Spiral methodology of the software life cycle oriented to the advertising service applying ISO 12207

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Abstract **- The purpose of this work is to study the application of spiral methology that advertising entities may use today, applying ISO 12207, obtaining as a result information from some institutions that already promote the use of this methology, as well as the possibilities of implementation in institutions that have been stranded with regard to technological modernization in their institutions.**

Index Terms - Methodology, ISO 12207, State institutions, technological modernization.

PAGE LAYOUT

At present, the advertising field by digital media has become one of the most valuable resources for any company, whether it is one that is just starting out, as well as great powers that have left their mark at the international level, which it is impossible not to know today in day.

This being the case, according to a report by the newspaper Gestión [1], Peru occupies the second highest level in Latin America, increasing its investment level by at least US $ 90 million in the past 2020. Even though this number seems very high, as recorded on the Statista website [2], this represented at least 0.21% of Peru's GDP, with a turnover of more than 400 million dollars per year, with projections increasing for the years to come.

BACKGROUND

To show a bit of the basis with which we elaborated the paper, we show below some of the investigations from which we obtained information to elaborate this project, where the progress of what is digital advertising can be visualized.

I. *Technologies in Advertising and Public Relations: skills, profiles, resources and training expectations in Digital Communication.*

New skills promote the emergence of new job opportunities and the development of specific skills that may require specific training. This consideration is especially relevant for degrees related to the media such as Advertising and Public Relations at the University of Alicante. Therefore, it is appropriate to explore from a student's perspective how cutting edge research is responding to this new scenario. This study focuses on understanding the relationship between university students and new technologies, using online resources used to facilitate later blended education and developing skills and competencies, digital education expectations.

The current problem with this type of business, which is digital advertising, is that although it represents a high level of profits prior to the pandemic, these have not been adjusted to the high demand that has arisen thanks to the pandemic that has hit the population today, so in this project we propose an adaptation to the ISO 12207 standards, making use of the spiral methodology, hoping to obtain progress in the process of adaptation to the current great demand .

As Maricruz corrales [3] explains, the spiral methodology makes use of what is the search for collective action as a strategy for change, where it delves into the ways that an action research can arrive.

We hope that the adaptation that we will carry out to this methodology will be sufficient to improve its functionality, in such a way that it can be implemented in a faster and more efficient way in the project.

II. *Research on digital advertising in Spanish scientific journals.*

The general panorama of this study clearly shows that digital advertising is a topic of scientific interest, with 6 scientific contributions on this topic between 2002 and 2012. Internet as an advertising medium (53.13%). Researchers with a theoretical framework applicable to new phenomena understand that the analysis of the nature of the medium, its regulation or self-regulation, and the form and trend of advertising is the subject of research. When studying the process and practice of digital advertising, measuring the synergies of online and offline advertising audiences requires special tools and awareness of work motivation. Entering an agency or a professional environment is very difficult.

III. *Epistemological and methodological foundations for a scientific study of advertising.*

Any scientific study of the phenomenon of advertising, in all its aspects, must begin with an immediate experience in which the researcher engages with the rest of the topics, depending on their relevance. Therefore, scientific research on the phenomenon of advertising does not pretend to reveal "nature", not to explain advertising in general and pretend to be the "essence" of advertising, but to relate to the situation. Scientific research related to advertising advanced as society began to recognize the characteristics of the problem of advertising phenomena on the dimensions as a whole.

IV.   *Digital Humanities: challenges, achievements and future prospects.*

According to this study, regarding the benefits of digital advertising, we can highlight the form, simplicity, speed, interactivity, low cost, global reach and millions of network subscribers. Disadvantages include that not everyone has access to the web, and promotional resources and strategies are rapidly becoming obsolete. So this technique can be iterative, but cumbersome, think and conclude if innovation in digital advertising is needed. We need to deal with the new method, to undo the old one

THEORETICAL FRAMEWORK

V.   *ISO 12207.*

Software is an integral part of any organization that improves the standards, procedures, methods, tools, and environments for developing and managing software. This growth has created challenges throughout the management and integration of products and services. The discipline of software is necessary to create a common frame of reference so that software professionals can "speak the same language" when creating and managing software. The Peruvian technical standard NTP ISO 12207 provides that common framework. This international standard is used throughout the life of software, from concept to concept, and has a common structure for buyers, suppliers, developers, maintainers, operators, managers and engineers involved in the use of software development. The goal is to toast. popular language. (Morán E., 2007) This standard is the basis of good software engineering and provides a reference process model of the software life cycle, including best practices. A process is described in a way that achieves goals and results. It also specifies the activities and tasks necessary to perform high-level processes, including software, to achieve the functions required by buyers, suppliers, developers, service administrators, and system operators. (JF. Pino, F. García, F. Ruiz, M. Piattini, 2006) The recently announced ISO 12207 software life cycle process has been tested for compliance

using the standard computer model developed by Cargill. The revisions used to identify two characteristics of ISO 12207 that conflict with its applicability as a reference standard for the software industry can adjust the required process or process model and various quality assurance processes. This review describes the scope of the proposed guidelines that will accompany ISO 12207 in the future, and is clearly spelled out in the industry standard model with extensions that enable new standards, based on the Cargill standard, and define functionality in the function settings. from. Exploit the potential of industrial models. (Jones A., 1996) This review describes the scope of the proposed guidelines that will accompany ISO 12207 in the future, and is clearly spelled out in the industry standard model with extensions that enable new standards, based on the Cargill standard, and define functionality in the function settings. from. Exploit the potential of industrial models. (Jones A., 1996) This review describes the scope of the proposed guidelines that will accompany ISO 12207 in the future, and is clearly spelled out in the industry standard model with extensions that enable new standards, based on the Cargill standard, and define functionality in the function settings. from. Exploit the potential of industrial models. (Jones A., 1996).

VI.   *Spiral methodology.*

The spiral model of software development is a super model of the software life cycle, in which development tasks are repeated and as soon as one development task is completed, another is completed. Furthermore, each development was carried out in four main phases.

Determine or set goals

This step determines the limits of the system and the software process by specifying a specific objective. We also design detailed management plans and identify risks.

Risk analysis

In this step, a detailed analysis of each risk identified in the project is carried out, the actions to be taken to reduce the risk are identified and an alternative strategy is planned after the analysis of these risks.

Develop, verify and validate

In this third step, the software system development model is selected and developed after risk analysis.

To plan

In this final step, the project is reviewed and a decision is made to continue the cycle after twisting. If you decide to continue, you can plan the next steps in your project.

Each time the spiral is repeated, the next version of the software is created, it is improved each time, and finally the software system is fully functional.
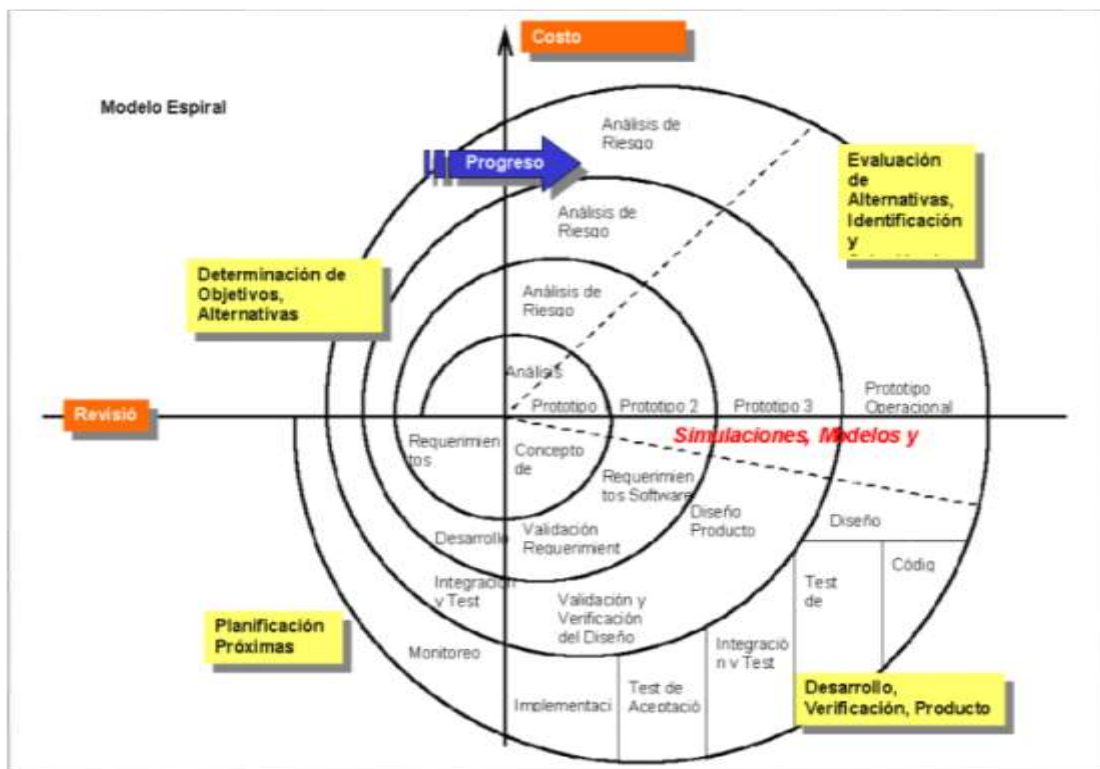
FIGURE 1

In figure 1 we can see the spiral model that we apply in our project, of which, analyzed in greater detail, certain disadvantages of the present can be extracted, so that we can eliminate with the implementation of ISO 12207, and that at We will detail below.

Disadvantages:

METHODOLOGIES

To achieve the adaptation of the spiral methodology, with respect to ISO 12207, it is required to make use of a series of steps, which we will go on to detail below for a better understanding of them.

Primary process

Procurement Process - Defines the activities of the buyer, purchasing system, software product, or software service organization.

Provision Process: Define the activities of vendors and organizations that provide systems, software products, or software services to demanders.

Development process: The development process includes the activities and tasks of the developers.

Operation process: defines the activities of the operator, the operator is an organization that provides users with the service of operating the computer system in the real environment.

Maintenance process: Define the activities of the maintenance manager, that is, the organization that provides maintenance services for software products, that is, managing the modification of updated and operable software products.

Support process

Documentation process: Define the activity of recording the information generated during the life cycle process.

Configuration management process - Define configuration management activities.

Quality assurance process: define activities to objectively ensure that software products and processes meet your

It is difficult to convince large clients that the evolutionary approach is controllable.

Due to its high complexity, it is not recommended to use it in small systems.

Generates a lot of time in the development of the system.

Expensive model.

Requires experience in risk identification.

specified requirements and comply with your established plans.

Verification process: define activities (for the acquirer, supplier or independent) to verify the software project and the level of detail of the software product.

Validation process: Define activities (for the acquirer, supplier or independent) to verify the software product of the software project.

Joint review process: define the activities to assess the status of activities and products. Either party can use this process, and one party (reviewer) will review the other party (reviewed party) together.

Organizational process

Management process: Define basic management activities in the life cycle process, including project management.

Infrastructure process: Define the basic activities of the infrastructure that establishes the life cycle process.

Improvement process: Defines the basic activities of an organization (acquirer, supplier, developer, operator, person in charge of maintenance or person in charge of another process) to establish, measure, control and improve its life cycle process.

Training process: Define the basic activities to obtain the appropriate training personnel.

Taking into account this series of processes, we will continue to apply them in what is the improvement of certain points of the aforementioned spiral methodology oriented to what digital advertising services are, thus achieving that the

steps of this methodology, already mentioned before , show an improvement in speed and accuracy in their application.

PREPARATION OF THE PROPOSAL

Taking into account the disadvantages shown above, of the spiral model, we adapted the ISO 12207 so that the modifications made, we hope will compensate for the flaws in the model and can provide better control, as shown below.

Planning

It includes the cost estimate, schedule, and resources for the sprint.

It also involves understanding the system requirements for ongoing communication between the requirements analyst and the customer. Applied this in what is digital advertising, a record is made of the cost of software licenses, as well as the equipment required for advertising work, as well as an organization of ad delivery dates.

Risk analysis

The identification of potential risks is done while planning and finalizing the risk mitigation strategy. Being in this case, typographical errors and possible programming errors within the program

Engineering

Includes coding, testing, and deployment of the software. Review of the beta phase, prior to final implementation

[ADDED] Quality assurance process

We define activities to ensure that the software product and processes meet your specified requirements and comply with your established plans. Even when a systems review has already been done, it is essential to ensure the quality of the software, so that a quality product is delivered to the customer [Helps to minimize the risks of lack of experience in the software review]

Evaluation

Evaluation of the software by the client.

In addition, it includes the identification and monitoring of risks such as delays in deadlines and cost overruns. Delivery of a preliminary report of the project, so that you know what to expect from the final process, which will be subject to discussion.

[ADDED] Joint Review Process

Define the activities to evaluate the status of activities and products, already in conjunction with the client, so that their concerns and possible improvements that they want to implement in the final project can be understood [This provides greater control in the implementation budget of the spiral methodology, as well as giving a greater sense of control with the client].
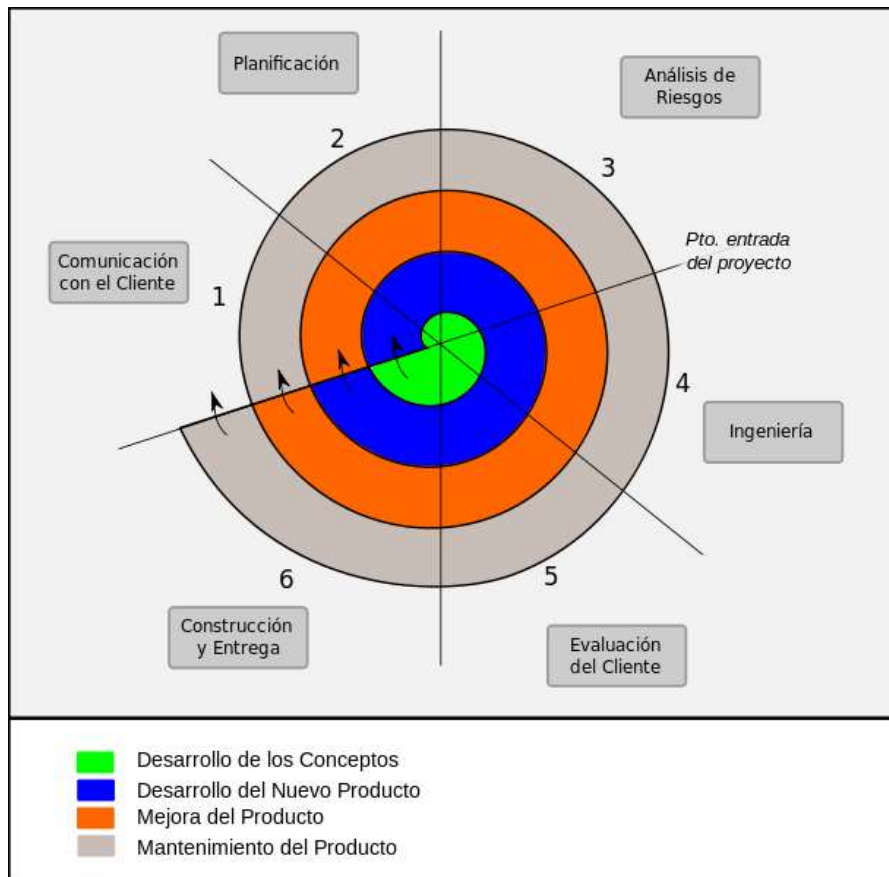

Figure 2

As can be seen in figure 2, 2 new processes have been added to the common spiral model, which, although it seems that it could make the project more difficult, from our point of view, it can maintain better control of the process, reducing thus future complications in feedback processes.

RESULTS

As we could see in the previous points, we have implemented 2 more phases to the usual spiral methodology [Fig. 2], so that we can optimize its operation, and likewise be able to avoid the complications that were mentioned at the beginning of the document.

The spiral methodology, as explained in the study by Galo Fariño [10], suggests that software engineering spiral prototypes are currently the most practical approach for large-scale software and systems development. Using an evolutionary approach to software engineering, we enable developers and customers to understand and manage risk at all levels of the spiral, but that does not prevent it from being improved, delivering a better end product to customers.

The software designed with the modified spiral methodology, will reach a more refined term in regards to product quality, not to mention that, with its feedback process, it will be in a more efficient continuous evolution, since many errors are corrected, which gives the entrance to new potential clients.

DISCUSSION

Once this new methodology has been granted, we can observe that, compared to other methodologies, it has greater strengths that would attract attention in the current market. Next, we will make a brief comparison between the slight differences of the new model, with respect to the disadvantages of the other methodologies.

TABLE 1.
COMPARATIVE METHODOLOGIES

In the table shown above, we can observe a comparison between the disadvantages of the other models, and what our model proposes to solve the respective points

CONCLUSION

The spiral model has only small disadvantages, which were mentioned in point 3.2 of this document, but also demonstrating that it is a useful model, that although it has a number of processes that could be considered high for some, it can endure a project with efficiency as can be demonstrated in other works mentioned in the background.

Bearing this in mind, the model in which we have implemented ISO 12207, gives us a better result in the spiral methodology, correcting the disadvantages that it presented in the usual model, which, with good coordination, both on the part of the administrators Like programmers, high-quality software could be made with a small percentage of error.

IN TEXT REFERENCES

All material from any research resource must be accompanied by a bracketed in-text reference. This reference must correspond to its end-text full bibliographic information in the References section. Failure to properly reference all resource material used in a paper leaves the paper's author open to charges of plagiarism.

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Bracket all in-text references, for example [1].

In text references must be **numbered sequentially in the text, beginning with [1]** for the first reference. In other words, the first source from which you quote, paraphrase or use information must be referenced in your paper as [1]. The next source from which your quote, paraphrase or use information must be [2]. If, later in your paper, you use information from the same source and same page as [1], then your in-text reference number will again be [1].

Do not use "Ref. [3]" or "reference [3]." Simply use the bracketed number.

For material summarized from several sources, use the appropriate bracketed numbers, for example [3]-[5].

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