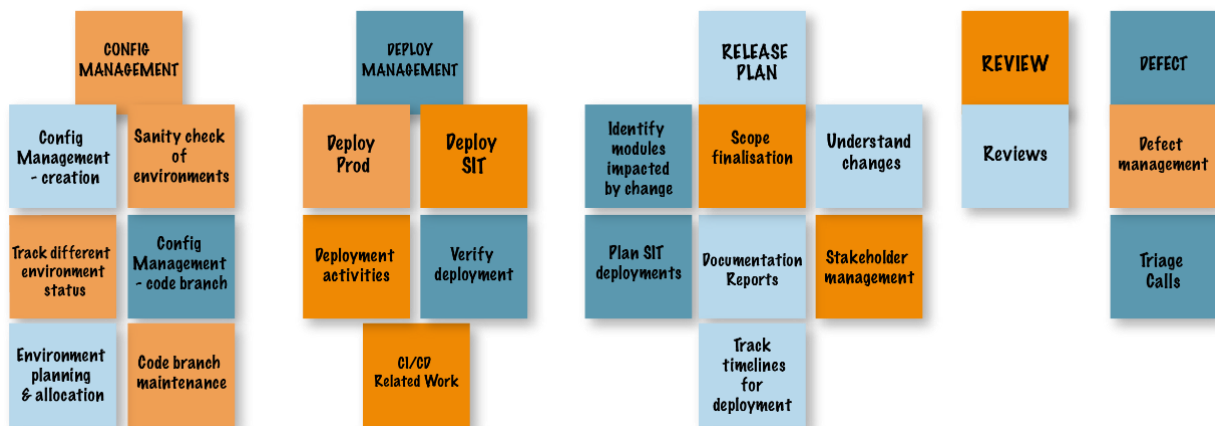


Fig.2. Grouping the source work item types

Target Goals: This process involves identification of the source of the I item Type as well as identification of the delivery point. In this process, since the starting and ending entities may be different, target types can be different across different companies. Also, there is a need to view a portion of the given process and pass it to other groups in order to proceed with their functions.

Arrival / Delivery Rate: They are quantitative measures meaning the number of requests within a given period of time. They are used to define the volume of request that is likely to

be received on each of the item types within the processes. Through such rates, it is possible to determine if a certain issue has to be incorporated in the process as a problem record. The arrival/delivery rates are the first factor that reveals one of the main bottlenecks of the workflow.

Categorization of the Demand: This step is the only primary difference between the infrastructure teams and software teams. Generally, Work Stages consist of UAT-DEV-PROD as far as Agile Management is concerned. Nevertheless, because of the specificity of this type of work, the operational process should

be managed otherwise. They include the regular, the random, the crisis, the seasonal, the chaotic, the planned, the unplanned, the expected, the unexpected, the deniable/optional demand, and the non-deniable/balanced demand. This categorization is quite important in filtering the process being undertaken.

Time: This step depends on the resources, and level of competency in the organization. Average delivery time per job should be arrived at, with the difference between the fastest and slowest team members' execution time plus 25% allowance for time lost. This formula gives flexibility regarding the time of transactions delivery and assists in arriving at satisfaction time.

$$\text{Job Delivery Time} = (\text{Best performance (min)} + \text{Worst Performance (min)} / 2) + ((\text{Best performance (min)} + \text{Worst Performance (min)} / 2) * 0.25))$$

Disaster Status: The status of disaster can often be met in the structuring and the working with infrastructure processes. The organization should look at disaster scenarios in order to provide for the management's immediate demands, issues arising within the general systems, or when the technical staff cannot address capacity demands. Such planning helps the team to further the process even during crises.

Customer Expectation: It helps to define to what extent the service provided corresponds to its aim and whether the work performed corresponds to the defined parameters. Thus, it helps evaluate work and processes in terms of time taken. The emphasis is put on the fact whether expectations were met or not, and thus it serves as feedback for each job. This practice guarantees progressive enhancement of work done and acts as a precedent for future endeavors.

Status: The final one is the control step in which the process is being monitored Utilizing statuses for a process, like "successful," "unsuccessful," "cancelled," "delayed," "on hold," etc., we establish the system of process management together with the teams. This system also permits constant advancement and establishes a business life cycle that complies with the objectives of increasing satisfaction levels for our groups as well as clients consequently. This approach also makes it possible to develop and seek improvements in the work being done on a daily basis.

4. TODAY, INFRASTRUCTURE AND OPERATION AM STORIES

Now, for instance, an approach known as Agile Management (AM), is gradually being implemented in all fields, which points to its creditworthiness. For instance, a European finance company, which has not had a very robust IT setup in comparison to the Asian and American giant, thus realised that traditional methods were becoming barriers to the release of products/services in the digital world and better application development tools. To this, the company started adopting the agile method and very advanced infrastructural services provision. However, rather than redesigning the function and the system completely at one time the company decided to introduce this new agile operating model in increments and the targeted scope for this was the total infrastructure organisation.

This way of designing offered developers a way to control their applications and operations right from the beginning.

As an example, one of the big financial services companies located in the United States implemented an agile approach to one of its subgroups that included 250 people, and this subgroup was engaged in IT infrastructure and operations. Similar to the European company, it adopted the new agile operating model throughout the infrastructure organisation at once. However, what it focused on at the beginning was the improvement of its processes. Such change-making over the period of six months brought down the IT cost to more than 35 percent and increased efficiency by two folds. For the future, the plan of the new operating model includes the automation of 80% of the company's activities.

These examples are aimed at proving the effectiveness of the concept known as agility in the field of IT infrastructure and operations where improved efficiency and the amount of money saved can be observable. (Juricek, 2014)

In Turkey, NN Hayat ve Emeklilik had started to apply the agile approach mainly for the development of products related to the bank channel from 2016 onwards. It increased the production of products per year three folds in its early year and maintained it in the following years. The agile team currently has more than 35 projects in its portfolio and has a cycle of 2-3 weeks to complete each project. Metin Gül, the Deputy General Manager of NN Hayat ve Emeklilik Operations and Information Technologies noted that on the one hand they have been offering different competencies to their members of the work stream who is in the rapidly changing environment and on the other hand, the company has enhanced teamwork for new solution generations and the working tempo.

Likewise, Roche adopted the agile team practices approximately two years back that mainly aimed at enhancing small annual planning for imported products. In Turkey, it was shown that the ratio of imported products and logistics planning

was improved and got third place in the Roche's ranking all over the world within a year. Moreover, the purchasing unit recorded gains of twenty-seven percent in terms of the rate at which various processes were being completed. Banu Gülsün, the Diagnostics Human Resources and Communications Director of Roche Diagnostics stated that five new projects will be initiated for 2019.

Established in 1958, Penti incorporated the agile system into its operations to refine the company's business activities and adaptability. This enables Penti to address the consumer experiences instantly by reaching the field teams as soon as possible. Mert Karaibrahimoğlu, the CEO of Penti Giyim, stated that, due to the implemented agile system, they can determine the areas for improvement and benefit from the increase of efficiency; they received more efficient outcomes in business processes than using previous methods. (McAvoy & Butler, 2009)

5. RESULT AND DISCUSSION

In the contemporary business environment, there is enormous pressure on large traditional companies since their organizational structures and ways of functioning are not always suitable for adapting to new business requirements as companies grow. The best-executed projects can have poor results where theoretical and pre-implemented practical structures are omitted. On the other hand, the Agile companies have innovated better and successful organizational structures coming in the form of cross functional teams that are authorized to make independent decisions within the established frameworks, shown in Table 2.

The conventional approaches to project management are generally determined by a sequential structure of time and distinct phases like analysis, design, development, documentation, and maintenance. Integration of change in such frameworks is usually difficult and expensive and therefore requires a lot of attention to restructuring. Slightly differently, Agile methodologies do not place a premium on rigidity from the start, so the costs of change are inherently lower here. Key distinctions between traditional and Agile organizations include Key distinctions between traditional and Agile organizations include (Leybourne, 2009):

Table 2: Flow and Process determinations

Aspect	Traditional Organizations	Agile Organizations
Focus	Stressing on every person's productivity	Concentrate on the satisfaction of the workers and the buyers
Organizational Structure	Based on functions or specialization areas	Organizational structures that allow the coordination of functions with diverse skills to create value
Decision-Making	Chain decision making founded on assumptions and feelings	Cross functional teams accountable for end-to-end processes with decentralized decision-making
Management Approach	Command-and-control management approach	Service-oriented leadership
Priority	On the priority on output and methods of working	Institution of cooperative management system that encourages cohesiveness and creativity
Scheduling	Strategic scheduling with sheer compliance to laid out strategies	Stress on continuous planning and subsequent changes related to strategy enactment
Customer Policies	Customer employs low error tolerance policies increasing the company's performance standards	Ever-wiser system of learning and cultivation of mistakes as a wealth
Approval Procedures	Extended procedures of receiving approvals where all stakeholders have to sign off on a decision	Systems expected to change in tune with strategic processes
Culture	Heroic cultures that are bureaucratic and hierarchical	Performance evaluated in relation to the key goals and objectives set by the business

Such differences highlight how Agile strategies help an organization manage complexity as well as change and evolve as a core competency in the global competitive landscape of constantly evolving markets (Salameh & Review, 2014).

Based on the result of the 2018 IT project survey as described in Fig. 3, agile emphasizes a higher success rate than traditional methods.



Fig. 3. 2018 IT Project Success Rates Survey Results by Ambysoft

The studies of Chaos from 2002 up to the year 2010 has indicated that there is a current upward trend in the adaptation of agile methodologies for projects and increased success rates (Sone, 2008). Thus, in 2002, while less than 2% of projects were identified as agile projects, less than 5% of new application development projects were classified as such. Nevertheless, the popularity of today's agile projects is only 9% of total projects, but 29% of new application development projects show CAGR of 22%. This growth has a direct relation with the increased success rates in the deliverables which go through or are part of the agile processes as shown in Fig. 4.

	2002	2004	2006	2008	2010
Successful	34%	29%	35%	32%	37%
Challenged	51%	53%	46%	44%	42%
Failed	15%	18%	19%	24%	21%

Fig. 4. Project resolution result from CHAOS Research 2002-2010

The current year fact reflects certain distinct enhancements in terms of cost control and project construction time. On cost overruns they went down from 54 % in 2008 to 46% in the year 2010 and on the project timeout they reduced from 79% in the year 2008 and to 71% in the year 2010. Stability of enhanced

features and functionalities was also promising; from having met percentage of 67% in 2008 to 74% in 2010. Not only does it reveal that adoption of agile methodologies yields a relatively higher percentage of specified features, but also the calculated result displays an improved efficiency of the actual usage. See Fig. 5 for more details on the points stated above.

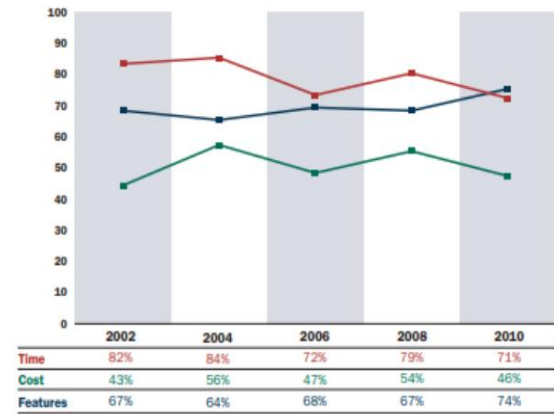


Fig. 5. Time and cost overruns, plus percentage of features delivered from CHAOS Research for the years 2002 to 2010

6. CONCLUSIONS

This article aims to describe the use of Agile Management (AM) framework in IT infrastructure and the operation procedures, while explaining about methods established to build the AM technique that can improve communication, planning, and operational benefit. Promising AM case studies of global companies are given, and statistical differences that AM has over traditional processes are presented. The examples of modeling and methodologies described show that AM does not have to be limited to software, that it can successfully fill the gaps in the organization.

The very nature of AM implementations includes a certain degree of freedom and ease of the processes, providing the specific needs of the teams. Incorporation of a horizontal management system over a vertical structure has enhanced cooperation within the company, especially for infrastructure and operations staff who have irregular demands. This restructuring has gone a long way in increasing the efficiency of the service delivery levels. Sustaining improvement stands central, meaning companies need to enhance process management for improving organizational results progressively.

AM implementation into IT has ensured proper flow of systems and business procedures across the production line as well as delivery of products to customers. What used to be a blackbox in operation and management of infrastructure has on the flip side a positive effect on the employees and customers. This is why flexibility has become one of the key components of any organization's performance as it adapts to the changes in technology. The proposed model focuses on

enhancing AM's IT Infrastructure management to improve its ability to dynamically and flexibly respond to the created workflows.

To sum up, Agile infrastructure operational processes, which act within companies, help in development due to technology-oriented feedback and inner-outer customers' satisfaction. This way, all the organizational functions are consistent, and the changes can be made to fit the market situation much easier.

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