ICT system - Beta version

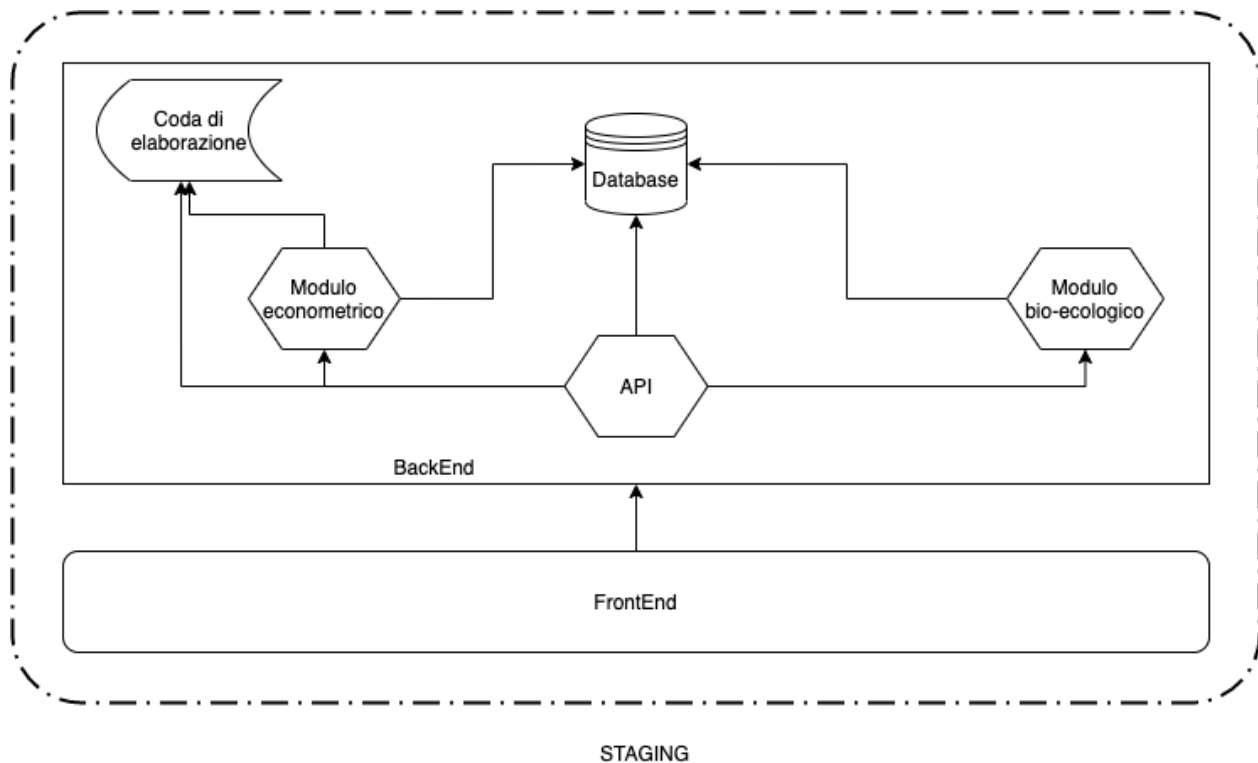|	
WP3	**Setting up of SP fisheries SMEs econometrics and ICT tools**
Activity 3.4	**ICT system deployment**
D.3.4.2	**ICT system - Beta version**
Responsible PP	**LP – VENETO AGRICOLTURA**

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Architectural diagram

The platform will consist of two main modules Frontend, representing the user interface of the portal; Backend, representing the server part that will be responsible for storing the information entered by the user and performing the calculations of the mathematical models.

Both modules will be installed on two separate server instances. The first will be dedicated to testing, strictly reserved for the customer, and will be continuously updated according to the latest newly implemented functionalities. The second instance, on the other hand, will be the production instance open to all users, where updates will take place following approval of the implemented functionalities by the customer after running the appropriate tests in the testing environment.

The frontend module will be installed on a web server with CCDN functionality to increase performance and reduce loading times when opening the webapp.

The backend module will be installed on high-performance Saas servers to ensure short response times and reduce the risk of downtime to zero.

Model ER Database

FishingAreaData

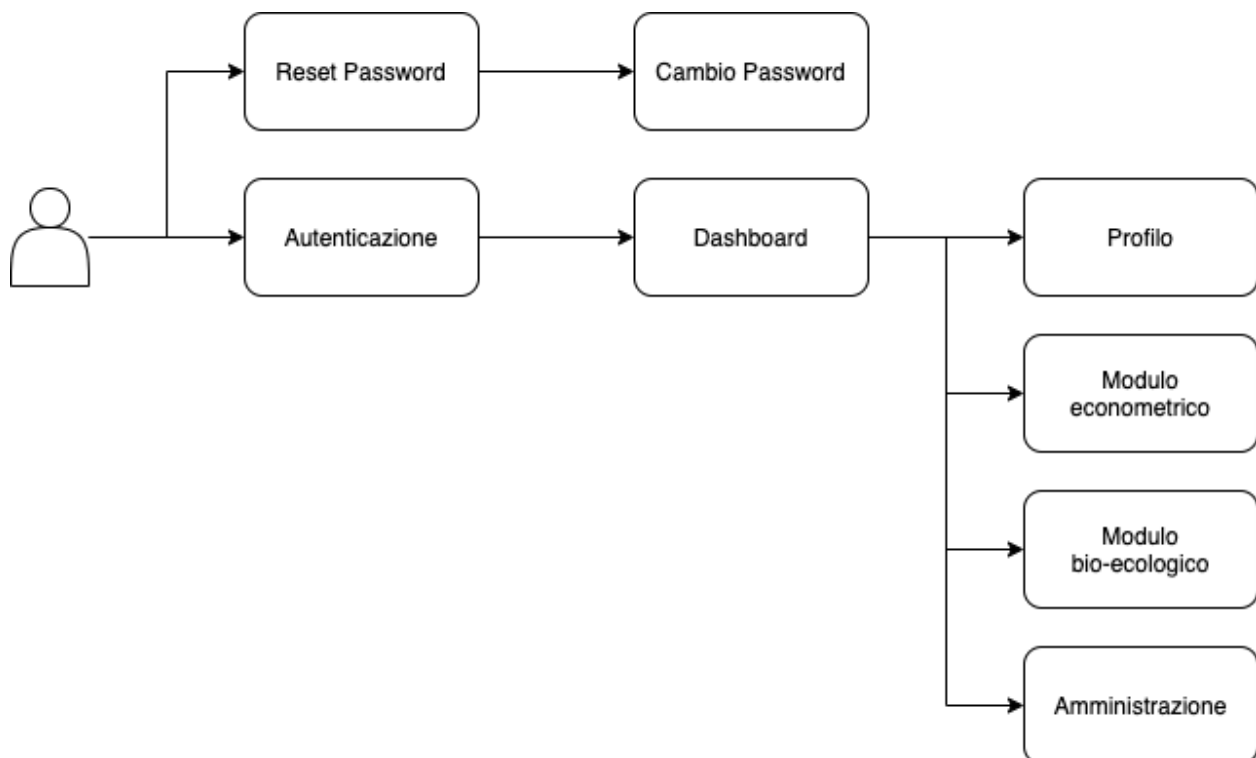| PK	id int NOT NULL
	corporationCode string NOT NULL
	avgWeightSardines float NOT NULL
	avgWeightAnchovies date NOT NULL
	area string NOT NULL
FK	createdBy int NOT NULL

MarketData

PK	id int NOT NULL
	corporationCode string NOT NULL
	fromDate date NOT NULL
	toDate date NOT NULL
	type string NOT NULL
	pilRevenues float
	pilCatched float
	weeklyPilData json
	aneRevenues float
	aneCatched float
	weeklyAneData json
	syncStatus string NOT NULL
	syncMessage string
	syncErrorCode string
FK	createdBy int NOT NULL

MarketSimulation

PK	id int NOT NULL
FK	marketDataId int NOT NULL
	fishType string NOT NULL
	target float NOT NULL
	forecastRevenues float
	forecastPrice float
	status string NOT NULL
	message string
	delta int NOT NULL
	type string NOT NULL
	createdAt dateTime NOT NULL
	errorCode string
FK	createdBy int NOT NULL

User

PK	id int NOT NULL
U	email string NOT NULL
	nominative string NOT NULL
	password string NOT NULL
	resetToken string
FK	roleId int NOT NULL
FK	corporationId int NOT NULL

Role

PK	id int NOT NULL
	name string NOT NULL
	acls json NOT NULL
	marketDataInputMethod string

Corporation

PK	id int NOT NULL
	name string NOT NULL
	code string NOT NULL

WebApp Structure

The user can perform the following actions when opening the webapp:

- Start the password recovery process; Perform authentication;
- Send an access request if not already registered;

Password Recovery Process

When starting the password recovery process, the user will have to fill in a form, specifying the email address with which he or she was registered on the platform. Once the request is submitted, the server will generate an encrypted identifier and deliver an email to the user with instructions on how to enter the new password, providing a direct link to the password change screen.

Via the password change screen, the user can specify the new password that will be associated with his user account in the form provided.

Access Request Process

The user, by starting the access request process, will have to fill in a form with his basic information. Upon submission of the form, the request will be emailed to the project contact persons to evaluate the request and decide whether or not to enable the new user.

The user will be notified of the outcome of the authorisation by e-mail.

Authentication screen

The user, when opening the webapp, will have to authenticate via the login form, entering his credentials. If the credentials are correct, he will be taken to the dashboard.

Dashboard

The dashboard is the starting point for users who have successfully authenticated. From this screen, they will be able to access the different modules of the platform and manage their profile. Enabled users will also be able to generate new credentials for users who have made an access request. The style of the graphical interface will vary according to the user's seafaring company.

Profile

From the profile management screen, the authenticated user will be able to change their information and access credentials to the platform.

Administration

From the administration screen, authenticated and enabled users will be able to manage all users registered on the platform and generate new credentials for users who have made an access request.

Econometric Module

On the econometric form screen, the authenticated user will be able to make a new forecast using the form's algorithm, specifying some basic information (market close information of the previous day and quantity of the catch to be bet on). Upon submission of the form, the platform will query the econometric algorithm and represent the outcomes produced.

Bio-ecological module

In the bio-ecological module screen, the user can analyse the data processed by the bio-ecological algorithm.

Backend Structure

This section contains all the logic implemented on the server side to support the platform's graphical interface.

RestFull HTTP API interfaces

All HTTP interfaces listed below will use the JSON format for passing information between the webapp and the server.

Authentication

The authentication interface will receive as input from the request payload, the user's email address and password, and will check whether a valid credential pair exists in the database. If positive, it will generate a JWT token representing the session and which will be used to interface with all the APIs described below. If negative, however, it will return an error message.

Password Reset

The password reset interface will receive as input from the request payload the user's e-mail address and will check whether there is a user with this address in the database. If so, it will generate an encrypted token which will be used for security purposes to certify the validity of the request, will be associated in the database to the user and will be sent by e-mail to the user. The text of the e-mail will contain all the necessary steps that the user must follow to change the password. A specially specified link will take the user directly to the password change page. The URL will also specify the encrypted token as query parameter.

Change Password

The password change interface will receive input from the request payload, the user's email address, the new password and the encrypted token, and will check whether the encrypted token corresponds to the user identified by the email address. If so, it will perform the password update. If negative, it will return an error message.

Entering a new user

The interface for entering a new user, enabled for administration profiles only, will receive as input from the payload of the request, the email address of the new user to be registered and will generate the password that the user can use to access the platform. The information will then be stored in the database and sent by e-mail to the user as notification of successful authorisation. In the event of an error, an error message will be returned.

Change of user

The user change interface, which is only enabled for administration profiles, will receive as input from the request payload the new identification data of a user already recorded in the database and will update it. In the event of an error, an error message will be returned.

User cancellation

The user deletion interface, enabled for administration profiles only, will receive as input from the request payload the identification data of a user already recorded in the database and will proceed with the deletion, thus disabling the user's ability to access the platform. In the event of an error, an error message will be returned.

Edit user profile

The profile change interface will allow the authenticated user to change their data. It will then receive the new data as input from the request payload and update it. In the event of an error, an error message will be returned.

Query econometric module

The query interface of the econometric module, enabled to all authenticated users, will receive as input from the request payload the data necessary for the algorithm to perform the calculations, update the database according to the results and return them to the graphical interface. In the event of an error, it will return an error message.

Bio-ecological module question

The query interface of the bio-ecological module, enabled for all authenticated users, will receive as input from the request payload the data necessary for the algorithm to perform the calculations, update the database according to the results, and return them to the graphical interface. In the event of an error, it will return an error message.

Econometric module

Algorithm

The econometric module will receive input data from users, update the model database and perform the mathematical calculations according to the algorithms in R shared.

Bio-ecological module

The bio-ecological module will retrieve weekly data from the Copernicus system and, using R algorithms, produce predictions on the growth of anchovies and sardines. This data will be available to the user via the appropriate section in the portal.

ITACA WebAPP mokup

Login

Email

user@email.example

Password

****

ACCEDI

HO DIMENTICATO LA PASSWORD

Password dimenticata

Email

user@email.example

RECUPERA PASSWORD

TORNA AL LOGIN

Cambio password

user@email.example

Password

```
***********
```

Conferma password

```
***********
```

RECUPERA PASSWORD

TORNA AL LOGIN

Modulo
economico

Modulo
bio-ecologico

Profilo

Logout

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Ultima simulazione 📅 14 Giugno 2021

AGGIORNA

10.000 €
Ricavi

150.000 Kg
Pescato

120.000 Kg
Intenzione

Previsione
Risultato

10.000

Modulo economico

Modulo bio-ecologico

Utenti

Mario Rossi

AGGIORNA

120.000 **Kg**
Previsione

Aggiornamento simulazione

Compila le seguenti informazioni con i dati di chiusura di mercato settimanali

Ricavi Settimanali

10.000 €

COMPILA DETTAGLIO SETTIMANALE

Pescato

150.000 Kg

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AGGIORNA

120.000 Kg
Previsione

Aggiornamento simulazione

Compila le seguenti informazioni con i dati di chiusura di mercato settimanali

Ricavi Settimanali

10.000 €

COMPILA DETTAGLIO SETTIMANALE

Lunedì 14 Luglio

2.000€

Martedì 15 Luglio

2.000€

Mercoledì 16 Luglio

2.000€

Giovedì 17 Luglio

2.000€

Venerdì 18 Luglio

2.000€

Sabato 19 Luglio

2.000€

Domenica 20 Luglio

2.000€

Pescato

150.000 Kg

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Esegui simulazione

Esegui una simulazione sulla base dei dati settimanali inseriti

Intenzione

180.000 Kg

VISUALIZZA STORICO

INDIETRO   **CONFERMA**

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Esegui simulazione

Esegui una simulazione sulla base dei dati settimanali inseriti

Intenzione

180.000 Kg

VISUALIZZA STORICO

Intenzione	Simulazione
180.000 Kg	**190.000 Kg**
80.000 Kg	**100.000 Kg**

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1

Pes

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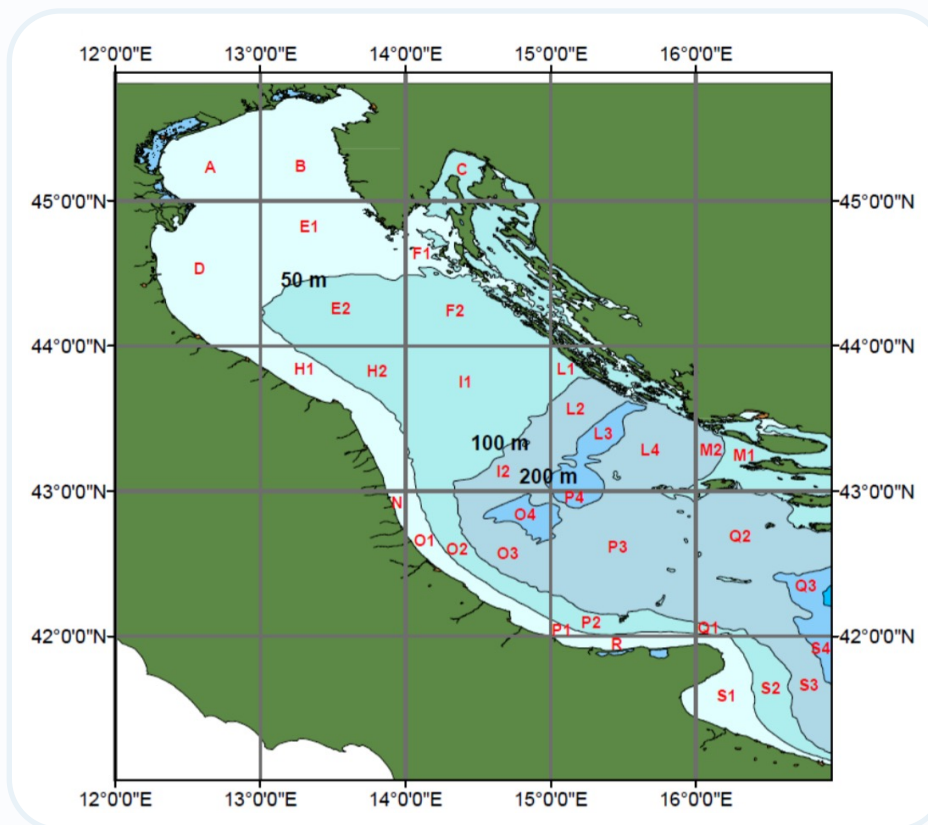
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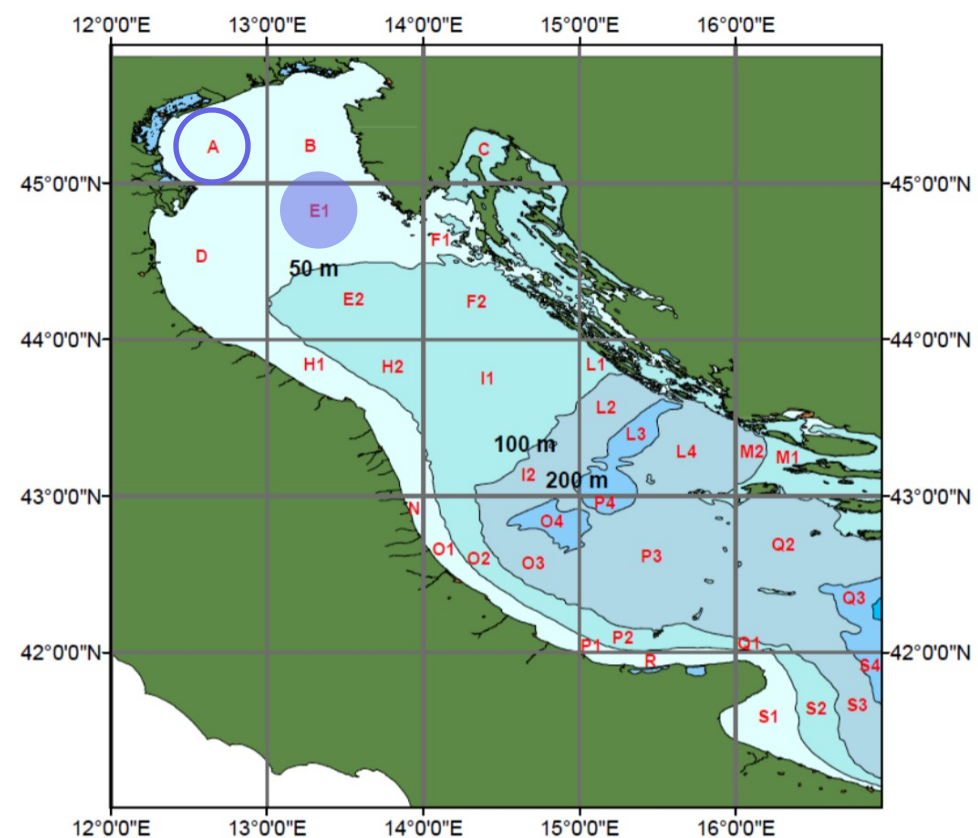EUROPEAN UNION

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Rilevazioni

Giorno	Zona	Acciughe	Sardine
12	E2	200	200

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Aggiornamento rilevazioni

Seleziona l'area di pesca e compila le seguenti informazioni con i rilevati dal pescato

Data

12/07/2021

Peso medio sardine

50 g

Peso medio acciughe

50 g

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Profilo

Nominativo

Mario Rossi

Email

user@email.example

Password

****

Conferma password

****

SALVA

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Utenti

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NOMINATIVO	EMAIL	MARINERIA
Mario Rossi	mario@rossi.com	Venezia

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Utenti

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MARINERIA

Venezia

Nuovo utente

Nominativo

Mario Rossi

Email

user@email.example

Marineria

Venezia ▼

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Utenti

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Mario Rossi	mario@rossi.

Nominativo

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Marinerie

Venezia

Chioggia

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Venezia

Nuova marineria

Nome

Trieste

Colore

Logo

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