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The Politecnico di Torino "iVincoli" project

Aspects of technological
and digital innovation to support
public administration reform

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Abstract This paper illustrates the "iVincoli Project " (2007-2008) commissioned in 2007 from the Politecnico di Torino by the Regional Directorate for Cultural Heritage and Landscape of Piedmont. The result, in its prototype version, is the construction and implementation of a technology platform designed to define guidelines for monitoring and publishing online activities regarding planning constraints and compliance.

Among its other features, this multiprofile GIS system allows the following: consultation of information relating to monitored public buildings designated for protection; monitoring of designation practices by the Regional Directorate, local authorities and private parties¹ (denominated the "work flow of administrative practices"); creation of specific thematic tourist itineraries.

The project is based on a clear premise: all information architecture serving Public Administration processes and documents must be designed as a prototype tool to support the reform of the PA and its governance.

In light of these observations, public administrations are facing today, on the one hand, processes and debates regarding the transfer of central functions and on the other, the technological innovation called for in directives issued beginning with the Code for the Digital Public Administration².

In fact, one of the important elements for the development of instruments that can create synergies between innovation, administrative efficiency and territorial management consists of implementing information architecture configured in a GIS system.

Given this logic, the "iVincoli" project lies within the framework of the activities carried out by the City of Turin Real Estate Observatory (OICT)³, a structure that can trigger synergies between policy makers, administrative bodies, operators and businesses to establish a network of relationships and information exchange.

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1 The project's hypothesis of administrative work flow for the designation process made use of the legal and procedural content contained in the following laws and regulations: Legislative Decree/D.Lgs 22 January 2004, n. 42 "Code for the cultural heritage and landscape"; Ministerial Decree/DM January 25, 2005 containing the "Procedure for the verification of cultural property owned by the ecclesiastical authorities" and "Criteria and organization of the monitoring of cultural heritage properties owned by private non-profit organizations"; Ministerial Decree/DM February 6, 2004 "Verification of the cultural property of public utility", as amended and supplemented by Interministerial Manager Decree of 28 February 2005 ministerial leadership.

2 Legislative Decree 82/05, which entered into force on 1 January 2006 and subsequently implemented and amended by Legislative Decree 235/10 D, currently in force, which has partially renovated the original, calling for a time frame for action in 2012.

3 The City of Turin Real Estate Observatory (OICT) is a structure that has been operating since 2000, under an agreement between the Department of Housing and the City at the Polytechnic of Turin and the Municipality of Turin later integrating the Turin Chamber of Commerce. The relationships between these institutions have been formalized through special agreements/research contracts. In 2007, the Polytechnic of Turin Working Group included: prof. Rocco Curto (Scientific Coordinator), Dr. Gabriel Brondino, Arch. Cristina Coscia, prof. Elena Fregonara, Arch. Silvana Grella. Further details and information can be found at : www.oict.polito.it

INTRODUCTION

In 2007, the Piedmont Region Directorate for Cultural Heritage and Landscape (*Direzione Regionale per i Beni Culturali e Paesaggistici del Piemonte*)⁴ commissioned the "iVincoli" (2007-2008) project, a system created through the cooperation of three partners. The institutional component was represented by the aforementioned Piedmont Region Directorate for Cultural Heritage and Landscape. The scientific component was represented by the research group of the Dipartimento Casa-Città at the Politecnico di Torino⁵. The technological component was represented by a private company specializing in services for innovation and digital publishing.

The experience illustrated in this paper is based on a specific premise: all information architecture serving Public Administration processes and documents should be shaped - if properly developed and implemented - as a tool/prototype for supporting appraisal, for reforming the public administration and for governance.

Recent legislation underlines how the interconnections between government reform and process of innovation and diffusion of ICT have become central in optimizing the interoperability of information flow between different government entities. In this sense, strategies and administrative practices that aim at the digitization of the Public Administration and the development of new networked resources are becoming increasingly widespread. These topics are addressed from an e-government standpoint on the one hand, and from an e-governance one on the other.

In particular, attention⁶ should be called to the already widely-shared concepts of e-government, meant as the use of information technologies by public administrations as part of the decision-making process, in policy implementation and in the management of communications between citizens and administrations. It is also meant as a tool for the reorganization of the public administration through, for example, the control of every phase of administrative activity, organization into non-hierarchical network models, etc. And finally it can be considered a tool for e-governance which regards the management of society's computerization processes, referring to digital technology for providing wider services in which the outlook for central administrations will be to coordinate activities of other subjects, such as local authorities, businesses and NGOs. In this sense, for example, regional and local administrations are not the sole providers of public services, but are also their controllers, so that social services can be carried out in accordance with the principle of subsidiarity through the appropriate levels and subjects, be they companies, non-profit organizations, voluntary organizations, and others.

In line with this reasoning, today central functions are being transferred to the levels of the different Public Administrations; this began in 1997 with the so-called Bassanini law and the *Legislative Decree 112/98*, as amended by the *2007 Budget Law*, and - regarding technological innovation- with the directives issued first by the *Codice Unico della Pubblica Amministrazione Digitale (Legislative Decree 82/05*, which entered into force on 1 January 2006), and later by the current *Legislative Decree 235/10*, which has partially renewed the law's structure, foreseeing a deadline for action in 2012.

In particular, at this stage, emphasis has been placed on a few key aspects that have significant impact on the reform of the public administration, such as participation of institutions and citizens in computerized administrative procedure (e-democracy), computerized registry for businesses, quality processes, alignment and certification of data, digitization and publishing rights, etc., just to name a few.

⁴ In 2007, when it was commissioned, the project was coordinated by Dr. Mario Turetta, then General Director; Dr. Andrea De Pasquale was the vice-coordinator. Currently, the agreement has been finalized thanks to the guidelines set out by architect Papotti, Responsible for the Protected Heritage Office of the Superintendence for Architectural Heritage and Landscape of the Provinces of Turin, Asti, Cuneo, Biella and Vercelli.

⁵ Scientific coordination: Prof Rocco Curto, Cristina Coscia, architect, Silvana Grella architect (with the collaboration of Caterina Escardi, architect and Dr. Alessia Panatta).

⁶ See the specific reference to the reflections contained in two communications by Cesare Maioli: Cesare Maioli e Chiara Rabbito, "La digitalizzazione nella Pubblica Amministrazione, nuove risorse in rete" in: "Atti del convegno Convegno Csig", Florence May 13, 2005, paper online: www.altalex.com/index.php?idnot=5481&asnofrt=true, 2005; Cesare Maioli e Chiara Rabbito, "Il Processo Telematico: dalle proposte europee al nuovo regolamento tecnico italiano", in: "Cyberspazio e diritto", vol. 6, No 1, January 2005 pgg. 27-48

At the same time, the impact of technological innovation generated by the use of digital resources in public administrations engage with processes of their redesign in a strategic and design-oriented outlook towards community networking.

For example, in the Technical Guidelines of the Italian edition of *Minerva eEurope project 2003-2007*⁷, integrated, transparent and interoperable access with a limited number of interfaces was considered, by the user, as the central element. To this end, cultural institutions on all governmental levels are encouraged to overcome jurisdictional divisions in order to converge upon the field of the digital representation and querying of cultural objects.

The emerging framework is thus the innovative context for the network, or rather the concept of networking, where innovation is not - or is not only – in the information technology itself but also in the digital environment and in its organization and architecture. All of this calls for cooperation in terms of workflow and integration of jurisdictions. In a network perspective, in fact, essentially technical elements are connected to organizational and collaborative agreements and protocols between government agencies and individuals/users, along with overall local or national system governance.

In the legislation, the focus has been placed on the process of "accompanying" - of technological support and implementation in new areas of territorial governance. Examples of this are stipulations of Framework Agreements or Memoranda of Understanding that facilitate decentralization and exchange of information bases (for example, by the Agenzia del Territorio, the Provinces of Turin and Parma).

In fact, one of the crucial points for the development of instruments that can create synergies between innovation, administrative efficiency and regional management (for its development) consists in the implementation of Geographic Information Systems (GIS). Consequently, standardization of concepts, criteria, terminology, methods and technologies are desirable not only nationally but also on the European level through the creation of a specific ontology. This action has the goal of producing standards of data quality and services (variation in positive/negative terms) with important repercussions on the relationships between different administrations and between administrations and citizens.

In particular, in the field of Cultural Heritage, the contribution of the evaluative dimension to administrative processes of control, protection, management and enhancement of cultural resources is practiced within strategies and actions for development⁸. These often run up against numerous economic, financial and legal constraints; one such example is how the legal constraints tied to the fragmentation of property-ownership can lead to criticalities in the development of projects regarding the historic fabric.

In Italy, the recent legislation regarding cultural and environmental heritage has, in fact, paved the way for a more dynamic concept of protection, moving from a traditionally restrictive approach, based predominantly on constraints, to active protection in which promotion, enhancement and management become just as strategic.

Furthermore, this shift requires decisive strengthening of the technical and operational capacities of both the Ministries involved and other Public Administrations who manage programs with an eye towards implementing actions that can ensure stabilization in terms of the acquisition of the innovative tools and methods introduced.

How can the following three dimensions interact: evaluation in the context of establishing a system of improving public resources, reform of the Public Administration and territorial management? This question cannot disregard the availability of appropriate technological support that can manage information, enabling the exchange of databases and performing descriptive and forecasting analyses with updated and monitored data.

⁷ See G. De Francesco, A. M. Tammaro (ed), *Linee guida e tecniche per i programmi di creazione di contenuti culturali digitali*. Edizione italiana 2.0, versione italiana di: *Technical Guidelines for Digital Cultural Content Creation Programmes*, vers. 1.0 (Rev. April 8 2004), developed on behalf of MINERVA by UKOLN, University of Bath, in association with MLA, ed. Pete Johnston and David Dawson, in cooperation with MINERVA WP4.

⁸ See R. Curto, "*Economia e strategie pubbliche e private di valorizzazione dell'ambiente costruito*", in "*Estimo e Territorio*", n. 12, 2003, pp. 3-12.

The "iVincoli" project, within this logic, centers on the activities of the Real Estate Observatory of the City of Turin (*Osservatorio Immobiliare della Città di Torino – OICT*) as this structure represents an instrument that can trigger synergies between policy makers, administrative bodies, operators and businesses to form a network of relations and information exchange.

The "iVincoli" project is part of this framework.

In the "iVincoli" project, centered on OICT information architecture, each property in the sample survey (60 in the tourist itineraries section accompanied by detailed SIGEC forms and 419 listed/protected properties. Note that listed properties is the expression that refers to the Italian word "vincoli" indicating properties subject to legal protection and relative planning constraints based on their historic, cultural or landscape value – *translator's note*) or properties undergoing the designation process – is geo-referenced and all queries concerning their characteristics and context can be performed with the aid of layers of alphanumeric data and cartographic information (technical maps, cadastral/property maps, building license applications, territorial projects, implementation plans, etc.)⁹.

THE "IVINCOLI" PROJECT: FRAMEWORK AND GOALS

As stated at the outset, within the framework outlined, all information architecture serving public administration processes and documents will be shaped (if properly developed and implemented) as a prototypical tool supporting reform of the public administration and governance.

It then becomes necessary to create information systems that support knowledge and application of analytical models with the goal of sustaining decisions made in strategic planning - for example in the field of cultural and regional resources - within a logic of a local and supra-local ("glocal") development approach. In fact, the issues involved are often of strategic importance and involve the contents of specific data assets, implemented and monitored not only for descriptive purposes but also as applications for statistical/forecasting and geostatistical models.

The "iVincoli" project took shape (2007-2008) based on these assumptions.

Moreover, thanks to its connection with the OICT GIS, recent developments led to further and natural outcomes of this project in the agreement signed on March 23, 2011 between the City of Turin (Commissioner Gianguido Passoni) and the Superintendence for Architectural Heritage and Landscape of the Provinces of Turin, Asti, Cuneo, Biella and Vercelli¹⁰, having as its subject the online consultation of listed properties and heritage. The "iVincoli" prototype could be implemented through its final on-line development within the *Torino Facile* (www.torinofacile.it) network.

In particular, there are two strategic research areas in which interoperability with "iVincoli" architecture can be found; on the one hand, in the consultation section of the Geoportale ([www.comune.torino.it / geo](http://www.comune.torino.it/geo)) through interactive geographic navigation and on the other, with the download of the city plan extracts, providing specific certified information for properties viewed along with the integration of data, documents, maps and images.

In its prototype version, this project sought to create an information architecture designed for the definition of guidelines for online creation and publishing of the "iVincoli" platform, a multi-profile access GIS that can, from among the planned functions, allow the following:

- public consultation of information relating to public buildings being monitored as well as those already listed;
- monitoring the listings records by the Regional Directorate, local authorities and private parties involved¹¹, denominated "administrative procedures work flow";
- creation of specific thematic tourist itineraries.
- In this sense, the project's logic is coherent with the ICCD ministerial guidelines for the

⁹ The most significant synergistic effect that can arise from the interoperability of information flows between OICT and "iVincoli" is also found in a recent case study developed pursuant to the specific request by the Municipality of Turin for the sub-segmentation of the city's hilly area.

¹⁰ The management of all the regional Superintendencies is headed by the *Direzione Generale per i Beni Culturali e Paesaggistici del Piemonte*, whose current Director is Dr. Mario Turetta.

¹¹ See Note 1, *ibid*

identification and definition of the logical links between catalogue data, enabling the information compiled according to the SIGEC module.

The query and visualization system that was designed is hosted on the Italian Culture Portal (*Portale della Cultura Italiana*) and will allow users to:

- track records relating to the different phases of the administrative procedure immediately and rapidly through key-fields or pre-set questions;
- facilitate the recognition of administrative acts relating to the designation procedure (either by system administrator or by property owner);
- query the system (by authorized external users - notaries, professionals);
- register the administrative steps in the designation procedure through a "Diary" feature referring to each single listing;
- surf thematic tourist itineraries (generic user) .

In addition to managing listings/protected heritage, the web prototype - featuring the promotion of the listed (or not listed) properties through the identification of itineraries and thematic routes - is already organized and designed to be integrated not only with the Italian Culture Portal (managed by MIBAC - *Ministero dei Beni e delle Attività Culturali*) but also with the development and implementation of webTorino2.0 (both in the Torinofacile section as well as the specific section dedicated to contemporary art in Turin).

The conceptual and logical design of the web-GIS feature is intended both to involve specific user profiles identified through the web as well as to allow access to such documents by all citizens and professionals with the consequent simplification of the bureaucratic process. The GI system is designed to be interactive and can be modified by users through the generation of content and inclusion of comments, allowing the administration to monitor the demand for the different aspects of its supply. This feature is very important for the development and management of cultural policies. Interoperability with the Torinofacile portal should be guaranteed. Currently 130,000 addresses have already been scanned. Of these, 860 properties have been georeferenced and scanned. According to municipal manager, the architect Mandrile, professionals from the Superintendencies (protection agencies) are testing a sample of listings (currently 250) in order to provide each with a quality certificate (the standard digital certificate of authentication x509v3) corresponding to a database code that can be attributed to applications/records/projects presented by professionals without further inquiry. By using the x509v3 standard, this authentication system, born together with the Torinofacile project, can recognize certificates issued by other Certification Authorities. For this reason, for example, users with an Electronic Identity Card issued by the City or CNS Infocamere or Postecom can be recognized.

MINISTRY GUIDELINES: CURRENT AND PROPOSED DIRECTIONS

The "iVincoli" project is hinged on ongoing actions undertaken by Public Administrations and in particular the Ministry of Cultural Heritage (*Ministero dei Beni e delle Attività Culturali*), delegated to transfer quality and efficiency both to policy programming and implementation and to projects undertaken in the heritage and culture sectors with reference to the previous and current programming cycles of European Structural Funds (2000-2006 and 2007-2013). Some of the strategic goals in these funding programs, specific to the Cultural Resources sector, have indicated as priorities the marked strengthening of the technical and operational capacities of both the Ministry and other government departments responsible for the management of heritage-related programs and projects.

In this light, among the numerous projects addressing actions providing direction and support to the central and peripheral structures of the Ministry of Cultural Heritage and local institutions involved in the ROP (Regional Operational Program), we single out the "ATAS_MIBAC_misura 1.2" and Minerva WP4¹² initiatives. On the one hand, they have planned and rendered operational actions designed

12 See Note 3, *ibid.*

both to strengthen and improve guidance activities, guidelines and coordination, as well as to inform, train and improve Ministerial organizations operating in the sector, extending its assistance to regional structures by providing tools (guidelines, models, methodological direction) for project implementation; on the other, they have established research and working groups to explore the interoperability of services based on digital content for the preparation of guidelines to be shared among groups of experts and data administrators in the culture sector.

Integrated consultancy and support actions in various stages of administrative proceedings are considered strategic and will come about with the assistance of Ministry officials for methodological and procedural supervision in all authorization/approvals stages and with the assistance of external parties to provide services and support for functional analyses and standardization of operative phases.

The Politecnico research team was involved within this framework of renewal of Ministry structures by sharing an experiment that became a significant opportunity for the technological transfer of knowledge among government and research entities working in the field of cultural heritage.

THE "IVNCOLI" PROJECT IN DETAIL: SYSTEM FUNCTIONALITY

With reference to this legislative and leadership framework, the iVincoli system has managed cartographic and alphanumeric information by working on two levels of data analysis, separate from each other (see Fig 1):

- concise information relating to a sample of 419 buildings in the City of Turin listed for protection (updated in 2005) was geo-referenced both as points and as areas, extrapolating from the ministerial SIGEC Form A (ver 3.0)¹³ the key attributes in the registry for the identification of the property, by re-interpreting them according to the information contained in the dossiers in possession of the listings office (*Ufficio Vincoli della Soprintendenza per i Beni Architettonici e Paesaggistici per le province di Torino, Asti, Cuneo, Biella e Vercelli*);
- information relating to a sample of 60 historic buildings in the City of Turin - not all having undergone the designation procedure - from the period of Italian unification (*Risorgimento*) was geo-referenced¹⁴ as points and as areas, for which SIGEC Form A (version 3.0) was compiled (and implemented for some features) in all of its analytical fields; this was supplemented by additional information considered instrumental for further functions and rendered feasible with the support of the data assets (alphanumeric and cartographic db) contained in the OICT (Turin Real Estate Observatory) whose architecture allows data to be geo-referenced.

The web pages were designed on the basis of requirements that were identified during the research project, such as the need to:

- organize information within the Culture Portal (maintaining stylistic and content consistency with the portal itself);
- manage information deriving from data contained in SIGEC Form A;
- ensure accessibility and usability of information for user profiles that are different from one another;
- experiment the navigation of tourist itineraries on line;
- organize information within an open source Web GIS;
- use open source applications.

¹³ The Central Institute for Cataloguing and Documentation (*Istituto Centrale per il Catalogo e la Documentazione* - ICCD), part of the Ministry of Heritage and Culture, is responsible for cataloguing and documenting Italian cultural heritage and has recently completed the project for Information System of the General Catalogue (*Sistema Informativo Generale del Catalogo* - SIGEC), designed for the express purpose of enabling the integrated management of all information - alphanumeric, multimedia, geographic - available for historic assets. The functions developed in SIGEC allow, through a complex system of relations, the integration, within a single framework, of all heritage data in order to reconstruct the original unity of cultural and environmental heritage which, for specific operational cataloguing-related needs, is often analyzed in a fragmentary way based on the jurisdictions of different administrations.

¹⁴ The map reference system is expressed in UTM -WGS84 coordinates.

Access to the project is currently remote with support of an external web address pending the inclusion of the web pages in the Culture Portal. Starting with the initial screen (Fig. 1) the two different logics underlying the various features of the project become evident:

- 1) the distinction between **generic** and **reserved authentication** modes, with dedicated sections that:
 - enables data consultation through the simple authentication of the "generic user" (Section Main Menu - Blue Area, see Figure 2);
 - allows non-generic users or "admin users" to consult information (Section Area - Red Area, see Figure 3).
- 2) the distinction between **different navigation features**, both for "generic user" as well as for "administrator user" that, for example:
 - manages data relating to listed buildings on the basis of information derived from SIGEC Form A (List of Architectural protected/listed properties) – form A);
 - locates listed/protected objects/properties (map of catalogued properties/assets);
 - allows online experimentation of tourist itineraries, with the possibility of developing them on the Torinofacile Portal (see Figure 3);
 - permits geo-referencing of data through interoperability with OICT data assets.

In the following sections, the system's logical/conceptual design will be discussed and the IT aspects of the prototype's functional structure will be analyzed in greater detail. In particular, system functionality will be highlighted according to two parameters: 1. access and authentication (multi-user operations) and 2. multi-functionality: shared and/or distinct functions for different purposes and according to the two access modes.



Figure 1
The iVincoli prototype homepage

ACCESS AND AUTHENTICATION FUNCTIONS

Multiprofile access: multi-user authentication

The access page on the "iVincoli" website is designed to provide the following features for different types of users accredited through usernames and passwords:

- the generic user can verify the presence of a listed/protected property and navigate alternative tourist itineraries with the possibility of exploring the available maps (see Figure 2);
- in addition to the generic features, the administrator (property owners and licensed professionals - notaries, engineers, etc.) can utilize the more in-depth technical and procedural functions tracking the designation procedure and its stage of completion step-by-step (see Figure 3).

Authentication with the generic user profile

- By accessing the web pages with the generic user profile (Figs. 1-2, using the main menu - in the concept identified as "Blue Section") it is possible to:
- access the registry of listed/protected properties (those currently included);
- view thematic tourist itineraries (see Figure 2);
- view available maps (Web GIS - Map Server).

For details on these three functions, see the specific sections below.

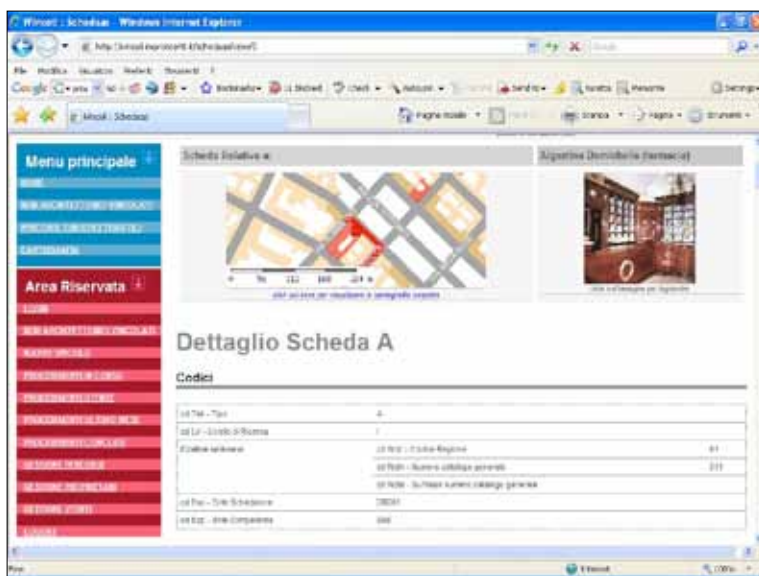


Figure 2 Generic user - main menu: selection of thematic itineraries

Authentication with administrator profile

As previously mentioned, the iVincoli project seeks to render accessible the control and monitoring of a range of data and procedures directed towards a limited number of authorized users (identified in the concept as the Red Section, see Figure. 3):

- data managers;
- property owners;
- professionals .

Authentication is confirmed by the user after reading the information laws regarding privacy and use of existing information (see Figure 3).

The **administrator/user**, once authorized to access the Red Section, can utilize a range of functions that includes data entry (and updating of documents), verification of the “declaration of interest” (declaration of interest must be validated by the competent listing/heritage agency before a property can formally undergo the designation procedure to be listed – translator’s note) and monitoring of the designation procedures (Figs. 4-21).

By accessing the specific area, the user can view all the basic identifying information relating to architectural listings/designations. This information regards properties already successfully subjected to verification or to “declaration of interest”.

The information is derived from approved data fields in Ministry SIGEC files (Version 3.0), which are designed to be interoperable through periodic “downloading” for their updating and monitoring on the central Ministry server. In fact, it is expected that the available list of properties will be updated continuously by introducing newly-designated properties upon completion of the administrative procedures resulting from the operations resulting on the system’s restricted-access pages.

These more technical and interactive (with administrative procedures in the iVincoli Prototype) functions integrate other functions already in place for the generic user, in other words those previously mentioned that give access to the registry of listed properties (currently included) and those allowing the consultation of thematic tourist itineraries and exploration of available maps through the Web GIS - Map Server application. In particular, for such functions, the system is supported by the OICT data assets (alphanumeric and cartographic db) whose architecture enables geo-referenced operations. As shown in Figure 3 and in the following illustrations, designation applications are accessed directly from "Progetto Vincoli" hosted on the Culture Portal.

After authentication, it is possible to search files regarding either declaration of interest procedures for public property or declaration of interest procedures for private property.

Within the agreements stipulated in the contract between the *Politecnico di Torino - Dipartimento Casa-Città* and the *Direzione Regionale per i Beni Culturali e Paesaggistici del Piemonte*, it must be stressed that the current "iVincoli" prototype concerns only features relating to progress reports regarding the declaration of interest of privately listed properties.

Figure 3 Homepage: authentication procedures by means of user ID and password to begin verification of procedure progress

In the following paragraphs, the prototype’s main features will be illustrated, highlighting its repercussions in terms of the innovation and enhancement of information flows from administrator to user and vice versa.

MULTI-FUNCTION LOGIC

Designation process work flow: user path simulation

The "Create Designation Procedure" (*Creazione Procedura Vincolo*) function for authorized users

This function was developed to verify the presence of an existing listing, and, for users/property owners or licensed professionals (notaries, engineers, etc.) to become aware of the progress of a given designation procedure. Direct access is provided for consulting designation procedures/applications from the "Progetto Vincoli" site hosted on the Culture Portal (Figs. 5-9).

In Figs 5-9, the most significant work-flow phases are illustrated step-by-step:

- the procedure begins by simulating access by an administrator user authorized for the reserved area (Red Section) as Applicant (*Richiedente*) (in this case "notary", cf. Fig. 5);
- once the Applicant user has been authorized, the specific role, Procedure manager (*Responsabile di procedimento*) (if it is Regional Office, the Superintendency, Province, etc..) can be selected. The procedure is divided into sections and each section in the interactive box is designed to allow extrapolation of information regarding: the property for which the designation process will begin, ownership and documentation relating to the administrative procedure. In particular using the select filter (*seleziona filtro*) option, the opened and viewed sections are highlighted in green and, those for which the user has not yet logged on, are shown in red (see Figure 6);
- as Applicant, after identifying (and disabling) the Procedure manager (*Responsabile del procedimento*) option, the property is selected from a list already included in the system (in the prototype, 60 properties in the Italian unity (*Risorgimento*) section) using the "filter" (*filtra*) command which automatically enters values in data fields predetermined by the system (see Figure 7). If the property is not yet included, it can be inserted as "new" (*nuovo*) by clicking on the "add" (*aggiungerlo*) command;
- the creation of a new designation procedure for a property continues with a series of steps starting from access to the "Designation Proposal" (*Proposta di vincolo*) section, which allows the entry of data relating to "Reference number", (*Protocollo*), "Date of application" (*Data della richiesta*) (with computerized scheduling), "Motivation" (*Motivazione*) and "Attachments" (*Allegati*) that can be uploaded as individual files (see Figure 8);
- simulating "Property Owner" (*Proprietario*) and "Procedure manager" (*Responsabile del procedimento*), identified at the beginning of the session, it is possible to explore the communications process starting from the "Start Communications" (*Avvia comunicazione*) command for the selected property (in the example, Palazzo Talucchi, procedure id: 18) (see Figure 9).

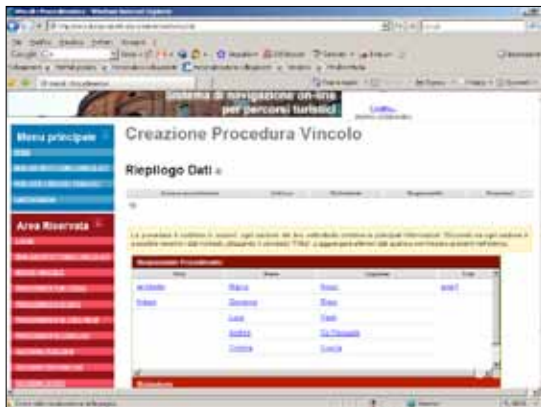


Figure 4 Restricted area – Authenticated user: Create Designation Procedure (Feature-administrator user - Procedure Manager -Creation of designation Procedure - Step 1

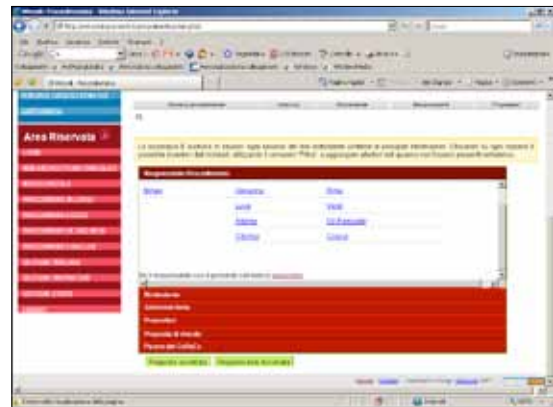


Figure 5 Reserved area – Authenticated user: sections regarding the designation procedure: Identification of Procedure Manager

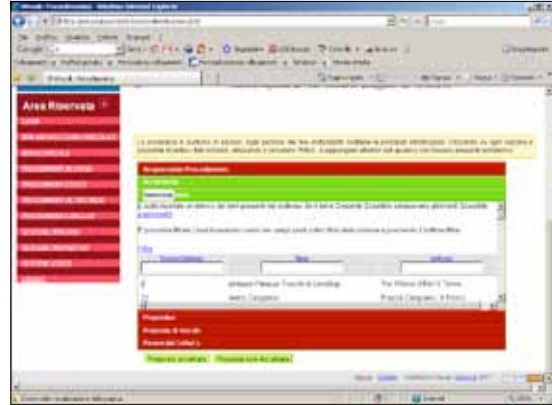


Figure 6 Reserved area – authenticated user: sections regarding the designation procedure: Applicant option
Figure 7 Reserved area – authenticated user: sections regarding the designation procedure: New designation (creation of a designation procedure, "select asset" (seleziona bene) option) for example selecting Palazzo Talucchi (using the add and filter (aggiungi, filtro) options

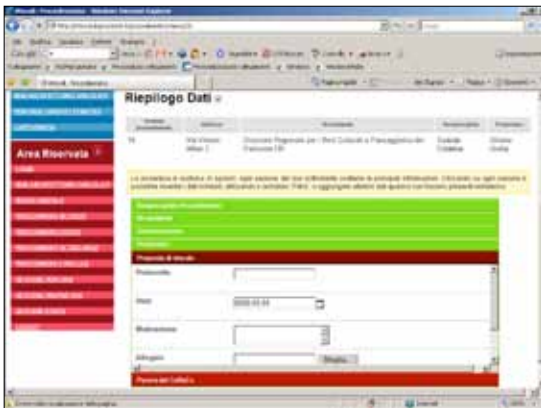


Figure 8 Reserved area – authenticated user: sections regarding the designation procedure: New designation (creation of a designation procedure, "proposed listing" (Proposta di vincolo) for example selecting Palazzo Talucchi, owner simulation Grella, Procedure Manager Coscia
Figure 9 Reserved area – authenticated user: sections regarding the designation procedure: New designation (creation of a designation procedure, "Proposal accepted" (Proposta accettata) for example selecting Palazzo Talucchi, owner simulation Grella, Procedure Manager Coscia

Starting with the "Start the procedure" (*Avvio del procedimento*) option, the administrative process is organized as follows:

- visualization of documents regarding correspondence with the owner and simultaneous correspondence with the municipality, using a pre-prepared form letter to be compiled and sent once the requested data is saved in the box screens (see Figs. 11-12). Data entry regards "Reference date with computerized calendar" (*Data di protocollazione con calendario informatizzato*), "Reference number" (*N° protocollo*), "Motivation" (*Motivazione*), "Date received (with "timetable")" (*Data ricevuta*) (con "timetable"), "Receipt signer" (*Firmatario della ricevuta*) (see Figure 10);
- the system has a summary feature for the initiated correspondence, whether ongoing or completed, each linked to the timetable required by law and with an automatic countdown to the procedure deadline. Depending on the type of correspondence, owner observations, notifications to owner, any appeal and its outcome and the termination of the procedure can be visualized (see Figure 13).

The designation procedure, in fact, can be concluded with the listing or non-listing of the property/asset. The system provides flow charts and distinct paths for the two cases.

If designation is approved, the system has planned for/designed the steps following the standard

path, briefly illustrated in Figures 14-21, that focus on prototype screenshots in a sequence that contains the flow chart of designation procedures, in particular:

- - owner comments (within 30 days of notification of receipt of the declaration of interest regarding his/her property) with the opportunity, provided by the system to reject owner comments within 30 days of notification of declaration of interest (see Figure 14);
- - display of the date of notification to owner with reference date and simultaneous transmission of the listing (with indication of reference date and repertory) and Registry Transcription (Trascrizione alla Conservatoria) by "date" and "registration number" (see Figure 15).

The system shows all active processes (see Figure 16) and relative functions in the designation procedure work flow chart (Red Section, reserved area) and allows:

- links to Form A, completely compiled and specifically designed for this prototype including the geo-referenced property, thanks to OICT data assets (see Figures 17 and 25.);
- reports on correspondence regarding pending procedures, by correspondence typology and by date, with a warning system for those cases in which the deadline for submitting comments and/or appeals has expired (see Figure 18);
- a concise summary of pending procedures regarding the user, if any (see Figure19);
- the list of completed procedures (see Figure 20), in the case of an already-approved listing,
- indication of procedures -where present - regarding the enabled user, together with a summary report containing details of pending procedures, specifying "Procedure number" (Numero del procedimento), "Reference" (Protocollo), " Creation date" (Data di creazione), the names of the Procedure Manager and Applicant, the name of the property, with a unique key address regarding street number and owner's name (see Figure 21). It is possible, even from this section, to access the catalog entry form of the property undergoing the declaration of interest procedure.

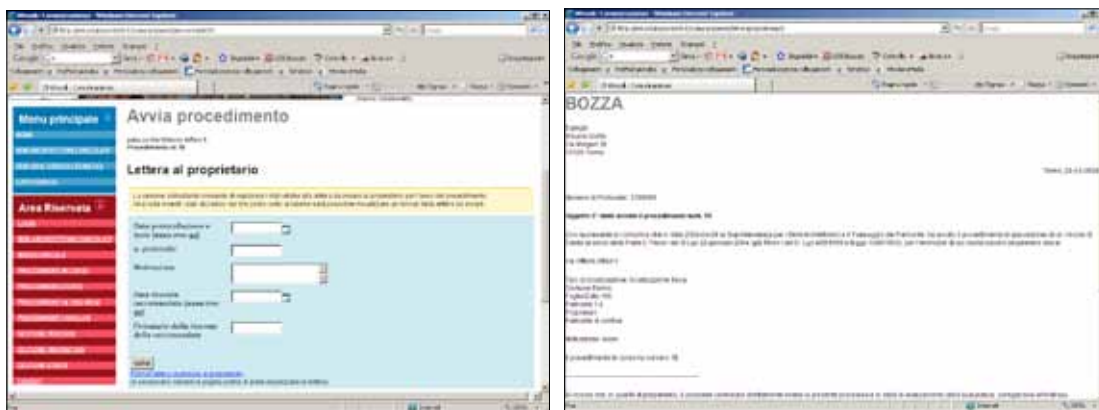


Figure 10 Reserved area – authenticated user: New designation: "START PROCEDURE" LETTER TO OWNER and LETTER TO MUNICIPALITY

Figure 11 Reserved area – authenticated user: New designation: "START PROCEDURE" LETTER TO OWNER and LETTER TO MUNICIPALITY - Possibility of down-loading a facsimile letter to owner



Figure 12: Reserved area – authenticated user: New designation: "START PROCEDURE" LETTER TO OWNER and LETTER TO MUNICIPALITY - Possibility of down-loading a facsimile letter to municipality
Figure 13: Restricted Area: report on the state of the procedure

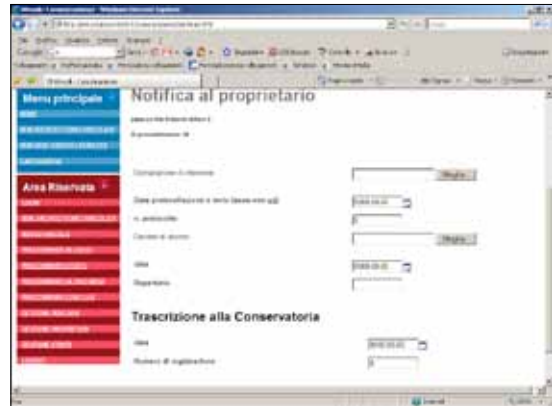
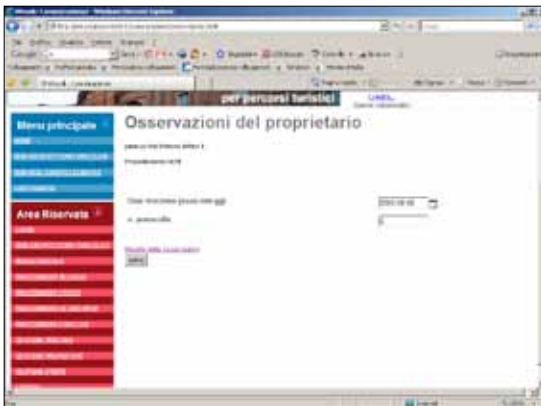


Figure 14: "Owner comment" (Osservazioni del proprietario) function with the possibility of "Rejection of comments" (Rigetto delle osservazioni)
Figure 15: Hypothesis of transcription to Registry **Figure 16:** Procedures underway: visualization of active procedures

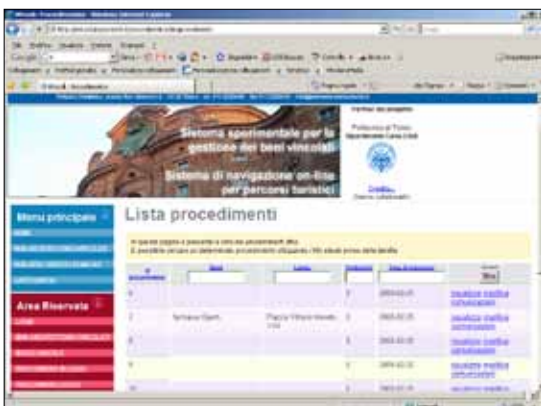


Figure 16: Procedures underway: visualization of active procedures
Figure 17: Display of pending procedures (third step), linking to Form A (example, form from catalog 500036)



Figure 18: Display of pending procedures (fourth step) - display of correspondence relating to the selected procedure
 Figure 19: Display of pending procedures - option of display of procedures regarding a user

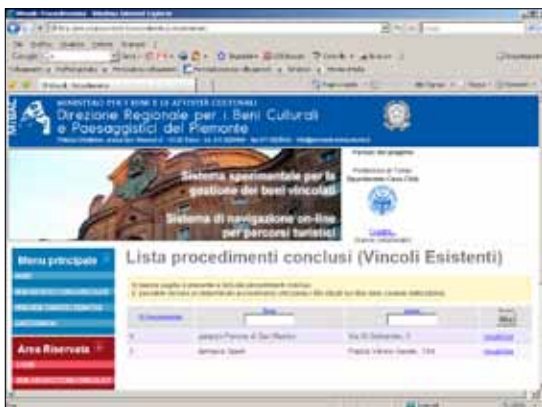


Figure 20 Completed procedures
 Figure 21 List of completed procedures: with the viewing option, it is possible to enter the catalogue form and relative correspondence

Management of tourist itineraries

Another function, no less strategic, is dedicated to the development of those historical assets, either already listed in the city plan or newly listed, that are part of the city's tourist/cultural itineraries (see Figs. 22 -24).

In particular, the prototype, which consistently implements the functions on the Culture Ministry Portal as well as the City of Turin Torinofacile Portal, contains the Risorgimento itinerary (created for the celebrations of the 150th anniversary of Italian unity - Italia150), indicating listed properties located along the specified itinerary and the travel time for a series of itineraries targeting a variety of different users.

In the Blue section, the generic user can browse the "default" tourist itineraries (in the prototype, the "Risorgimento tour"), managed by the authorized system administrator. The administrator can delete or add new assets (listed or not) to the selected itinerary for which a complete catalogue entry is prepared. In addition, the authorized managing institution will be able to create new tourist itineraries that can be selected from a list of active ones (see Figs. 22-24)

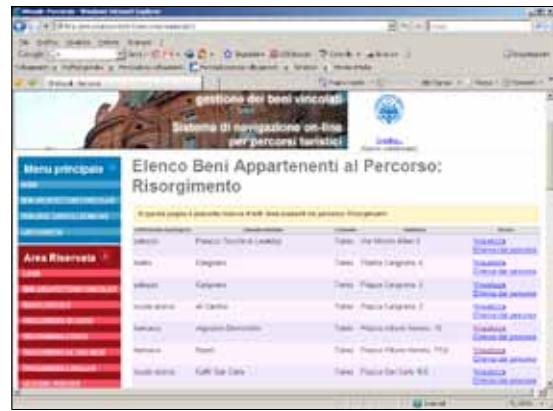


Figure 22 Itinerary management: display of available tourist itineraries

Figure 23 Management of tourist itineraries allows the display of cataloging files

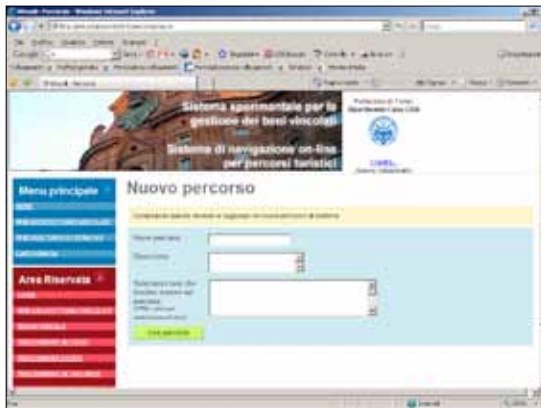


Figure 24 The management of tourist itineraries allows the creation or deletion of an itinerary by the authorized system administrator

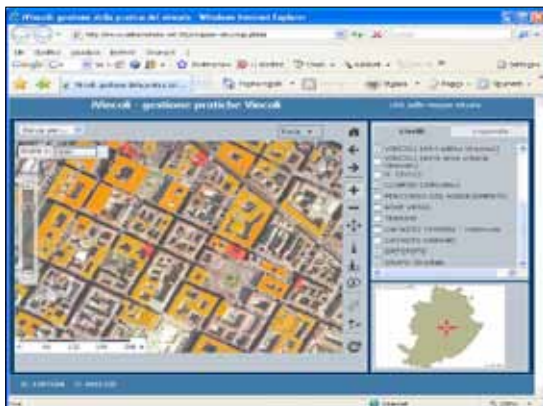


Figure 25 Generic user – main menu: maps

The map function

The "map" function in the Blue Section for generic users allows the visualization of data on a GisWeb Map server for viewing and navigating available maps. The user can superimpose layers that display information for listed properties, with unrestricted access to the properties included in the tourist itineraries and the overlay of other OICT databases.

The activation and deactivation of the information layers is possible thanks to the support of the OICT alphanumeric and cartographic assets and to the development of the system on the Torinofacile city portal.

CONCLUDING REMARKS AND FUTURE PROSPECTS

The "i Vincoli" prototype leaves room for a considerable number of implementations thanks both to an information architecture that is already standardized and organized for the publication of data and interactive navigation on the web, as well as to the interoperability of data and functions.

The goals, but also the visions, presented here are hinged on administrative strategies and on strategies for enhancing and improving architectural and historic heritage, to support policy making and management of historical heritage with their potential and expectations for development.