

Advanced Research Infrastructure
for Archaeological Dataset NETWORKING

Workshop on WP3-12-13 activities
7-8 november 2013, CNR - Pisa, Italy



Ministero dei Beni e delle Attività Culturali e del Turismo
Soprintendenza Speciale per i Beni Archeologici di Roma
Servizio per il Sistema Informativo Territoriale Archeologico di Roma

SITAR Project Data Model & DataSet

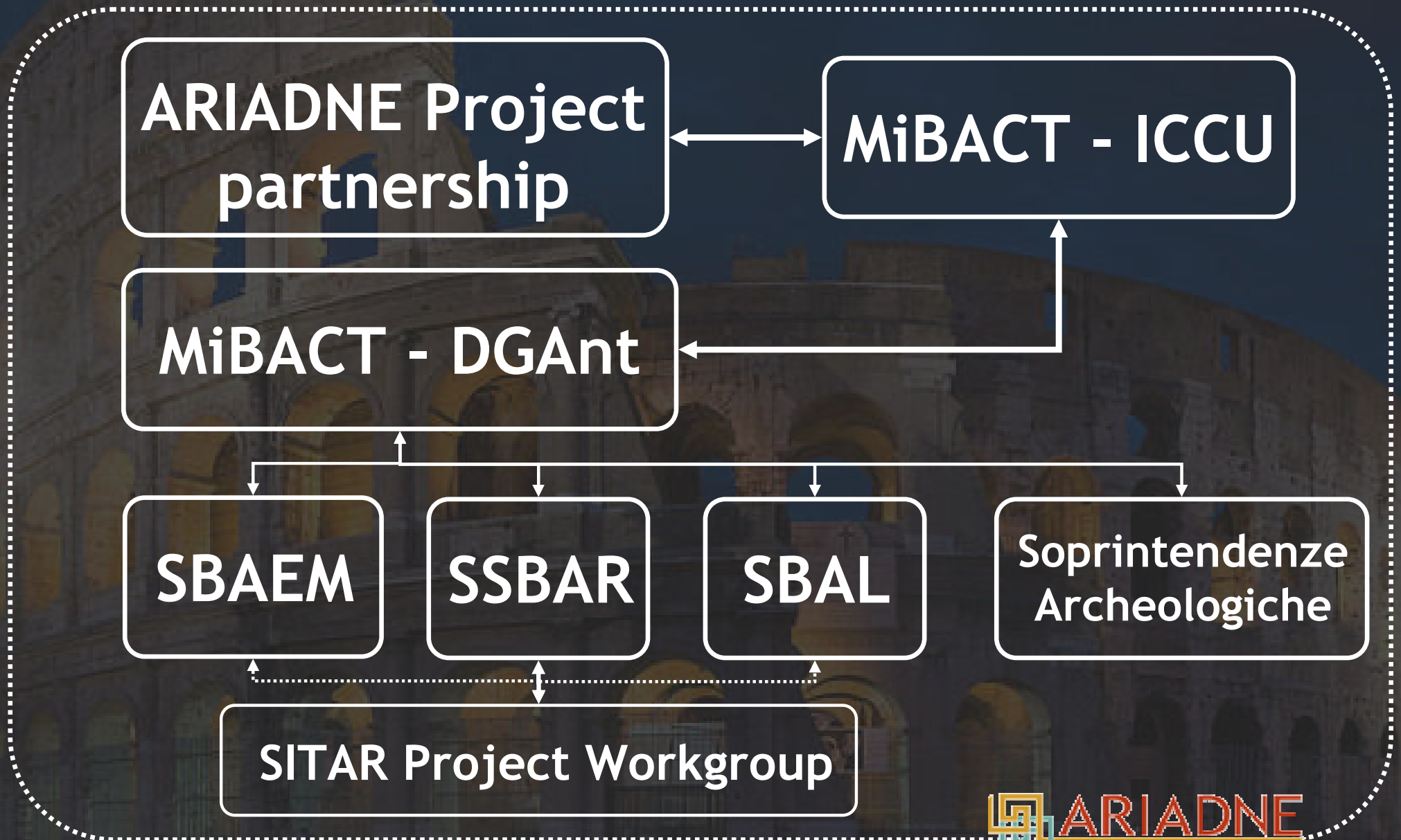
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bringing the Greetings of
Dr.ssa Mariarosaria Barbera, SSBAR Superintendent
Dr.ssa Mirella Serlorenzi, Scientific Responsible of SITAR Project
and of the Colleagues of SITAR Workgroup

and with Many Thanks to
Dr.ssa Rossella Caffo, ICCU Director
Prof. Franco Niccolucci, ARIADNE Project
Dr.ssa Sara Di Giorgio, ICCU / CulturalItalia
and to CNR - ISTI

SITAR Project within the ARIADNE MiBACT Workgroup

SITAR Project at a glance

- > launched in 2007 and observed by various MiBACT boards
- > managed by the Soprintendenza Speciale per i Beni Archeologici di Roma (SSBAR) with its own financial resources
- > to build and maintain the first archaeological cadastre of metropolitan territory of Rome and Fiumicino
- > to manage diverse types of data sets, ranging from large monumental contexts to single archaeological features
- > to deal with documentations of rescue excavations, planned investigations, geological surveyes, monograph studies, etc.
- > SITAR web platform (<http://sitar.archeroma.beniculturali.it/>)
- > underlying logic architecture based on *four primary information layers* and other interpretative levels

SITAR DataSet spatial / temporal coverage and Data types

- > **Geographic coverage:** the territories of Municipalities of Rome (Ostia Antica included) and Fiumicino.
- > **Temporal coverage:** from Paleolithic to contemporary period (also urban land-fill layers, actual soils and some old structures are registered in SITAR geoDB).
- > **State of the work:** the SSBAR Archive data actually collected and digitalized are referred to excavations, field researches and territorial studies realized about from 1860 to 2013, for about 11.000 GeoDB SITAR records (OI, PA, UA, DT) and 100.000 digital contents.
- > **Data types:** text docs, image, 3D, GIS location relative to scientific documentation as survey reports, cartographic, graphic and photographic documentations, multimedia contents, models, and also SITAR project documentation.

SITAR four primary information levels

> **Origini dell'Informazione / Sources of Information (OI)**

the administrative and scientific informations of each archaeological research, preventive digging, geophysical/geological survey, topographical study, monograph research on a single monument, etc.

> **Partizioni Archeologiche / Archaeological Partitions (PA)**

the scientific description of the archaeological findings even if fragmentary, always identified by the binomial of chronological and functional criteria.

> **Unità Archeologiche / Archaeological Units (UA)**

each archaeological complex or monument, conventionally identified by the logical union of many PA, which analyzed together makes an unambiguous archaeological monumental contest (for example a specific ancient building).

> **Dispositivi di Tutela / Law Constraint Decrees (DT)**

the law-constraints which punctually preserves each complex and/or monument.

SITAR higher information levels

> Potenziali Archeologici / Archaeological Potential(s)

Work in progress: higher interpretative layers generated by the logic/semantic union and super-interpretation of the base layers (also from other SDI); local authorities and institutional bodies will share and integrate in its own SDI/GIS systems the SITAR archaeological potential mapping tools e.g. to project and plan future developments of the urban contexts.

> Ipotesi di UA / Hypothesis of Archaeological Units

Work in progress (already implemented in SITAR WebGIS): a layer 'open' to all users contributes to the identification of new Archaeological Units and to the suggestion of new data re-readings.

> Ipotesi di PA / Hypothesis of Archaeological Partitions

Work in progress: similar to the layer of Hypothesis of Archaeological Units, this interpretative level can be populated by all the SITAR users to contribute to the identification of new Analytical Partitions of UA.

> Coltri di riporto, cavità, etc. / Landfills, cavities, etc., layers

Work in progress: other specific layers generated by the spatial/semantic interpolation of the SITAR layers with some from other public SDI.

SITAR technological paradigm

- > GeoDatabase on PostgreSQL/PostGIS RDBMS standards.
- > Web Mapping Server as Map Guide Open Source.
- > Web applications (webDB, webGIS, Users Management Module, SITAR Knowledge Base - moodle instance) developed with Php, Ajax, as soon as possible also with Java.
- > File system in local version, soon in distributed version (such e.g. as ASF powered by ENEA, a SSBAR partner together GARR).
- > Next integration with IDEM (Digital Identity framework supported in Italy by Consortium GARR) policies and on line resources federation (see at www.idem.garr.it/) to facilitate and support data accesses and users' experiences with SITAR apps and tools.

SITAR Data Model in detail - Source of Information (OI)

- > An OI has a unique sys ID (pk) and a unique 'human' SITAR Code
- > An OI can be related to one/many 'places' (as topographic areas, administrative subdivisions, toponimical addresses, other toponyms)
- > An OI can be related to one/many applied research methodologies
- > An OI can be related to one/many PA
- > An OI can be related just to one UA
- > An OI can be related to one/many Digital Object
- > An OI can be related to one/many Bibliography OPAC.SBN.it Ref.s
- > An OI can be related to one/many other OI
- > An OI can be related to one/many natural/legal Persons (Public/private Institutions, SSBAR Officers, Archaeologists, Geologists, City Service Providers, Companies, parcel Owners, etc.)
- > An OI can be related to one/many SITAR Users and their rules

SITAR Data Model in detail - Source of Information

Codice SITAR dell'OI	OI_ID SITAR	Soggetto richiedente	Requesting entity
Section on the identifying spatial elements of the OI		Soggetto esecutore	Executor subject
Geometria (multi-poligono)	Geometry (multi-polygon)	Proprietà immobiliare	Real estate
Comune	Town/municipality	Descrizione dei lavori	Description of work
Ripartizione Amministrativa	Administrative subdivision	Costo complessivo dei lavori	Total cost of the work
Zona topografica / Località	Topographical area / Locality	Costo complessivo delle ricerche geologiche	Total cost of the geoarchaeological research
Indirizzi toponomastici	Toponymic addresses	Section on the archival elements of the OI	
Grado di Georeferenziazione	Degree of Georeferencing	Archivio di conservazione	Conservation archive
Metodo di Georeferenziazione	Georeferencing method	Riferimenti di archivio ai documenti scientifici ed amministrativi correlati	List of the archive references to the related scientific and administrative documents
Archivio Caposaldi Topografici	Relevant topographic benchmarks	Section on the syntetic archaeological data provided by the OI	
Grado della Rappresentazione	Degree of the representation	Partizioni Archeologiche correlate	List of the related Archaeological Partitions
Section on the constitutive elements of the OI		Section on digital documentation of the OI	
Metodologie di Indagine applicate	Methodologies of the applied investigations	Collegamenti ipermediali ai documenti digitali	List of links to digital documents
Relazioni con altre Origini dell'Informazione	Archive of the relationships with other Sources of Information	Bibliografia	Bibliography
Ente proprietario del set di dati dell'OI	Owner of the data set of OI	Note	Note
Funzionario Responsabile SSBAR attuale	Responsible officer of the SSBAR attuale	Section Users	
Zona amministrativa o Servizio specifico della SSBAR	Administrative area or SSBAR specific service	Utente owner della scheda di Origine dell'Informazione	Owner User of the record of Origin Information
Responsabile scientifico, Curatori e Autori	Scientific curators and authors	Archivio utenti/permessi attivati sul record di Origine dell'Informazione	Users authorizations activated for the record of Origin Information
Data avvio indagini	Start date of investigation		
Data fine indagini	End date of the investigations		

SITAR Data Model in detail - Archaeological Partition (PA)

- > An PA has a unique system ID (pk) = SITAR Code
- > An PA can be related just to one OI (respect of data origin contest)
- > An PA can be related just to one applied research methodology
- > An PA can be related to one/many conventional denominations
- > An PA can be related to one/many *chronology intervals* and phases
- > An PA can be related to one/many building technics records
- > An PA can be related to one/many altimetric points
- > An PA can be related to one/many PA
- > An PA can be 'topological/analytical partition' of just one UA
- > ...but an PA can be *semantically* related just to other many UA
- > An PA can be related to one/many Digital Object
- > An PA can be related to one/many Bibliography OPAC.SBN.it Ref.s
- > An PA can be related to one/many SITAR Users and their rules

SITAR Data Model in detail - Archaeological Partition

Codice SITAR della PA	PA_ID SITAR	Tecniche Edilizie	Technical building
Section on the identifying spatial elements of the PA		Punti altimetrici disponibili	Altimetric points available for a PA
Geometria (multi-poligono)	Geometry (multi-polygon)	Relazioni tra le PA	Relationships between the PA
Dati relativi all'Unita' Archeologica / Complesso Archeologico cui l'elemento PA è stato già eventualmente referenziato	Identifying data of the Archaeological Unit / Archaeological Complex to whom the PA element has already been referenced	Section of the chronological elements of the PA	
Codice SITAR dell'OI	Sitar Code of the Source of Information	Cronologia Specifica (Cronologia iniziale; Cronologia finale)	Specific Chronology (initial and final chronology)
Section of descriptive data for spatial location of the PA		Cronologia Generale	General Chronology
Tipo della PA	PA type	Periodo	Period
Metodologia di acquisizione	Acquisition methodology	Fase	Phase
Definizione Oggettiva	Objective Definition	Section with the sintetic element of the state of accessibility and usability	
Definizione Specifica	Specific Definition	Accessibilità / fruibilità	Accessibility and usability
Definizione Interpretativa	Interpretative Definition	Section with the references to the digital documentation of the PA	
Denominazioni Convenzionali	Conventional Denominations	Collegamenti ai files della documentazione digitale di dettaglio della PA	Links to the files of the detailed digitalized documentation of the PA
Grado di georeferenziazione	Degree of georeferencing	Bibliografia correlata con la PA	List of the bibliographic records related to the PA element
Metodo di georeferenziazione	Georeferencing method	Section Users	
Grado della rappresentazione	Degree of representation	Utente	User
Section of the descriptive elements of the PA		Archivio utenti/permessi attivati sul record di PA	Users authorizations activated for the record of PA
Descrizione	Description		

SITAR Data Model in detail - Archaeological Unit (UA)

- > An UA has a unique system ID (pk) and also a unique SITAR Code
- > An UA can be related just to one OI (= SSBAR monograph study)
- > An UA can be related to one/many conventional denominations
- > An UA can be related to one/many *chronology intervals* and phases
- > An UA can be related to one/many building technics records
- > An UA can be related to one/many altimetric points
- > An UA can be *semantically* related to one/many UA
- > An UA can have 'topological/analytical partitions' (sharing of OI_ID)
- > An UA can be *semantically* related one/many PA
- > An UA can be related to one/many Digital Object
- > An UA can be related to one/many Bibliography OPAC.SBN.it Ref.s
- > An UA can be related to one/many SITAR Users and their rules

SITAR Data Model in detail - Archaeological Unit

ID_Unità Archeologica / Complesso Archeologico	SITAR ID of the Archaeological Unit / Archaeological Complex	Tecniche edilizie	Building techniques
Geometria (multi-poligono)	Geometry (multi-polygon)	Relazioni tra ua/ca	Relationships between UA
Section with the elements that define the archaeological unit / monumental complex		Punti altimetrici	Altimetric points available for a UA
Codice univoco identificativo SITAR	SITAR identifier unique code	Section of chronological elements of the UA	
Codice univoco identificativo in MODI dell'ICCD (campo C.U.I.)	ICCD - MODI Unique Code Identifier (field "C.U.I.")	Cronologia Specifica (Cronologia iniziale; Cronologia finale)	Specific Chronology (initial and final chronology)
Codice SITAR dell'Origine dell'Informazione di afferenza	Sitar Code of the Source of Information	Cronologia Generale	General Chronology
Descriptive data for spatial location		Periodo	Period
Tipo dell'UA	UA type	Fase	Phase
Definizione oggettiva dell'UA	Objective definition of the UA	Section with the sintetic element of the state of accessibility and usability	
Definizione specifica (denominazione convenzionale corrente del monumento o complesso archeologico)	Specific definition (as current conventional of the UA if it is a well known monument or complex)	Accessibilità / fruibilità	Accessibility / usability
Altre denominazioni convenzionali	Other conventional names	Section with the references to the digital documentation of the UA	
Grado di georeferenziazione	Degree of georeferencing	Collegamenti ai files della documentazione digitale di dettaglio dell'UA	Links to the files of the detailed digitalized documentation of the UA
Metodo di georeferenziazione	Georeferencing method	Bibliografia correlata con la UA	List of the bibliographic records related to the UA
Grado della rappresentazione	Degree of representation	Note	Notes
Section with the descriptive elements of the UA		Section Users	
Descrizione	Description	Utente proprietario e validatore	Owner and validator User
		Utente schedatore	Cataloguer User

SITAR Data Model in detail - Law Constraint Decree (DT)

- > A DT has a unique system ID (pk) and also a unique SITAR Code
- > A DT can be related just to one/many UA (as preserved monuments)
- > A DT can be related to just one relevant legislation
- > A DT can be related to just one type of law-constraint
- > A DT can be related to one/many 'places' (as topographic areas, administrative subdivisions, toponimical addresses, other toponyms)
- > A DT can be related to one/many *cadastral immovables*
- > A DT can be related to one/many natural/legal Persons (Public/private Institutions or single parcel Owners)
- > A DT can be related to one/many *Public Real Estate Registry deeds*
- > A DT can be related to one/many DT (e.g. administrative reasons)
- > A DT can be related to one/many Digital Object
- > A DT can be related to one/many SITAR Users and their rules

SITAR Data Model in detail - Law Constraint Decree (DT)

Codice SITAR DT	SITAR ID of the DT	Section on the procedural notes of the OI	
Geometria (multi-poligono)	Geometry (multi-polygon)	Note sulla procedura del DT	Notes on the DT
Section on the identifying data of the DT		Note sui ricorsi giuridici avverso il DT	Legal appeals towards the DT
Numero di scheda DT dell'Ufficio Vincoli	Code of DT assigned by Ufficio Vincoli della SSBAR (specific internal office)	Sections with the references to the cadastral, administrative and personal data related to the DT	
Denominazione Convenzionale del DT	Conventional name fo DT	Lista degli immobili vincolati dal DT	List of immovables subject to the DT
Tipo del dispositivo di tutela	DT Type	Pratiche di Tutela correlate con il DT	Administrative procedures related to DT
Data di emissione	Issue date of DT	Lista dei proprietari degli immobili vincolati	List of owners of immovables subject to DT
Normativa di riferimento	Relevant legislation	Note di trascrizione delle pratiche di tutela	Transcription deeds of the DT
Tipo di vincolo imposto	Law constraint type	Section with the references to the digital documentation of the DT	
Tipo di tutela imposta (diretta, indiretta)	Conservation type	Documenti digitali allegati al DT	Links to the files of the detailed digitalized documentation of the DT
Tipo di bene archeologico tutelato	Monument/complex protected by the DT		
Funzionario Responsabile SSBAR attuale	Responsible officer of the SSBAR		
Section on the identifying spatial elements of the DT			
Ripartizione Amministrativa	Administrative subdivision		
Zona topografica / Località	Topographical area / Locality		
Indirizzi toponomastici	Toponymic addresses		

WP3-12-13 activities Workshop
SITAR Data Model - Standard vocabularies
For the Origini dell'Informazione / Sources of Information:

- *SITAR vocabularies*: Acquisition methodologies; Georeferencing degrees; Georeferencing methods; Representation degrees; Legal Persons; Natural Persons; SSBAR Officers; SSBAR administrative zones & services;
- *ISTAT* (italian statistical agency) and Municipality of Rome and of Fiumicino vocabulary: Toponymical zones and Localities;
- *Agenzia del Territorio* (italian cadastral agency): toponymical street registry;

For the Partizioni Archeologiche / Archaeological Partitions:

- *SITAR vocabularies*: PA type; Objective Definition; Specific Definition (based on MA-CA model thesaurus ICCD, work in progress by SITAR workgroup), Interpretative Definition (corresponding to UA Specific Definition lexicon); Georeferencing degrees; Georeferencing methods; Representation degrees; Chronological intervals; Named year ranges (for historical periods and sub-periods);
- Buildings Techniques (and its constitutive elements): Gruppo di lavoro sul Repertorio delle Tecniche edilizie del mondo romano

For the Unità Archeologiche / Archaeological Units:

- *SITAR vocabularies*: UA type; Objective Definition; Specific Definition; Georeferencing degrees; Georeferencing methods; Representation degrees; Chronological intervals; Named year ranges (for historical periods and sub-periods);
- Buildings Techniques (and its constitutive elements): *Gruppo di lavoro sul Repertorio delle Tecniche edilizie del mondo romano*

For the Dispositivi di Tutela / Law constraints Decrees:

- *SITAR vocabularies*: Relevant legislations; Constraint & conservation type; Decree type; Legal Persons; Natural Persons; SSBAR Officers; SSBAR administrative zones & services;
- *ISTAT* (italian statistical agency) and Municipality of Rome and of Fiumicino vocabulary: Toponymical zones and Localities;
- *Agenzia del Territorio* (italian cadastral agency): toponymical street registry; immovable cadastral type; property type.

For the Digital Objects:

- *SITAR vocabularies*: Document type.

SITAR Project proposals for Data Rights

> Rights holders:

- MiBACT - SSBAR for all SITAR GeoDB dataset/records and archive documents directly owned by SSBAR.
- For the external Archives documents possibly stored in SITAR web file system (e.g. public cartographic bases, historical document, etc.), full compliance with owner (institution / natural person) copyright specifications.

> Content copyrights:

Different copyrights are expected to be applied to:

A) SITAR GeoDB datasets (OI, PA, UA, DT, digital objects, etc. owned by SSBAR in its archives), also in according to different publication modes (web apps, web service OGC compliants, file downloads, open data & linked open data, etc.):

1) *CC-0 license* for SITAR *primary source* data (hypotesis of *primary source* as consolidated internal data vs. *external sources* from other datasets, such as in e.g. *Wolfram|Alpha Project*, <http://www.wolframalpha.com/>);

these SITAR data could be available also for open data and LOD applications such as in Europeana projects,

2) *CC-BY-SA-NC license* for SITAR GeoDB dataset, single record and/or digital object available on line/off line in different access modes for scientific and territorial studies.

B) Digital copies of external archives documents possibly stored in SITAR web file system always in compliance with owner (institution / natural person) copyright specifications.

SITAR Project proposals for Data & Apps Access

As said, a next integration with IDEM (digital Identity framework supported in Italy by Consortium GARR) policies and on line resources federation is expected in middle term, to facilitate and support data accesses and users' experiences with SITAR apps and tools (see at <http://www.idem.garr.it/>).

It could result a good practice in view of realization of a s.c. "*Modello Lazio*" an initiative of institutional cooperation for expanding and better testing SITAR Data Model across the entire territory of the Regione Lazio, involving together the SSBAR also the Soprintendenza per i Beni Archeologici dell'Etruria Meridionale and the Soprintendenza per i Beni Archeologici del Lazio.

Many Thanks

Questions ? Suggestions ?

Soprintendenza Speciale per i Beni Archeologici di Roma

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