I D C  C U S T O M E R  S P O T L I G H T

Delivering Civil Service Excellence in Italy: The Journey from SUNFISH to Cloudify

November 2017
Sponsored by PwC

Introduction

The Italian Ministry of Economy and Finance (MEF) is responsible not only for overseeing economic policy, public investments, and spending of the Italian government but also for supporting Italy's entire public sector by providing centralized procurement services and payroll functions through its Department of General Administration, Personnel and Services (DAG).

NoiPA, the payroll and benefits platform operated by MEF, is the largest payroll system and operation in Europe. It is currently used by over 2 million public sector employees and manages more than €51 billion in payments annually. NoiPA is a 30-year-old legacy system with a rapidly growing user base, and in the coming years, it aims to become the system that manages the entirety of Italy's over 3 million public sector employees.

PwC has been supporting MEF since 2011, mainly as organizational consultants, helping the administration implement a project management system. In this role, PwC gained significant knowledge and became privy to the infrastructure strategy setting of the ministry. PwC became an agent for change, with new concrete ways of addressing new business imperatives driving the need to modernize the NoiPA platform, the organization supporting the platform, and the overall DAG service portfolio. As change agents together, PwC and DAG are now implementing one of the most important digital transformation projects in the context of the entire European public administration sector.

Solution Snapshot

**Organization:** Italian Ministry of Economy and Finance

**Operational challenge:** Design and build a secure-by-design federation of cloud services that enables the regulated and monitored sharing of orchestrated digital civil services in Italy and across the European Union (EU)

**Solution:** The EU-funded project SUNFISH developed innovative components currently being exploited in the Cloudify NoiPA digital transformation program, setting up a cloud integration platform for secure data sharing, enabling multiple tenants and application scenarios, and leveraging reliable and modern technologies, resources, and competencies.

**Project duration:** The SUNFISH three-year research action has been running since 2015, while Cloudify will go on until 2019.

**Benefits:** The ability for the Italian public administration to create new and efficient services for people in conditions of perfect privacy and security
National Strategy: NoiPA as Critical Infrastructure

Through 2014, MEF and the Italian government had been progressively extending the role and coverage of the NoiPA system, taking advantage of the economies of scale that the system provided. However, this incremental improvement and maintenance approach became a high-risk strategy for several important reasons:

- There was a strategic recognition by MEF of the NoiPA platform in Italy's latest three-year plan for digitalization of the public administration, approved by the Italian government.
- With this recognition, NoiPA was considered in the context of the national IT infrastructure for the whole public sector, meaning that, starting from 2019, NoiPA would need to become the overall and only HR system of the entire Italian public sector.
- There was consolidation of datacenters and IT infrastructure of the public sector by the government, and there was a need to standardize on private cloud technology.

Given these business imperatives, there was a need for a new national strategy oriented to modernize, harmonize, and optimize human capital services for Italy’s civil servants. In addition, the public sector needed to overcome current levels of fragmentation of over 10,000 datacenters spread across the country, characterized by low levels of efficiency and inflexible security systems. New strategies were necessary for investing in a limited number of highly reliable, agile, and secure datacenters federated through a single national cloud platform, which could act as the cloud service orchestrator and provider for the entire public sector.

Approach: Business-, Experience-, and Technology-Led Digital Strategy

The journey for NoiPA's enhancement began with a research project led by MEF and supported by PwC that was meant to explore possible innovative solutions in part by combining the knowledge maturity reached in designing previous cloud infrastructures and the knowledge of public sector business, experience, and technology requirements. This included academic research through leading European universities and funding through the EU Horizon 2020 initiative, which is dedicated to supporting research and innovation, during a time when public expenses were being cut and fewer resources were available to do any more than before.

A consortium of 11 different organizations, coordinated by MEF, successfully presented a proposal to leverage the assets, community, and capabilities under development, carrying out the EU-funded SUNFISH project. The main objective of SUNFISH, which was started in 2015, was to develop a platform to federate heterogeneous clouds in a secure way. "The link with our initial problem in NoiPA was clear," says Francesco Paolo Schiavo, general director of MEF’s Directorate of Information Systems and Innovation. "We needed to use federation among private clouds of the Ministry of Economy and those of police and armed forces to produce employee payslips in a very efficient way, complying with high levels of security."

Collaboration: EU SUNFISH

In 2015, MEF embarked on the SUNFISH consortium with other European public sector members that lacked the necessary infrastructure and technology to allow them to integrate cloud platforms and services. Common integration barriers included technical limitations and legislative requirements that made it difficult to use available commercial technological solutions.

Through the shared efforts of the SUNFISH consortium, MEF's goal was to enable the secure federation of private clouds for NoiPA based on public sector needs such that all entities can share data, compose and orchestrate services transparently, and maintain required security levels. With the specific objectives of MEF, the SUNFISH project would develop and integrate software enabling...
secure cloud federation incorporating a blockchain network and service ledger as required for a broad base of European public sector bodies through three SUNFISH selected use cases. The solutions developed would also be usable by other European public organizations and potentially by private sector participants.

In addition to Italy's MEF use case, two other public applications are under way with the Maltese Ministry of Finance (focusing on the tax revenue sector) and the United Kingdom's Regional Organized Crime Units (focusing on the need to securely share cybercrime-related data among different police units across the country).

**Solution: Blockchain-Based Cloud Federation Service**

The SUNFISH project achieved its main goal through the concept of a federation-as-a-service (FaaS) solution — a secure-by-design cloud federation platform enabled by a blockchain service ledger and capable of generating a homogeneous goal-oriented aggregation of cloud systems. The FaaS platform allows the sharing of data, services, and IT resources with absolute security. All participating nodes are peers — they are granted the same duties and authorities. In this context, business and technology partners have developed state-of-the-art components specifically for the project, which can be used in the context of the SUNFISH platform or independently.

The experience strongly consolidated cooperation between PwC and the ministry, technically supported by MEF's in-house IT software group Sogei. "Thanks to PwC's advice and support, we have widely opened our strategy towards innovation, in close connection with the EU view for digitalization," Schiavo explains. "Visible changes in our organization and our daily operation have occurred. Moreover, we have developed new expertise in managing projects [EU funded and not] as well as in specific creative and technological areas of cloud computing and smart contracts through blockchain technology."

**Challenges**

While the SUNFISH project has been successful for the ministry and PwC, driving the project consortium to reach a working prototype solution was complicated. The actual performance levels of the SUNFISH prototype still must be tested further, but the MEF plans to keep on exploiting and building on achieved results, particularly in the context of the already started Cloudify NoIPA digital transformation program, financed by Italy's national fund "Program Action Cohesion Complementary to PON Governance and Institutional Capacity 2014–2020."

The Cloudify NoIPA project is teaching MEF the importance of ensuring proper governance and adequate management for such an extensive initiative. At times, the relative unfamiliarity of working with Agile development processes has been an obstacle to smooth design and consensus gathering. But the biggest challenge requiring constant attention and significant effort is overcoming the strong resistance to change within the public organizations. "This challenge is being addressed with close attention to the change management aspects of the project," says Schiavo, "providing adequate support while driving the transformation process."
Benefits: Measuring Performance and Value

Measuring the performance and value of resource investments has been critical to the past and future success of the strategies that underpin the SUNFISH and Cloudify initiatives. Success metrics have been most important in:

- Helping understand the scope and impact of each work stream in the initiatives
- Facilitating in-depth analysis of business, experience, and technology investments relative to strategic public sector priorities
- Identifying leading indicators to avoid unproductive funding and activities and trailing indicators to improve the transparency of project results
- Visualizing what excellence in Cloudify NoiPA looks like
- Placing MEF in a definitive position from which to measure the progress of Cloudify NoiPA

A number of success metrics have been established for both SUNFISH and the new large-scale digital transformation initiative Cloudify:

- **Business and IT operating model**: Improving service delivery through platform standardization. MEF created an advanced, secure and dynamic cloud federation business platform based on innovative privacy-preserving systems and developed on a trustless coalition governance model, technically enabled using blockchain technology.

- **Information**: Monetizing commercial and national data. The ministry capitalized on data assets through secure network and sharing mechanisms that help ensure processing accuracy and reduce errors.

- **WorkSource**: Becoming an agile government enterprise. Cloudify NoiPA eases IT resources sharing, data sharing, and services sharing among public sector organizations in a secure way and lowers costs for IT infrastructure in the public sector, reducing the overall impact of public administration expenditures.

- **Leadership**: Cocreate with a leading consultancy to learn and develop best practices. The ministry is taking advantage of the international network and cross-sector expertise of a key global, well-positioned consultancy firm to ignite transnational cooperation and identify proper external funding streams meant to generate innovation useful not only to the ministry but also to the European public and private sectors at large.

- **Customer advocacy**: Innovate more reliably with leading technologies applied to practical use cases. Bottom-up innovation and end-user centricity have been key pillars in the approach to innovation pursued through the SUNFISH project and continue to guide the MEF on its path toward digital transformation in Cloudify.

**Conclusion**

IDC expects that future technology architectures, exemplified by the SUNFISH platform described previously, will help accelerate business transformation for MEF and other public and private enterprises, enabling the rapid creation of functions and services while aggressively modernizing internal core environments in parallel. Recognizing the EU SUNFISH initiative as a high-value consortium for innovation, IDC believes that investments by MEF in the Cloudify digital transformation program, combined with continued attention to delivery excellence, will produce a European standard for public sector IT modernization.
Methodology

The project and company information contained in this document was obtained from multiple sources, including information supplied by PwC, questions posed by IDC directly to the Italian Ministry of Economy and Finance executives, and MEF documents.