



Istituto Nazionale di Fisica Nucleare
Centro di Calcolo

BOOKING SOFTWARE

Software per la gestione delle
richieste di booking di entità e risorse
dell'INFN

PERCHÉ BOOKING?

GESTIONE
INFORMATIZZATA

Eliminazione dei processi cartacei e non tracciati per la gestione delle prenotazioni delle risorse dell'ente.

TRACCIAMENTO
RICHIESTA

Visualizzazione dello stato corrente della richiesta

GESTIONE
AUTORIZZAZIONI

Ogni stato può essere gestito dalle persone che hanno le corrette autorizzazioni (ruoli su Godiva) per farlo.

ASTRAZIONE

Il software di booking è stato progettato per la prenotazione di qualsiasi tipo di risorsa dell'ente: dalla prenotazione delle aule fino alle prenotazioni di facility come la BTF.

COME FUNZIONA BOOKING?

DEFINIZIONE WORKFLOW

Il processo di prenotazione di una risorsa viene definito attraverso la creazione di un workflow.

BUSINESS PROCESS MODEL AND NOTATION (BPMN)

Il workflow viene creato attraverso una diagramma a stati finiti che rispetta gli standard di un processo BPMN.

INTERPRETAZIONE DEL WORKFLOW

Il workflow viene interrogato dal motore di booking per richiedere lo stato corrente della richiesta e per sapere quale sarà lo step successivo da eseguire.

IF-ELSE?NO GRAZIE

La gestione/modifica non richiede l'intervento di uno sviluppatore in quanto il processo non è descritto attraverso linee di codice (linguaggio di programmazione).

CASO PRATICO

BOOKING PER BTF

Il software di booking per la gestione delle prenotazioni per la Beam Test Facility (BTF) situata ai Laboratori Nazionali di Frascati.





BTF PROBLEMATICHE

- Gestione di un alto flusso settimanale di utenti esterni
- Gestione delle call di apertura della facility
- Gestione delle sottomissioni e delle prenotazioni del tempo fascio
- Gestione dei documenti
- Tracciabilità del processo autorizzativo
- Gestione dei reminder e ticketing
- Flusso approvativo per ogni utente:
 - Management
 - Segreteria amministrativa
 - Segreteria del personale
- Accesso al territorio



BTF PROBLEMATICHE

Implementazione manuale

- Fino al 2022, gestione **manuale** attraverso l'utilizzo delle email
- In media si hanno più di 200 persone l'anno che accedono alla facility.

Automazione dei processi

- Necessità di **automatizzare** i processi
- Necessità di **standardizzazione** per regolare l'accesso alla facility su un template di funzionamento sviluppato dalle segreteria della DA e dal manager della BTF (Luca Foggetta).

Two thin, light orange lines intersect on the left side of the slide. One line is nearly vertical, and the other is nearly horizontal, crossing it.

POSSIBILI SOLUZIONI

- Implementazione via codice
- Utilizzo di librerie per automi a stati finiti
- Utilizzo di un process orchestrator

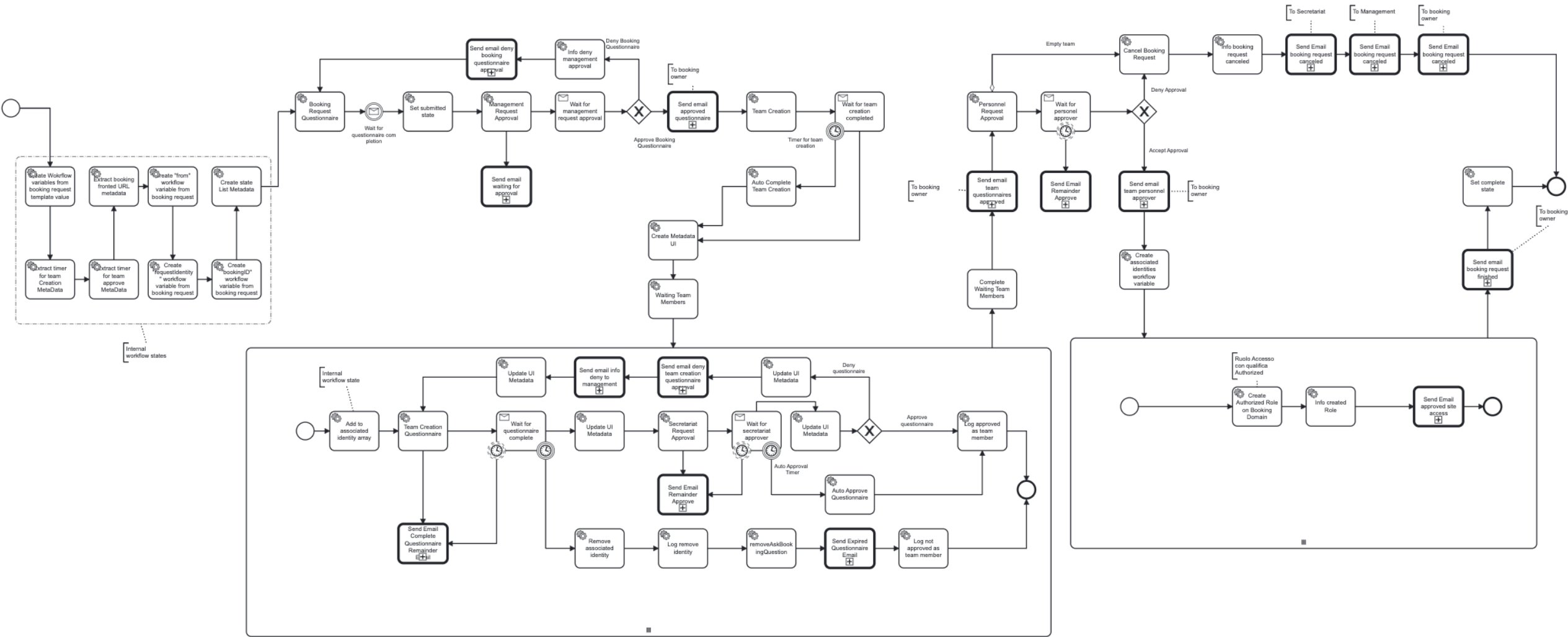
PROCESS ORCHESTRATOR

- Definizione del workflow attraverso un tool grafico (standard BPMN)
- Gestione del processo automatizzata
- Esecuzione parallela di sotto-workflow e multi-instance
- Gestione ad eventi e Timer
- Gestione degli errori
- Gestione notifiche e reminder

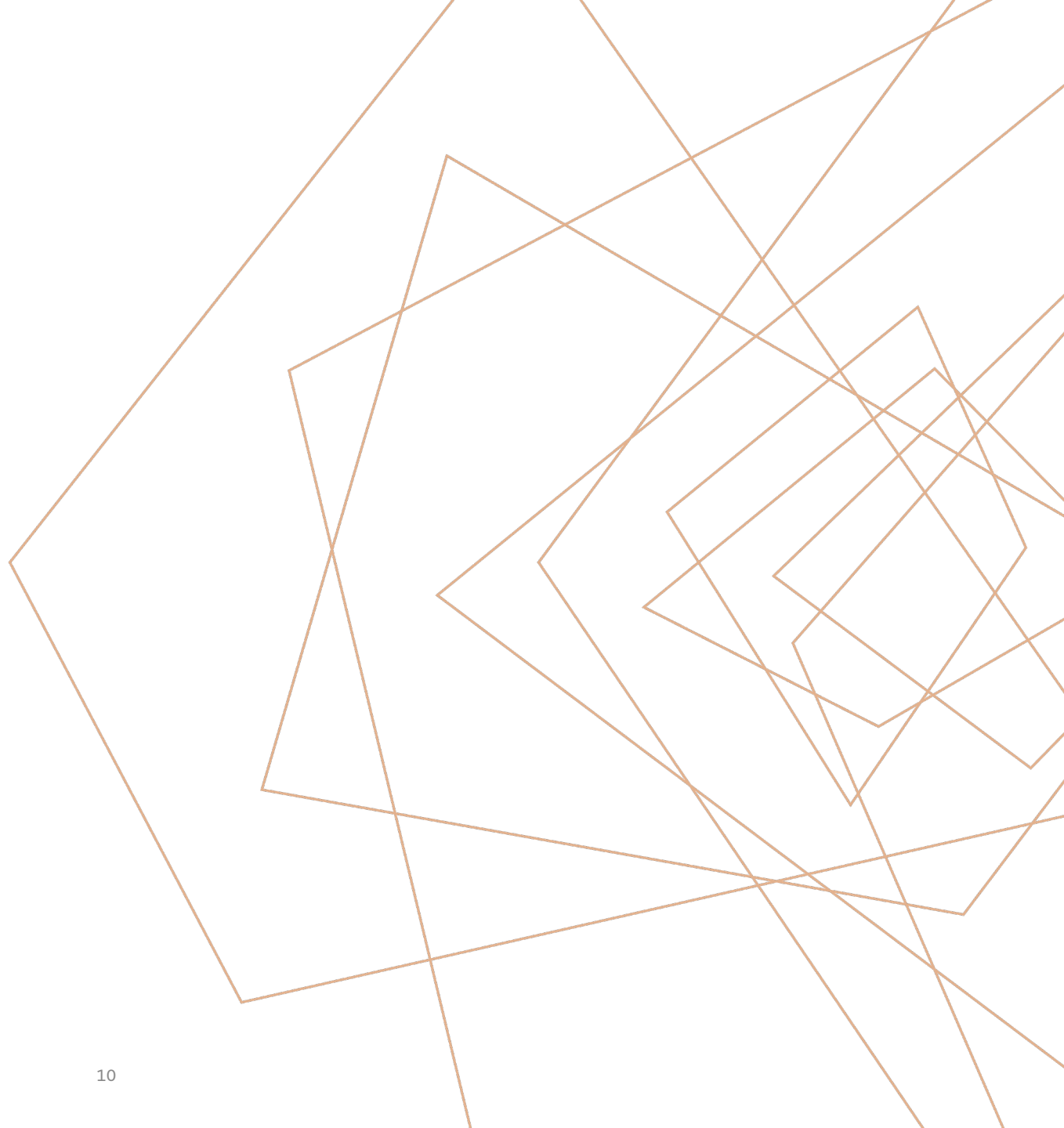
The Camunda logo is a red-to-orange gradient rectangle with the word "CAMUNDA" in white, bold, uppercase letters. A white horizontal line is positioned below the text. The background of the slide features a complex pattern of overlapping, thin, light-brown geometric lines forming various polygons.

CAMUNDA

ESEMPIO WORKFLOW - BTF

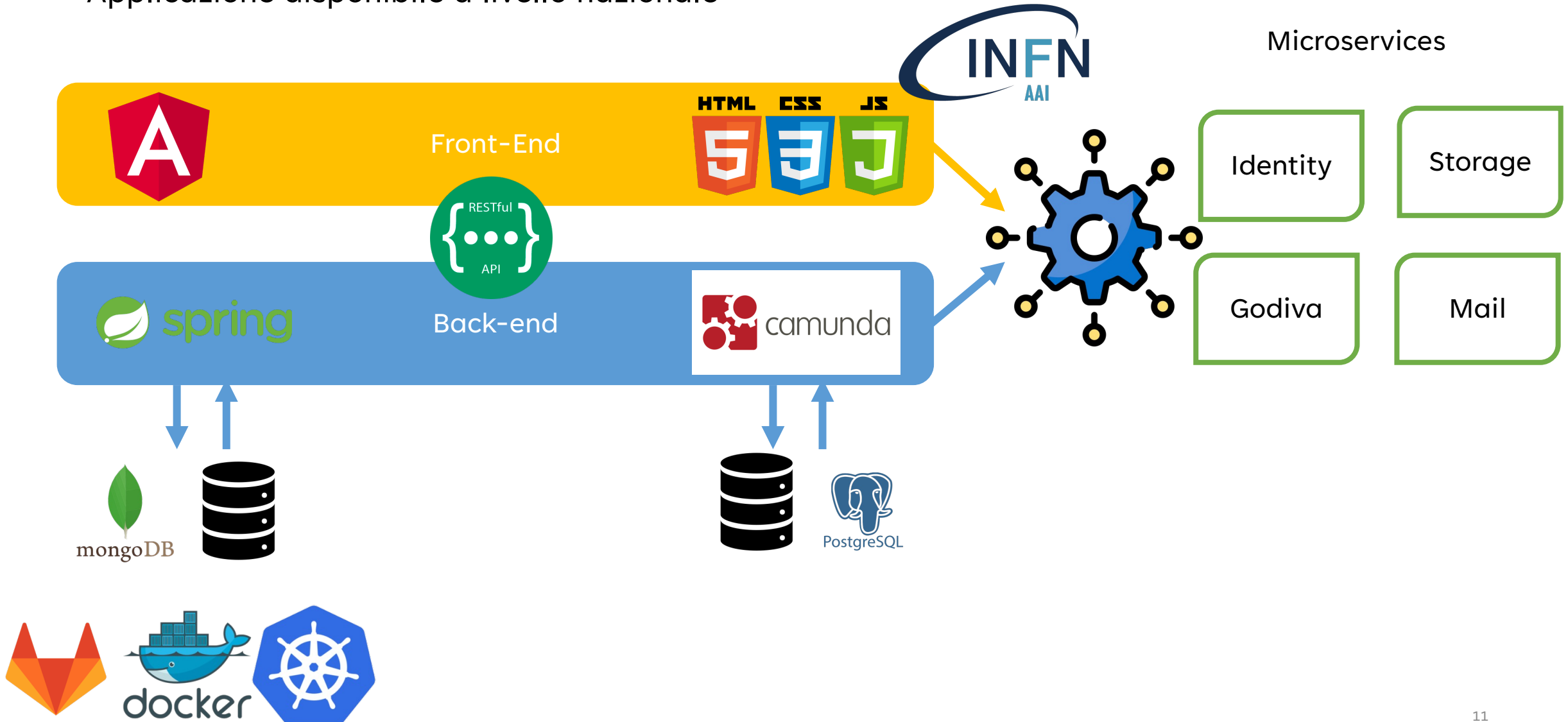


ARCHITETTURA DEL SISTEMA

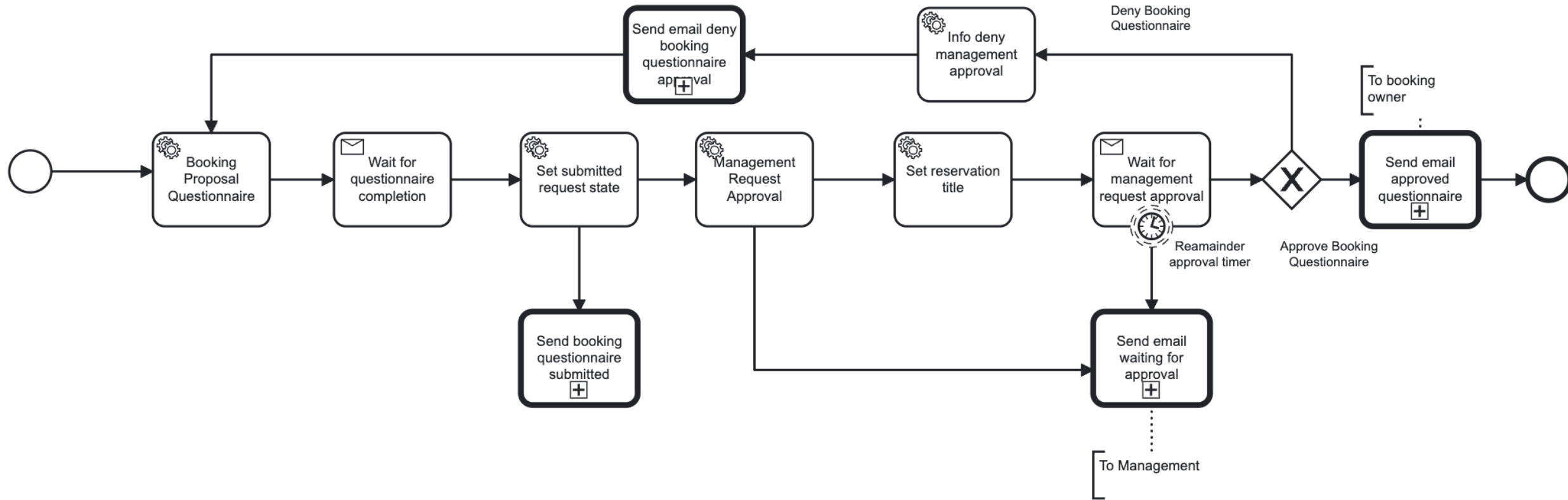
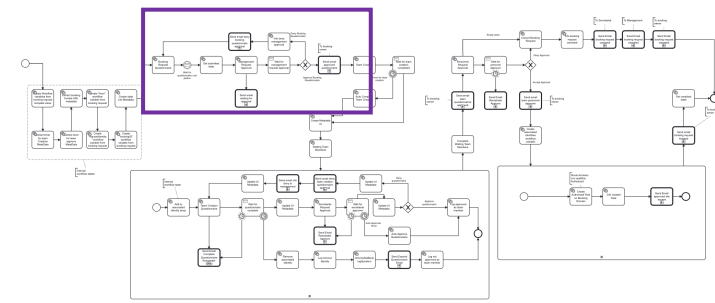


ARCHITETTURA DEL SISTEMA

Applicazione disponibile a livello nazionale

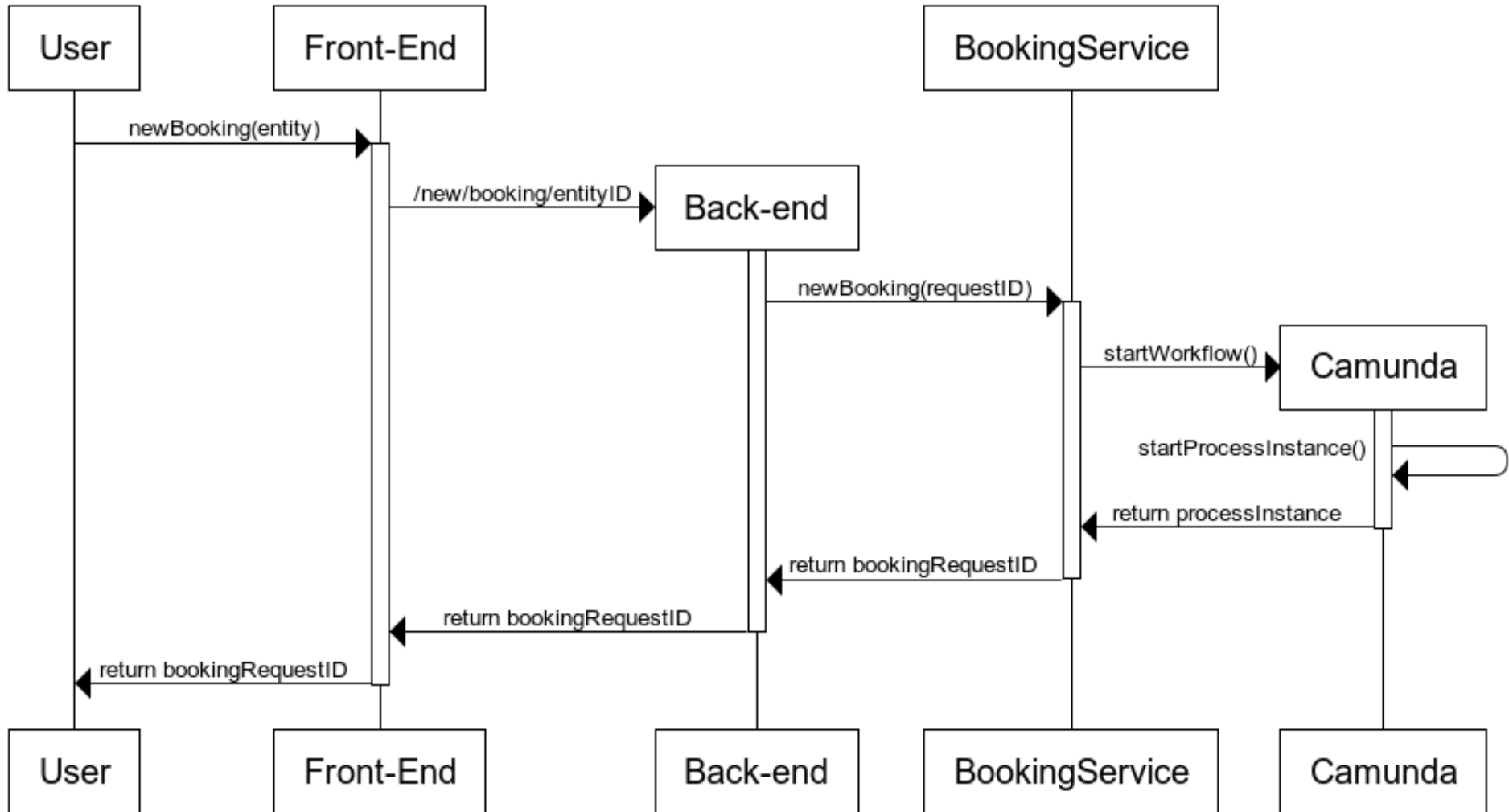


PROCESSO BPMN (1)



PROCESSO BPMN - START

Create New Booking Request



PROCESSO BPMN – START PROCESS INSTANCE

Actor UUID

Actor identified by 'param' param in Entitlements

Set the list of values regard the execute_state entitlement parameter for target the actors users

Completion message

Message that need to be sent after user interaction has been completed

Completion Instance ID

Instance message ID that need to be sent after user interaction has been completed

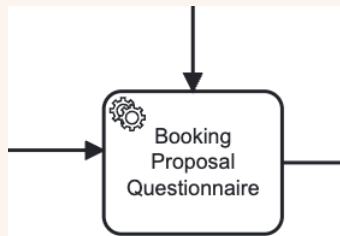
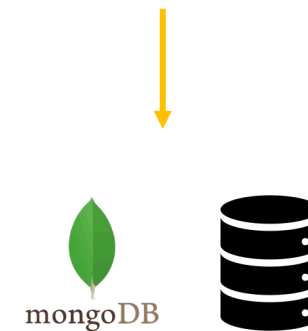
User State ID

Is the id related to user state

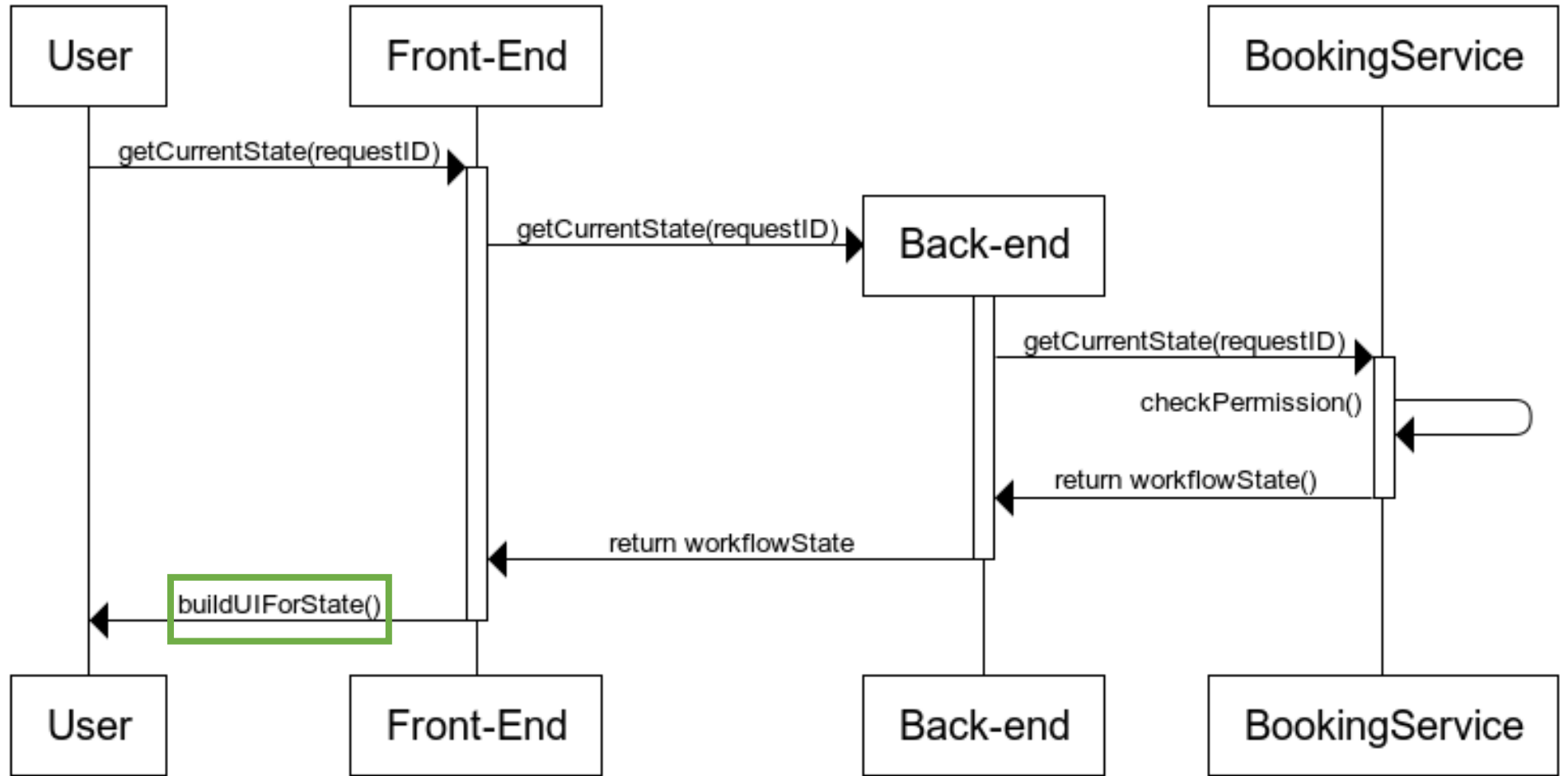
State Visibility

Define which user (by entitlement array, comma separated) can show the state

```
@Override
@Transactional(propagation = Propagation.REQUIRES_NEW)
public void execute(DelegateExecution execution) throws Exception {
    ...
}
```



PROCESSO BPMN – CURRENT STATE



www.websequencediagrams.com

PROCESSO BPMN – BUILD UI STATE



Compilazione Form

Selected State

BTF

EXPERIMENT Proposal name *

Involved Institutions/Industries/Countries *

Experiment motivation related to requested beam time, scientific discipline, research area and purposes: *

Proposal category (mark the right one): *

New - If you are submitting this experiment plan for the first time

Needed experimental area (BTFEH1, BTFEH2) *

Device under test description (please describe possible hazards): *

Owned setup to be put in experimental hall, brief description (please describe possible hazards related to): *

Owned setup to be put in control room, brief description (please describe possible hazards): *

BTF needed setup, hardware, software and LNF facilities (after handshake with BTF staff) *

Time needed for experiment *

Time needed for experiment [contiguous days] *

Time needed for experiment roll in *

Time needed for experiment roll out *

Measure Description

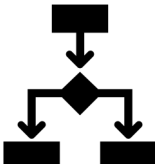
Measure description file *

+ Choose Upload

Click on 'Choose' button to upload a file then click on 'Upload' to save uploaded file

Saved files

Abort Save Complete



Approvazione

Selected State

Approve booking request

Add message to approval state

Refuse Approve



Creazione lista utenti

Selected State

Save Draft Complete

Selected team members Click complete button only when team is complete. The complete button is **undoable**.

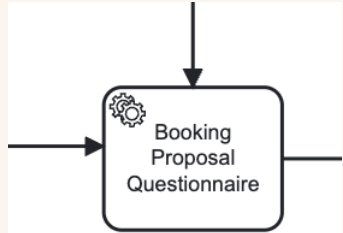
Michele Antonio Tota

Create your team

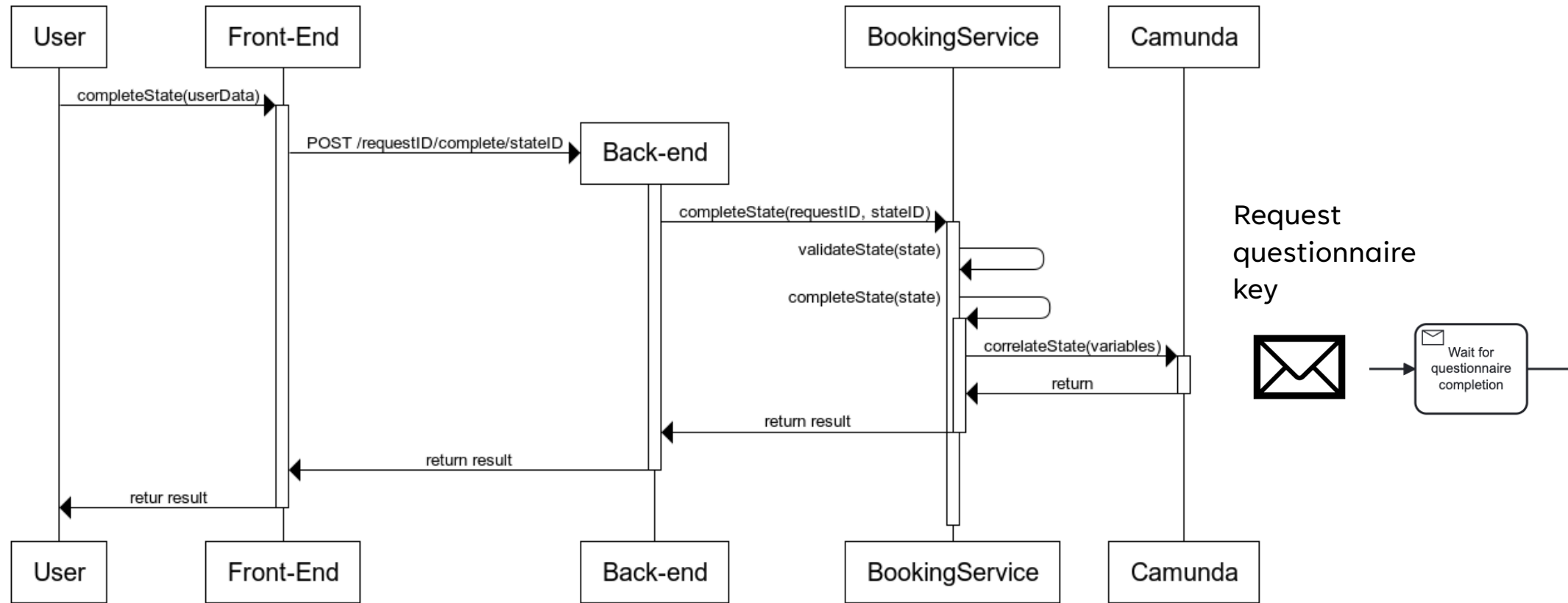
Q tota

If the person is not in the INFN database, click this button to invite person to register

Name	Surname	UUID
Leonardo	Mastrototaro	7b37f3c9-2af6-485b-bd5f-231e1ec48747
Michele Antonio	Tota	017579c1-6567-4dbb-a2fc-6ef092c48d1e
Michele	Tota	26c0c003-1071-4048-92c2-145aa397c405

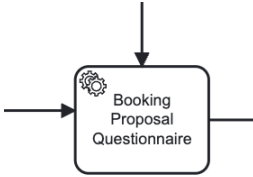


PROCESSO BPMN – COMPLETE STATE



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PROCESSO BPMN – START PROCESS INSTANCE



Actor UUID

Actor identified by 'param' param in Entitlements

Set the list of values regard the execute_state entitlement parameter for target the actors users

Completion message

Completion Instance ID

User State ID

State Visibility



RECEIVE TASK
Wait for questionnaire completion

General >

Documentation >

Message v

Global message reference

Name

Asynchronous continuations >

Inputs + 1 >

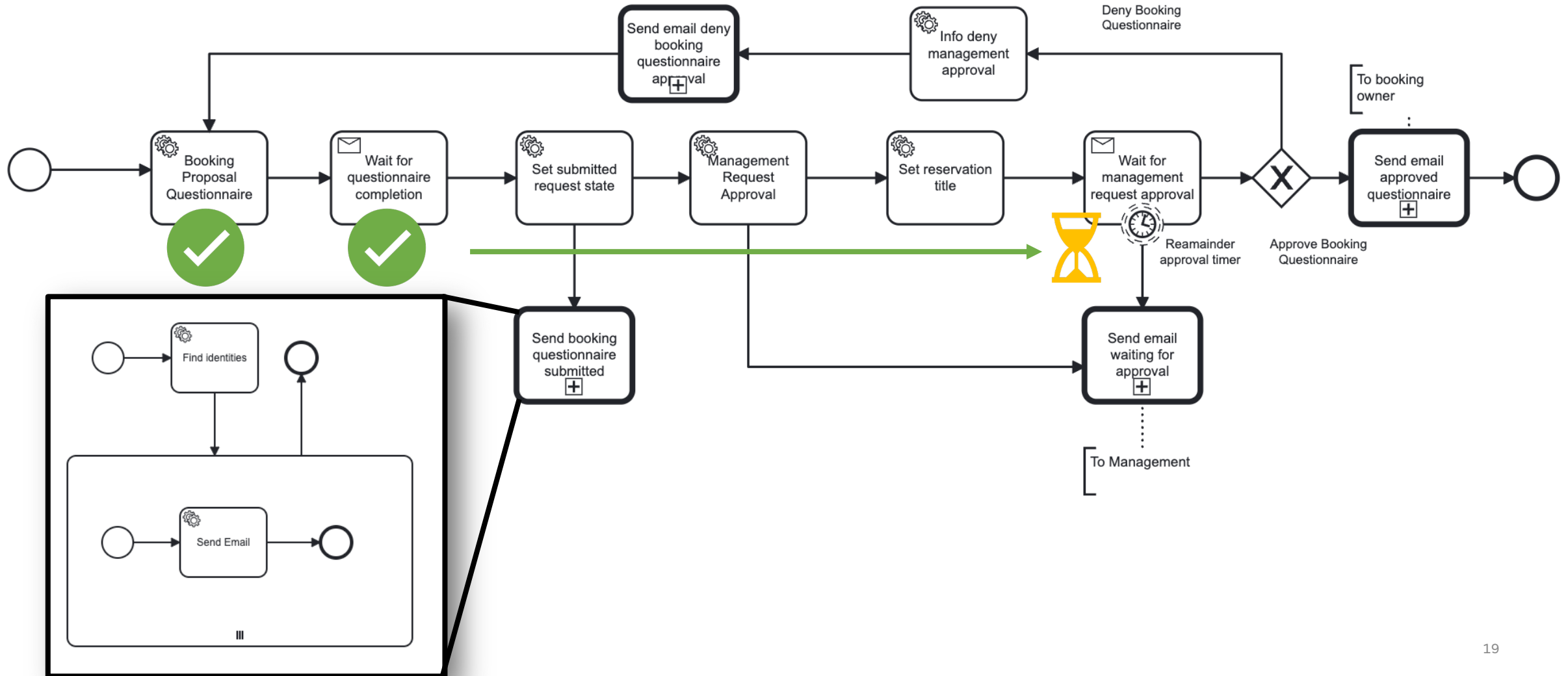
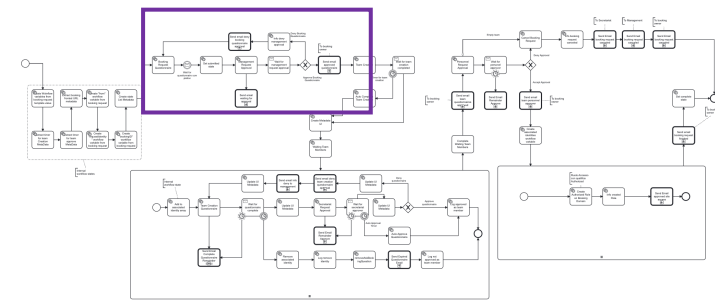
Outputs +

Execution listeners + 1 >

Extension properties +



PROCESSO BPMN





USER INTERFACE

INSERIMENTO RICHIESTA - SELEZIONE ENTITÀ (BTF)

The screenshot displays the INFN Booking system interface. At the top, a blue header contains the INFN logo and the word 'Booking'. A yellow banner below the header indicates 'Sei in ambiente di PREPROD'. A navigation sidebar on the left lists 'Booking' (with a dropdown arrow), 'My Booking', 'New Booking', 'States view', 'Admin' (with a dropdown arrow), 'Edit Entity', and 'Booking Management'. The main content area features a progress bar with four steps: 1. Entities, 2. Resources, 3. Dates, and 4. Confirmation. The 'Confirmation' step is highlighted with a blue background. Below the progress bar, the 'Entity list' section is titled 'Entity list' with the instruction 'Select one entity'. A single entity, 'BTF', is shown with a blue border around its icon and text. A blue 'Next' button is located in the bottom right corner of the main content area.

INSERIMENTO RICHIESTA - SELEZIONE RISORSE

INFN Booking 12 [Menu] [Grid]

Sei in ambiente di PREPROD

1 Entities 2 **Resources** 3 Dates 4 Confirmation

Resources

Select resources of booking request. Use left double click mouse or drag and drop on resource name to move resource to one box to another

Available

>>><<<

Selected

Prev Next

INSERIMENTO RICHIESTA – SELEZIONE PERIODO

Dates

Select date of request booking

< > **January 2023** today

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
1a UserBooking						
8	9	10	11	12	13	14
1a UserBooking						
15	16	17	18	19	20	21
1a UserBooking						
22	23	24	25	26	27	28
1a UserBooking						
29	30	31	1	2	3	4
Temporary						
5	6	7	8	9	10	11
Temporary						

Bookable Not Bookable No configuration

From To

✓ This period is bookable

DETTAGLIO RICHIESTA (1)

[←](#) [🏠](#) > Player of request

2023-02-06 - 2023-02-12 [Info](#) [↻](#)

Submitter: Giovanni Lorenzo Napoleoni
BTF (Line2)

Booking Request Questionnaire **Waiting** Management Request Approval **Next Step** Team Creation **Next Step** Waiting Team Members **Next Step** Personnel Request Approval **Next Step**

Selected State

BTF

EXPERIMENT Proposal name *

Involved Institutions/Industries/Countries *

Experiment motivation related to requested beam time, scientific discipline, research area and purposes: *

Proposal category (mark the right one): *

New - If you are submitting this experiment plan for the first time ▾

Needed experimental area (BTFEH1, BTFEH2) *

Device under test description (please describe possible hazards): *

Owned setup to be put in experimental hall, brief description (please describe possible hazards related to) *

Owned setup to be put in control room, brief description (please describe possible hazards) *

DETTAGLIO RICHIESTA (2)

Selected State

Approve booking request

Add message to approval state

Il questionario sottomesso è completo. |

✕ Refuse

✓ Approve

States History

Booking Request Questionnaire

Approval message: completedState

BTF

Experiment_motivation: 1

Proposal_category: New

Needed_experimental: 1

Device_under_test: 1

Owned_setup : 1

Owned Setup To Be Put In Control Room: 1

Btf Needed Setup: 1

Time Needed For Experiment: 1

Time_needed_contiguous_days: 1

Time_needed_roll In: 1

Time_needed_roll_out: 1

Measure_description_file:

Screenshot 2022-10-12 at 11.50.37.png

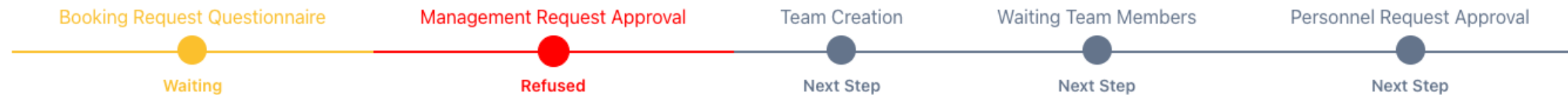


DETTAGLIO RICHIESTA (3)

2023-02-06 - 2023-02-12

Info

Submitter: Giovanni Lorenzo Napoleoni
BTF (Line2)



Selected State

Approve booking request

Approval message: il questionario contiene campi non chiari

State was **Refused**

DETTAGLIO RICHIESTA - TEAM CREATION



Selected State

Abort

Save

Complete

Add new team member

Selected user

Michele Antonio Tota ⊗

Create your team

Q tota

+

Name	Surname	UUID
Leonardo	Mastrototaro	7b37f3c9-2af6-485b-bd5f-231e1ec48747
Michele Antonio	Tota	017579c1-6567-4dbb-a2fc-6ef092c48d1e
Michele	Tota	26c0c003-107f-4048-92c2-145aa397c405

DETTAGLIO RICHIESTA - TEAM CREATION (1)



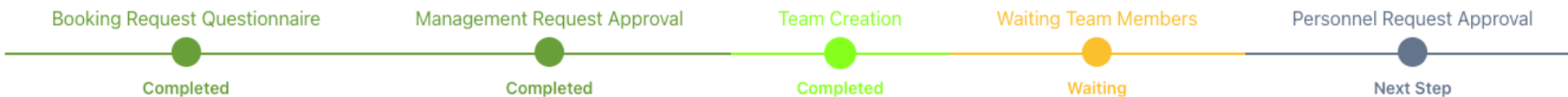
Player of request

2023-02-06 - 2023-02-12

Info



Submitter: Giovanni Lorenzo Napoleoni
BTF (Line2)



Selected State

List of selected identities

Approval message: completedState

Name	Submitted Questionnaire	Secretariat Approval
Michele Antonio Tota	✗	✗

States History

Booking Request Questionnaire

Management Request Approval

DETTAGLIO RICHIESTA - COMPLETAMENTO



🏠 > Player of request

2023-02-06 - 2023-02-12

Info



Submitter: Giovanni Lorenzo Napoleoni
BTF (Line2)



Selected State

Approvazione Richiesta di accesso

Approval message: Complete state

State was **Accepted**

Results

BTF(Line2) Info

From: 2023-02-06 To: 2023-02-12
Created at: 2022-10-12 09:41

Request Completed

User Michele Antonio Tota approved as team member

Details

Last Update at: 2022-10-12

<< < 1 2 > >> 5 ▾

A decorative graphic in the top-left corner consisting of several overlapping, thin, light-brown lines that form a complex, abstract geometric pattern of polygons and intersecting lines.

SVILUPPI FUTURI

- Progettazione workflow per la facility Dafne-Luce (LNF)
- Progettazione workflow per le aule usate nelle conferenze dei LNF
- Sviluppo modulo per l'invio di comandi ai PLC



GRAZIE