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I-Lab: The co-design program for the construction of the new ERP system of the Italian state

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Abstract: This document presents the contribution of the I-Lab co-design and requirements program to the implementation of the new Enterprise Resource Planning (ERP) system of Italian public accounting (InIt). Chosen by the State General Accounting Office Department (RGS) of the Ministry of Economy and Finance (MEF) to support the construction of the new ERP, I-Lab has integrated and enhanced the vast range of skills and needs of all the different Italian central administrations, placing them in a series of multidisciplinary innovation teams aimed at the discovery of the main requirements of users/stakeholders/beneficiaries in their relationship with the new ERP solution. A multi-year project with a very wide and profoundly innovative scope for all Italian public accounting.

Keywords: Design; Innovation; Discovery; Public Administration.

1. Introduction¹

In recent years, the public sector has been affected by a growing demand for innovation, as a result of its role as an accelerator in implementing efficient policies and high-quality services for stakeholders (including citizens).

The ability of Public Administration (PA) to respond to a challenge of this scale seems to be closely related to the introduction of new methodologies, tools and skills capable of opening a new course in the design of technological processes and systems.

It is in this response that the vast program of reform of the information systems of Italian public accounting and the Italian budget is framed, led by RGS and managed by the General Inspectorate for Information Technology and Technological Innovation (IGIT) and the General Budget Inspectorate (IGB). A programme made necessary also by the multiplication,

¹ Note: this paper is intended as individual work, and doesn't represent an official position of the Department.



over time, of the IT platforms in use by the various Administrations for accounting processes, with all the obvious consequences that this extreme fragmentation has entailed.

12 LEGACY SYSTEMS CONVERGING ON ERP/INIT

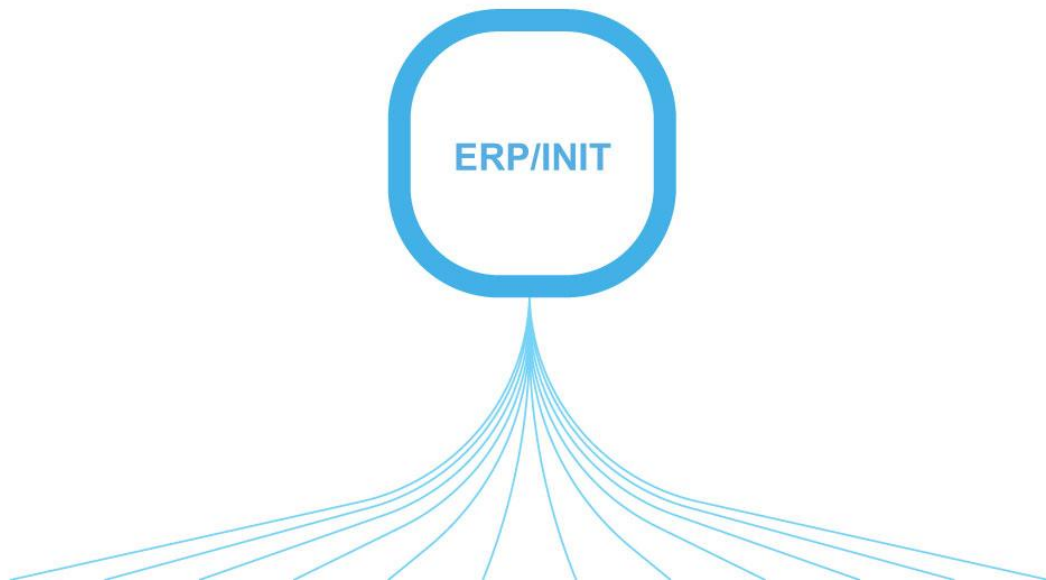


Figure 1. Legacy systems

The new InIt system, which will integrate financial accounting, economic-asset accounting and analytical accounting by cost centers in a single ERP application, will replace the systems currently in use at the Central Administrations for the management of public accounting (Legacy Systems).

To implement this technological reform program, RGS and, especially, IGIT have chosen to use the I-Lab program (in a new, specific configuration set by RGS), thus orienting themselves towards the new techniques of co-design, co-production, requirements, and functional prototyping that derive from the hybrid methodology Waterfall/Agile/Lean.

With I-Lab it was possible to directly involve the staff of 14 Ministries and other Italian public bodies, transforming resistance to change into collaboration and creating a real "Public 2 Public" dimension, an almost absolute novelty in the world of Italian PA.

2. I-Lab for InIt: objectives and numbers

The I-Lab Program has been adopted by IGIT to manage and develop all activities related to the definition of user requirements for the new public accounting information system, called InIt.

The aim is not only to equip the Italian PA with a more modern IT system, but also to standardise accounting records and administrative processes, as necessary steps in the process of harmonising the State's accounting flows.

The I-Lab Programme, carried out by RGS in collaboration with its technological partner Sogei, has been developed with two fundamental objectives:

1. Complete focus on the end-user, in order to make the system a real service, based on the real needs of users and stakeholders;
2. Development of reliable solutions, also thanks to the ability to communicate with the contexts of "knowledge" and "market" (public and private) from which the Program originates and thanks to which it updates and evolves its proposal, according to a model of continuous improvement based on two-way conversation (Seiden, J., Gothelf, J., 2017).

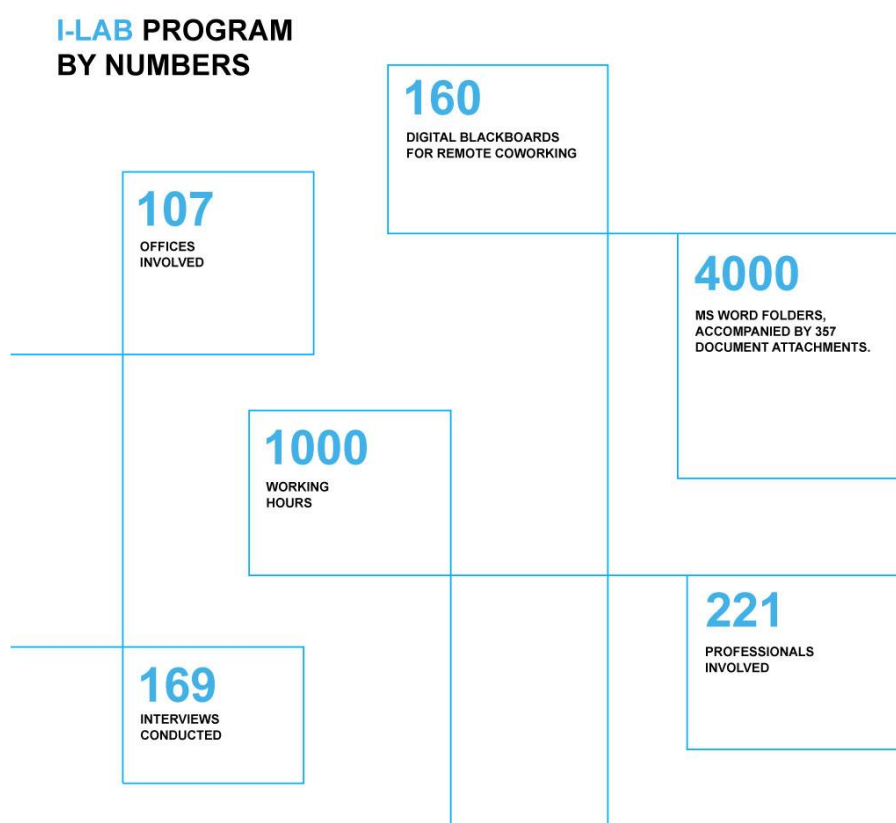


Figure 2. I-Lab program by numbers

As of September 2020, I-Lab's activities for InIt involved a total of 19 Innovation Teams, counting about 250 people, with different skills and roles and coming from different institutions and administrative structures. The various teams included, among others:

- managers and officials of the various Inspectorates of the RGS, of the Central Budget Offices and of the Local Accounting Offices of the State;

- administrators, managers and officials of the various administrations, including ministries and other branches of the central PAs (about 20 structures outside the RGS);
- executives and analysts of Sogei.

The co-design and requirements activity of I-Lab has produced the following amount of materials (figure. 2):

In addition to the main objectives, the I-Lab program has been used to support the achievement of some further results, including:

- promoting the involvement of stakeholders in the creative process;
- adopting a structured work organisation to support uniformity;
- allowing the emergence of models;
- ensuring high flexibility and responsiveness to external events.

The Program was conceived according to the logic of a horizontal contribution, focused on experience, competence, innovation of the project proposal, and collective effort within a Design device based on a Digital-first approach.

3. The evolution of RGS: from Open Bdap to I-Lab for InIt

In the specific reality of RGS, the use of I-Lab has allowed the involvement and collaboration between internal entities (Departments, Inspectorates, Offices) and external stakeholders, placing the following pillars at the centre of its development:

- Development of an agile path of investigation and discovery of needs, which culminates in the definition of a solution hypothesis;
- Involvement of people, teams and skills (Seiden, J., Gothelf, J., 2017) for the formulation of the previous solution hypothesis;
- Collection of user feedback;
- Prototyping and (in)validation of solution hypotheses through the implementation of functional prototypes in the form of Minimum Viable Product (MVP) (Kniberg, H., 2016).

The adoption of the program, which represents one of the most mature and structured forms of application of the models inspired by Design within RGS, did not take place immediately as a function of the construction of the new InIt ERP, but was preceded by a phase of experimentation with design tools and models supported by an Agile philosophy in IGIT.

In particular, the same I-Lab program was carried out on an experimental basis in a "zero" version between 2019 and 2020, fully addressing the difficulties deriving from the Covid-19 emergency, also through the adoption of specific IT tools aimed at co-creation from remote locations.

Earlier, one of the first successful attempts to introduce Agile development within RGS was aimed at renewing OpenBDAP, a RGS portal for the collection, publication, and analysis of public finance data in an open format, fully accessible and usable by institutions and ordinary citizens.

Other applications of Design in IGIT concerned the participation of staff in design thinking, co-design, and co-creation sessions in relation to specific products or activities.

These first experiences and experiments have allowed IGIT to make corrections to the models in use, in order to make them as adapted as possible to the peculiarities of the context and to overcome the sense of extraneousness of designers to the logic of public organizations. A preliminary phase turned out to be essential in order to better address the InIt project.

4. The I-Lab programme: methodology and operation

I-Lab is a co-design and requirements program containing a complex set of activities organized and oriented to the prototyping and co-production of content through a Discovery path. This path develops through stakeholder interviews, feedback sessions, preparation and alignment on specific technical and strategic aspects and further methodological sessions of preparation for activities.

From a methodological point of view, the I-Lab program is the result of a hybrid approach based on value principles and technical disciplines, Waterfall, Agile, and Lean at the base of modern designs of digital solutions.

Hybridization has ensured the respect for (and resolution of) the complexity of the scenario in which the I-Lab program is inserted. As described in the “Disciplined Agile Manifesto”, the scenario (or context) where program works plays a fundamental role, because of its diversity:

“Context counts. (...) People, teams, and organizations are all unique”.
(Disciplined Agile Manifesto)

In a preliminary phase, before the start of the activities, the content objects are isolated (in this case history, administrative, accounting, and technological issues) by breaking them down into subsets that are homogeneous in consistency and complexity, so that they can be addressed in parallel processing cycles of similar size and duration. This phase allows for organisation of the I-Lab activity calendar in advance and in detail, while making each team's progress in the alignment sessions (specifically provided for by the model) comparable.

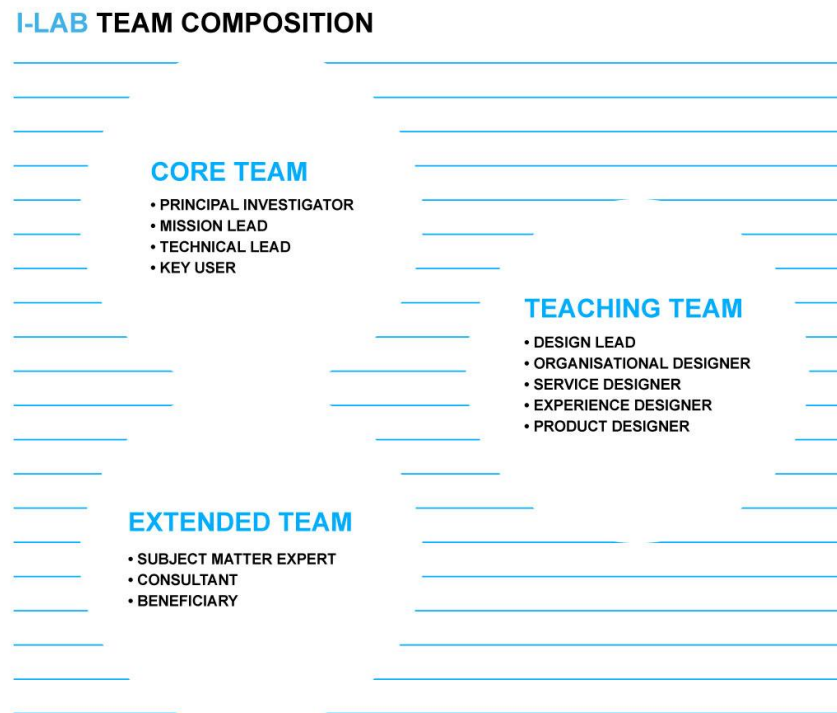


Figure. 3. I-Lab Team Composition

From the point of view of the subjects involved, I-Lab is based on two macro-classes (figure 3):

1. Innovation Team
2. Teaching Team

1. The Innovation Teams of this case history include people who, at different levels, are part of the administrative context and actively participate in the production of content. Their skills are very broad and range from legal to administrative, accounting, technical, and technological, all of great importance for the creation of InIt. These figures are identified through careful selection processes within the Administrations and then made available to the program. They are assigned the task of carrying out the project activity to achieve the expected output, i.e. the definition of the user requirement for InIt.

Each Innovation Team is composed of 5 to 8 members and can take two configurations, depending on the activities and the stage of development. The first configuration, the most restricted, fundamental and permanent, is called **Core Team**, and has the task of defining operational guidelines capable of supporting the objectives of the project.

The **Core Team** is composed as follows:

- Principal Investigator (responsible for the level and quality of content produced by the team);
- Mission Lead (responsible for administrative and accounting skills);

- Technical Lead (responsible for technological skills and information systems);
- Key User (external subject, selected from the audience of content recipients. Its presence is a key point of the team, representing the permanent and equal participation of the end-user in the co-creative process).

The second configuration of the Core Team, the larger one, is called the **Extended Team**, and includes people who are not regularly involved in the activities but whose presence or intervention still has some form of usefulness for the success of the project.

The **Extended Team** adds the following figures to the Core Team:

- Subject Matter Expert (in charge of analysing and investigating specific aspects of the content);
- Consultant (expert in technologies and provision of services and systems);
- Beneficiary (the end-user, the recipient of the scheduled service, who is solicited as an interlocutor and to whom the design hypotheses are presented for a critical discussion).

It is important to emphasize that in the exchange between the teams and the end-users, Key User and Beneficiary, lies the central hub of the entire activity and the user-centred methodology of the entire program.

2. The Teaching Team has mainly support, coaching, and facilitation functions. Its function is to guide the Innovation Teams in carrying out the different phases of the program, ensuring the correct development of the sessions, ensuring compliance with the planning and directing the work of the teams in such a way that consistency and uniformity in the contributions produced are maintained. The Teaching Team is responsible for permanently verifying the alignment with the objectives and expected standards, the level of consistency and the innovation of the project guidelines.

For these reasons, its structure is composed of figures mainly in charge of the conception, management, and application of Design techniques to the specific context of implementation of the program. Specifically, the Teaching Team consists of:

- Design Lead (head of the program and coordinator of the activities of the Innovation Teams);
- Organisational Designer (general manager of the training programme);
- Service Designer (responsible for methodological approaches and solutions);
- Experience Designer (expert in survey methodologies with Key User and Beneficiary);
- Product Designer (in charge of supporting the formalisation of design evidence).

5. Benefits and limits of using the co-design program

To have objective data on the effectiveness of the I-Lab model and how it was perceived by the participants, both internal and external to the RGS, a survey was submitted; the activity, delivered in 20 days, involved 155 participants, with an average response rate of 70%.

92% of survey participants agree on the effectiveness of I-Lab as a device for identifying the needs of beneficiaries, validating the project proposal, perfecting it, and incorporating elements for solving unknown problems.

In the survey, 50% of the participants stated that through I-Lab it was possible to produce concrete requirements, capable of enhancing the opinions and expectations of the representatives of the users-administrations. It also emerges that I-Lab, with its articulation in replicable sessions according to a shared calendar, has responded to a primary need in terms of standardization and standardization of the governance of the RGS working groups.

The perception, in short, is that I-Lab allows you to “do more things”, in less time and with a newfound order that allows one to “forget” the organizational problems related to participation in activities, optimizing efforts to produce the best possible content.

In other words, the Innovation Teams were able to focus on defining the solution proposal and identifying emerging models useful for the contributions produced and facilitating the subsequent phases of analysis, design and implementation by the relevant components. An extremely structured governance has made it possible to reduce requirements times compared to a “traditional” model, focused on a deconstructed information exchange.

The standardization of the content definition and documentation process represents a further innovation in the knowledge/document-management practice within RGS, which aims to become a reference model and good practice to be shared in the public sector.

In terms of relationships, the I-Lab Program has made it possible to:

- involve administrations in determining user needs;
- foster the strengthening and development of relations between the RGS and the administrations involved;
- foster relationships between its members, also belonging to different hierarchical levels, who have worked for the same objective within the integrated teams.

In the process of involvement of the administrations, a significant adhesion was found in terms of commitment, time dedicated and alignment with the methodology and work models; the participation of actors external to RGS, who were responsible for communicating the specific needs of the different organizations to which they belong, was also extremely fruitful in terms of contributions.

Overall, the relationship dynamics supported and promoted by the I-Lab program have led more than half of the participants to report having built and/or strengthened, within the specific experience, relationships with their Organization.

Finally, from the point of view of professionalism, participation in the Program has allowed:

- The acquisition of new skills deriving from the introduction of new models and work tools related to design and collaboration;
- The enhancement of existing professional figures who have received dedicated spaces for expression;
- The emergence of existing professional skills that are not yet known within the Organisation.

The data collected through the Survey reveal how the method has favoured cooperation (91%) and the exchange of knowledge between participants (88%), making the most of the experience of that large share of high-level seniority actors (68% of I-Lab participants have at least 20 years of experience in PA), even in the absence of skills related to the design of complex digital systems such as InIt.

89% of the participants said they appreciated the co-design dynamics of a multidisciplinary team, that they had the possibility (97%) and space (99%) to contribute and that they believed that the contributions provided were appreciated (100%). In conclusion, we note the emergence of reporting and involvement activities – in some circumstances, actual recruitment – that the representatives of the Administrations present at the I-Lab work tables have faced internally, to gain in the processing of the user requirement, additional professionalism and skills in a classic Member-get-member model.

To complete the analysis of the co-design program used and provide further food for thought, we consider it useful to highlight in this case history also the limitations that emerged during the work:

- the highly intensive nature of the programme has had a very significant impact on all those involved (participants, organisers, coordinators, etc.) in terms of effort (both in terms of intensity of activities and in terms of quantity and frequency of activities). The ceremonies and disciplines (mandatory activities for the participants who mark the work of the teams) of the program have often clashed with those that are the usual workflows that the Organization is used to arranging; this factor has also overlapped with the impossibility of relieving participants of the ordinary assignments they were called upon to perform;
- the set of cultures, sensitivity, and expertise brought by the Design Team that managed the program has often found deep reasons for divergence with respect to the operational and cultural settings of the staff of the public organization. The management of this GAP has deeply engaged the management of the

program in an effort of continuous supervision and monitoring aimed at ensuring the correct intermediation between the two parties.

- the program, in its course, had to be open to a series of “on the fly” adaptations essential to correct the disharmonies created by Design Culture with respect to the cultural models of the participants; the changes made did not, however, concern the supporting elements of the framework used by the program.

6. Conclusions

The use of Design as an enabler of a new approach able to intervene on the complexity of the Italian public sector scenario, represented a new and significant innovation opportunity of the paradigms, methods, and tools used for large digital projects.

The complexity of the I-Lab programme to define the ERP system InIt, linked to its size (number of people involved as stakeholders, suppliers, users, beneficiaries, subject-matter-expert, etc.), extent, importance, and the heterogeneity of administrations that took part in it represented the most suitable terrain for the detection of the effects produced by the new disciplines put in place.

These effects are reflected in two main dimensions:

Project size: On the single ERP project, related to InIt, the Design (understood as a hybrid approach) has managed to introduce methods, disciplines, and tools that have allowed the achievement of a user-centric model, based on the participation of all stakeholders and that produces a high-level standardized documentation in a very short time.

Public Organisation Size: It was possible to detect how the introduction of Design in bottom-up mode, starting from individual projects, supported by a strong Top-down commitment, i.e. from the managerial levels downwards, is able to lay the foundations for the structural adoption of these new models as elements resident in the Organization itself.

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