Coordination practice
REGIONAL ELECTRONIC PATIENT RECORD IN LOMBARDY

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This case study illustrates and discusses the introduction of a regional health-information system supporting the creation of the electronic patient record (EPR) in the Italian region of Lombardia (Lombardy). The EPR is a longitudinal electronic record of a patient's health history. This is in itself a coordinating tool for health-care providers. Whilst the ultimate impact of an EPR may be disputable, it may prove highly beneficial for the improvement of health services, in terms of quality, effectiveness and possibly efficiency. The objective of this case study is to examine the coordination practice that led to setting up the EPR.

Preface

This coordination practice is a result of research within COCOPS Work Package 5: The Governance of Social Cohesion: Innovative Coordination Practices in Public Management.

The research leading to these results has received funding from the European Union's Seventh Framework Programme under grant agreement No. 266887 (Project COCOPS), Socio-economic Sciences and Humanities.

The COCOPS project (Coordinating for Cohesion in the Public Sector of the Future) seeks to comparatively and quantitatively assess the impact of New Public Management style reforms in European countries, drawing on a team of European public administration scholars from 11 universities in 10 countries.

The specific objectives of Work Package 5 are:

- To search and identify emerging coordination practices and related steering instruments in public management in European public sectors.

- To compile a case study catalogue of such coordination practices with direct utility to public managers and the research community.

- To analyse the functioning of such coordination practices and to assess their value in countering public sector fragmentation and delivering public value.

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1. THE COORDINATION LANDSCAPE

Main country characteristics: ITALY

General political-administrative structure	Italy has been a parliamentary republic since 1946. The state is headed by a President who appoints a Prime Minister, the elected head of government.
	The Italian Parliament is bicameral and consists of two chambers, both elected by universal suffrage: the Senate of the Republic and the Chamber of Deputies. They have equal powers, but they differ in the number of members (630 in the Chamber and 315 in the Senate).
	The President of the Republic, who acts as the political guarantor of the constitution but does not hold executive powers, appoints the government, led by the Prime Minister, which has to have the vote of confidence of both chambers.
	The Parliament holds the legislative function. Legislative proposal can also be made by government, regional councils, municipalities and also by citizen petition (at least 50,000 citizens needed).
	The state has exclusive legislative powers in determined subjects, such as foreign policy, defence and armed forces, and social security, described in the Constitution. The regions have legislative powers in all subject matters that are not expressly covered by state legislation.
	In their legislative activities both the state and the regions must respect the constraints posed by the Constitution and those deriving from European legislation and international obligations.
	Italy is a decentralised system – a 1997 report of OECD described Italy, together with Spain, as a "regional" country, neither federal nor unitary, to pinpoint the influence regional governments have in many policy sectors.
	Specifically, the Italian sub national governmental structure is composed by the following levels:
	- regions;
	- provinces;
	- municipalities.
	All three levels have elected councils and their own competences and financial resources.
	There are 20 regional governments, including five regions with a special status, which enjoy a very high degree of autonomy and hold exclusive competences in many sensitive areas of public policy, due to particular ethnic, historical or geographical issues. The five special-status regions are: Friuli-Venezia-Giulia, Sardinia, Sicily, Trentino-Alto Adige and Val d'Aosta.

	At the local level we find 110 provinces and over 8,000 municipalities.
	In order to coordinate administrative action across levels of government, certain coordination practices have been set up, at different moments in history.
Coordination discourse	Coordination has been present in the Italian public debate for several years. The issue is, however, mainly debated in "legalistic" terms, as if it were a problem of "setting the legal-normative framework rightly" and "allocating competences throughout levels of government in such a way to avoid any overlaps", rather than a broader and deeper issue pervading the whole administrative action.
Policy area	The Italian National Health Service was established in 1978, and it is financed by general taxation. It provides universal coverage and free health care at point of delivery to all Italian and European Union citizens residing in the country, as well as all those holding a regular permit to stay in Italy.
	The administrative structure consists of 3 levels: central, regional and local.
	At the central level there is the Ministry of Health, which, receiving input from other ministries, issues the National Health Plan and coordinates the overall health-care system.
	At the regional level the 20 regional Departments of Health, in respect of the objectives of the National Health Plan, are involved in the regulation and management of health-care activities. Regions have generally also reached agreements with private hospitals allowing patients to be treated under the public health-care system on a reimbursement fee.
	At the local level, Local Healthcare Authorities (LHAs) offer specialised outpatient, acute and primary-care services on a territorial base, and Public Hospitals (PHs) deliver inpatient-care services.
	Together, they are responsible for ensuring the delivery of health-care services by means of public and private accredited providers and other social-care facilities. Even if, formally, the National Health Service is a single, unitary system, the regional level plays a key role. In fact, the 1992 reform initiated the process of regionalisation of the health system and the introduction of managerial methods and quasi-market mechanisms into the health-care system, giving the regional government complete responsibility and great autonomy for setting the strategy and appropriate levels for health-care delivery in the region.
	In addition, the policy process of the Italian health strategy has been strongly influenced by the Constitutional Reform of 2001, which gave to regions legislative authority within the frame of basic principles and levels of assistance, determined by the state. The regional department of health is the governing authority holding the regulatory and administrative competencies in the health-care domain, including planning and supplying, quality-monitoring and control, appropriateness and efficiency of services.

As per *eHealth* issues, the Italian strategic plan aims at promoting the adoption and use of information and communication technologies to enhance the efficiency and effectiveness of the health-care system.

In February 2001, the Permanent Committee for political issues between central and regional authorities developed the new national health-care information system in order to achieve the previously defined objectives.

At the local level, LHAs and PHs have already been using eHealth instruments to address their own organisational need to share information to grant internal care continuity. In particular they have been introducing the Electronic Medical Record —a record that collects and elaborates all episodes of a patient's health occurring within one provider. This allows any actor involved in the care event at the organisational level to access all essential patient information, such as the clinical history, the reports of previous medical examinations, the drugs prescriptions and the contact information. Not all LHAs and PHs are aligned at the same stage on the use of electronic medical records, but they all recognise the relevancy of information-sharing.

In 2004, at the national level the Ministry of Health launched a programme for e-health, called Mattoni, in which it formulated multiple objectives to achieve and to ensure the interoperability of electronic health-care systems among regions. To support this, the (former) Ministry of Innovation and Technologies and the Ministry of Health created a permanent "e-Health Board" in charge of managing the discussion and consultation between the regions and the two Ministries, and for the coordination of e-health policies at both the national and regional levels. This board still exists.

In 2010 the Ministry of Health required all regions to implement an Electronic Patient Record (EPR) system by 2012, confirming the relevance of this requirement in the National Digital Agenda recently published in October 2012. The EPR is a system that captures information about the longitudinal health episodes of a patient across a network of health-care providers on a territorial base (i.e. at the regional level).

2. COORDINATION PRACTICE: Regional Electronic Patient Record in Lombardy	
2.1. Substance	
Country	Italy
Area	Health
Main characteristics of the practice	In the regional context, patients receive care from different providers and physicians. In order to provide good care to patients it is essential that health-care processes are carried out in a coordinated manner. It may be argued that the basis for effectiveness and continuity of care is information, which should be shared across all providers to allow for more effective and timely decision-making (diagnosis and treatment) and more effective care.

Thanks to a health-information system based on the Electronic Patient Record, it is possible to achieve horizontal coordination among providers that operate in a given territory and vertical coordination thanks to the availability of complete information for policy decision-making.

In particular, since 1999 the Lombardy Region has recognised that sharing information about a patient's history among health-care providers (i.e. hospitals, primary-care centres and general practitioners) is fundamental to the regional health-care strategy, in order to ensure care continuity.

In Lombardy there are 128 public and private health-care institutions, of which there are:

- 29 Public Hospitals (PHs);

- 15 LHAs established, in general, on the basis of provincial territories;

- 27 Scientific Hospitalisation Institutes, which are characterised by excellence in biomedical research and in the organisation and management of care services.

In the Lombardy Region there is also a strong presence of private health care. In particular, 30% of hospital admissions occur in private hospitals (the Italian mean is 23%). Data also show that Lombardy is the first Italian region for active mobility.

The regional health system has a very centralised nature, with logic and tools that give priority to the regional government steering, at the expense of the autonomy of providers.

To support its initiatives of ICT innovation, the Lombardy regional government relies on Lombardia Informatica SpA (LISPA), a regional in-house ICT-providing company established in December 1981. |

	With regard to the need of coordination and integration among health-care providers, the Department of Health of the Lombardy Region launched a programme for the development of a regional health-care information system in 1999 based on smart-card access and services. This project embedded the idea of the establishment of a region-wide ICT architecture to share health data at the inter-organisational level across the region, connecting all stakeholders involved in the project.
	In particular, in 2009, the EPR has been introduced as part of this wide project; it gives an integrated and contextualised vision of the full and updated clinical documentation of the patient, with the aim of making it available to any health-care provider, also in the case of emergency, regardless of the health-care organisation where the document was produced.
	The main objectives of the health information-system project are to unify and to protect, within a coordinated system, all the information related to the citizens' state of health. In more detail, the main objectives that have been identified by the regional government for the electronic patient record system include: improving care processes and services to citizens, ensuring the quality of prescription and strengthening the overall governance of the regional health-care system.
Background and initiation of the practice	At the end of the 1990s, the Lombardy regional government set out a major reform of the health-care system, based on the reduction of the number of providers and a separation between service delivery planning (entrusted to the Local Healthcare Authorities – LHAs) and the actual delivery of services (carried out by public hospitals or by privately owned accredited hospitals on a competitive basis within a quasi-market system based on Diagnostic-Related Groups).
	In order to support this major reform process, the Department of Health considered it fundamental to introduce a regional health-care information system that would facilitate health-care process integration across providers. This health-care information system (called SISS) allows all providers to share, gather and manage health-related information about a patient's health history originated by any of the public or private health-care providers located in Lombardy. Information can be accessed by all health-care professionals and administrators connected to this regional information system, once they provide appropriate identification and the citizen offers explicit consent through their smart card or a virtual pin.
	This project was formally initiated in 1999 with a design phase of the regional health information system in line with the health system's priority. Soon after, a pilot project was started in the Lecco district, covering about 300,000 citizens, in order to design and test a prototype of the social and health information system. In order to carry out this prototype project, the project manager, entrusted to Lombardia Informatica (the regional ICT in house company), established a new company (LISIT). The new company

LISIT (totally owned by Lombardia Informatica and specifically created for the SISS project) was set up with the aim of operatively running the project with the private partners, namely a small group of leading companies in the global market that won the public tender for this project. The private partners' compensation was subject to positive test results and to the positive result of a new tender procedure to implement the extension phase. The pilot project ended in 2002, and the region approved the expansion of the health-care information system across the regional health-care sector.

The extension of the project was carried out in project financing. In fact, the project was entrusted to LISIT, which in this phase became the Special Purpose Vehicle of the Project Financing, owned at 44% by the industrial partners. Lombardia Informatica, in accordance with regulations and laws, proceeded with an open call for tender to select partners involved in the implementation of the project in the whole region. Private partners were responsible for the implementation together with Lombardia Informatica and were paid with a pay-per-output logic.

The extension phase took place in several stages. The first, lasting one year, ended in 2003 and extended the pilot project, reaching an additional coverage of about 700,000 citizens.

The successive stages produced extensions to the entire region with increments of approximately 2,000,000 people per area. Hence, in this phase, the geographical area involved was progressively extended.

In 2007, through a regional law, the Lombardy Region stated that all the actors of the regional health-care system, namely LHAs, PHs, General Practitioners and Pharmacies, were required to use the social and health-care information system in order to create each citizen's Electronic Patient Record. In 2009, this requirement has been extended to private health-care providers, as well.

The final phase began in 2009 when, after the extension of the health and social care information system to the whole region was complete, the regional government by means of a Regional Deliberation defined the consolidation of the health-care and social information system project, with four objectives:

-        integration of Social and Health organisations;

-        Electronic Patient Record;

-        services to Citizens;

-        dematerialisation.

This phase is still ongoing in 2013 and all the providers of the regional health-care system are involved. The main activities are the management of the system and the development of new solutions, which are carried out by Lombardia Informatica. There is no defined private partner in this phase,

	but Lombardia Informatica can select specific private partners, using a public tender procedure.
Time frame	The health-care and social information-system project began in 1999 and is still on-going. It is characterised by four phases:
	- The first phase (1999-2000) was the *design phase*, in which the overall project of the new social and health information system was designed, in line with other health-related strategic objectives that the region defines for the political term.
	- The second phase (2000-2002) was the *pilot phase*, in which the prototype of the information system was tested and implemented in the LHA of Lecco.
	- The third phase (2002-2009) was the *extension phase*, in which the project, based on the positive results of the test, was implemented at the regional level.
	- The last phase (2009-present) is the *consolidation phase* of the project, in which the system is run and maintained and new projects or ameliorative functionalities are added to fully achieve the above-mentioned four objectives.

2.2. Structure and actors

Basic features	This coordination practice is about the implementation process of the introduction of the regional Electronic Patient Record system. Thus, the geographical area involved is limited to the Lombardy Region.
	The region-wide information system builds on data originated by each provider's electronic-medical-record system. The whole process has been characterised by a strong role of the region. The Department of Health, in fact, played a regulatory role in governing the regional health-care system, since it defines the health-care-system goals and priorities, and it closely monitors its performance. Cash management and financial management are centrally planned. The Lombardy Region operates with a leader's logic, which, considering the funding defined, tries to balance the actual needs of each health-care provider in order to minimise the financial costs of the system.
	A different mix of coordination tools has been employed to support the function of coordinating the implementation process. It is noticeable that a hierarchy-type mechanism plays a major role, although both market-type mechanisms and network-type mechanisms are also deployed.
	For this coordination practice, a new structure has been established: LISIT. In fact, LISIT was firstly created for the pilot test, and then it became the Special Purpose Vehicle of the project financing that characterised the extension phase.

	It is also noteworthy that, with the creation and the elimination of LISIT, the responsibilities and tasks assigned to the existing structures, in particular to Lombardia Informatica, also changed.
Main tools	The whole implementation process has been steered from the centre, by means of very formal structures and the use of regulatory and other formal-legal means.
	Market-type mechanisms also played a role in incentivising providers to adopt the health-care and social information system. In fact, the regional government embedded the result-related objectives of this project in the overall set of objectives each CEO of a health-care-provider organisation has to achieve as part of her/his mandated goals.
	This practice concerns a public service very close to the citizens; in fact, through the EPR system, health information is made accessible from patients' homes. This is made possible through a technological solution deployed in order to allow data and information exchange.
	Resources and the financing system have changed over the different phases of the project. The pilot phase was funded entirely by the private sector as the payment of the pilot was carried out with the capital paid by the private companies, which won the contract for the extension phase. The extension phase was funded through fees paid by the region to Lombardia Informatica, when specific objectives (e.g. number of issued cards) were achieved.
	In the last phase the funding came from the region for ordinary operations and for the management of development projects.
Main actors	In this process three main actors have been involved with different roles.
	The leading actor is the Lombardy regional government, institutionally operating through a division, the Health Department. The regional government has a strong role in the governance of the health system, defining the rules and general guidelines of the health-care and social information system, but it also plays a role of support and promotion of the project.
	Closely connected to the role of the regional government is that of Lombardia Informatica. It provides a strong coordination and technical supervision of the project, besides acting as mediator between health-care providers and certified ICT vendors.
	Finally, public and private health-care providers have the role of facilitators and implementers of solutions defined in the health-care and social information system.

2.3.	**Impacts and effects**

The effects of the introduction of the regional EPR can be identified both at the regional and organisational levels. Different combinations of coordination tools allowed the coordination of disparate efforts by multiple actors in the change-management process that ultimately led to setting up the EPR.

With regard to the impact measurement, impacts are mainly measured at the organisational level, in terms of possibility for patients to access their own medical reports online and in terms of efficiency due to dematerialisation. In general, among the health-care providers there are no measures to assess the value produced by the EPR, except in terms of a number of accesses. With regard to this, consultations by all those involved are still quite low. In fact accesses are relatively small both by operators in hospitals, who only see the medical reports available within the organisation, and by the GPs, who consult the EPR only in the presence of the patient. At this moment, the impact measurement mainly refers to the online access to medical referrals, but it is not able to measure the overall impact of the EPR on the regional health-care system.

As the EPR is up and fully running, the measurement and the evaluation of the results and impacts of the SISS project are the next steps that the region intends to implement in the near future.

2.4.	**Lessons learned and policy recommendations**

Certain "enabling conditions" may be interpreted as having led to the performance of such change management. Firstly, the strong and continued commitment and support at the higher level (president of the regional government and his close aides) towards the development of the shared health information system.

Secondly, the centralised regulatory role of the Department of Health, which has played a central role in determining the nature of the vertical coordination mechanisms. The planning and control system, centred on the constant oversight and monitoring of the targets assigned to CEOs, including target measures for the EPR project implementation, proved crucial to engage executives at the top in the project. In a similar manner, the regional government utilised hierarchy to engage the implementation partners (LISPA, LISIT and private IT companies) in the implementation of the project. The design of the contract not only embedded specific provisions in the terms of reference, but set up a pay-for-implementation mechanism which pitched providers' compensation to the state of advancement of the shared information system. Hierarchy was also adopted to make private health-care providers adopt, share and utilise the

system by allowing them to offer care services reimbursed by the regional public health-care system only if they joined the shared health information system. In sum, monetary incentives were set up.

Thirdly, LISPA's knowledge of the health-information management business, its project management capacity as well as its collaborative relationship with the Department of Health supported project implementation throughout all phases. Such capabilities were developed by LISPA during the unfolding of the project over time: LISPA developed competences and expertise in the management of complex health-system technological innovation, becoming not just a project partner but also a facilitator. This has been possible thanks to the definition of a formal system of governance of the project, which eventually led to the creation of a new entity —LISIT. To complement it and to ensure constant assistance to all LHAs and PHs involved, LISPA has been de-locating employees at their premises during the extension phase. This turned out to be useful to mitigate resistance and to engage with the shared information system at the street level.

Summing up, this combination of governance and planning arrangements, combined with continued commitment by the top political and administrative apex (the social mechanism of actor certification might be hypothesised to have been in place), seems to have worked in the extant case, producing a practice (in the form of a set of coordinating tools adapted over time) that works well.

The case also shows two critical aspects.

First, in many LHAs initially the new health-care information system was seen only as a computer system and, therefore, it was placed under the Information Systems Department, which does not always have the opportunity to influence organisation strategy. Perhaps, in the initial phase, the region should have emphasised the relevance of the organisational change related to the SISS project and should have tried to define an alignment between the definition of a new information strategy related to the adoption of the regional EPR and the organisation strategy.

Second, the major role of hierarchical instruments has generated resistance in some health-care providers in the adoption of the new health-care information system, especially in the extension phase, even if in many cases LISPA's staff has been seen as a precious support for the project implementation.

In trying to sketch what the context conditions may have been in the case examined, the following may be pointed out. Firstly, political stability granted continuity in vision, priority and objectives. Secondly, the degree of professionalism of the key actors in the project, the Department of Health and LISPA, ensured the adequate coping with emerging challenges. Thirdly, the location in time of the project, specifically the fact of being a first-mover: more than ten years ago, the status of health information systems

	in many health-care providers was developed to a limited degree, and regulation of the field was contained by the national authorities; this allowed to design the shared information system on which the Electronic Patient record is based almost from scratch, and to engage stakeholders in a project that was going to be a front-runner, having the mint of "innovativeness". This has stirred commitment and engagement into the project.

2.5. Further information

Data and references	The information in this coordination practice example is based on the evaluation of some government documentation and on some interviews with the Health Care Directorate of the Lombardy Region and CIOs of four Public Hospital. Legal acts and regulations: D.G.R. del 19 Novembre 1999 n. VI/46380 recante "Conferimento d'incarico, in esecuzione alla D.G.R. n. VI/42385/1999, a Lombardia Informatica S.p.A. di Milano per la realizzazione del progetto CRS – SISS (Carta Regionale dei Servizi – Sistema Informativo Socio Sanitario)". D.G.R. del 7 Agosto 2009 N°VIII/010031 recante "Determinazioni in merito all'evoluzione del progetto CRS-SISS." D.L. 18 ottobre 2012, n. 179 in materia di "Ulteriori misure urgenti per la crescita del Paese."
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