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SYSTEMIC INQUIRY FOR CONTINUOUS IMPROVEMENT OF PROJECT MANAGEMENT TOOLS: THE GESTIONA CASE OF THE STATE DISTANCE UNIVERSITY

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Summary. The Research System of the Universidad Estatal a Distancia (UNED) has sought, since its creation, to promote a systemic dynamic for the management of its projects, supported by customized technological tools. This perspective challenges the traditional view of research project management and opens up possibilities for innovation in this area. Thus, Gestiona, an online software for capturing the information produced by the projects belonging to this research system, was created. The objective has been the continuous improvement of Gestiona and its adaptation to the changes of the UNED research system, considering as an effectiveness criterion the minimum possible loss of information from the data generated by the projects. This paper shows how a systemic investigation of the behavior of the actors involved in the projects has allowed the continuous improvement of the tool and the capture of relevant data in Gestiona, for decision making by the managers of the research projects. The results obtained show the effectiveness of systemic inquiry as an alternative for the continuous improvement of project management. Emerging opportunities for improvement are also presented as a valuable feature of the systemic inquiry process.
Key words: systemic inquiry, continuous improvement, Gestiona, UNED

INDAGACIÓN SISTÉMICA PARA LA MEJORA CONTINUA DE LAS HERRAMIENTAS DE GESTIÓN DE PROYECTOS: EL CASO GESTIONA DE LA UNIVERSIDAD ESTATAL A DISTANCIA

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Resumen. El Sistema de Investigación de la Universidad Estatal a Distancia (UNED) ha buscado, desde su creación, propiciar una dinámica sistémica para la gestión de sus proyectos, apoyada en herramientas tecnológicas diseñadas a la medida. Esta perspectiva reta la visión tradicional de gestión de proyectos de investigación y abre posibilidades de innovación en este ámbito. Así, surge Gestiona, un software en línea para la captura de la información producida por los proyectos pertenecientes a dicho sistema de investigación. Como objetivo se ha buscado la mejora continua de Gestiona y su adaptación a los cambios del sistema de investigación de la UNED, considerando como criterio de efectividad la mínima pérdida de información posible a partir de los datos generados por los proyectos. El presente trabajo muestra cómo, una indagación sistémica del comportamiento de los actores que intervienen en los proyectos, ha permitido la mejora continua de la herramienta y la captura de datos relevantes en Gestiona, para la toma de decisiones por parte de las personas gestoras de los proyectos de investigación. Los resultados obtenidos muestran la efectividad de la indagación sistémica como una alternativa para la mejora continua de la gestión de proyectos. Asimismo, se presentan oportunidades de mejora emergentes como una característica valiosa propia del proceso de indagación sistémica.
Palabras clave: indagación sistémica, mejora continua, Gestiona, UNED

Introduction

The Research System of the Universidad Estatal a Distancia (UNED) has sought, since its creation, to promote a systemic dynamic for project management mediated by technological tools tailored to the institution. This vision represents, in addition to a challenge, given the context of scarce Costa Rican public resources, a space for the creation of new forms for the management of research and innovation projects that nourish the dynamics of the UNED research system.

In order to guarantee the quality of its research, innovation and development initiatives, with its own inputs and under the leadership of a team of university researchers with experience in systems analysis and development, an online software tool was built, which for several years would be hosted on a computer with minimal resources, purchased with funds earmarked for research.

It was called Gestiona and in a short time, related to the task of supporting project management and strategic decision making, it was also designed to be the window to make UNED's research visible to the whole world, a task it has carried out up to the present.

Based on a systemic investigation of UNED's research work, Gestiona has continuously adapted to the behavior of UNED's research system processes, considering as an effectiveness criterion the minimum possible loss of information from the data generated by the projects.

Systemic inquiry is conceived as a social learning process, focused on addressing a complex situation of interest, where actors with multiple perspectives participate, there are changing environments and diverse technological elements, in order to propose improvement actions for it (Ison, 2017). This approach is based on the idea that systems cannot be fully understood by examining their parts individually, but that it is necessary to understand how the parts interact with each other and how these interactions give rise to the complexity of the system as a whole.

It involves the use of various tools and techniques to analyze complex systems, including mathematical modeling, simulation, network analysis, data visualization and participant observation. In addition, it uses an iterative approach to research, in which the results obtained are used to adjust and refine the understanding of the system in question.

This approach has been used in multiple fields, such as biology, ecology, economics, sociology, psychology and engineering, among others. It is considered especially useful for dealing with complex and multidisciplinary problems.

Thus, systemic inquiry has 4 components:

- Situation of interest: The situation to be explored in order to find possible alternatives for improvement. It is assumed that it is perceived as complex by stakeholders, i.e., it involves multiple actors with possibly conflicting perspectives, it occurs in a changing environment and its solution is not formalizable (Rittel & Webber, 1973).
- Practicing person: In this case, it is the members of the consulting team who guide the development and implementation of the systemic inquiry, using different tools from the systemic tradition to understand and address the situation of interest (Blackmore, 2010).
- Framework: The theoretical reference that guides the selection of methods and techniques to be used during the systemic investigation of the situation of interest.
- Set of methods and techniques: In accordance with the stated framework, a series of techniques or methods to be used are defined. These can be qualitative, quantitative or mixed.

However, before going deeper into the results of the systemic inquiry applied to the Gestiona system, it is important to clarify important aspects of the context and the situation of interest perceived as problematic.

In the first instance, it is worth noting that the development of Gestiona emerged from researchers belonging to the UNED research system, with a more proactive and risk-taking vision than that of the traditional management in charge of institutional technological development, which tends to be slow and not very open to innovation processes.

It is not common for researchers (even if they have a background in computing) to develop and be in charge of taking care of the necessary modifications to a computer system, so, although there are multiple methodologies of analysis and design of requirements that could be applied to the process of continuous improvement, it was decided to give an investigative approach to the evolution of the system itself, thus causing the users to eventually be direct actors in the process of change.

Gestiona was conceptualized in a complex environment, where there were phenomena that predicted that it would not be a usual development. These phenomena, which at the beginning were considered obstacles, were solved thanks to the visionary decisions made by the person who was vice rector at the time and the work team of programmers-researchers in charge of the task, and were transformed into opportunities that would differentiate it from the rest of the institutional systems to this day.

The phenomena referred to are:

- The short time elapsed in management: the Vice Rector's Office for Research was created in 2007, therefore, at the beginning of the development of Gestiona (2011) the macro-processes and processes were just beginning to be conceptualized, which encouraged a previous exploration to conceptualize the system, making it the product of a research project in itself.
- The existing dilemma between the UNED's Vice Rector's Office for Research and the Directorate of Technology (DTIC): the alternatives offered by the latter in terms of innovation and response time did not satisfy the Vice Rector's authority and, therefore, technological independence was chosen, which would include constant experimentation with new practices and tools.
- Trying to pigeonhole the new tool to meet the need to support research management, within the parameters requested by the DTIC, since it was necessary to have clearly identified all forms, processes and reports, contrary to the intention of keeping the system always open to improvements, in response to the changing work dynamics of the UNED research system.
- The multidisciplinary nature of the system's users: Gestiona would be used by biologists, philosophers, psychologists, professors, theologians, teachers and many others, which meant that the tool had to be perceived as simple, flexible and intuitive, but above all, that it would not hinder research.
- Resistance to change: being born in an abstract environment, as the research system was in its beginnings, meant that many researchers were opposed to its development. For example, it was considered a mistake to delimit the start and end date of projects by advocating terms such as transversality over time.
- The existence of multiple project executors: anyone can carry out research at UNED, regardless of whether they do it individually or in groups, and the administrative or academic unit of the participants is indifferent. This leads to the existence of a normal rose between the different forms of project management, which is reflected in the diversity of presentation forms, letters of endorsement from external peers, and progress and closure report templates. So, Gestiona had to be tolerant in terms of the formats of the stored documents.
- Likewise, the presence of multiple entities sponsoring research projects, mainly governmental institutions, as well as international organizations, required researchers to fill out the project presentation template defined by each entity. Therefore, if an additional step was added to the process to require the completion of another document with the format defined by the Vice Rector's Office for Research, it would have been a bad strategy to seek the acceptance of Gestiona.

Thus, from the beginning, the development of Gestiona as a tool for capturing information resulting from the dynamics of research projects, was surrounded by an environment with a certain resistance to change, a situation that demanded a different approach, which in addition to subsisting in the midst of such complexity, would promote continuous improvement for a successful adaptation to the changes and demands that would eventually arise in the environment.

Continuous improvement, according to Garcia Medina et al (2018) will result in an improved product or service, more competitive and much more responsive to customer requirements, where through a systematic approach, processes are identified, analyzed and improved in terms of quality, efficiency and effectiveness. This process is carried out through

the following steps: 1) problem identification, 2) problem analysis, 3) solution development, 4) solution implementation, 5) monitoring and measurement, and 6) continuous evaluation.

This paper shows how a systemic inquiry that considers the actors involved in the projects has allowed the continuous improvement of the tool and the capture of missing data in Gestiona, to facilitate decision making by the managers of the research projects. The methodology implemented during the systemic inquiry is detailed below.

Methods

One of the components of systemic inquiry is the choice of a framework that defines the techniques or methods to be used, whether qualitative, quantitative or mixed. In our case, we adopted the Soft Systems Methodology (SSM) (Checkland & Poulter, 2010), which promotes the search, with the support of various tools such as scatter diagrams, enriched images, among others, of spaces for improvement based on the dialogue between the parties involved and the generation of commitments that lead to feasible and viable actions in the context.

The SSM methodology was developed in the 1970s by British researcher Peter Checkland and has been used in various fields such as business management, urban planning and education, among others, since its approach is to solve complex problems involving social or human systems, rather than technical or mechanical systems.

Its application was considered because work sessions can be carried out using generative questions, scatter diagrams, enriched images, activity models, among others, in order to understand and address the situation of interest. According to Ison (2017), these tools become useful cognitive devices for stakeholders to share their requirements and reach workable consensuses for the resolution of the situation of interest.

In the case of the evolution of Gestiona, from its implementation to date, systemic inquiry has been used every time a problem or an opportunity for improvement has arisen, following the cycle shown below:

1) Identification of relevant stakeholders: At this stage, the relevant decision makers in the context of the situation of interest were identified. This identification process was based on the selection criteria of people with active support roles in the management of research projects, researchers, students and authorities.

2) Discussion sessions: Discussion sessions guided by the main concerns were designed to identify the various perspectives on the problems or opportunities for improvement. Enriched imagery was used to facilitate understanding of the perceived problematic situation (Bell et al., 2016).

3) Search for compromises: Through discussions guided by the results obtained, the participants were guided to visualize possible agreements for the generation of commitments towards viable future actions.

4) Definition of viable actions to follow: Through dialogue, viable actions were prioritized and defined to improve the situation perceived as a problem or opportunity for improvement.

The results obtained from the methodological steps described above are shown below.

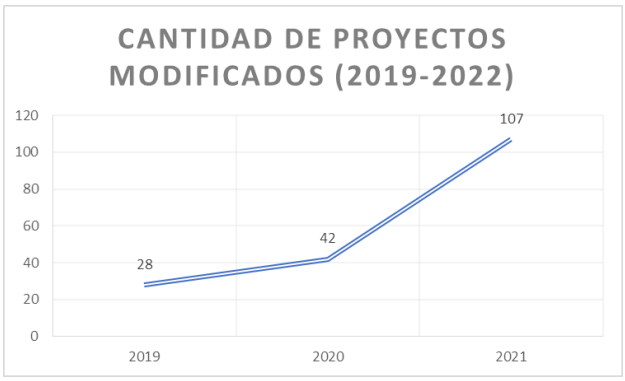
Results

The first result obtained from the systemic inquiry is the deconcentration of management in Gestiona. It was detected, given the convergence of the actors during the investigation, that each project executing agency within the research system used its own tools to maintain a list of its projects, with information that was not necessarily entered into Gestiona. At the same time, it was identified that most of the units had human talent dedicated to the management of their projects and the corresponding documentation, so it was considered an opportunity to implement a new role in the system, called Unit, which would allow the registration of the information of their own research projects, without the intervention of the personnel of the vice-rector's office.

The following figure shows how, as a result of this change, the number of updates to projects increased by 73%, contributing to the reduction of information gaps that prevented adequate decision making based on Gestiona data.

Figure 1

Number of modified projects (2019-2022) in the Gestiona system

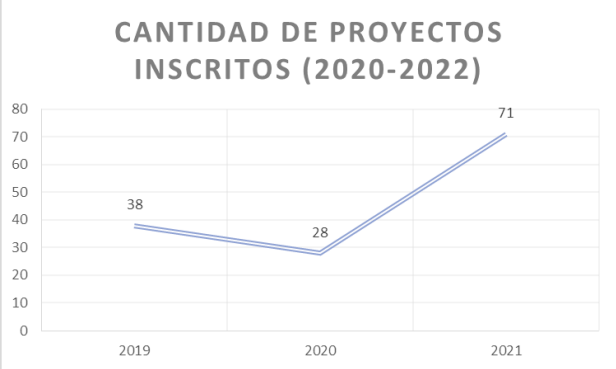


Note. Source: own elaboration using system traceability data

It should also be added that as a result of the systemic inquiry, the creation of the role was accompanied by individual training for each unit and in those that decided to use the new profile, a thorough cleaning of the data of the existing projects and the registration of the missing projects was achieved. Figure 2 shows that the number of self-managed projects, i.e., those entered into the system by persons in charge of the different units, increased from the second year onwards.

Figure 2

Number of projects registered with the role of Unit (2019-2022) in the Gestiona system



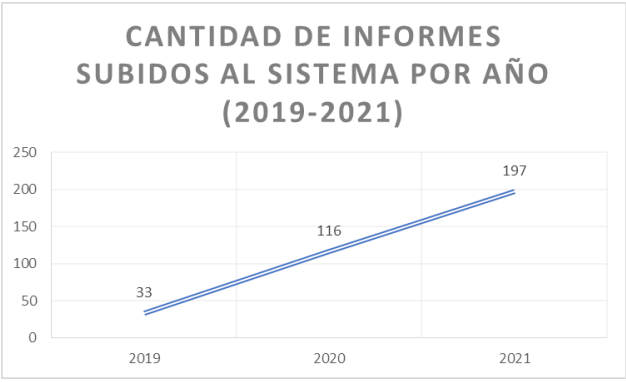
Note. Source: own elaboration using system traceability data

Another result was the automatic inactivation of projects in the system. Here, where the participants in the survey were mainly researchers with projects registered in Gestiona, they acknowledged their carelessness in not sending the progress or closure reports to be uploaded to the system, even though they did submit them to their respective units. On the other hand, it became evident that those in charge of updating the data in the system from each unit were not taking on the task of attaching the reports submitted to them. The solution proposed by the users themselves was that the system would automatically change the status of the projects to inactive if more than 6 months had elapsed since the last time a progress report was attached.

The results of having implemented the solution described above are shown in Figure 3, showing that the number of reports uploaded to the system tripled in the first year and grew almost 6 times in the second year.

Figure 3

Number of reports uploaded to the system per year (2019-2022)



Source: own elaboration using system traceability data

Continuing with the results obtained from the systemic inquiry, the need arises to geo-reference the activities carried out in the different research projects. The justification for this requirement, which was raised by the users themselves, is that the location indicated at the time of requesting the registration of a project, was mostly that of the unit or office to which it is presented and from where the resources are allocated, both in time (time dedicated to research)

and money (travel expenses mainly), however, this location does not reflect the day-to-day dynamics and what is really experienced in the development of the research, since the tasks are carried out in practically all the national territory, for example, to take samples, interviews, observations, prototype tests, among others. Thus, the functionality of the system was developed to allow the registration of activities, independent of each other, but linked to the same project and that each one could be geo-referenced. This point, rather than reacting to a detected problem, emerges as an innovation that provides added value to Gestiona, not only to the actors that participate in the dynamics of the UNED research system, but also to external entities that wish to access the information. The image below shows how the geo-referenced activities are displayed in the system.

Figure 4

Example of the display of georeferenced information in Gestiona

Note. Source: Gestiona system, Vice-rector's Office for Research, UNED (2023)

Linked to the previous result, another need for consideration arose from user feedback. It involves attaching photographs to the activities carried out for a project. Nowadays it is commonplace that when we participate in meetings, workshops, trainings and other work activities, it is necessary to take at least one photograph of the work group, which is used to upload it to social networks or to save it as part of the evidence that the event was carried out. Well, this behavior was seen as an opportunity for improvement for Gestiona, by allowing the attachment of photographs related to the activities, which in themselves were already going to be registered in the system for the purpose of georeferencing the project.

Figure 5

Example the inclusion of photographs in the project activities in the Gestiona

Note. Source: Gestiona system, Vice-rector's Office for Research, UNED (2023)

The following request corresponds to the need to track the requests made to the Vice Rector's Office for Research. The investigation revealed that there was uneasiness about the processing times of the procedures requested to the vice-rector's office, since the researchers did not receive adequate feedback on the current status or whether they had been received by the right person. The evidence presented showed that many requests were never answered, although the steps indicated were carried out, mainly those related to modifications of project or researcher data registered in the system. The solution proposed and eventually implemented was the possibility of making requests within the Gestiona system itself, and in this way, from the moment of entry to the final attention, the applicant could visualize the current status and the steps as he/she progressed through the flow of attention. The following figure shows part of the list of requests that have been attended within Gestiona, as a result of the implemented solution.

Figure 5

Example of how requests are handled in Gestiona

1 2 3 4 5

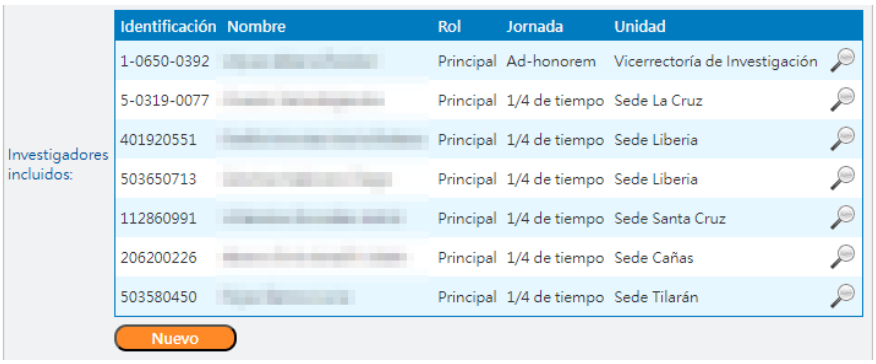
Leída	Código	Fecha	Investigador	Detalle	Estado
	150	28/02/2023	Vargas Sanabria Daniela	Título: El régimen de incendios en Costa Rica: pos	En revisión presupuesto
	149	09/02/2023	Artavia Díaz Karla Yanitzia	Con el paso del tiempo la visión tradicional de ed	Rechazada
	148	09/02/2023	Artavia Díaz Karla Yanitzia	Con el paso del tiempo la visión tradicional de ed	Atendida
	147	06/02/2023	Alfaro Fallas Tomás	Nombre completo: Diego Gerardo Bogarín Chaves. DNI	Atendida
	146	01/02/2023	Vargas Castro Luis Esteban	Buenas, quisiera amablemente solicitar el document	Atendida

Note. Source: Gestiona system, Vice-rector's Office for Research, UNED (2023)

Thanks to the systemic inquiry, a common work dynamic was observed in the projects developed at UNED, but it was not so noticeable until the authorities emphasized that it should be made visible. This is the linking of personnel from different units to carry out a research project. This practice occurred mainly in the regional branches of the university that share the same region, hence the importance of taking into account researchers from all over the country in the research sessions with key actors. The solution proposed was the individual assignment of the unit to which each researcher who will be part of a project belongs, as shown in the following figure.

Figure 6

Example of the individual assignment of the researcher's unit in Gestiona

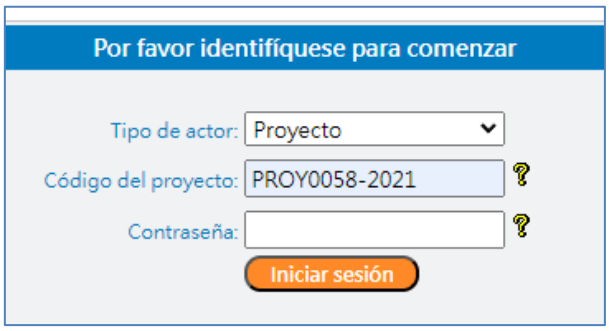


Note. Source: Gestiona system, Vice-rector's Office for Research, UNED (2023)

Such was the effect of the decentralization of project administration in Gestiona when the Unit role was created, that the researchers requested the creation of a second role called Project. They saw the need to empower themselves in the management of their projects registered in the system and thus not depend on the personnel of the Vice Rector's Office for Research, nor on the unit to which it corresponds to present their project. This role would allow them to perform functions such as attaching documents to the file, registering geo-referenced activities and making modifications to the data they were allowed to make without affecting the data used for monitoring and control by the corresponding unit and the vice-rector's office. Thus, the Project role was incorporated, which provided access exclusively to the project information with the code indicated in the access.

Figure 7

Example of the screen to enter with the Project role in Gestiona

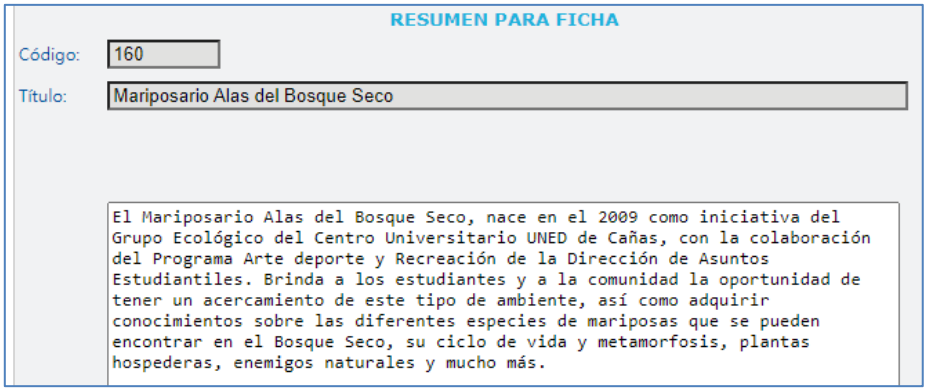


Note. Source: Gestiona system, Vice-rector's Office for Research, UNED (2023).

Not only researchers and project management personnel have participated in the systematic inquiry, but other relevant actors have also been considered, such as the staff of the Scientific Dissemination Unit, who gave their opinion on improvements in Gestiona that could be useful for their assignments. Although several proposals were implemented, one of them whose need would hardly have been identified by the project management team of the Office of the Vice-Rector for Research is presented here. This was a space to enter into the system, a summary of the project that would be understandable to the general public. The summary had to be written in a simple vocabulary that could be understood even by children and young people. The idea was to use this text every time a dissemination event was organized, where the projects developed at UNED were presented. Figure 8 shows an example of a tab summary.

Figure 8

Example of a summary for the Gestiona® card



Note. Source: Gestiona system, Vice-rector's Office for Research, UNED (2023).

To this day, this data continues to be used, even as input for management reports addressed to the authorities, since, as we have already pointed out, these texts should be understandable to the general public. The writing of these abstracts has since been a collaborative effort between the Scientific Dissemination Unit and the designers.

Although the Gestiona system was created to support project management, it has also served as a research tool. For example, at the request of a team of researchers, we proposed the incorporation of screens for the entry of complementary information from people doing

research at UNED, which was collected through interviews and questionnaires. We can see in Figure 9 that data on disabilities, number of children, illnesses, medications taken and allergies suffered were captured. This information is not traditionally handled in a project management system, but as explained above, most of the requirements have arisen from ongoing systemic inquiry and have also been supported by the ongoing authority of the vice chancellor's office and a technical team that makes the implementation of the changes possible.

Figure 9

Example of researcher health data in Gestiona

Note. Source: Gestiona system, Vice-rector's Office for Research, UNED (2023).

So far, the requirements that have arisen from the constant systemic inquiry applied to the continuous improvement of Gestiona have been presented, but fortunately they could be solved in an agile way, thanks to the work dynamics of the Vice Rector's Office for Research, which allowed and encouraged this to be done. However, as we will see below, two of the improvement possibilities for Gestiona had to be conceptualized as projects due to their great magnitude with respect to the time required for their development and the need to carry out exhaustive tests to guarantee their correct operation.

The first example was the need proposed by the staff of the Office of the Vice-Rector for Research, who manage the budget for projects and other administrative procedures. The aim was to address a deficiency in the institutional accounting system that did not allow (and still does not allow today) an individual record of budget execution by project, nor does it allow the pre-allocation of amounts to projects at the beginning of the period, i.e., the vice rectory was a common pot from which resources were taken for all initiatives that were under development, causing the distribution to be inequitable and some project developers to be left without support if they were late in requesting it.

By sharing this possibility of improving Gestiona with other key players in the research system, the need arose to expand and consider the budgetary management of the research units themselves, not only for projects, since, for example, several units had their own allocated budget and used it to purchase equipment and materials that were used in various projects.

Thus, the system improvement project was defined to incorporate a budget module for projects and units, which would complement the existing institutional one, commonly known as AS400. Its development took several months and, like Gestiona itself, was carried out solely with resources from the Office of the Vice-Rector for Research. The following figure shows the menu that provides access to the various budget-related enhancements.

Figure 10

Example of the menu of the budget management module in Gestiona

Note. Source: Gestiona system, Vice-rector's Office for Research, UNED (2023).

The following is a final example of the results of applying the systemic inquiry methodology at UNED.

After working sessions with key personnel, the idea of having an application for mobile devices (App) emerged, which would respond to the demand of being able to access information from mobile devices and, as Torres-Salinas (2012) points out, this opens a field of infinite possibilities for research, being able to access scientific information services and serve as a tool for laboratory and field work. Figure 11 shows the main screen of the developed App.

Figure 11

Example of the Gestiona application for mobile devices

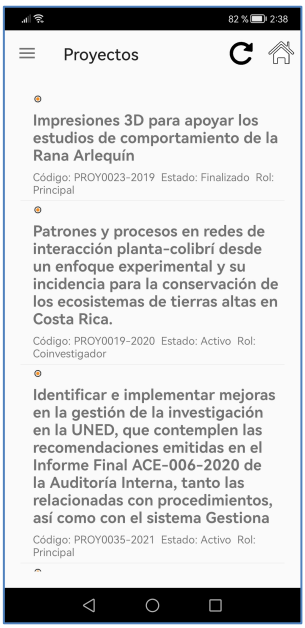
Note. Source: Gestiona application for mobile devices, Vicerrectoría de Investigación, UNED (2023).

Here the main discussion did not revolve around the development of the App as such, as it had sufficient support, but which functionalities of Gestiona should be accessible from mobile devices. These functionalities are described below, with details of the main benefits obtained.

1) Display the list of projects linked to the researcher who accessed from the App. Thanks to this list, shown in Figure 12, inconsistencies in the information were detected, which mainly involved people who were part of the work team of a project, but no official request was made for this relationship to be reflected in Gestiona.

Figure 12

Example of the project list accessed from the Gestiona App

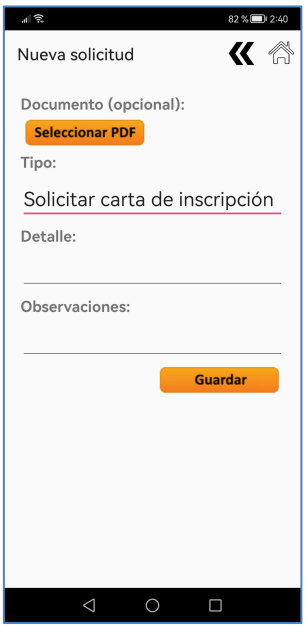


Note. Source: Gestiona application for mobile devices, Vicerrectoría de Investigación, UNED (2023).

2) Enter requests addressed to the Office of the Vice Chancellor for Research from the App. This feature allowed people to register a new application, at any time and in any place, from a mobile device, which was especially useful for those people who were constantly on the move and had to wait until they reached their office or home to use Gestiona from their web browser. The following figure illustrates the implemented solution.

Figure 13

Example of the screen to include a new request from the Gestiona App



Note. Source: Gestiona application for mobile devices, Vicerrectoría de Investigación, UNED (2023).

3) Record geo-referenced activities and photos related to the research projects. This is a complement to the previously described need for the system to maintain a list of activities, to which the geographic location where they were carried out could be defined, as well as to attach photographs to document the experience. It makes a lot of sense that, during or after the development of the activity and being at the site of the action, the activity could be recorded in the Gestiona, even more, if the photographs could be taken at the same time with the camera of the mobile device. This is how this feature was taken into account and included in the Gestiona App. The example is shown in the following image.

Figure 14

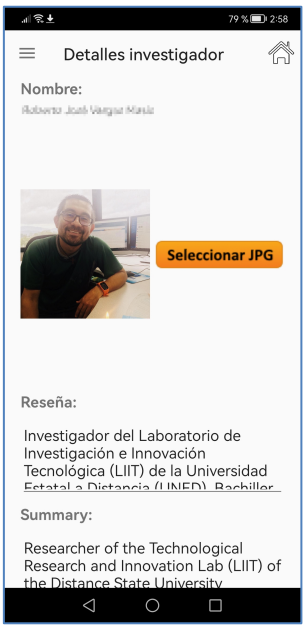
Example of the activity log screen from the Gestiona App

Note. Source: Gestiona application for mobile devices, Vice-rectorate of Research, UNED (2023)

4) The last feature of the Gestiona App, resulting from the application of the systemic inquiry methodology, is the possibility for the researchers to visualize their personal data from their mobile devices. Although this functionality did not seem to be innovative and that it would not cause a great impact among users, the truth is that, either out of curiosity or real interest, many people entered to verify their data (an action that could have been done from Gestiona since a long time ago) and this resulted in a large amount of updated information. The implemented improvement also allowed the update of the photograph from the mobile device, something that seemed to have been liked, as it was evidenced that many users updated it. This phenomenon may have been due to the fact that uploading a photograph from the App eliminated the additional step of first transferring it from the mobile device to the computer and then logging into Gestiona and uploading it.

Figure 15

Example of the self-managed researcher profile from the Gestiona App



Note. Source: Gestiona application for mobile devices, Vicerrectoría de Investigación, UNED (2023).

The conclusions obtained from the systemic inquiry for the continuous improvement of Gestiona are presented below.

Conclusions

Gestiona is a valuable case study as a technological tool that adapts to changes in the environment through systemic inquiry for the benefit of research project management. The results obtained, in addition to contributing to the improvement of the situation of interest, change the perception of the problem and open up new opportunities for improvement. This is an extremely valuable point of systemic inquiry that differentiates it from other possible methodologies, since the participating actors, in addition to presenting their demands or perspectives, approach different worldviews that appreciate the problematic situation from another perspective, seeking and achieving consensus agreements for improvement actions.

Having reached a satisfactory resolution of the cases shown, is a consequence of the constant application of the continuous improvement process for Gestiona, since every day needs and opportunities have arisen, thanks to the fact that the environment maintains an accelerated pace of change, which will probably increase complexity in the future and result in new situations perceived as problematic, as pointed out by Rittel & Webber (1973).

Although not included in this work, Gestiona has also responded to needs emanating from external actors to the research system, whose solution did not demand a systemic research as such, since they have been specific requirements and mandatory compliance, such as: incorporating the linkage of projects with the UN Sustainable Development Goals or classifying projects and researchers based on criteria requested by the National Commission of Rectors (CONARE), the Ministry of Science, Technology and Telecommunications (MICITT) or the Ministry of Health, mainly for the generation of research and development (R&D) indicators that are annually requested from UNED.

Numerous presentations and training sessions on Gestiona have been given to UNED units and other universities in Costa Rica, making it a benchmark as a successful research project management system.

Gestiona has had a great impact as data input for the generation of the institution's R&D indicators, reducing the time spent on this task from weeks to just hours, without losing the veracity and effectiveness of the information obtained. This is the result of having a system that does not centralize the administration of information, running the risk of becoming a bottleneck, but rather reflects the reality of the research work, with data coming directly from the participants.

As is normal in an academic environment where there is a constant questioning of new ideas and perspectives, Gestiona has not been free of detractors who discredit it as the optimal tool for the management of research projects, arguing that it does not allow adequate control and monitoring of the scope, time and cost of these. The truth is that Gestiona was born and evolved in response to the needs of an entire research system and not its separate parts. Those who do not find the tool useful are those who have not brought their requirements to the table at the right time, i.e., when it was their turn to participate in systemic inquiry tasks.

Linked to the above, there have been proposals to replace Gestiona as a working tool, however, most of the initiatives do not transcend and disappear in the stages of requirements gathering and solution development, because, as mentioned in this paper, there were several phenomena that surrounded the conceptualization of Gestiona and that forced to think about it in a very different way. Thus, the system was born under the premise that it would never be finished, but that its evolution would be constant, and for this purpose it was thought to permanently apply a methodology such as systemic inquiry, which would bring benefits such as: allowing the identification of underlying problems, improving decision making, fostering collaboration and helping to find effective solutions.

The needs and opportunities for improvement that Gestiona will have to face are endless, especially with the exponential growth of new technologies and their potential use for research. However, as long as Gestiona has the capacity to adapt to the changes that arise in the research system and the work team of the Vice Rector's Office for Research maintains the dynamics that have allowed this rapid adaptation, success will be guaranteed, especially if they rely on the use of methodologies such as systemic inquiry, which allows the involvement of key people and the identification of the next milestones to be reached for the benefit of the same people and the entire research system.

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