Borse di studio GARR
Orio Carlini

SOS: Soil Observation System. *A digital and open access alternative for soil data collection and management*

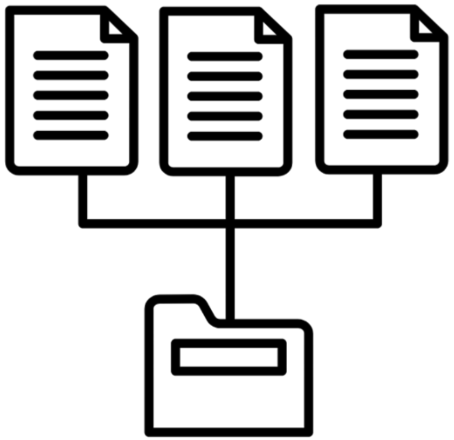
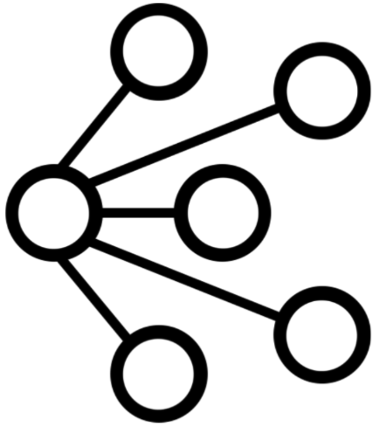
Borsista: Alessandro Auzzas Tutor: Antonio Ganga

Università degli studi di Sassari – Dipartimento di Architettura, Design e Urbanistica

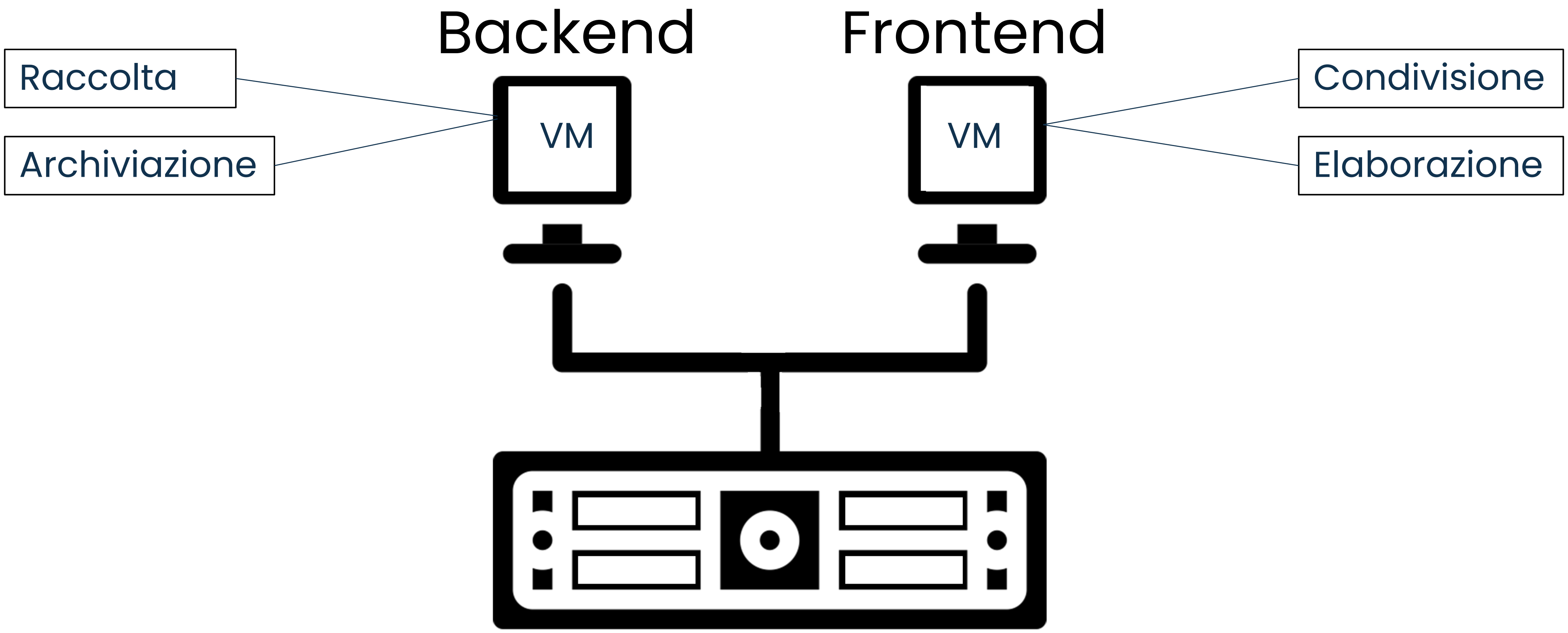
Consortium GARR THE ITALIAN EDUCATION & RESEARCH NETWORK

Obbiettivo Progetto di Ricerca

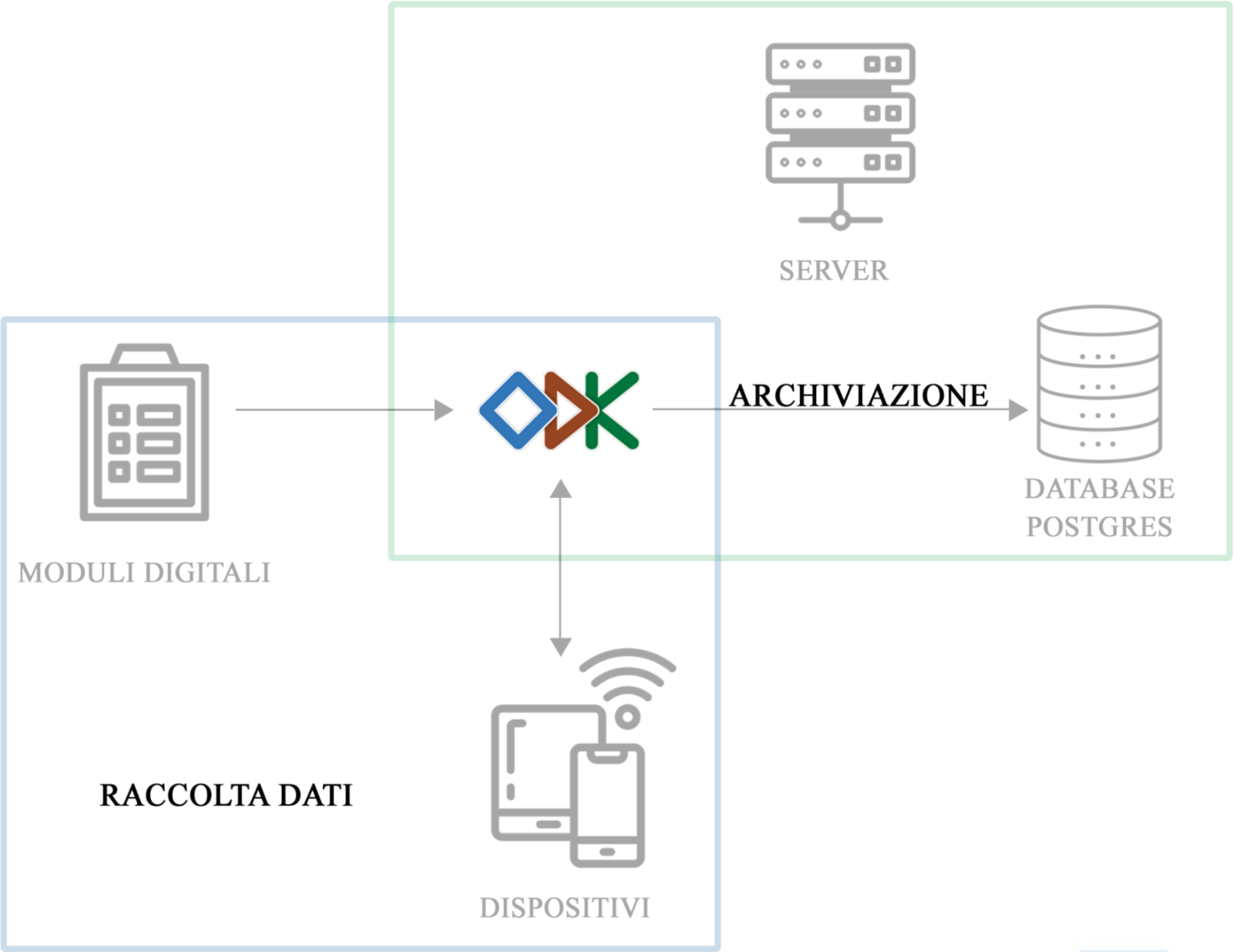
Sviluppare un Sistema di Osservazione dei Suoli in grado di agevolare le fasi di:

Raccolta	Archiviazione	Condivisione	Elaborazione
			

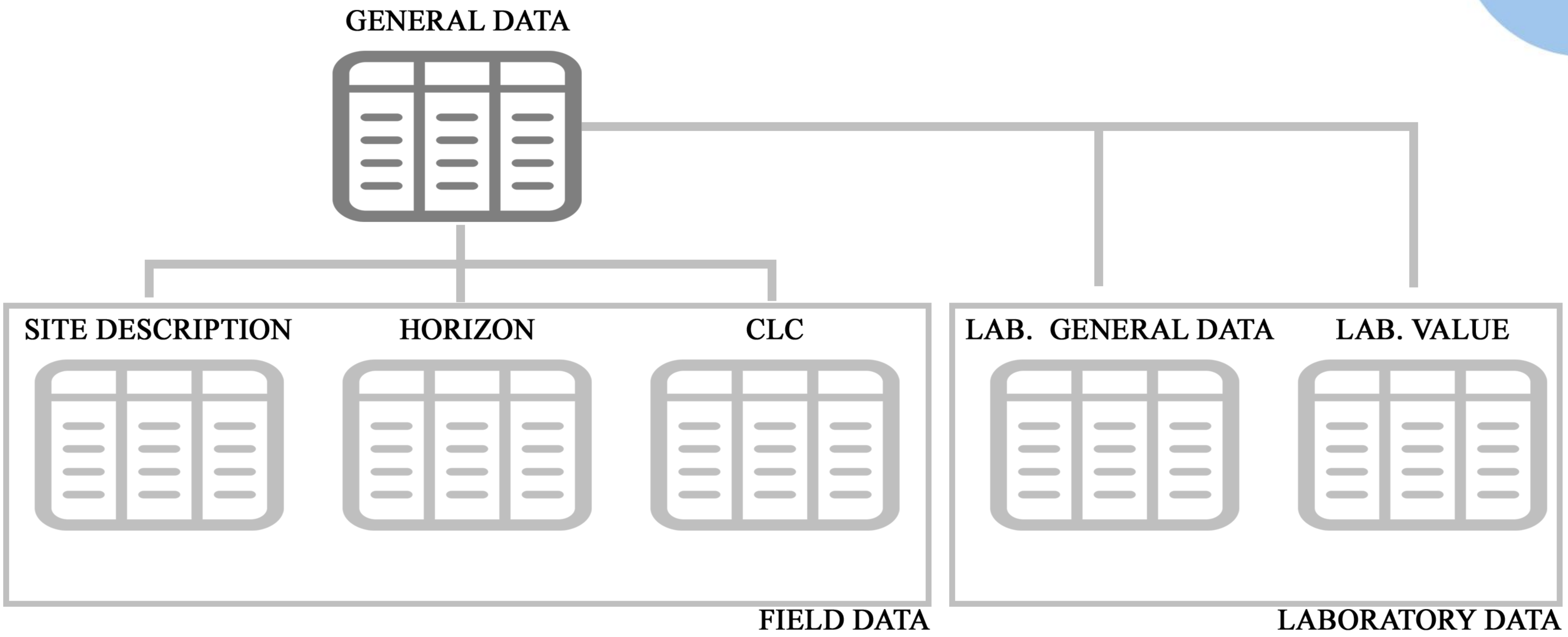
Struttura del sistema



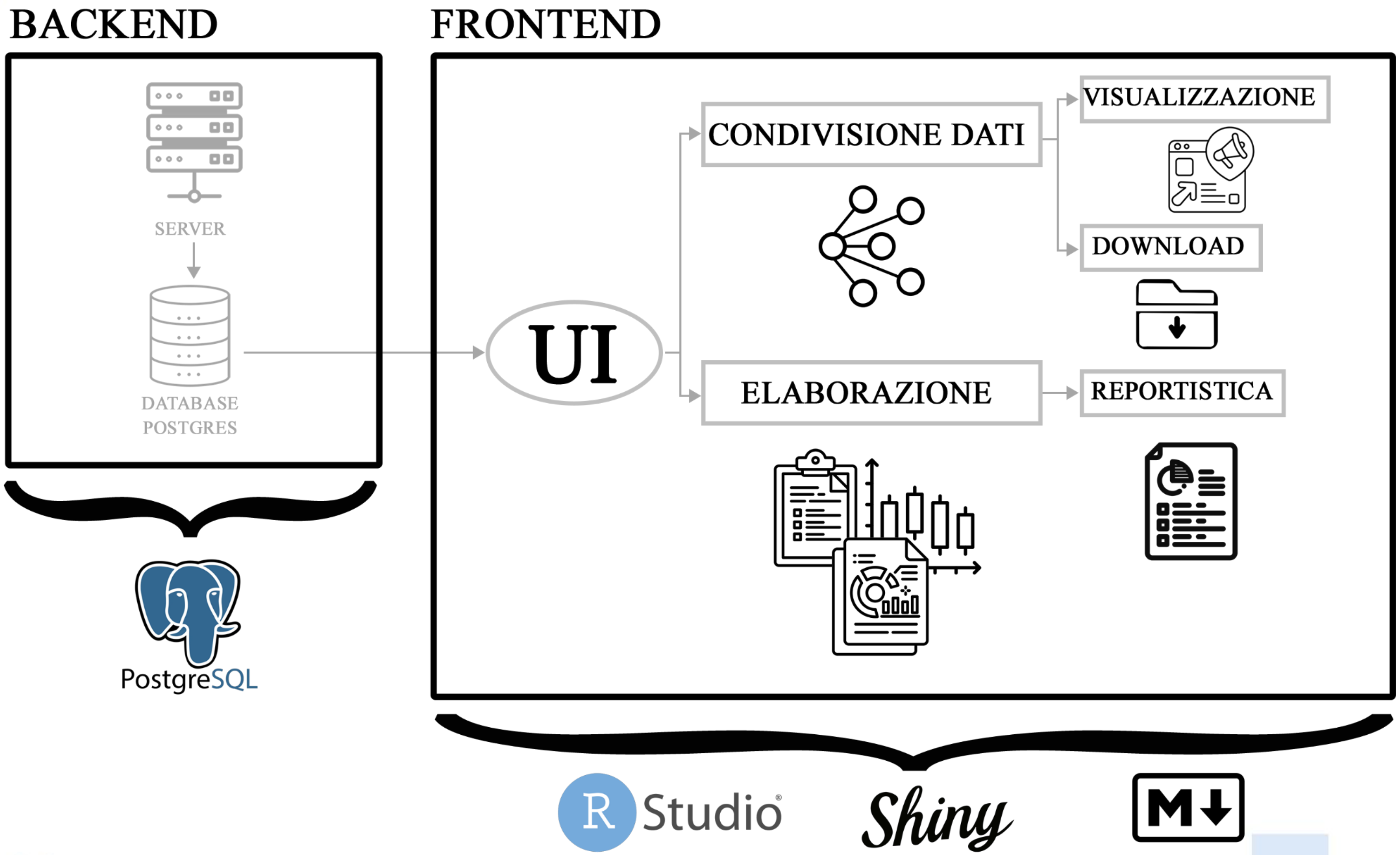
Flusso dati(Backend)



Database


GENERAL DATA
SITE DESCRIPTION
HORIZON
CLC
LAB. GENERAL DATA
LAB. VALUE
FIELD DATA
LABORATORY DATA

Frontend


BACKEND
FRONTEND
SERVER
DATABASE
POSTGRES
UI
CONDIVISIONE DATI
VISUALIZZAZIONE
DOWNLOAD
ELABORAZIONE
REPORTISTICA
PostgreSQL
R Studio
Shiny

User Interface

Consortium GARR

SOSystem Database

Select a Table:

general_data

Download Table

Generate Profiles Database Report

Show 10 **entries**

Search:

	ID	Master KEY	Date	Time	Complete Name	Institution	Project Name	latitude	longitude	altitude	Type of Observation	Site Description	Soil Class	Lab. Analysis
1	01	uuid:fba1026f-9857-42ff-9a4f-b31f867d968f	2024-09-30	17:15:00	ALESSANDRO AUZZAS	UNISS	SOS_TEST	40.702114	8.502201	0	clc			no
2	02	uuid:422f439c-7263-4074-a338-d5f03e8a21aa	2024-09-30	17:15:00	ALESSANDRO AUZZAS	UNISS	SOS	40.72268	8.527856	0	profile	Edifici a Carattere Residenziale	AmphiHydragric AnoGleyic EpiFerralic Anthrosols BathyCalcic EndoDystric EpiSalic	yes
3	04	uuid:d08f8ddd-a127-4647-9104-a91298547750	2024-10-04	17:00:00	ALESSANDRO AUZZAS	UNISS	Soil Observation System	40.722301	8.550381	0	clc	GOOD		no
4	05	uuid:bc7b2ec9-082a-410f-b372-ee5f49c28f93	2024-10-05	02:00:00	ALESSANDRO AUZZAS	UNISS	SOS	40.732817	8.543324	0	clc	City		no
5	1	uuid:59d2ed60-203e-4e98-a649-563e58086901	2024-10-31	10:51:00	Antonio IGanga	Uniss	Prova	40.7252217	8.6057992		profile	Macchia Med. Lentischio e corbezzolo	Lithic Skeletic Leptosols	no
6	FOTO TEST	uuid:79efd62a-0491-47ca-991f-160f806cd035	2024-11-05	13:35:00	Alessandro Auzzas	UNISS	SOS	40.7493063	8.5434558	194.3000030517578	clc	Urban		no
7	ID25SAR	uuid:6714b73c-c3d6-421b-b71b-9e2cfbeb2c34	2025-01-04	13:00:00	Simone De Michele	UniNuoro	Soil profile	39.418726	9.1569578	261	profile	Zona boschivo-agricola, con specie boschive e macchia mediterranea e oliveti.		no
8	06	uuid:3387b0bd-dd56-4c9b-b3d5-369b0ebd55a6	2024-10-05	02:30:00	ALESSANDRO AUZZAS	UNISS	SOS	40.731853	8.540711	0	clc	VERY GOOD		no
9	07	uuid:40d2f7a0-a871-4f62-9513-7953cab6315b	2024-10-05	14:00:00	ALESSANDRO AUZZAS	UNISS	SOS	40.759117	8.612671	0	clc			no
10	PROVA_POLLING	uuid:cce03216-2218-4976-8e57-44493b655a84	2024-10-06	23:00:00	ALESSANDRO AUZZAS	UNISS	SOS	40.824202	8.921689	0	clc			no

Showing 1 to 10 of 15 entries

Previous 1 2 Next

This is a Demo of **SOSystem Database**. The project was carried out in a research grant project sponsored by GARR in collaboration with the University of Sassari and the Department of Architecture, Design and Urbanism.

Report

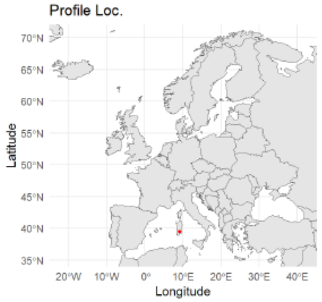
Soil Profile Report

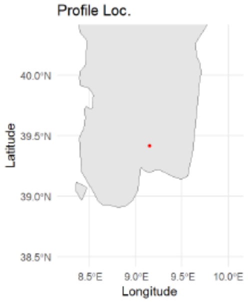
Soil Profile Report

Soil Observation System

2025-01-15

Profile Map Localizations





Profile Summary Table

Summary Table

ID	Master KEY	Date	Time	Complete Name	Institution	Project Name	Soil Class	Horizon Count
ID25SAR	uuid:6714b73c-c3d6-421b-b71b-9e2cfbeb2c34	2025-01-04	13:00:00	Simone De Michele	UniNuoro	Soil profile	NA	4

Profile Data

Figure: on the left the Site's Photo;on the right the Profile's Photo

Soil Profile Report

Climate Table

Mean Temperature	Mean Precipitation	Min Precipitation	Max Precipitation	Growing Period
22	400	100	5	341

Topography Table

Altitude	Major Topography	Topography Position	Slope in %	Form of Slope	Orientation	Microtopography
260	SV	MS	21	SC	NNW	HH

Topography Table

General Land Use Class	Specific Land Use class (2lv)	Specific Land Use class (3lv)	Specific Forest Class	Specific Natural Class
F	FR	W	WE	NA

Human Influences: | Nel sito e' presente una strada di campagna oltre a terreni agrari (oliveti) |

Parental Material: | UN |
Rock Origin: | Marne arenarie e calcari |
Rock Fragments: | F |
Rock Size Class: | C |

Surface Char. Table

Erosion	Erosion Activity	Surface Sealing Thickness	Surface Sealing Consistence	Surface Cracks Width	Surface Cracks Depth
WR	M	V	S	N	NA

Other Surface Char.: | NA |

Wet Cond. Table

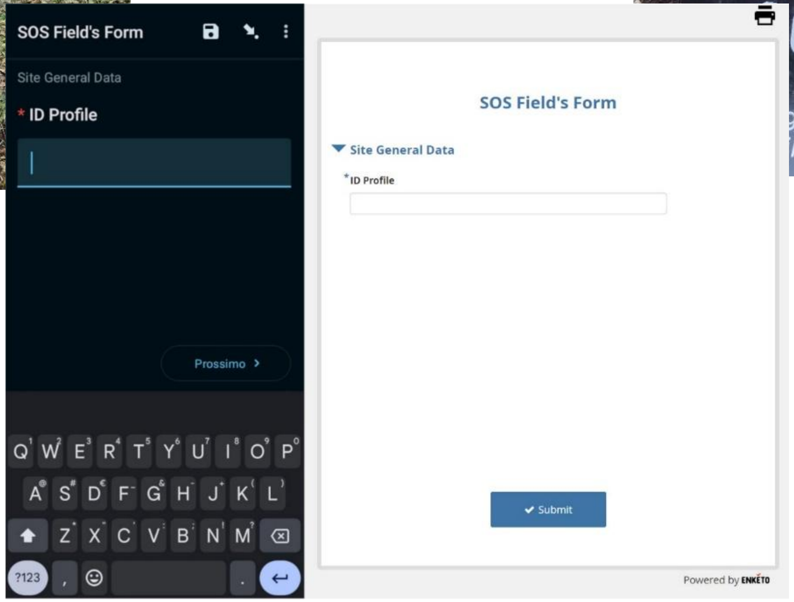
groundwater	Water Saturation	flooding	Irrigation/Drainage
NA	NA	NA	NA

Horizon

Soil Profile Report

Code	Description
Oa	**Limit:** 0 - 5 cm ; **Distictness:** A ; **Topography Boundary:** W ; **Texture Class:** NA ; **Rock/Artefacts Abundance:** N ; **Fragments Class:** NA ; **Rock/Artefact Class:** NA ; **Rock/Artefacts Shape:** NA ; **Weathering Rock/Artefacts:** NA ; **Rock Nature:** NA ; **Organic Layer:** D5.2 ; **Areomorphic Layer:** mull ; **Wet Colour Matrix:** NA ; **Dry Colour Matrix:** NA ; **Mottles Cause:** NA ; **Mottling Abundance:** NA ; **Mottling Colour:** B B B B ; **Suppl. Parameters:** NA ; **Redox/Reducing Class:** NA ; **Redux Mottling Colour:** B B B B ; **Carbonates:** NA ; **Carbonates Form:** NA ; **Carbonate Class:** NA ; **Salt Content:** N ; **pH:** NA ; **Organic Content:** NA ; **Org. Moisture Conditions:** NA ; **Soil Grade:** pedal soils ; **Soil Grade CLass:** ; **Soil Structure:** SG ; **Stucture Combined Type:** NA ; **Type of Structure Size:** combined ; **Structure Size:** NA ; **Dry Consistence:** SO ; **Moist Consistence:** FI ; **Water Status:** 1 ; **Concentration Type:** coatings ; **Concentration Nature:** H ; **Concentration Abundance/Continuity:** C ; **Coating Location:** NS ; **Roots <2mm Abundance:** C ; **Roots >2mm Abundance:** V ; **Other BIO Activity:** N ; **Human Made Materials:** NA ; **Human Made Materials Abundance:** NA ; **Artefacts Kind:** NA ; **Artefacts Weathering:** NA .
A	**Limit:** 5 - 43 cm ; **Distictness:** G ; **Topography Boundary:** W ; **Texture Class:** VFSL ; **Rock/Artefacts Abundance:** M ; **Fragments Class:** combination_class ; **Rock/Artefact Class:** MC ; **Rock/Artefacts Shape:** S ; **Weathering Rock/Artefacts:** F ; **Rock Nature:** Marne arenarie e calcari ; **Organic Layer:** D5.2 ; **Areomorphic Layer:** absent ; **Wet Colour Matrix:** 7526C ; **Dry Colour Matrix:** 724C ; **Mottles Cause:** NA ; **Mottling Abundance:** N ; **Mottling Colour:** B B B B ; **Suppl. Parameters:** NA ; **Redox/Reducing Class:** N ; **Redux Mottling Colour:** B B B B ; **Carbonates:** NA ; **Carbonates Form:** NA ; **Carbonate Class:** NA ; **Salt Content:** MO ; **pH:** NA ; **Organic Content:** NA ; **Org. Moisture Conditions:** NA ; **Soil Grade:** pedal soils ; **Soil Grade CLass:** ; **Soil Structure:** NA ; **Stucture Combined Type:** NA ; **Type of Structure Size:** combined ; **Structure Size:** NA ; **Dry Consistence:** SHA ; **Moist Consistence:** FI ; **Water Status:** 2 ; **Concentration Type:** coatings ; **Concentration Nature:** S ; **Concentration Abundance/Continuity:** F ; **Coating Location:** PH ; **Roots <2mm Abundance:** C ; **Roots >2mm Abundance:** C ; **Other BIO Activity:** E ; **Human Made Materials:** NA ; **Human Made Materials Abundance:** NA ; **Artefacts Kind:** NA ; **Artefacts Weathering:** NA .
Bts	**Limit:** 43 - 75 cm ; **Distictness:** A ; **Topography Boundary:** W ; **Texture Class:** SC ; **Rock/Artefacts Abundance:** M ; **Fragments Class:** combination_class ; **Rock/Artefact Class:** MC ; **Rock/Artefacts Shape:** S ; **Weathering Rock/Artefacts:** F ; **Rock Nature:** Marne arenarie e calcari ; **Organic Layer:** absent ; **Areomorphic Layer:** NA ; **Wet Colour Matrix:** 472C ; **Dry Colour Matrix:** 167C ; **Mottles Cause:** oximorphic ; **Mottling Abundance:** M ; **Mottling Colour:** B B B B ; **Suppl. Parameters:** NA ; **Redox/Reducing Class:** RO ; **Redux Mottling Colour:** B B B B ; **Carbonates:** NA ; **Carbonates Form:** NA ; **Carbonate Class:** NA ; **Salt Content:** N ; **pH:** NA ; **Organic Content:** NA ; **Org. Moisture Conditions:** NA ; **Soil Grade:** pedal soils ; **Soil Grade CLass:** ; **Soil Structure:** GR ; **Stucture Combined Type:** NA ; **Type of Structure Size:** combined ; **Structure Size:** NA ; **Dry Consistence:** HA ; **Moist Consistence:** VFI ; **Water Status:** 3 ; **Concentration Type:** coatings ; **Concentration Nature:** CS ; **Concentration Abundance/Continuity:** M ; **Coating Location:** PH ; **Roots <2mm Abundance:** V ; **Roots >2mm Abundance:** F ; **Other BIO Activity:** NA ; **Human Made Materials:** NA ; **Human Made Materials Abundance:** NA ; **Artefacts Kind:** NA ; **Artefacts Weathering:** NA .
Bdks	**Limit:** 75 - 185 cm ; **Distictness:** A ; **Topography Boundary:** W ; **Texture Class:** FSL ; **Rock/Artefacts Abundance:** M ; **Fragments Class:** combination_class ; **Rock/Artefact Class:** SB ; **Rock/Artefacts Shape:** S ; **Weathering Rock/Artefacts:** F ; **Rock Nature:** Marne arenarie e calcari ; **Organic Layer:** absent ; **Areomorphic Layer:** NA ; **Wet Colour Matrix:** 1635C ; **Dry Colour Matrix:** 173C ; **Mottles Cause:** oximorphic ; **Mottling Abundance:** A ; **Mottling Colour:** B B B B ; **Suppl. Parameters:** NA ; **Redox/Reducing Class:** RO ; **Redux Mottling Colour:** B B B B ; **Carbonates:** NA ; **Carbonates Form:** NA ; **Carbonate Class:** NA ; **Salt Content:** N ; **pH:** NA ; **Organic Content:** NA ; **Org. Moisture Conditions:** NA ; **Soil Grade:** pedal soils ; **Soil Grade CLass:** ; **Soil Structure:** GR ; **Stucture Combined Type:** NA ; **Type of Structure Size:** single ; **Structure Size:** ME ; **Dry Consistence:** LO ; **Moist Consistence:** VFR ; **Water Status:** 3 ; **Concentration Type:** cementation ; **Concentration Nature:** F ; **Concentration Abundance/Continuity:** C ; **Coating Location:** NA ; **Roots <2mm Abundance:** N ; **Roots >2mm Abundance:** V ; **Other BIO Activity:** N ; **Human Made Materials:** NA ; **Human Made Materials**

Test in campo

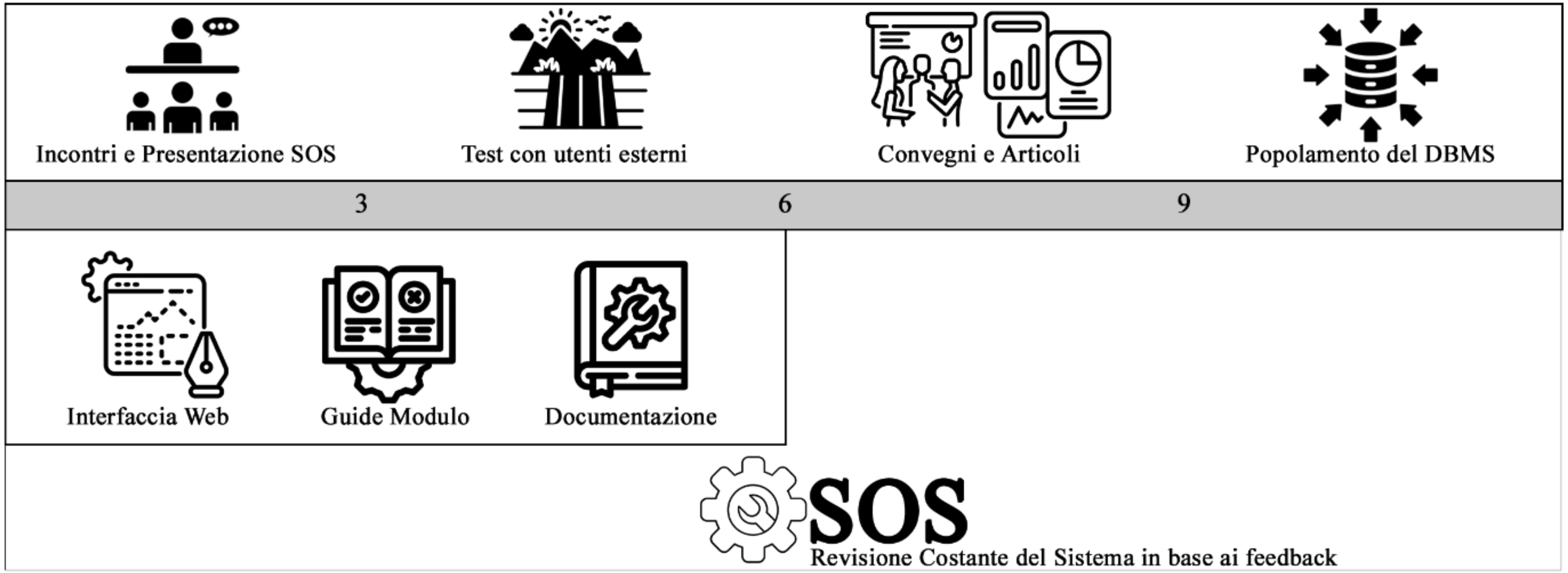


Richiesta di proroga

- Fasi
  - INGEGNERIZZAZIONE
    - IMPLEMENTAZIONE DELLA STRUTTURA E DELLE FUNZIONALITA’ DELL’INTERFACCIA
    - IMPLEMENTAZIONE DELLA DOCUMENTAZIONE TECNICA E DI SUPPORTO PER GLI UTENTI
  - DISSEMINAZIONE
    - Incontri e presentazioni del Progetto con Figure specializzate del settore in ambito internazionale
    - Partecipazione a Convegni e realizzazione di Articoli scientifici
    - Test condotti da Figure Esterne al progetto
    - Popolamento del SOSystem Database

Richiesta di proroga

IPOTESI CRONOPROGRAMMA



GRAZIE PER L'ATTENZIONE

Bibliografia

Le immagini utilizzate in questa presentazione sono realizzate dal «Noun Project» dai seguenti autori:

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- Valter Bispo;
- Reion;
- LUFTI GANI AL ACHMAD;
- Pojok_icon;
- Amir Ali;
- Zuri;
- Putri Amaliya;
- Kang Gurih;
- Muh zakaria;
- Ndin;
- Reion;