# Italian national cloud: a strategy still in the definition phase

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## EXECUTIVE SUMMARY

Digital transformation is an overwhelming phenomenon, involving every individual's working and family life. This process involves not only humans but also physical and digital technologies, both in terms of processes and business models.[1]

The diffusion of enabling platforms, i.e. technological innovations, is fundamental to the positive use and exploitation of new generation services. These include cloud computing, which is the subject of this research. It is currently estimated that 16% of businesses in our country use cloud applications and/or services[2]. In the public sector, it is more difficult to make a quantitative assessment, but it must be noticed that the Public Administration has adopted various solutions for the computerization of their data and services. According to an estimate by the Agenzia per l'Italia digitale (Agid) in Italy there are about 11 thousand data centers of various sizes and capacities, managed by 22 thousand Public Administrations[3].

"*The situation of high fragmentation and lack of homogeneity of PA information systems requires an evolutionary path towards an efficient and flexible use of IT technologies, in order to guarantee high management economies and encourage greater reactivity in providing services that are increasingly adapted to the needs of citizens and businesses. The consolidation of Public Administration IT infrastructures implies a massive migration of the services currently provided in the traditional way to a cloud environment*"[4].

It is essential, and not exclusively because of the Covid19 epidemic, to "migrate" to flexible, interconnected systems capable of connecting people from different locations with data access platforms not linked to a specific location[5].

It will be crucial, from a strategic point of view, to be able to adopt, in the short to medium term, solutions that allow the interconnection between PA, between citizens and inevitably between them.

Through the analysis of the Three-Year Plan for Public Administration IT, the actions implemented by the Digital Italy Agency (AgID), the Digital Transformation Team and the strategy outlined by the Minister for Technological Innovation and Digitisation, an attempt will be made to explain the current situation regarding the possible creation of a "national cloud".

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[1] Rapporto Osservatorio Reti e Servizi Di Nuova Generazione "Non voglio mica la Luna, Le tecnologie digitali al servizio degli italiani", Istituto per la Competitività, I-Com, 09/2019

[2] Ibidem

[3] Inizia la rivoluzione cloud: la strategia per le infrastrutture digitali della Pubblica Amministrazione, Luca Attias, Paolo De Rosa, Francesco Paorici, medium.com, 21/02/2020

[4] Il modello di Cloud della PA, AgID, Team Digitale, Docs Italia, 13/02/2020

[5] Perchè l'epidemia ci deve convincere che l'unica strada è quella della digitalizzazione, Cesare Avenia, il Foglio, 7/04/2020

## 1. PIANO TRIENNALE PER L'INFORMATICA DELLA PUBBLICA AMMINISTRAZIONE: THE ITALIAN CONTEXT OF DIGITAL TRANSFORMATION

The Three-Year Plan for Public Administration IT is an essential tool to promote the digital transformation of the country and, in particular, that of the Italian Public Administration[6]. This transformation must take into account the European forecasts for the "Single Market for digital goods and services"[7]. Moreover, the Plan is based on the indications that emerge from the European programming for the seven-year period 2021-2027, on the principles of the eGovernment Action Plan 2016-2020 and on the actions envisaged by the eGovernment Declaration of Tallinn (2017-2021), whose indicators measure the level of digitisation throughout the EU and detect the actual presence and use of digital services by citizens and businesses. Italy is characterised by a high degree of administrative decentralisation, which leads regional and local administrations to play a particularly important role in the process of technological innovation.
The Plan analysed here, which sets out the objectives for the three-year period 2020-2022, takes into account the central role of local Public Administrations in their achievement. "*It will in fact be the individual administrations that will have to achieve the objectives listed, objectives that are often ambitious but sustainable because they are built on the experience, comparison and needs of the target administrations. These are wide-ranging objectives, however, with very concrete results*"[8].
It is worth pointing out that the Plan identifies specific objectives that can be traced back to three macro-areas: one is fostering the development of a digital society, where services put citizens and businesses at the centre, through the digitisation of the Public Administration, a development engine for the whole country; another is the promotion of sustainable, ethical and inclusive development, through innovation and digitization at the service of people, communities and territories, while respecting environmental sustainability; lastly is the contribution to the diffusion of new digital technologies in the Italian productive industry, encouraging standardization, innovation and experimentation in public services.
In this context, the migration of public administrations to the cloud, which is a cross-cutting challenge for the above-mentioned three macro-areas, acquires importance, as it is directly linked to the operational improvement (and not only) of the individual administrative units.

[6] Il modello di Cloud della PA, AgID, Team Digitale, Docs Italia, 13/02/2020

[7] "A strategy across the EU aims to improve online access to goods and services for consumers and businesses and create favourable conditions for digital networks and services to develop to maximise the growth potential of the European digital economy.", Il modello di Cloud della PA, about Communication from the European Commission "A Digital Single Market Strategy for Europe"

[8] Il modello di Cloud della PA, AgID, Team Digitale, Docs Italia, 13/02/2020

## 2. WHAT THE CLOUD IS AND WHY IT IS NEEDED

The term cloud refers to the set of computer operations that allow, through the internet, to collect and access data collected in data centers, at any time and from any place.
More specifically, cloud computing - more simply cloud - will be the subject of this research, i.e. a model of computer infrastructure that allows a set of computing resources (e.g. networks, servers, storage, applications and services) to be rapidly delivered as a service via the Internet[9].
In defining cloud services, the National Institute of Standards and Technology (NIST)[10], the US Government's technology management agency, has identified five main features: self-service on demand; broadband access; resource sharing; rapid elasticity; and monitoring of services used. Self-service on demand indicates the possibility for a customer to receive assistance or supplies (computational resources, storage or other types of resources according to their needs) remotely without the need for physical intervention by the service provider. Broadband access indicates the possibility of benefiting from services purchased from different types of devices (from smartphones to laptops, up to computers with greater computing capacity) as long as they have a connection suitable for the service requested. The sharing of resources implies that the computing resources, i.e. the provider's servers, are used to serve different customers, without any form of "rivalry" (in the economic sense). Rapid elasticity, on the other hand, indicates the possibility of changing the amount of services offered and requested according to customer's demand. This characteristic is particularly relevant because it makes possible to reduce fixed costs for ICT infrastructures and services and to proportion the expenditure to the actual need[11].

### 2.1 Services and cloud models

There are many positive features of the cloud, including control and optimisation of resource consumption through constant monitoring of services (storage, data processing, bandwidth capacity and advanced services offered directly on user terminals), which makes it possible to measure their actual use and facilitate payment.
The range of cloud services possibly provided can be divided, depending on the offers and the level of involvement of the provider, into three types, which vary from the supply of resources to the provision of ready-to-use applications. You can have: SaaS (software-as-a-service), which offer the possibility of running software and applications via the Internet through different devices[12];

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[9] Il modello di Cloud della PA, AgID, Team Digitale, Docs Italia, 13/02/2020

[10] "Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.", Recommendations of the National Institute of Standards and Technology, National Institute of Standards and Technology (NIST), 09/2011

[11] Rapporto Osservatorio Reti e Servizi Di Nuova Generazione "Non voglio mica la Luna, Le tecnologie digitali al servizio degli italiani", Istituto per la Competitività, I-Com, 09/2019

[12] "SaaS, which is generally identified in the user's use of software installed on a remote server (i.e. outside his physical computer or local LAN), consists in the provision of the widest range of services, ranging from CRM (Customer Relationship Management), ERP (Enterprise Resource Planning), and finance and control programs to services capable of managing Big Data, Machine Learning, Artificial Intelligence and IoT. These are "packaged" in applications that can be rented in different configurations and allow their use on multiple types of devices. Specifically, the cloud provider installs the application in its data centre and provides users with an interface to use it." Rapporto Osservatorio Reti e Servizi Di Nuova Generazione "Non voglio mica la Luna, Le tecnologie digitali al servizio degli italiani", Istituto per la Competitività, I-Com, 09/2019

PaaS (platform-as-a-service), i.e. platforms that provide users with entire development environments that can be used to provide services of various kinds to their customers[13];
IaaS (infrastructure-as-a-service), real technological, physical and virtual infrastructures, which offer a way to use data centres on demand, without having to invest directly in them.[14].
A further distinction can be made with respect to cloud deployment models and infrastructure management and ownership. In fact, three types of services can be distinguished: public cloud, private cloud and hybrid cloud.
Private cloud, also known as internal cloud or corporate cloud, identifies a data storage and management service defined "ad hoc" for a single company or organisation. It can be owned and/or managed by itself, or it can choose to rely on third-party providers or adopt a hybrid formula. The private cloud is primarily installed by a user in their own data centre for their exclusive use, giving them greater control over it. Alternatively, companies or public entities can install their own private cloud in the data centre of a third-party vendor, with dedicated machines and configuration control, even if they do not reside in their (physical) domain.
In the public cloud, however, servers and machines are shared between different user-customers. The cloud network, therefore, is public as it allows access to a multitude of people, with the ability to consult only their own data. The benefits for public cloud users include the opportunity to use the services at the time and on the scale of performance required, thereby reducing the impact of investment and peak load management, while policies for the geographic allocation of computers and data and data protection depend on the provider.[15]. In the hybrid cloud model, the infrastructure consists of some kind of combination of two or more other models already examined: this allows you to use not only a dedicated service according to your needs (private cloud model) but also the public cloud space where necessary. The hybrid cloud also indicates the use of public or private services depending on the type of activity (as in the case of companies, bodies or organisations that use private clouds to manage sensitive data and public clouds to carry out other operations)[16].
The advantages of using the cloud are manifold and can relate to data management, infrastructure and application updates as well as the ability to access applications or data from any device anywhere only via an internet connection; in addition, thanks to measurement tools, as has been pointed out, it is possible to calculate costs based on actual consumption.
On this basis, it is clear that services provided by public administrations, whether central, regional or local, need to be switched to the cloud. In this sense, a strategy for the migration of PAs "on the cloud" has been envisaged and will be analysed in the next section.

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[13] "The PaaS also identifies the process in which, instead of one or more individual programs, an entire software platform is run remotely, usually consisting of programs, software libraries and other products for which the cloud provider also provides a programming interface (API) that allows the user to write applications that interact with the service." Rapporto Osservatorio Reti e Servizi Di Nuova Generazione "Non voglio mica la Luna, Le tecnologie digitali al servizio degli italiani", Istituto per la Competitività, I-Com, 09/2019

[14] "IaaS consists in making available to the user (i.e. the company or organisation that benefits from it) not only virtual resources remotely, but also hardware resources such as servers, network capacity, memory systems, archives and backups. On these infrastructures the user can install the software he needs (such as applications or operating systems). The particular feature of IaaS is its scalability, which consists in making the required resources (computing, network or memory capacity) available to the user at the time and to the extent that a platform needs them. Vendors generally also provide adequate cybersecurity for the data stored in their data centres and for access to the services offered." Rapporto Osservatorio Reti e Servizi Di Nuova Generazione "Non voglio mica la Luna, Le tecnologie digitali al servizio degli italiani", Istituto per la Competitività, I-Com, 09/2019

[15] Rapporto Osservatorio Reti e Servizi Di Nuova Generazione "Non voglio mica la Luna, Le tecnologie digitali al servizio degli italiani", Istituto per la Competitività, I-Com, 09/2019

[16] Ibidem

## 3. A PLAN FOR THE PUBLIC ADMINISTRATION CLOUD

As mentioned at the end of the first paragraph, the Three-Year Plan for IT in Public Administration includes a Strategy for the migration of PA to the cloud, which has identified an "ad hoc" model called "PA Cloud". It consists of three main elements that characterise the transformation path: "*the Cloud First principle, according to which PA must, as a priority, adopt the cloud paradigm (in particular SaaS services) before any other technological option for the definition of new projects and the design of new services as part of new initiatives to be launched*"; "*the PA Cloud model, the strategic model that consists of infrastructure and services qualified by AgID on the basis of a set of requirements aimed at ensuring high quality standards for PA*"; "*the cloud enablement programme, the set of activities, resources and methodologies to be deployed to enable public administrations to migrate and maintain their IT services (infrastructures and applications) within the PA Cloud model*"[17].

This approach has been necessary to identify standard security principles to ensure, setting out guidelines for the use of the cloud in the PA to avoid risks associated with data management by unqualified vendors that may not provide adequate levels of security and reliability.

Therefore, the Agenzia per l'Italia Digitale (AgID) has carried out a qualification of cloud services and infrastructures proposed by private vendors, as described in AgID circulars no. 2 and no. 3 of 2018[18]. These services have been collected in a dedicated platform on which they can be consulted and compared[19]. The parameters adopted for the qualification have taken into account some of the needs of public administrations, such as the improvement of service levels, accessibility, usability, security, resilience, scalability, "reversibility" and data protection.

The model chosen for PA is strongly mixed, including Public Cloud, Private Cloud and Community Cloud services, in order to respond to any needs that may arise in the public sector.

On the other hand, As far as classified infrastructures are concerned, they are divided into three categories: first, National Strategic Poles or NSPs, i.e. all IT infrastructures (centralised or distributed), high availability, state-owned, elected as National Strategic Pole by the Presidency of the Council of Ministers and able to provide, on an ongoing basis, cloud and hosting services to other administrations; second, Cloud Service Providers or CSPs, i.e. the Public Cloud infrastructures and services offered by AgID qualified cloud service providers; finally, SPC Cloud, the infrastructure cloud services provided under the Consip - Cloud SPC Lotto 1 framework contract. PA Cloud SaaS services will necessarily have to be provided through one or more qualified infrastructures[20].

To speed up the transition of administrations to the cloud, AgID has suggested to adopt a "cloud first" approach and, in particular, "SaaS first", choosing software services already present and active in the Cloud Marketplace platform - if compliant with specific needs - in order to reduce costs and administrative efforts, while, in the case of IaaS and PaaS services to carry out technical management and development activities.

Once the strategy for the migration to the cloud for PA has been outlined and the procedures identified, it is now important to focus on the infrastructure qualification implemented by the AgID.

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[17] https://cloud.italia.it/

[18] https://cloud.italia.it/it/latest/

[19] Cloud Marketplace, https://cloud.italia.it/marketplace/

[20] Il modello di Cloud della PA, AgID, Team Digitale, Docs Italia, 13/02/2020

## 4. INFRASTRUCTURES: THE QUALIFICATION OF PUBLIC DATA CENTRES IN ITALY ACCORDING TO AGID

The development of digital infrastructures is a key factor in the public sector's innovation strategy, since they are the basis on which public services, that can be provided to citizens and businesses can be built, as well as essential services for the country's other institutions.
In order to follow the regulatory principles that are marking the development of our country (as well as the European Union and other countries), such infrastructures must be reliable, safe, energy efficient and economically sustainable. In order to verify these parameters, AgID has carried out a census of PA data centres (central, local, health authorities, etc.) based on the contents of Circular 1, 2019[21]. It is necessary to clarify the objectives of this action. The PA's cloud migration strategy makes a fundamental distinction between: infrastructures that manage strategic services (servers, connectivity, networks, etc.) enabling essential functions in the country, such as mobility, energy, telecommunications; all other infrastructures managed by PA that are useful for providing the vast majority of services, aimed both at the citizen and at the administrations themselves (e.g. employee e-mail, control of a restricted traffic zone in a municipality, a press review, etc.).
Therefore, the objective of the data centre census is to identify which are the best infrastructures that could be used to create a "national cloud", and which, should be rationalised instead. In this sense, AgID's classification foresaw three possible results: candidates for the use of the national strategic hub[22], group A[23] e group B[24].
The census, which involved 1252 data centres, lasted over six months, revealing that many of the infrastructure from PA's do not meet the necessary security and reliability requirements.
The results of the ICT Heritage Census (data centre) are as follows:
- 35 were eligible for use by the national strategic centre;
- 27 were classified in Group A;
- the remaining 1190 were classified in Group B.

It emerges, therefore, that the infrastructures at the basis of the PA services are obsolete and expose the country to numerous risks, including the interruption or unavailability of services and cyber attacks with, consequently, illegal access by third parties to particularly sensitive data (or data flows), except in extreme cases of loss and alteration of the same data.
The scenario outlined by AgID requires the migration of infrastructures classified as group B to more secure data centres and to cloud infrastructures and services qualified by AgID itself according to the PA Cloud model. In order to facilitate the rationalisation process and in the absence of a precise strategy - not yet outlined in detail - for a national cloud and for the use of PSNs, the data centres falling under the categories "infrastructures eligible for use by PSNs" and "Group A" have been grouped into a single category: "A".
*"In order to facilitate administrations in the implementation of the migration path: the Cloud Enabling Manual has been published in the framework of the National Cloud Enabling Programme;*

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[21] Censimento del patrimonio ICT delle Pubbliche Amministrazioni e classificazione delle infrastrutture idonee all'uso da parte dei Poli Strategici Nazionali, Circolare N. 01 - 14 Giugno 2019

[22] "A state-controlled legal entity that will have at its disposal a small number of national data centres, on which all the infrastructures that today manage the strategic services of the central PAs will be channelled, guaranteeing the functioning of the country's crucial services through standards of security, quality and efficiency.", Una strategia per le infrastrutture digitali della Pubblica Amministrazione, AgID, 21/02/2020

[23] Editor's note: data centres that can continue to work, managing "non-strategic" services.

[24] Editor's note: are the most obsolete structures, which will have to be decommissioned because they lack the safety and efficiency requirements necessary to manage public services.

*the Open Call for Tender for the award of a Framework Agreement for the provision of IaaS and PaaS cloud services in a public delivery model as well as for the provision of related services, professional services supporting the adoption of the cloud, professional technical services for Public Administrations has been published by Consip. The Framework Agreement will enable PA's to significantly reduce the time it takes to deliver IaaS and PaaS public cloud services and professional services for those PA's who need to find the skills on the market to implement what is set out in the Cloud Enabling Manual."*[25]

From what has been reported in this research, it can be inferred that guidelines so far proposed and identified would at least allow the digital transformation of Public Administration to begin, but, at the same time, it emerges how a precise strategy has not been detailed yet: for example, the form of the National Strategic Pole has not yet been defined, whether it will be owned by the State or by the Administration owning the data centre of the candidate to PSN, or whether it will adopt a type of Private Cloud that foresees the participation of private actors or not. In the next paragraph we will try to respond to these unresolved uncertainties through the opinions expressed by representatives of the institutions and experts.

[25] Piano triennale per l'informatica nella PA 2020-2022, AgID, Team Digitale, 07/2020

## 5. THE DEBATE ON THE STRATEGY FOR A NATIONAL CLOUD: INVOLVING PROVIDERS, RELYING ON THE PUBLIC SECTOR OR IMAGINING A MIXED ITALIAN MODEL?

The issue of data ownership and management is a complex one and increasingly the topic needs to be addressed to meet different needs. One of the most recent is certainly the debate on Immuni, the app useful for tracking contagions from COVID19. Without going into detail, since the topic is outside the scope of this research, we would like to refer here only to the debate on the question: who will manage the app's data? Two hypotheses were advocated: the first was to use a commercial cloud system, of those provided by large technology companies, which guarantee high levels of security and performance, but mostly belong to non-Italian (and non-European) private companies; the second hypothesis was to use a national infrastructure. But what is meant by national? Is it sufficient that the cloud systems physically reside in Italy or will it be necessary to host the data on servers managed by the State[26]?

### 5.1 The joint venture between the State and private individuals: the proposal of the Italian Minister Pisano

In February 2020, in an interview with "Il Sole 24 ore" the Minister of Technological Innovation and Digitization Paola Pisano stated in an interview with "Il Sole 24 ore" that an attempt would be made to replicate a "*joint venture between the State and private individuals, on the model of England, to manage the national cloud with the strategic data of the Public Administration. [...] The control will be public, but with a minority share there will be an industrial partner or a pool of private partners that will be chosen with a public procedure*"[27].
Not the Minister alone intervened on the subject: one of the last to have exposed himself in defence of our data (and our privacy) was the Privacy Guarantor Antonello Soro. During the presentation of the annual report on the activities of the Independent Authority, Soro launched an appeal for a public cloud. "*Faced with the relocation of very important activities to the cloud, we ask the Parliament and the government whether we should not invest in a public cloud infrastructure, with stringent protection requirements, in order to transfer data of such importance to it with adequate security*"[28].
Although the "Decreto Semplificazioni"[29] includes a rule for the creation of the public cloud, following the above hypothesis of "a joint venture between the State and private parties", it has not yet been explained how the private partner will be selected. Some statements made by Minister Pisano in recent months suggest that, in order to avoid geopolitical risks, the partner will be a European entity. But the cloud computing sector is dominated by three American companies (Amazon, Google, Microsoft&Co., which operate worldwide) and a Chinese competitor (Alibaba, which operates mostly in Asia). Will these multinationals be able to bid for a minority stake in the joint venture with the state to create the national cloud? How will they possibly be excluded?

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[26] Dati, sanità e Silicon Valley, Le decisioni che il governo deve prendere su Immuni, Eugenio Cau, Il Foglio, 22/04/2020

[27] Pisano: "Joint venture Stato-privati per il cloud nazionale", F. Me., CorCom

[28] La battaglia per la (nostra) sovranità digitale: la corsa al cloud nazionale, Fabio Savelli, Corriere della Sera, 06/07/2020

[29] Art. 35, Decreto-legge 16 luglio 2020, n. 76 recante "Misure urgenti per la semplificazione e l'innovazione digitale"

## 5.2 The role of individuals and the call for direct involvement in the cloud strategy

As we have examined, Article 35 of the Decreto Semplificazioni "*promotes the development of a highly reliable infrastructure located throughout the country for the rationalisation and consolidation of information processing centres*". This seems to be the Government's response to the need to reduce the digital archives of thousands of administrations. There seem to be two possible ways for this transition: on the one hand, the use of existing public infrastructures, relying on the approximately 100 data centres belonging to group "A" of the AgID census or on the infrastructures of Sogei, the company controlled by the Ministry of Economy that manages the data centres of most of the administration; on the other hand, there is another possibility involving private actors, which is why large companies such as Microsoft, Amazon and Google, have decided to invest in Italy (in fact already before the approval of the Decree). Given the State's constraint to keep its data on the national territory, it is not surprising that the three American Big Techs are quickly building Cloud capacity in Italy. "*In April Amazon launched three data centres in Lombardy, an investment worth several hundred million. In May, Microsoft announced the construction of Cloud in Italy for $1.5 billion, in alliance with Poste. And days ago Google did the same for just under a billion dollars, in alliance with Tim*".[30].

In an interview, Microsoft Italia's Managing Director, Silvia Candiani, stressed how fundamental it is to build an open ecosystem, with precise market rules, that favours innovation, stressing the role of private individuals. "*I believe that we must avoid the temptation to do everything at home when there are already specialised private suppliers capable of providing this infrastructure at competitive costs. We have been investing 15 billion a year in research and development for the cloud for at least ten years and it is a wealth that we make available to organisations and companies to innovate in turn*"[31].

Prof. Zanero of the Politecnico di Milano seems to share the same opinion: in an interview following the statements of the Privacy Guarantor A. Soro, highlighted how "nationalising" the provision of cloud services has a significant cost.

It is of course necessary to take into account the difference between critical and non-critical infrastructures, but perhaps the emphasis should be placed on a different issue from data management alone, namely the know-how of ICT infrastructure management. "*Do we really want to depend on a single foreign player, perhaps far outside our economic space and outside the shared values of Western society for such infrastructure?*"[32]

A different opinion comes from Prof. Curioni della Cattolica who, compared to his Milanese colleague, also in an interview, stressed the economic as well as strategic importance of personal data, both public and private: having a national infrastructure for the management of data and strategic information of citizens and institutions, despite the high costs, "amortizable" only in a very long time, would be the solution to try to propose an all-Italian cloud model as an alternative to the Anglo-Saxon one[33].

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[30] Cloud, sfida tra Usa ed Europa: la battaglia (sulle nuvole) per l'Italia vale 5 miliardi, Federico Fubini, Corriere della Sera, 12/07/2020

[31] Coinvolgete le big tech nei piani del recovery fund, Federico Fubini, Corriere della Sera, 27/07/2020

[32] Cloud nazionale, tutti i pro e i contro secondo Zanero (PoliMi), Francesco Bechis, Formiche.net, 26/04/2020

[33] Che cosa non si dice sul progetto di cloud nazionale. Parla il prof. Curioni (Cattolica), Michele Arnese, Start Magazine, 28/06/2020

## 6. CONCLUSIONS

The need for a national cloud has already been stressed several times in this research, as has been pointed out by many institutional and non-institutional actors. Minister Pisano herself has returned repeatedly on the subject, stating that "*having a national cloud to manage strategic services and data within our territory means preserving security, privacy and increasing the competences of our country. A country is not free if it is not a country that manages these three variables*". Public Administration data "*are a great common good, they must be related to each other, to understand the phenomena, to have consistent and data-based policies, to make the delivery of services faster and the P.A. more efficient*"[34][35]. However, the question does not seem to be solved by the provision included in Law Decree no. 76 of last July, indeed leaving open unknowns regarding the rules of the public notice, which will make it possible to identify the private provider who will be the partner of the joint-venture with the State.

What emerges is certainly the delay in the process of digitisation of our country, which involves both the fabric of private companies (which has not been addressed here) and public administrations. This slowness can be found in several factors: the lack of a ministry dedicated to technological innovation in the last (at least) 15 years, which has caused the absence of a strategy; the complex (rightly) regulations concerning the public procurement system[36]; and the high number of actors involved.

Over the years, central, regional and local governments have invested in innovative technologies and solutions to meet the need to digitise certain processes and services. However, a lack of a common plan has led to the creation of about 11 thousand data centres, of which, out of the 1200 or so surveyed by AgID, only about one hundred can continue to be used by PA. Among these, there are some excellences that should be enhanced, on which numerous investments have already been made over the years and which would make it possible to respond to almost all the needs that have emerged from this research, both in terms of security, data management and ownership and the geographical location of the servers. The reference is necessarily to the data centre complex owned by the in-house companies[37], national and regional, which already manage the data of many public administrations. In this consideration it is certainly not possible to disregard the territorial conformation of our country, which does not facilitate - fortunately, given the natural and cultural heritage we have at our disposal - copious investments for the relocation of large data centres. Therefore, it will inevitably be necessary to take into account the role of private individuals in the management of "non-essential PA data"[38], but "bending" them to the security and accessibility requirements of the State.

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[34] Cloud nazionale, Pisano ancora non svela come sarà selezionato il partner privato, Luigi Garofalo, Key4biz, 08/07/20

[35] La battaglia per la (nostra) sovranità digitale: la corsa al cloud nazionale, Fabio Savelli, Corriere della Sera, 06/07/2020

[36] Per un approfondimento PA digitale, il momento è ora: otto tesi per completare la trasformazione, Paolo Coppoli e Stefano Quintarelli, Agenda Digitale, 15/05/2020

[37] "Le in house rappresentano il luogo più adatto per la formazione dei PSN, in quanto sede della raccolta della frammentata domanda territoriale e, grazie alla propria expertise, possono permettere che la gran mole di dati di cittadini ed imprese, nonché la loro gestione, rimangano saldamente in ambito pubblico. Questo non dimenticando, il giusto e appropriato spazio, alla collaborazione con le soluzioni offerte dal mercato.", Gestione e sicurezza dei dati pubblici: le società in house sono pronte a mettere a disposizione le proprie infrastrutture, Assinter Italia, 14/02/2020

[38] Così 11mila datacenter delle PA migreranno verso il cloud nazionale, Luigi Garofalo, Key4biz, 20/07/2020

We'll must observe - and join![39] - the evolutions of the Gaia X[40] project, which proposes itself as a European solution, through the involvement of private and public actors. Italy is still in time to become the third leader of this ambitious project to pursue European Digital Sovereignty[41].
In the meantime, the attention of the Senate has also focused on this issue, which, in the report on the Government's guidelines for the Recovery Plan voted by the EU Budget and Policy Committees, recommends "*creating a physical infrastructure for a national cloud on which to base public and private sector services and platforms, through a twofold initiative: the creation of the National Strategic Pole of Public Administration and the impetus for a large public-private partnership for the creation of the Italian public cloud in which Italian public and private companies with proven expertise in the sector participate*".[42]

[39] L'italia ha già preso parte ad una videoconferenza sul progetto lo scorso 27 luglio. Per approfondire Pisano: «Un'intesa Ue per mantenere la sovranità sui nostri dati. Tablet e pc, bonus di 500 euro», Fabio Savelli, Corriere della Sera, 04/08/20

[40] Per approfondire data-infrastructure.eu/GAIAX/Navigation/EN/Home/home.html

[41] The Gaia X Project: il 14 ottobre si è tenuto il Workshop online sul progetto di una piattaforma cloud made in Europe, Assinter Italia, 14/10/2020

[42] Recovery Plan, il Senato: "Cloud nazionale priorità strategica", F.Me, CorCom, 13/10/2020

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