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Analysis of maturity in high performance teams for the development of new products

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Abstract
In this article, a study about high-performance teams for the development of new products is carried out, emphasizing the maturity of systems teams in the automotive software area, since in this sector it is mandatory to be at the forefront of efficiency and technological innovation to stay competitive. An introduction to the subject is first made, followed by an analysis of the literature on traditional software development methodologies compared to agile methodologies, which the latter's implementation can provide competitive advantages when seeking a more flexible incremental product development, eliminating redundancies and collaborators' time's waste. Then high-performance teams are analyzed, their importance, definition, objectives, as well as the leadership involved in this type of team. Previous topics will be used as a basis to propose a model of key factors' interrelation to determine the maturity of the teams, also through the application of a proposed instrument the model interpretation will be possible by using different methods such as: Sentiment analysis and Net promoter score, which provide information on team's trends and their dynamics' internal variables.

Keywords: high-performance teams, agile methodologies, maturity, key factors, trend analysis

Introduction

With the arrival of web 2.0 and smartphones, there was a disruptive change that includes ubiquitous interconnectivity, hyper-communication, and a great exposure of people to information; same that has led people to change the way they acquire goods and services using digital platforms based on the aforementioned technologies (O'Reilly, 2009) [18]. In Mexico, according to INEGI data, in 2019, as can be seen in Figure 1, it is reported that 70.1% of the population of people aged six or older in the country use the Internet (INEGI, 2020) [9].

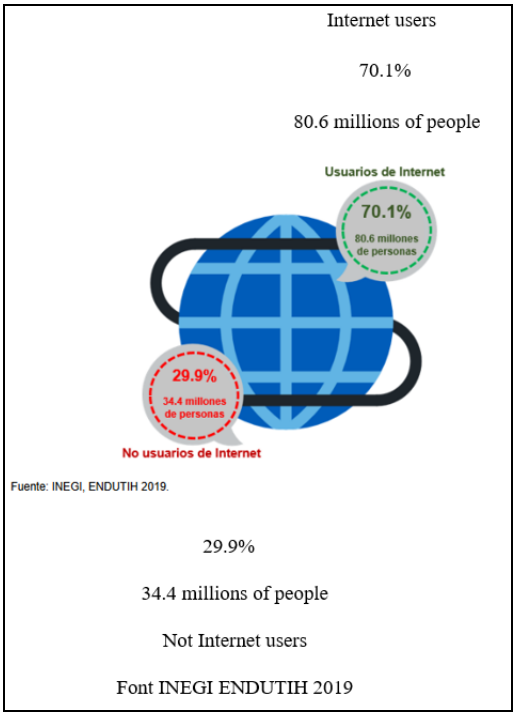

Fig 1: Percentage of the population aged six or over by Internet use condition.

With this change, traditional companies have encountered serious problems when their policies prevent them from having a migration of the services they offer to the aforementioned digital platforms, since the market has changed so suddenly that, if they were not the pioneers in investing to change their offer, they risk obsolescence after a few years. With the above, a niche of opportunity opens up for small companies that are capable of quickly adapting to the pace of market demands; mainly for those that have emerged as native providers of digital services (usually called Startups) that have the advantage of being able to scale their size in times never thought of in the event of success. Carpooling and mobility startups, such as Uber, Didi, etc. have emerged in the car travel market. Which were born by identifying an opportunity to take advantage of the collapse of the transit system in large cities with serious traffic and parking problems, these platforms offer chauffeured car rental services at a popular price compared to the prohibitiveness of the options before they. Even competing directly with government-licensed taxis, which led them to cause a radical change in the urban mobility service, and that has generated a decrease in interest in the purchase of vehicles in the new generations of adults and even a stabilization of demand of new cars for the first time in history, with the risk of becoming a downward trend in the near future (Eliot, 2019) [3].

In this revolution of digital services, the demand for the acquisition of vehicles of different ranges has also changed. Now, general interest has turned to the technological equipment of automobiles due to the needs of users, ranging from the integration of intelligent devices, such as driving and safety aids, hybrid vehicles, braking assistants, autopilot, air etc. As well as comfort and entertainment features such as self-adjusting seats, mirrors, lights. Smart keys, smart console for media playback, GPS, smartphone connection, etc. Due to the above, there is a new trend in automotive technology towards the unification of products to lower costs, for example: what were previously considered separate products, such as the dashboard, the stereo, car controls, etc.; now they are beginning to be integrated into a single infotainment product. Even different electronic control modules for the various functionalities of a car are now beginning to be integrated into the main computer of the car (Moyer, 2020) [17].

With the changes in consumer trends in the different types of automotive products, new competitors have also entered, both recently created and from the technological turn seeking market transgression, it is possible to see such as consumer electronics, telephone companies, etc., with vast experience in product development, organizational flexibility and highly qualified personnel, come to the automotive industry to propose new groups of products that could become the norm in the near future.

The market now demands more complex products at a fraction of historical resources to stay competitive. Therefore, flexible product development methodologies are required that can adapt to the speed of the current environment. During the last decades, work methodologies for product development have also evolved very quickly, an example is the implementation of lean methodologies (Lean, Six Sigma) of Japanese origin, focused mainly on the manufacturing process, allowing companies to companies increase their efficiency and that became the competitive advantage of brands now leaders in the market (Snee, 2010) [23].

Problem Statement

Is maturity the most important thing in the success of teams? It is important to have the knowledge and experience in soft skills in consideration for the selection of team members, since both personal behaviors, such as communication within and outside the team, as well as the technical experience of the product to be developed are key to the success of product development, especially for complex products, since in such highly specialized areas, such as the automotive industry, extensive knowledge is required not only of the system being developed, but also of government legislation by region, regulatory agencies, client/company policies, etc. Therefore, in this paper we seek to break down the definition of team maturity into different factors that can be analyzed to obtain useful information to better understand these teams.

Methodology

A bibliographic study was carried out with qualitative methodology using the information resources of the University of Guadalajara, particularly its specialized and multidisciplinary databases such as IEEE Xplore, ScienceDirect, Scopus, etc. Due to the amount of information available and relevant to the topic of maturity in high-performance teams and agile methodologies in high-performance teams. Of which a qualitative study was carried out among the existing approaches in the literature regarding the identification of key factors to measure maturity in high-performance teams and agile teams. Due to the above, a model of the interrelation of key factors is proposed to study high-performance teams, and also a verification instrument of the proposed model will be used to apply a pilot test of the model and analyze the results obtained.

Traditional Development Methodologies

Traditional methodologies refer to the first forms of process documentation for product development, since an intuitive way they express how to progress linearly. These methodologies are characterized by presenting long documentation processes, making a fixed determination of requirements exclusively during the beginning of the development process, and they are considered heavy (Javanmard & Allan, 2015) [10].

Waterfall

During the 1970´s Winston Royce proposed the cascade methodology, which proposes a structured succession with defined phases. Each phase consists of a series of activities and deliverables that must be completed before continuing with the process. (Morgan, 2018) [16].

The waterfall method has continued to be used to date by different development companies due to the simplicity of its logic, which is very useful for products that do not present many changes during the process. However, in highly changing scenarios, it can present flexibility and even quality problems.

V-Model

This is a software development process very similar to the waterfall process, however, a performance verification portion is added mirror-like to each phase to improve quality. It was proposed by Paul Rook at the end of the 1980s and is still used as a reference for many software development companies (Mathur & Malik, 2010) [15].

This methodology has been preferred by companies for its ease of use, rigidity, process specification, deliverables and for its proactivity in detecting failures from the beginning of the production cycle. This is how it has been used by industries where the requirements are well defined and there are extensive resources with technical expertise. It presents great advantages when there are clearly established dates, since it allows project managers to trace the project throughout the development cycle and allows verifying the operation during each phase of the project.

However, it also has disadvantages, such as the high risk that occurs during the design phase, which, when testing certain system requirements until the last phase, risks not complying with certain aspects that its modification could exceed the expected times. It is not very flexible to changes in the requirements of the interested parties. It does not easily support event concurrency. Although different modifications have been made to this methodology to increase its efficiency in terms of quality (Mathur & Malik, 2010) [15], they only add complexity to the process, increasing the learning curve and development time, leaving the flexibility problem intact.

Agile methodologies

Within the development of software products, agile methodologies are those that seek to adapt work processes to the particularities of each project, showing advantages over conventional development methodologies, such as flexibility and speed of response to make changes according to needs and the specific circumstances of the project. Agile development is a reference framework for establishing the process to follow that makes use of different methods based on development by iterations and increments, where the project grows according to the needs that arise. Likewise, the work is carried out through the collaboration of self-organized and multidisciplinary teams, in general the companies that implement this methodology have shown to have a positive impact in terms of efficiency and general satisfaction of the interested parties in comparison with traditional methods (Serrador & Pinto, 2015) [22].

Types of Agile methodologies

Scrum

It is a framework within which people can address complex adaptation problems, while productively and creatively delivering products of the highest possible value. It is characterized by being a simple implementation for effective collaboration in complex product development teams. Scrum co-creators Ken Schwaber and Jeff Sutherland have written a guide that contains the definition of Scrum, which consists of the Scrum roles, events, artifacts, and rules that tie the entire framework together (Lei, Ganjeizadeh, Jayachandran & Ozcan, 2017) [11].

It consists of different incremental stages as we can see in the following image (SCRUM, 2020) [21], where there is a product reserve, planning is carried out, the reserve of the current race is selected and work begins in races of determined times, from which revisions and a retrospective of the generated product are carried out in order to continue building on that basis in the next race, until the stated objective is reached.

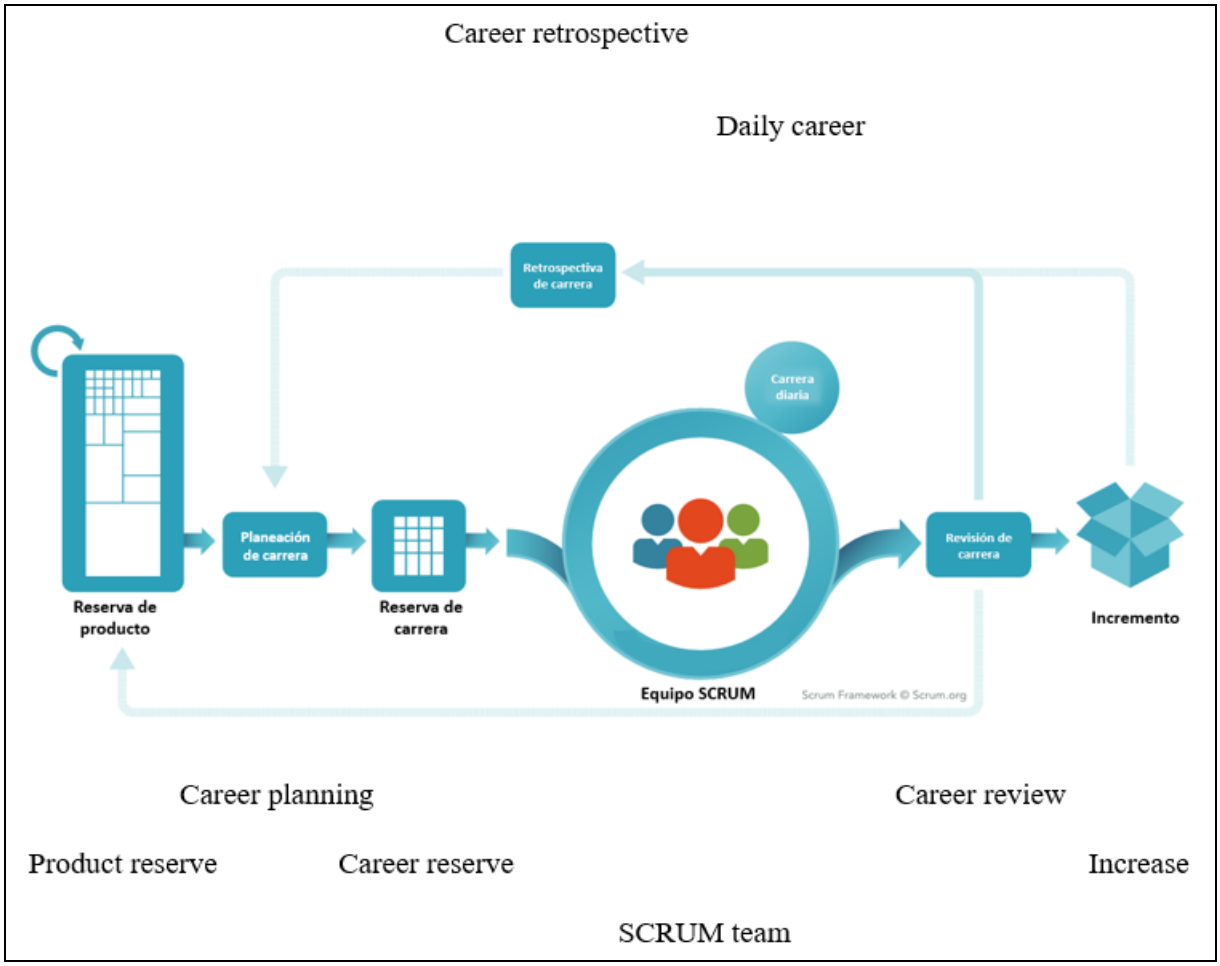

Fig 2: SCRUM framework of reference.

Kanban

The Kanban methodology refers to a board that presents a quick visualization of the tasks, through colored ballots, on which work is being done. It allows to easily identify project status, traceability of time and cost impediments, in order to better plan to reach deadlines. As well as work overloads and gaps in workflows (Lei, Ganjeizadeh, Jayachandran & Ozcan, 2017) [11].

Agile for large-scale organizations

Due to the fact that agile methodologies were thought and developed mainly thinking of small to medium-sized teams located in the same location, there are several disadvantages that complicate their application for large-scale companies, in response to the above and the needs of large companies wanting to get the benefits of agile methodologies.

Safe

The SAFE structure works as a guide to scale agile methodologies to large companies, it includes different levels such as teams, programs and portfolios, as well as a value stream (Paasivaara, 2017) [19].

DevOps

It is an extension of certain agile practices with a mix of patterns that try to improve collaboration between development and operational teams. The word comes from the union of the words developers and operators by their initials in English (Dev, Developers. Ops, Operation). This means sharing responsibilities in a team that takes importance of its environment and its respective tools. From development to release to production and support. Essentially this good practice understands the goals of continuous agile development through the entire development cycle of a product until it reaches the end user. This practice encourages the automation of processes such as changes, configurations, and releases (Virmani, 2015) [25].

High performance teams

A team is a small number of people with complementary skills who are committed to a common purpose, performance goals, and a shared procedure for which they hold each other accountable. Work teams outperform groups or individuals because team members learn from each other and build on each other's achievements.

A fundamental challenge is to find ways to create the right conditions for a team to reach its maximum potential, it is where leadership, communication and goal setting become key factors for the creation of high performance teams, since effectively managing such a team to a level where results can be achieved, such as developing novel technology and delivering time-critical tasks, requires not only a broad insight into procedures and tools (hard skills), but also a recognition of the importance of the human dimensions of the team (soft skills) (Holt & Marques, 2012) [7].

More specifically, a high-performance team in terms of product development, we can use the definition of (Daniel & Davis, 2009) [1] where they are referred to as "a group of technical and scientific experts, highly trained in various areas, who work collectively and simultaneously on complex technology projects where the demands of rapid development create an intensely challenging environment.These types of team provide an integrated knowledge resource to the technical supply chain as highly specific and refined functional units, which can deliver significant competitive advantage those companies capable of organizing and managing them successfully". There are some general factors for determining high performance work teams such as (Whetten, 2004) [26]:

- Performance results
- Specific and shared purpose and vision
- Mutual internal responsibility
- Disappearance of formal distinctions
- Shared and coordinated job roles
- Inefficiency leading to efficiency (innovation)
- Extraordinarily high quality
- Continuous creative improvement
- High levels of credibility and trust
- Clarity of core competencies

Maturity measurement

For the purposes of this article, the term maturity will be used to describe the state of full development of high performance teams. This section presents pertinent literature on the measurement of maturity in high performance teams, as well as comments regarding the application in the case study of this article, in order to define the main factors that can be decisive for the development of products in the automotive area in system equipment. According to (Fontana, Reinehr, & Malucelli, 2015) [5] 7 categories can be identified to be measured:

- Practices
- Team conduct
- Rhythm of deliveries
- Features
- Product
- Relationship with the client
- Organizational support

In (Dingsøyr, Fægri, Dybå, Haugset, & Lindsjørn, 2016) [2] the performance of a software development team is discussed from the comparative point of view between the principles of the agile methodology and the results they found. From the above, they share generalities that they identify as keys to team performance (5 principles) that can benefit the work done, these are:

- Team coordination
- Goal orientation
- Team cohesion
- Shared mental models
- Team learning

The foregoing is interesting because it confirms the proposal of the previous authors, however, it contains a subtle twist where the aspects to be taken into account are grouped in a different way.

Case systems equipment for new product development

The automotive product development life cycle, according to a modified waterfall diagram to get closer to the process, can be classified into the following stages:

e0. Creation and/or adoption of the concept
e1. Requirements elicitation and analysis
e2. Design and architecture
e3. Developing
e4. Tests
e5. Output to production
e6. Operation and maintenance

Due to the complexity of each product, in the different stages of development, groups from different disciplines in charge of product components such as systems, software and hardware work in parallel and/or in series. In accordance with the above, we can highlight the importance of the systems discipline described in the following section.

Systems teams

The definition of systems engineering according to (INCOSE, 2012) [8] "is an interdisciplinary approach and means the successful realization of systems. It focuses on concurrent and holistic knowledge of the needs of interested parties, exploring opportunities, documenting requirements, synthesizing, verifying and evolving solutions considering the entire problem from the conceptual stage to its disposal. This discipline acts as the first contact with interested parties that may include customers, regulators, end users, etc. To characterize a product through a specification that details the environment where it will perform, the components that make it up and the interaction between its modules during the design stage; so that once the high-level specifications and their interoperability are defined, other disciplines involved can focus on the modules that correspond to them.

The importance of this discipline in product development lies in the quality of the specifications delivered to the other disciplines and its ability to identify or anticipate problems that could arise during the rest of the process and the useful life of the product; and propose solutions that improve the quality and safety of the product, as well as avoid rework. Since the cost of correcting errors increases exponentially during the course of a project, for this work the focus will be on systems teams, which are involved throughout the development cycle and whose performance improvement can bring significant improvements to the identification and prevention of errors. An example of the above can be the Takata brand airbag company, which went bankrupt because its product endangered the lives of vehicle users due to problems in the quality of the materials used (Tajitsu, 2017) [24], which might have been identified by a systems team in requirements analysis or testing.

Scope

For this case study, three systems teams from a business unit of an Automotive Components Company were chosen, since they are considered a key piece for product development due to their nature of being at the highest level of design and architecture of the systems products generating an opportunity for the early identification of errors and thus reduce the cost of their correction. A model will be proposed that interrelates the key factors for determining the formation of high performance teams in systems teams for the development of new products, as well as an instrument to be able to interpret the model and measure maturity characteristics of the team in the terms specified. However, factors involved that are general enough so that this same study can be applied to teams from other disciplines will be analyzed.

It is important to highlight that the systems teams considered in this study are undergoing a transition from traditional to agile methodologies because this practice was created for software teams and has gradually spread to other disciplines, which although it is considered Within the company's processes, special emphasis will not be placed on the instrument used because it is a component that can vary between teams due to the type of product and/or customer deliverables.

Proposal for a model and instrument to be used in case of system equipment for the development of new products. Making use of the information presented and the available literature on the maturity measurement of high performance teams, a model is proposed to study the key factors that influence the analysis of said teams in the Automotive Accessories Company, as well as an instrument to validate the model.

Model proposal to use

It is possible to propose your own model that adjusts to the specific needs of the specific case study, with which you can measure the current degree of maturity and define the degree of maturity necessary to optimize the development of highly specialized products.

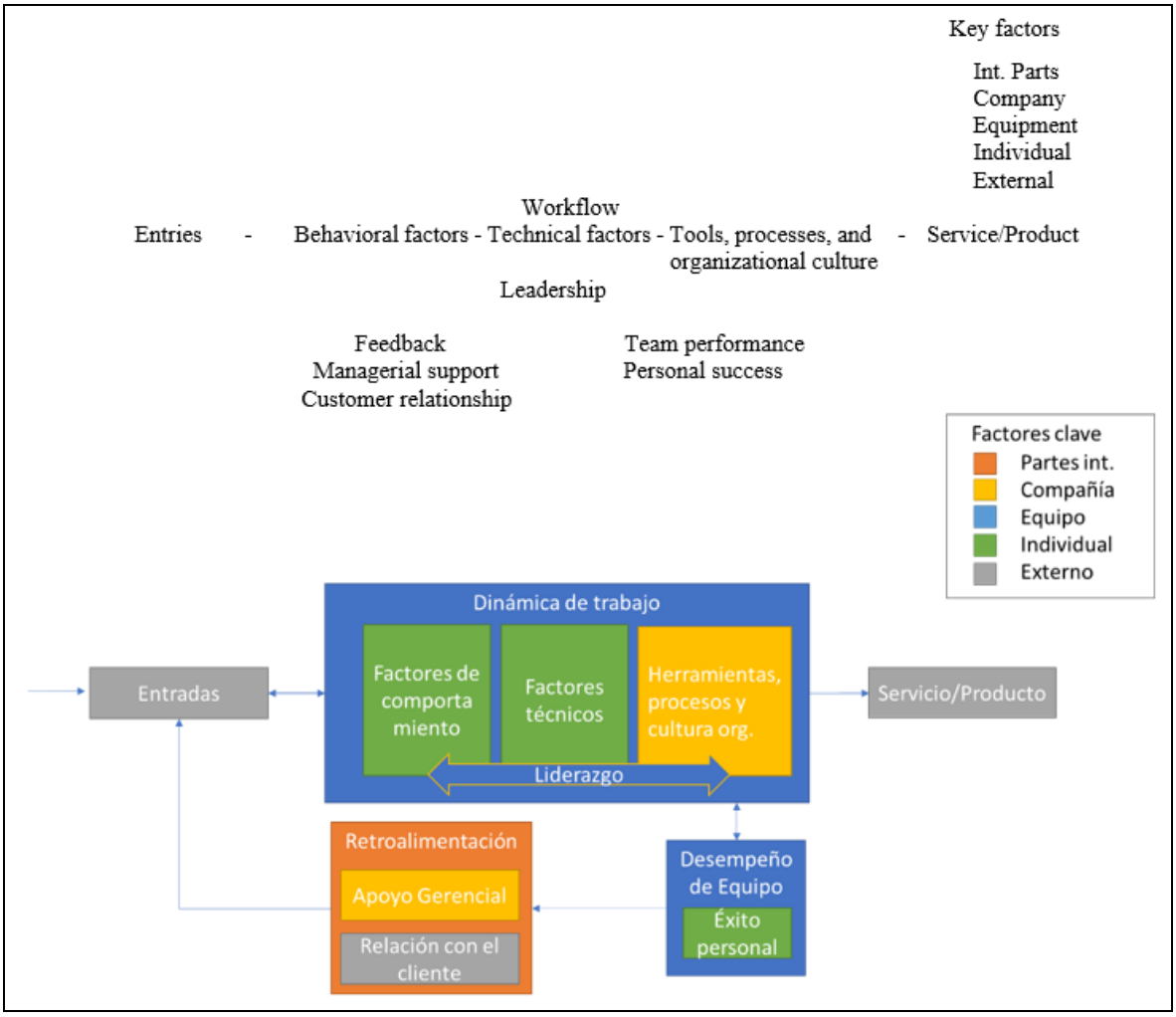

Fig 3: Model of interrelation of key factors to determine the maturity of the teams.

Approach of Instrument for evaluation of maturity

A survey was designed as an instrument for the interpretation of the previously presented model that was applied as a pilot test to collect qualitative information by individual and quantitative by group on the factors identified in the literature that directly and positively impact the performance of the teams.

Instrument design

An anonymous survey is proposed due to the importance of the team character, since the interest is mainly in the general perception and to avoid introducing systematic biases when trying to interpret or justify responses from the participants. It consists of 30 questions referring to the factors described in the previous section, as well as the design of the questions was based on the models that we can find in (Lencioni, 2002) [12], (Faraj & Sproull, 2000) [4], (Lu, Xiang, Wang & Wang, 2011) [14], (Groll, 2020) [6] and (Reichheld, 2003) [20].

The responses were designed as multiple choice, most on the Likert rating scale where possible, which is used to ask a person about their level of agreement or disagreement with a statement. This is widely used to measure reactions, attitudes and behaviors of a person, in this case a member of a team. One question refers to the breadth and depth of knowledge in different disciplines, giving as options: I being a specialist in only one area, T having extensive knowledge in different roles and being a specialist in one discipline, Pi being a specialist in two disciplines and in the form of M. who is a specialist in more than two disciplines. The questions were grouped into different sections related to the proposed model as described below:

1. Job position and goal setting. - These questions relate to tools, processes and organizational culture in the model.
2. Perception of the team. - These questions relate to technical factors.
3. Product development process. - These questions are related to team performance.
4. Work environment. - These questions relate to behavioral factors and external factors.
5. Organizational support. - These questions are related to managerial support and personal success.
6. Net Promoter Score. - This question refers to loyalty to the company.

Pilot Test Results

This section shows the results of the applied survey, these correspond to only one team that was considered interesting for demonstrative purposes. This is not intended to be, nor should it be used as, an average of the environment that is lived within the high performance teams analyzed, since it is only presented as an example of the implied analysis. Using the responses of the applied instrument on the Likert scale, it is possible to graph the average results of followers and detractors, divided into the sections presented above, as shown below in Figure 4:

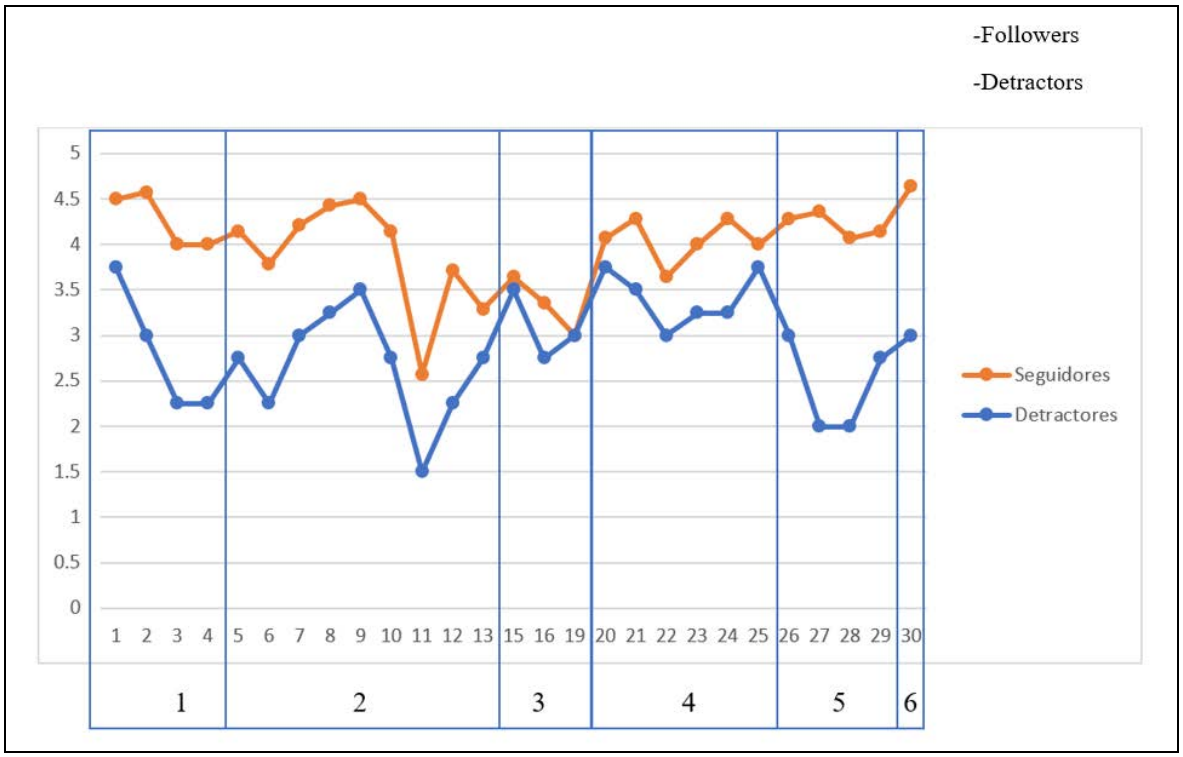

Fig 4: Instrument application results.

Likewise, Figure 5 shows the results of the experience balance analysis:

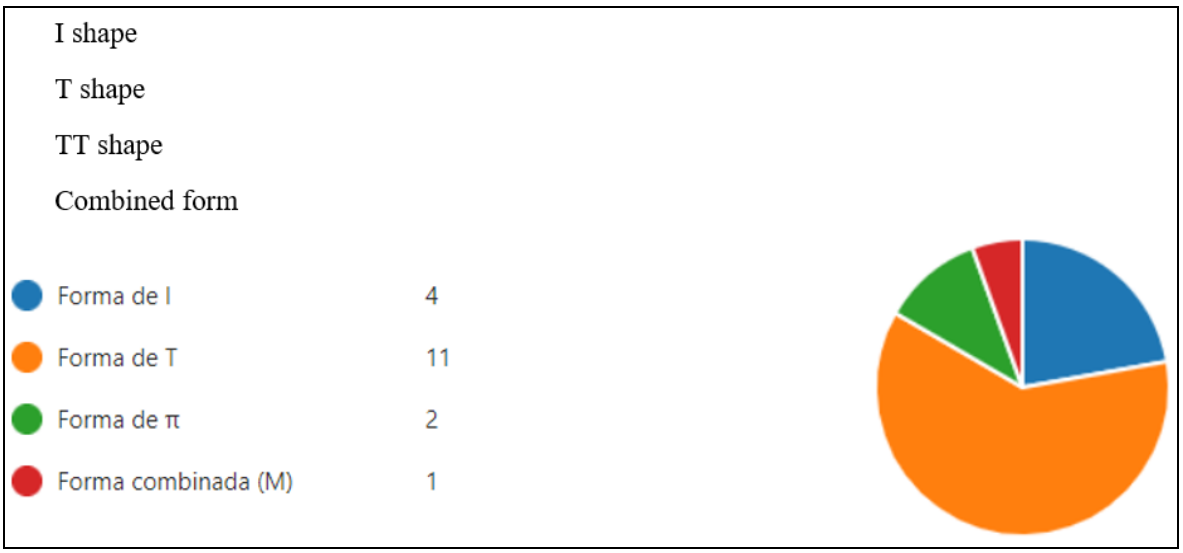

Fig 5: Results of the experience balance analysis.

Team trend analysis

Based on the results obtained, 3 types of specific analysis are presented, referring to the experience balance, sentiment analysis and net promoter score, since these are linked to specific questions that serve a reason in the instrument and that offer relevant information regarding the high performance team dynamics.

Experience balance
It is possible to appreciate that there is a team with a lot of experience since there is one member with an M shape and two with a π shape, which means that they are experts in more than one discipline. However, the percentage of members with the T form, which means that they are experts in one discipline and have gained experience in several roles, is disproportionately high with respect to the other forms and the I form, which only have experience in one discipline and a role is disproportionately low.
Due to the above, the need to train more members currently with the T form could be discussed so that they could reach the π form, so that the experience in the group can be better balanced.

Net Promoter Score (NPS)
The main purpose of this tool is to calculate a metric to determine the level of customer loyalty towards a brand or service. In this application to the analysis of high performance teams, the same structure of the question will be used: How likely is it that you would recommend our company, product or service to a friend or colleague?
However, instead of measuring it from 1 to 10 as proposed in the literature, a scale of 1 to 5 points was used to be consistent with the rest of the questions where:
5 - Follower (Follower)
4 - Member (Follower)
3 - Selfless (Detractor)
2 - Indifferent (Detractor)
1 - Detractor (Detractor)

Derived metrics
- Team average - Calculation of the average score of all the questions related to high performance teams, taking into account only the followers.
- Team commitment - Ratio of followers among the total number of team members.
- Quality of followers - Average NPS score of followers.
- Quality of detractors - Average NPS score of followers.

Team Result
The team average obtained corresponds to 3.96, so teammates can be considered in general terms as members. The team commitment is 77.78%, so a clear majority of followers can be identified in the team. Likewise, the quality of followers is 4.64, closer to a follower than to a member. Finally, regarding the quality of detractors, it is 3, which is why they are positioned as disinterested, which is why team integration actions can be sought to investigate more about detractors and encourage motivation in their objectives.

Interpretation of the proposed model
Taking into account the results presented, it is now possible to analyze their relationship with the model proposed in the previous chapter to relate the responses from a more comprehensive perspective of team evaluation.
The graph presented in Figure 4 allows visualizing information on the existing gap between the followers and detractors of the team, in order to propose strategies that can be specifically focused on where lower scores are located. For fans, it can be noted that sections 2 and 3, corresponding to technical factors and team performance, are the lowest compared to the other sections.
Regarding the detractors, it is possible to measure the average gap of 1.06 points which can be used as a reference point to identify the areas where this gap exceeds the average that, as can be seen, correspond to sections 1, 2 and 5; referring to Workplace and on the establishment of objectives, Perception of the team and Organizational support that are related to tools, processes and organizational culture, technical factors, managerial support and personal success.
It is important to highlight that the results obtained for followers and detractors are different and if we appreciate the figure in question we can see that the results show similar trends with a significant gap, this behavior was consistent with the other two teams we analyzed and may indicate that even within of the team there are different needs depending on each individual, the subjectivity of the people has a profound effect on their responses, this generates a remarkable difference between the responses of the followers with respect to the detractors. Due to the above, the first approach of many studies is to average them, however, doing so runs the risk of diluting the specific needs of each group and prioritizing only generalities that we do not know if they could be the key difference to reduce metrics such as employee turnover. This type of team, since the members of these teams are highly qualified, they are in great demand by other expanding companies.

Conclusions
Given the current scenario in the development of new technological products where we can find new competitors due to the rapid maturation of emerging companies, unique customers due to their product specifications designed to stand out in a very limited market segment, innovative business models due to to new ways of understanding the international consumer market, and its way of being part of the production chain, which

intensified with the arrival of the new normality, further polarizing industries, including the automotive industry, where only a few market leaders monopolize the largest share of the electronic components market.

With this understanding, a structured analysis of the maturity of high performance teams was carried out through various key factors that lead to the proposal of a model to interrelate these factors based on 5 main components: stakeholders, company, team, individual and external which is intended as a basis to expand the various approaches available in the reviewed literature and generate a starting point for understanding the maturity of such equipment systems within the automotive industry.

As a method of verifying the applicability of the proposed model, the design of a pilot test was proposed using an instrument consisting of 30 questions for this purpose that was validated and applied by the leaders of three participating systems teams. This test gave rise to the results presented, which correspond to one of the teams participating in the test considered as demonstrative, where graphs of the responses grouped by sections were made, and it is possible to observe trends mainly due to the subjectivity of the interpretation of the questions from each member.

Analysis techniques used in other areas, such as marketing, data science, etc. were proposed, which are sentiment analysis and net promoter scoring that can help highlight trends in high-performance teams taking into account different emotions and affinities towards the equipment, the tools, the tasks carried out on a daily basis, etc. that in other studies are not taken into account or that may go unnoticed when averaging the information.

With the experience obtained from the application of the proposed model, it is possible to anticipate that the implementation of this type of structured analysis can holistically improve the way in which continuous improvement strategies are designed within the company and help to create a work environment, productive, creative and fun that works as a growth engine for technology, economy and the well-being of all involved.

References

1. Daniel LJ, Davis CR. What makes high-performance teams excel? Research-Technology Management,2009:52(4):40-45.
2. Dingsøyr T, Fægri TE, Dybå T, Haugset B, Lindsjørn Y. Team performance in software development: research results versus agile principles. IEEE software,2016:33(4):106-110.
3. Eliot L. (4 agosto). The reasons why millennials aren't as car crazed as baby boomers, and how self-driving cars fit in. Forbes, 2019. https://www.forbes.com/sites/lanceeliot/2019/08/04/the-reasons-why-millennials-arent-as-car-crazed-as-baby-boomers-and-how-self-driving-cars-fit-in/#3355cf1d63fc
4. Faraj S, Sproull L. "Coordinating Expertise in Software Development Teams," Management Science,2000:46(12):1554-1568.
5. Fontana RM, Reinehr S, Malucelli A. Agile compass: a tool for identifying maturity in agile software-development teams. IEEE Software,2015:32(6):20-23.
6. Groll J. (18 agosto). From I-Shaped to T-Shaped – Why DevOps Professionals Need to be Multi-Skilled. DevOps Institute, 2020. https://devopsinstitute.com/from-i-shaped-to-t-shaped-why-devops-professionals-need-to-be-multi-skilled/
7. Holt S, Marques J. Empathy in leadership: Appropriate or misplaced? An empirical study on a topic that is asking for attention. Journal of business ethics,2012:105(1):95-105.
8. INCOSE. Systems Engineering Handbook, version 3.2.2. San Diego, CA, USA: International Council on Systems Engineering (INCOSE). INCOSE-TP-2003-002-03.2, 2012.
9. INEGI. (14 mayo). Statistics about World Internet Day. Statistics about World Internet Day, 2020. https://www.inegi.org.mx/contenidos/saladeprensa/aproposito/2020/EAP_Internet20.pdf
10. Javanmard M, Alian M. Comparison between Agile and Traditional software development methodologies. Cumhuriyet Üniversitesi Fen-Edebiyat Fakültesi Fen Bilimleri Dergisi,2015:36(3):1386-1394.
11. Lei H, Ganjeizadeh F, Jayachandran PK, Ozcan P. A statistical analysis of the effects of Scrum and Kanban on software development projects. Robotics and Computer-Integrated Manufacturing,2017:43:59-67.
12. Lencioni P. The five dysfunctions of a team. San Francisco: Jossey-Bass, 2002.
13. https://www.autoevolution.com/news/huawei-preparing-automotive-offensive-new-company-to-spearhead-in-car-push-148621.html
14. Lu Y, Xiang C, Wang B, Wang X. What affects information systems development team performance? An exploratory study from the perspective of combined socio-technical theory and coordination theory. Computers in Human Behavior,2011:27(2):811-822.
15. Mathur S, Malik S. Advancements in the V-Model. International Journal of Computer Applications,2010:1(12):29-34.
16. Morgan JD. Applying 1970 Waterfall Lessons Learned within Today's Agile Development Process, 2018.
17. Moyer B. (3 septiembre). Software-Defined Vehicles. Semiconductor Engineering, 2020. https://semiengineering.com/software-defined-vehicles/
18. O'Reilly T. What is web 2.0. "O'Reilly Media, Inc.", 2009.
19. Paasivaara M. Adopting SAFe to scale agile in a globally distributed organization. In 2017 IEEE 12th International Conference on Global Software Engineering (ICGSE) IEEE, 2017, 36-40.
20. Reichheld FF. The one number you need to grow. Harvard business review,2003:81(12):46-55.
21. SCRUM. What is Scrum? Scrum.org, 2020. https://www.scrum.org/resources/what-is-scrum

22. Serrador P, Pinto JK. Does Agile work?—A quantitative analysis of agile project success. International Journal of Project Management,2015:33(5):1040-1051.
23. Snee RD. Lean Six Sigma–getting better all the time. International Journal of Lean Six Sigma, 2010.
24. Tajitsu N. Airbag Maker Takata Files For Bankruptcy, Says It Will Be Bought For $1.6 Billion. [online] Business Insider. Retrieved April 24, 2020 from, 2017.
25. Virmani M. Understanding DevOps & bridging the gap from continuous integration to continuous delivery. In Fifth International Conference on the Innovative Computing Technology (INTECH 2015) IEEE, 2015, 78-82.
26. Whetten D. Development of management skills. Pearson Education, 2004.