



CAPITOLATO TECNICO DI MASSIMA

INDAGINE ESPLORATIVA DI MERCATO VOLTA A RACCOGLIERE PREVENTIVI INFORMALI FINALIZZATI ALL'AFFIDAMENTO DELLA FORNITURA DEGLI IMPIANTI TECNOLOGICI NECESSARI AL POTENZIAMENTO DELLA SALA SERVER CHE OSPITERÀ LE APPARECCHIATURE DELL'INFRASTRUTTURA DEL NODO SECONDARIO DI TORINO NELL'AMBITO DEL PIANO NAZIONALE RIPRESA E RESILIENZA (PNRR) - MISSIONE 4 «ISTRUZIONE E RICERCA» - COMPONENTE 2 «DALLA RICERCA ALL'IMPRESA» - LINEA DI INVESTIMENTO 3.1 «FONDO PER LA REALIZZAZIONE DI UN SISTEMA INTEGRATO DI INFRASTRUTTURE DI RICERCA E INNOVAZIONE» - PROGETTO «FOSSR», CUP B83C22003950001

- ◆ Fornitura, posa, installazione, collaudo, messa in funzione e ove necessario progettazione elettrica e certificazione di conformità secondo la normativa vigente, dei seguenti impianti tecnologici:

1. Gruppo elettrogeno

- Apparecchiatura
 - Potenza 100kVA ($\cos\phi$ 0.8)
 - Uscita: trifase 380V
 - Rumorosità: silenzioso ($\sim 70\text{dBA}$)
 - Serbatoio: integrato
 - Autonomia: uguale o maggiore di 5h al 75% del carico
- Quadro di commutazione: su nuovo quadro elettrico in sala macchine, commutazione automatica su GE in caso di mancanza di tensione di rete con tempo d'intervento dell'ordine del minuto
- Connessione/cablaggio: posa cavi connessioni dal GE al quadro elettrico tramite cunicoli interrati già predisposti e disponibili, distanza circa 20 m.
- Posizionamento: su basamento di cemento già esistente

2. UPS

- Apparecchiature: due unità equivalenti indipendenti ognuna con le seguenti caratteristiche
 - Potenza: uguale o maggiore di 60kW
 - Ingresso/uscita: trifase 380V
 - Autonomia: uguale o maggiore di 15 minuti con un carico di 50kW
 - Batterie: esterne
 - Ridondanza: due unità completamente distinte





- Interfaccia SNMP: se disponibile, non vincolante
- Connessione/cablaggio: ognuno dei due UPS sarà connesso ad una PDU su ognuno dei 4 rack, le PDU hanno ingresso trifase con presa IEC 309 32A 3P+N+E, per ogni PDU (in totale 8, già installate) dev'essere previsto un sezionatore sul quadro elettrico principale

3. Raffreddamento

- Apparecchiature: due unità equivalenti ognuna con le seguenti caratteristiche
 - Capacità raffreddamento: quotare due soluzioni
 - A) uguale o maggiore di 20kW
 - B) uguale o maggiore di 12kW
 - Impianto a espansione diretta e architettura aperta
 - Unità interna: infrarack da 300 mm larghezza, profondità uguale o maggiore di 1000 mm, ventilazione aspirazione caldo posteriore e espulsione freddo anteriore
 - Unità esterna: motocondensante indipendente
 - Bilanciamento: eventuale opzione di ripartizione del carico termico tra le due unità interne (funzionamento in parallelo)
 - Limiti: capacità di raffreddamento anche in presenza di ridotte temperature esterne
 - Esplicitare il valore del rapporto di modulazione delle unità interne
- Interfaccia SNMP: se disponibile, non vincolante

4. Quadro elettrico e distribuzioni

- Posizione/spazio: nuovo quadro elettrico dedicato esclusivamente alla sala server e locale UPS, su parete in muratura completamente libera di dimensioni 2,5 x 2,5 m.
- Distribuzione ai rack (PDU): 2 PDU per rack connesse ognuna ad un UPS distinto, per un totale di 8 PDU, ognuna con proprio sezionatore
- Al quadro elettrico sarà disponibile una linea trifase dedicata (cavo 3 + 1/2 95 mm²) proveniente dalla cabina di bassa tensione, da intestare, necessario prevedere un sezionatore.
- Il Gruppo elettrogeno dovrà alimentare oltre agli UPS anche il nuovo sistema di raffreddamento costituito dalle due unità intra-rack e dai due sistemi di raffreddamento esistenti (split e inverter) attivi nella sala UPS
- Include il commutatore/attivazione automatico del Gruppo elettrogeno in caso di mancanza di alimentazione sulla linea principale



- Sezionatori per i due nuovi sistemi di raffreddamento intra-rack
- Ribaltamento sul nuovo quadro delle alimentazioni dello split e dell'unità di raffreddamento esistenti dedicati alla stanza UPS
- Progetto e certificazioni
 - Progetto elettrico ove richiesto
 - Dichiarazione di conformità ai sensi del DM 37/08
- Manutenzione
 - Quotare separatamente la manutenzione ordinaria per 3 anni degli apparati quali UPS, Gruppo elettrogeno e sistema di raffreddamento
- Allegati e note
 - Planimetria locali e spazi disponibili
 - Planimetria esterna per GE
 - Le macchine attualmente attive nella sala server non possono subire interruzioni, pertanto il sistema attuale di alimentazione (catena GE e UPS) andrà mantenuto attivo fino al completamento della nuova infrastruttura di alimentazione e raffreddamento, procedendo quindi al ribaltamento graduale sulle nuove PDU degli apparati.
 - E' consigliato un sopralluogo da parte della ditta per prendere visione del contesto della fornitura.
 - Per gli apparati principali (UPS, GE e raffreddamento), dovranno essere allegate all'offerta le specifiche tecniche dettagliate dei modelli proposti.

Indicare chiaramente i tempi di consegna a partire dalla data dell'ordine.

Segue breve presentazione del progetto FOSSR.



Context

The proposal adopts the common theme of the **development of Open Science in the Italian context** with the goal of creating a framework of tools and services for the social science scholar community, involving all the **RIs in social sciences coordinated by CNR**, namely CESSDA, SHARE and RISIS.



CESSDA ERIC Consortium of European Social Science Data Archives European Research Infrastructure Consortium, of which Italy joined in July 2021, which provides the scientific community with facilities, tools, datasets, and certified services to conduct research activities of excellence in the social sciences domain.



SHARE ERIC Survey of Health, Aging and Retirement in Europe European Research Infrastructure Consortium, an interdisciplinary and longitudinal survey on the economic, social, health and well-being conditions of the 50+ population in twenty-seven European countries (plus Israel).



RISIS Research Infrastructure for Research and Innovation (R&I) Policy Studies, which provides data and services to support the development of a new generation of analyzes, and indicators for the study of science, technology and innovation processes on the base of three main perspective: actors involved to understand the role they play, topics addressed to understand the directionality of the R&I efforts, and geography of science and innovation.



Aim of the project

Creation of an **Italian Open Science Cloud for the Social Sciences** which shall provide **innovative tools and services** to investigate issues related to the **economic and societal change of contemporary societies**

Demography and society
ageing, wealth distribution, inequalities, education, migration, etc.

Social behaviors
Models for social simulation



Structure of economy
innovative firms and fast-growing firms, innovation processes and outcome, new modes of knowledge production

Public policies
Design, implementation and assessment of e.g., R&I policies, health policies, human resources policies

These are **key topics** addressed by the National Recovery and Resilience Plan (PNRR).

Network of Research Infrastructures with open resources of high-quality FAIR data, information, services, indicators, are key resources to improve the evidence-based decision-making capabilities in different policy domains.



Objectives and ambition of FOSSR

FOSSR has the general aim of promoting a **widespread knowledge and awareness of the data and methodologies employed in empirical social science**, by providing:

- (i) systematic and organized knowledge about available *social science data resources in Italian data archives*, especially the CESSDA Archive, already object of the grand infrastructural proposal;
- (ii) resources supporting methodological advancement as to data collection and data analysis, especially important for RISIS to understand the design, the implementation, and the outcome of *research and innovation policies*, which can improve the robustness of empirical evidence produced for policy makers and to deal with new research questions;
- (iii) tools and services to make publicly available advanced *probability panels for longitudinal analyses to support important survey* such as SHARE, complementing them with a network of online laboratories.

The integration of this pool of resources shall contribute to the realization of **open science for scholars in social sciences**, going with scientific training for the production and analysis of social science based on FAIR empirical data.

One further key objective is setting a **new generation of young researchers in in social sciences**, by hiring 36 researchers and technologists with fixed time contract, which will become highly skilled human resources in data science and data management in social science research, and by funding 20 PhD positions to training early career researchers.

FOSSR added value

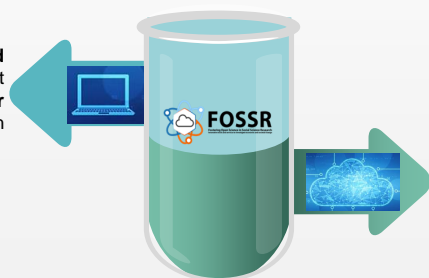
The importance of **creating linkages and synergies between RIs** dealing with social sciences is not new.

The most relevant experiences of creating integration between different European RIs can be related to the initiatives:

- Social Sciences & Humanities Open Cloud (SSHOC) Project;
- Synergies for Europe's Research Infrastructures in the Social Sciences (SERISS);
- European Open Science Cloud Initiative (EOSC).

The **additional value of FOSSR** mainly rests in the creation of a network of the RIs in social sciences that

develops new open **services and resources**, highly innovative not yet existing in Italy and **essential for robust analysis** and research investigations in social sciences



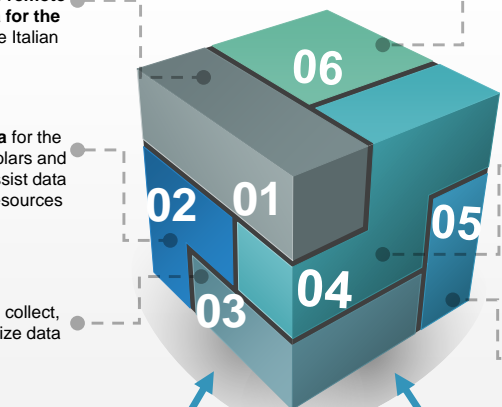
builds an **Open Cloud** linked to a **network of data centers** mainly located in the South of Italy, which are supposed to improve the computing facilities existing at local level

Expected outcomes

Facilitating and promoting the **remote access to high quality data for the social sciences** by using the Italian Open Science Cloud

Promoting the use of data for the social sciences among scholars and non-academic users and assist data users to exploit data and resources

Providing **innovative tools** to collect, explore, analyze, and harmonize data



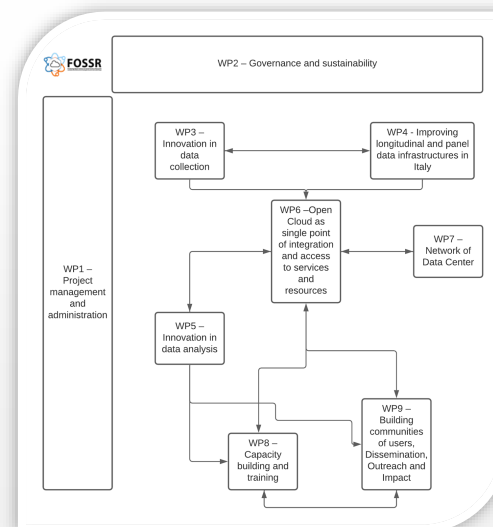
Developing a **governance model** that can support the long-term activity of the thematic network beyond the end of the project

Training **new generations of researchers/ data users** and disseminate the results deriving from projects developed by using the resources provided

Building a **distributed set of data centers** that help to storage and distribute data and resources derived from the combined activities of the thematic network

Strengthening the **ability of decision makers to interpret data** and use them for policy design (ex-ante evaluation of the different options) and for ex post evaluation of policies and their impact

Structure of the project



Scientific coordinator:
Emanuela Reale
(CNR-IRCRS)

WP	WP leader name	Rank	Organization
WP1	Daniela De Gregorio	Technologist	CNR-ISMED
WP2	Massimiliano Saccone	Senior technologist	CNR-DSU
WP3	Antonio Zinilli	Researcher	CNR-IRCRS
WP4	Mario Paolucci	Director	CNR-IRPP5
WP5	Andrea Giovanni Nuzzolese	Researcher	CNR-ISTC
WP6	Mario Ciampi	Senior technologist	CNR-ICAR
WP7	Mario Sicuranza	Technologist	CNR-ICAR
WP8	Andrea Orazio Spinello	Researcher	CNR-IRCRS
WP9	Emanuela Reale	Director	CNR-IRCRS

Strengthening skills and stakeholders' interactions

Within the WP8, FOSSR promotes activities aimed at

- developing or strengthening **individual skills**, using advanced tools and techniques to address innovative questions;
- providing **expertise** in managing the research data lifecycle;
- fostering and empowering **productive interactions** between producers of knowledge and stakeholders;
- transferring **high specialized knowledge for data science** through higher education courses preparing careers.

Online training courses aimed at improving knowledge related to the application of advanced statistical techniques, but also improving skills in the field of Research Data Management

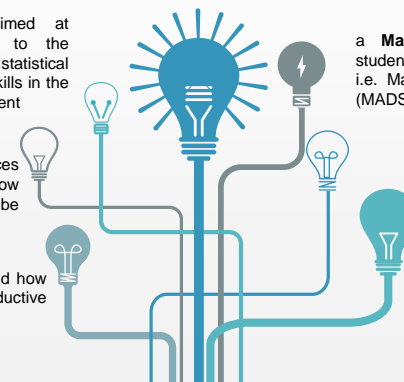
Learning sessions to share experiences between scholars and stakeholders on how knowledge generated by data can be translated to produce social impact

Action research sessions to understand how skills can be exploited to develop productive interactions;

a **Master level course** to train students on data analysis techniques, i.e. Master of Applied Data Science (MADS);

Creation of 20 PhD positions in universities (50% in the South) to train a highly skilled new generation of data analysts

Open 38 new positions of fix-term researchers and technologists to increase competences on tools and methods for working with RIs in social sciences



Long-term sustainability

We expect to have at the end of the project **new research capabilities to investigate topics of social science research** thank to the availability of innovative open services, data collections and computational resources, which shall also attract researchers from abroad, and arouse the interest of local authorities, associations, and other local actors.

In terms of sustainability, we foresee the creation of a **Joint Research Units (JRU)** between

- CNR
- The universities that are in the Italian nodes of the RIs (Milan Bicocca, Padua, Politecnico of Milan)
- The universities where the PhD positions will be opened because of existing activities on FOSSR actions – Milan Statale, Bologna, Cattolica, Sapienza, Napoli Federico II, Napoli Parthenope, Bari Aldo Moro, Catania, Sassari
- ISTAT
- INAPP
- other research organizations and universities that are likely to provide important contribution to the maintenance and improvement of the resources developed.