Agile Methodologies In Project Management In The Business Context

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Abstract

the trends current in the market have defendant for part of the organizations _ design of high impact strategies in periods short of time , for hence , the use of project management and planning tools _ each once again they are held in account when analyzing and proposing a product or service _ in the market. The methodologies Agiles are an adaptable working mechanism , in the which the use of quality policies and resources _ technologies are the fundamental basis for their application , the Present review article , contains a state of the art bibliographic in the which are detailed aspects general and specific to these tools within the formulation and management of projects , for this purpose a methodology descriptive and documentary argued in all the context theoretical and practical research , articles , books , as well as news linked to the topic in question , relating So the degree of improvement that you are techniques offer in the dynamics project formulation . _

Keywords : Agility, Project Management, Methodology, Framework, Sprint.

Introduction

organizations _ they constantly meet subjected to problems or adversities important , product of the strict needs of modern markets , in addition to the guidelines or regulations established by organizations _ legal or quality at an industrial level , due to the above , project management is currently considered What a tool important when achieving goals or objectives _ businesses , in addition to being a promoter in solving problems and generating contingency (Bareño, 2020)plans . _

Project management and formulation _ in its beginnings , it has been limited to the interaction of certain variables, both qualitative and What quantitative , in which , has been categorized his degree of importance when complying with the _ target proposed , by such reason , various authors they have detailed analysis and improvement mechanisms , so that the _ aspects project technicians _ in conjunction with the results expected , be the plus favorable to need initial proposal . (Montero, Cevallos, & Cuesta, 2018)

Now project management _ goes plus beyond the connotation theory with which it has been linked
that is, this discipline not only regulates the resources of a business idea, if not for the contrary the characterizes and supervises immediate, through the inclusion of quality policies or tools digital (Gómez, 2020).

the quality What integration area of a project, usually have What target guarantee the production and control of resources in function of customer satisfaction. However, his use is not limited to this only concept, for the On the contrary, it is also used to mention speed, stability and security of a project over time (Méndez Solimán, 2018).

within the objectives missionary of the companies, it is contemplated the design of action and management plans, in where the projects are documented and executed, under the compliance strict of some stages initials (Vélez, Zapata, & Henao, 2018), those previous considerations highlight the goal or situation desired in addition to the possible affectations caused for factors internal or external to the organization and the project to be executed, maintaining always the scoop to balance the relationship cost-benefit (time) (Al-subhi, Pérez, Vacacela, Mahdi, & Alvarado, 2020).

As a key element of strategy management and control, the formulation of projects schedule and supervise activities or operations, based on a questioning start and end of activity technician, the which one is controlled as they have established the needs of the project, in those aspects related to duration, economic value and efficiency in the resource (Crispieri, 2019)management.

Projects or business ideas continually is it so linked to a number of events relevant, in where the unique feature differentiator is the presence of greater or lesser number of restrictions and limitations; in any of these cases, these events must be identified with the objective of being able to select and take decisions fair and consistent with the advantages and disadvantages company (Lorenzo, 2018)techniques.

Missionally, project management has been used for the continuous search for solutions to certain problematic raised, on all in those cases where the disposition of resources is not the most favorable or in others cases where the margin of error is minimal regarding the result expected from the project (Cruz Montero, Guevara Gómez, & Flores Arocutipa, 2020).

Based on the above, at the beginning of the years nineties, the methodologies began to be established agile What short and medium project management tool term, in complement to the instruments previously established, these techniques initially They were linked to character projects technology (Hadida & Troilo, 2020), due to the requirement immediate computer software present in that moment, remember that for these years the use of laptops and home computers increased gradually, by such a factor arose is necessity.

At first the Models agile, they were designs with the goal of reducing the design, development and execution times of the project, for the reason that the markets were changing and the need was of a nature immediate. Therefore, prolong a reply would generate a disadvantage competitive with respect to others organizations (Valencia, 2020).

Similarly, the creation of these Models technological favored the reduction of project uncertainty, the improvement of levels production and quality of final (Gamboa & Arreaga, 2018)products.

project management techniques agile, in addition to reducing the terms of fulfillment of an objective, offer project evaluation options throughout the cycle productive, doing use at the beginning of iterations and concluding with the generation of information statistics and project (Zapata & Riveros, 2021)management indicators.
Though the use of these techniques knowledge demand technological and digital important as are the use of software or tools office automation, the reasoning implicit behind each decision is maybe the most factor relevant inside a correct appropriation of these (Ardila, 2020). These mechanisms agile are oriented in function a learning tactical and empirical, in which the professionals and managers they learn from the execution of objectives or as one would say vulgarly "on the fly" (Restrepo, y otros, 2019).

Techniques project agile employ four principles essential when complying with the objective of a project, as highlighted by Casal, J; (2019), in his master's thesis entitled "Implantation of methodologies agile in a software development team"; This author establishes that the management project agile must contemplate the following considerations (Martinez, 2019).

1. **Evaluation of the tangible organizational resources (Workers and tools).** The correct execution of certain chores depends on knowledge implicit of some workers when coordinating and using the organization’s machines and equipment.

2. **Inclusion of online storage in instead of physical.** Document filing is relevant within the methodologies agile, because in these are contemplated various compliance provisions legal and commercial relevant to the decision-making processes within the organization; for is reason, have this information in real time in access remote guarantees a correct time management and availability (Wagner, Wagner, & Erazo, 2022).

3. **Customer loyalty after the sales process.** Businessly result more favorable one relationship of implication and continuous collaboration with the client, that a contractual or momentary in which the customer gets his product and does not contribute some perception of improvement.

4. **The response to change for on top of following a plan.** Anticipation, flexibility and adaptation are values fundamentals of methods Agile.

The correlation and integration of each of the four principles previously mentioned conclude one of the main advantages of the methodologies agile inside the processes productive, contemplating thus the integration of various both tangible and intangible components of the company, in the full completion of a project and each target proposed for your achievement.

As a result of the above, there is a need to examine the possibilities of implementing methodologies alternatives for project management, specifically the agile ones, since these go hand in hand with the multiple progress technological and operational, generated to date.

In order to determine East degree of inclusion of these tools in project management, it arises the documentary analysis of the aspects general methodologies agile, the characteristics of these methodologies, and the degree of use according to the type of projects you manage.

**Method**

The bibliographic consultation developed in this review was carried out in order to identify the main aspects of agile methodologies, their beginnings, characteristics and the classification of these strategies together with the degree of importance in modern project management.

The methodological review model used was descriptive and documentary, because this technique uses direct observation, surveys, checklists and single case analysis, as a specific support in the identification of the characteristics of the object of study that is being analyzed (Alban, Arguello, &
Molina, 2020); In this case, all the assessments made are based on relevant conclusions or the ways in which they interact within the analyzed element.

These research models are usually employees when you have little information on the phenomenon to be studied (Marín, Ernesto, Morales, & Alberto, 2014). For this argument, investigation descriptive it's usually a job pre-investigation expository, because the knowledge of the properties of a phenomenon certain it allows give explanations to others matters they keep relationship.

To carry out the review of the case study, two types of variables were identified, one dependent and the other independent. In the case of number one, the opportunity for improvement in the management of modern projects was evaluated based on the inclusion of the agile methodologies and in the second all the conceptual aspects of agile methodologies were analyzed, starting from the current trends and needs in the new market models.

Once the decision variables and the review technique were defined, information regarding agile methodologies, project management and current trends in projects both nationally and internationally were consulted in guaranteed research sources and repositories.

In this same order of ideas, information sources such as.

To comply with the above, they consulted Subscription bases such as (Scielo, Science Direct, Scopus); National and international economic and scientific magazines; as well as books or other sources of written information (Projects, reports and articles).

On the other hand, the information collection instrument used was limited to the use of a referential matrix, in which different criteria of experts in the subject, news and indicators of project management were contrasted, while allowing to characterize through abstract representations, conclusions and discussions real technical aspects of the agile methodology within project management.

The categorization of the information used and its respective sources are presented below (see table 1).

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Note. Table 1 contains the different types of documents used to review the case, in addition to the subscription sources from which they were extracted.

Analysis of research information

A. Importance of methodologies agile in project management.

Through empirical and experimental knowledge, project management within organizations can identify the events side effects that achieve affect the Right fulfillment of the activities of a project, delimiting so, the degree of relationship of the success of projects regard the mechanisms proposed for your development (Domínguez, 2021).
At first, project management was directed in the solution of activities from the use of methodologies - traditional, in where, the processes proposed they had him use of projection, control and monitoring techniques of all system variables. However, the little arrangement of time in Some Projects required new and better tools from the use of systems - digital and technological characteristic of the time (year 2000) (Salazar, 2022).

one of the problems that more impulse East change in the way of operating, was the need to accelerate chores in function of the requirements modern on the market, which in beginning seemed unlikely because, in the systems traditional, a good number of activities, should be carried out under compliance strict of some standards and previous planning, generating So delays significant in the development stage of the project (Llamas, y otros, 2019).

with the elapse of the years are problematic, were increasing the need to use new and modern project management models, reason for which near the years 1970, it was given life to the end methodology agile the which contemplated the inclusion of various theories and mechanisms modern controls (Rivillas & Guzmán, 2018).

mechanisms - agile, they were designs and structured in function of use and integration software and tools office automation, using a planning model adaptive widespread business and customer needs, responding thus to changes both in the limitations What in the scopes in the management and formulation of the project (Cortez, y otros, 2020).

One of the advantages of these new project management models, is to have processes standardized, widely documented and controlled, allowing well to organizations get top results at run time the project (Jhacson & Graciela, 2017).

A key to success in the implementation of the strategies agile, is that for what are you have the impact wanted the project management area should be able to define what is the method that best suits in the execution of the project, guaranteeing always the reduction of costs, times and intangible resources of the project (Coghi, 2019).

On the other hand, an important aspect within the technical considerations of agile tools is the control and motivation of the organization's personnel, since the latter is in charge of executing essential processes or activities for the project.

In this same order of ideas, Fernández; M (2018) proposes the following description, Motivation 3.0 is that labor and motivational relationship that implies the connection of three fundamental aspects that are, the moral bond of the worker with his employer and the project, the autonomy of the worker when solving problems or situations adverse to the interests of the project and to finalize the moral purpose of the worker regarding the labor and productive obligations demanded by the project (Pomar, 2018).

When analyzing each one of the previously described elements, the high degree of relationship of these with the new agile methodologies is determined with certainty, since as some authors point out, agile systems must maintain a relationship between them in an optimal way; Because the vast majority of project activities are multidisciplinary in nature and therefore it is essential to have the support of each work unit in achieving the final objective (Valerio & Cruz, 2020).

Within the components of agile project management, aspects such as culture, environmental responsibility and social development are being involved, thus being an advantage for full compliance with indicators and projections in the different processes of the organization (for example, compliance with the budget) (Hernández-Hoyos, Barragán-Calderón, Zambrano-Díaz, & Delgado-Hernández,
In conclusion, agile dynamics are of vital importance within project management due to the integration of resources, norms, duties and moral ethical responsibilities by which the traceability and orientation of a business idea is regulated, as well as the use of computational elements allow companies to have advanced analysis and reporting elements and other relevant aspects for decision making (Calderón & Vergara, 2018).

Likewise, the entire operating model that they deliver favors the generation of added value to the activities carried out within the company, which is why organizations are favored when entering a new market or using some innovative element in it.

B. Project types _ in the uses of methodologies agile

Within project management, there are two types of models, which are the unique and the repetitive, in the case of the first are due to the invention or incursion of a new product in the market, like for example it may be a laptop model that is sold for the first time in a niche economical, for his part the model repetitive behold everyone the aspects production or manufacturing technicians, in the example case proposed would be everyone those processes required for manufacturing in series of those laptops or others models with features simulate (Álvarez, 2019).

Now it is important mention that a project only one can turn into in repetitive, as long as the product that was created undergoes a manufacturing process in series. In any of the cases, there are two ways to work on a project, the way traditional and the modern one is cascade, the difference between one and the other, is the integration of stages fixed in the case of the first and in the other the series of deliveries are made in Sprint mode or advances (Pérez, Gestión De Recursos Humanos En La Gestión De Proyectos De Organizaciones Colombianas Paradojas Entre La Teoría Y La Práctica, 2019).

Having clarified the above, the uses of agile methodologies within the different sectors of the economy have been linked to the innovation processes of the service sector mainly. In the case of the Colombian industry, traditional approaches have been transformed into results-oriented approaches, where customer satisfaction, continuous improvement, increased market profits, and product quality are important characteristics in its free to act (López, 2021).

In terms statistics, according to a study done for the driving institute projects or your acronym in English (PMI), at the end of 2019, out of every 100 companies at the world in average 71 of these integrate methodologies agile, particularly in countries Europeans like Spain, about 75 project managers out of 100 interviewees affirmed that the methodologies agile contribute directly to the success of digital transformation in a company (Valdivieso, 2019).

In complement, in a study carried out in that same year by the firm CA Technologies, it was achieved estimate that in average each company that employee resources agile within your projects could obtain a margin of improvement of more than 250% in each one of the applications or objectives of the project (Mamani, 2019).

In the national context, a study carried out by García, M & Sepulveda, J; (2017), analyzed a sample of five companies from the industrial sector of Medellin, in which they evaluated the thinking of managers regarding the adoption of agile tools, in their market projects, obtaining as the main appreciation, that the priority for the managers in their projects was to prioritize customer service, through early and continuous deliverables, a mechanism by which the adoption of agile tools more than necessary is presented as an answer to this need (González & Castaño, 2017).
These same authors detail that Colombian organizations that use traditional project management models take approximately one year to meet each of the proposed objectives, while those that opted for new ways of working require periods of delivery of results that do not exceed one month (Sprint of 15 days in the case of the Scrum framework).

The main methods used by companies when integrating agile tools are the Scrum model, Lean software development or Kanban, XP framework, which have been consolidated on platforms such as Github or Kubernettes, in which project managers can find and socialize different results of interest, below, in Figure 1, the most up-to-date classification of the implementation of these models within agile methodologies is presented (Avila, Zamora, Peña, & Lugo, 2020).

Figure 1. Percentage of use of agile models in project management

Note. Figure 1 contains the main models used in agile project management, this information is adapted from a report presented by Silva, et al.; (2020)

As can be seen in figure 1, the main model used in project management by agile methodologies is the Scrum model with 58%, while in the case of the XP Framework only 1 in 100 companies claim to use it, the Kanban model is used in 7 out of 100 companies, 3 companies above the Lean Startup model with 7% participation.

C. Frameworks of the Methodologies Agile.

Flexible management models are generally based in the application of some Project management models are highlighted below the models most used within companies.

Scrum framework. is a methodology agile, in which are integrated good practices team collaborations. In East model agile, they are carried out deliveries parts of the project, in which they are prioritized the contributions according to the degree of complexity or necessity that represents within the fulfillment of the activity target (Ramírez, y otros, 2018).

This model is recommended in projects with variable requirements and with little operating margin complex, in addition to having time frames very scarce for the operation, to implement East model it is necessary that the working group have a degree of innovation and productivity elevated (Sajiúm & Rosa, 2019).

This frame is the methodology model agile plus used within the methodologies agile, due to the case that this allows when working in a more efficient in everyone the processes generated within the organization (Angarita & Hernández, 2019), your applicability works from the definition of the Product.
Backlog, the which is considered the purpose of the desired product or project develop, and reaches than this can get What benefit, and their prioritizations.

this frame is divided by sprint or iterations, that is, stages where value deliverables are executed and delivered to the customer (internal or external) for their approval, maintaining forever the work in a collaborative way (Work cells _ agile) (Vila Grau & Capuz RIZO, 2021).

The Scrum model has three roles, the which are: The first role Product Owner in charge of the project objectives, the second role (Scrum Master), the which drive the team and create work strategies, to take better organization and manage the processes that are generated and the last role (Scrum Team) those people who have soft skills and hard skills depending on what is desired improve to achieve the target proposed (Scrum se Escribe Scrum (no SCRUM), 2020).

work cells _ agile according to the Scrum Framework start with a Kick Off meeting, in which the project begins, making the presentation team official and _ roles and responsibilities that these they will have This way of working works under continuous monitoring of the processes and deliverables (every 15 days, depending on the team) to be dealt with (Avila & Linares, 2022).

Depending on the way of working, the team will have meetings periodic for the respective control (“daily” of 15 minutes). For each Sprint you must start planning these deliverable that will be presented at the end (Sprint Planning) and the culmination meeting of each sprint for its respective closing and hindsight (Stutherland, 2020).

in the next representation details the main model phases Scrum.

Figure 2. Phases of the Scrum methodology

Note. Figure 2 contains the main phases of the Scrum model, this information is adapted from a report presented by Sutherland, J; (2020).

Kanban framework. It is a form of work that is used in organizations, at the moment plan the purchase or management of inputs, so that it can be diminish the delivery time to _ clients.

This mechanism agile work _ starts with the identification of behavior or states of the work team in order to generate visibility of the information and being able to initiate the improvements of the processes, which can be carried out for a person or a team (Figueroa, 2021).

This author details the following representation of a Kanban chart.

Figure 3. Kanban Scorecard.
Note. Figure 3 contains the control panel by which the Kanban method is regulated, this information was adapted from a report presented by Cierici, D. (2020).

Finally, you can conclude that the Kanban model is a work method adaptive and subject to change as needed, keeping what benefit the reduction of the lifetime (lifetime of the product or client), and the compliance with deliverables in a minor time.

**XP framework.** The extreme programming XP, is a methodology agile and flexible used for project management, this tool focuses on enhance relationships interpersonal and team, maintaining as the key to success the worked in team, the continuous learning and the good work (Arbeláez, Astudillo, & Polindara, 2020). Climate.

Bautista, E. (2021), defines the following characteristics of the XP methodology, as presented below (Bautista-Villegas, 2021).

This model is based on the activity design through trial and error to get working software really.

the client participates actively, in each process to be designed inside the project, like this same this is the last one idea stage hence, his opinion is a judgment for the feasibility of the project.

Reduces the cost of change in all stages of the system life cycle.

In complement Sánchez, et al.; (2020), define that Extreme Programming (XP) is seen as working method in the management of business projects to improve the weather organizational, the good practices in team, and the promotion of training and learning of tools that allow benefit organizations and the needs of users. Oriented to software production and use companies, such as Microsoft, Yahoo, among others the following application phases of the XP (Sánchez-Hernández, Lizano-Madriz, & Sandoval-Carvajal, 2020).

These authors detail the following phases, as the most important within the inclusion of an XP model.

**Figure 4. Phases of the XP model**

Note. Figure 4 contains the control panel by which the XP method is regulated, this information was adapted from a report presented by Sánchez, et al.; (2020).

Finally, it can be concluded that the XP methodology bases its operation on the design of products for the user, however, this methodology does not define the integration with usability and the principles of interaction between the human being and the computer, which is why Different challenges are traced in the processes in which there are differences in these two parts (Wolkerstorfer, 2017).
Read Startup. Many think that for a company to be successful, you just have to have a good idea and be in the right place and time and hopefully the results will be the most favorable, the startup model contradicts all of this thinking.

The lean startup methodology traces its origins around the year 2001, where businessman Eric Ries, based on his experience working in various American companies, defined an agile project model, focusing on reducing time and cost when it comes to create companies, for this he proposed that a market idea be used and experimented by means of hypotheses, that is, to assume that there is a need and propose a minimum viable product to the market to see what the consumer's response is to this offer, if the consumer purchases from immediately the product the investment by the company must increase in the production of more footwear, but if, on the contrary, the consumer rejects or ignores this demand, the company must make a pivot and propose another market strategy, depending on the needs real of the same.

Figure 4 shows the operation cycle of this project management model (Marter Marketing, 2022).

Note. Figure 5 contains the scorecard by which the lean startup method is regulated.

D. Claro Telephony: Success story in inclusion of methodologies agile in Colombia.

In Claro Colombia, it has come working in agility issues, to favor the organization processes and do participate in their improvements to the customers, for this the company raised the Next questioning, how do you get involved? the customer in the processes?

In response, the company, through information gathering techniques -- What surveys, interviews -- users, among others -- allowed -- know the values that are presented or those opportunities for improvement that can be try at work tables.

The company has focused its projects and its driving in methodologies applied to the deliverables early, where allowed -- work transversally within the organization, focusing his way of working in the SCRUM framework, to give continuity and control of its processes.

In this way, improvements are analyzed relevant, and the results expected, within the organization, which is constituted harmonically for about 5 work cells -- in a same direction, focused in different areas What customer experience, management -- human, technology, among others.

Discussion

once -- read and interpreted each One of the advantages and disadvantages of methodologies agile within the organizations, the following were detailed reflections on the topic.

The methodologies Agile are methods that allow companies to manage way projects -- agile and with results optimal. in its beginnings are tools They were employed with a focus for software project management; However, the different levels multifunctional that you are techniques possess, allows them to be applied in case any industry, such such as construction, education or finance.
Some of its benefits, which are tools offer when they are included within project management, it is customer satisfaction, starting from the delivery timely of the products, the which are manufactured and coordinated by a development team, in charge of saving time and money in the project development analyzed each one of the considerations theoretical found is possible affirm that the methodologies agile, are an instrument that allows increase project efficiency and speed with results satisfactory, the which comply with a principle of variable quality that allows adaptability to future changes, in East same order of ideas some of the companies that use these methodologies at the commercial macro level are Amazon, Nokia, Intel, BMW and Microsoft among many more.

The use of tools agile project management establishes a favorable dynamics in companies, as long as are have human capital important because in these models, the need to have excellent working groups, which complement each other through the support systematic analysis of the areas as the project is leaving running.

A model agile project management reduces costs project duration times and guarantees a quality standard in the results obtained, since having controls and meetings plus Frequent (Sprint) cluster goes socializing and complimenting the different contributions that are being presented, as well same, are corrected and clarified decisions or questions important for the company interests.

Conclusions

The term agile sounds very good and is very popular in project management, but we really should not talk about agile methodologies and traditional methodologies, as some professionals traditionally establish it, in this case each of these methodologies correspond to the practical component of the modes, to make predictions or adaptations within the activities of a project.

Depending on the type of project, whether it is planned or adaptive, the use of agile strategies will be more or less effective, in any of the cases there must always be an important procedural component, in which minimum parameters of duration, control and evaluation of the operations you execute.

Tentatively, companies tend to use Scrum practices within the management of their projects, since these contemplate various areas of the company in a staggered manner, while strengthening and controlling all the tasks carried out, however, this model is not the law of all companies, in the case of those companies that have repetitive projects, a Kanban system presents an important advantage, regarding the management of resources and provisions of the production area, as is the case of the company that created the Toyota method.

On the other hand, in those service or marketing companies, a lean startup mechanism is presented as an important strategy when evaluating the degree of acceptance or not of a service in the market, since the dynamics of the pivot and minimum viable product offer a favorable margin of error for the real dispositions of the company, thus allowing to evaluate different strategies in the short term.

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