

PROCESS AND SERVICE DESIGN



MedicAlly

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POLITECNICO
MILANO 1863

MedicAlly

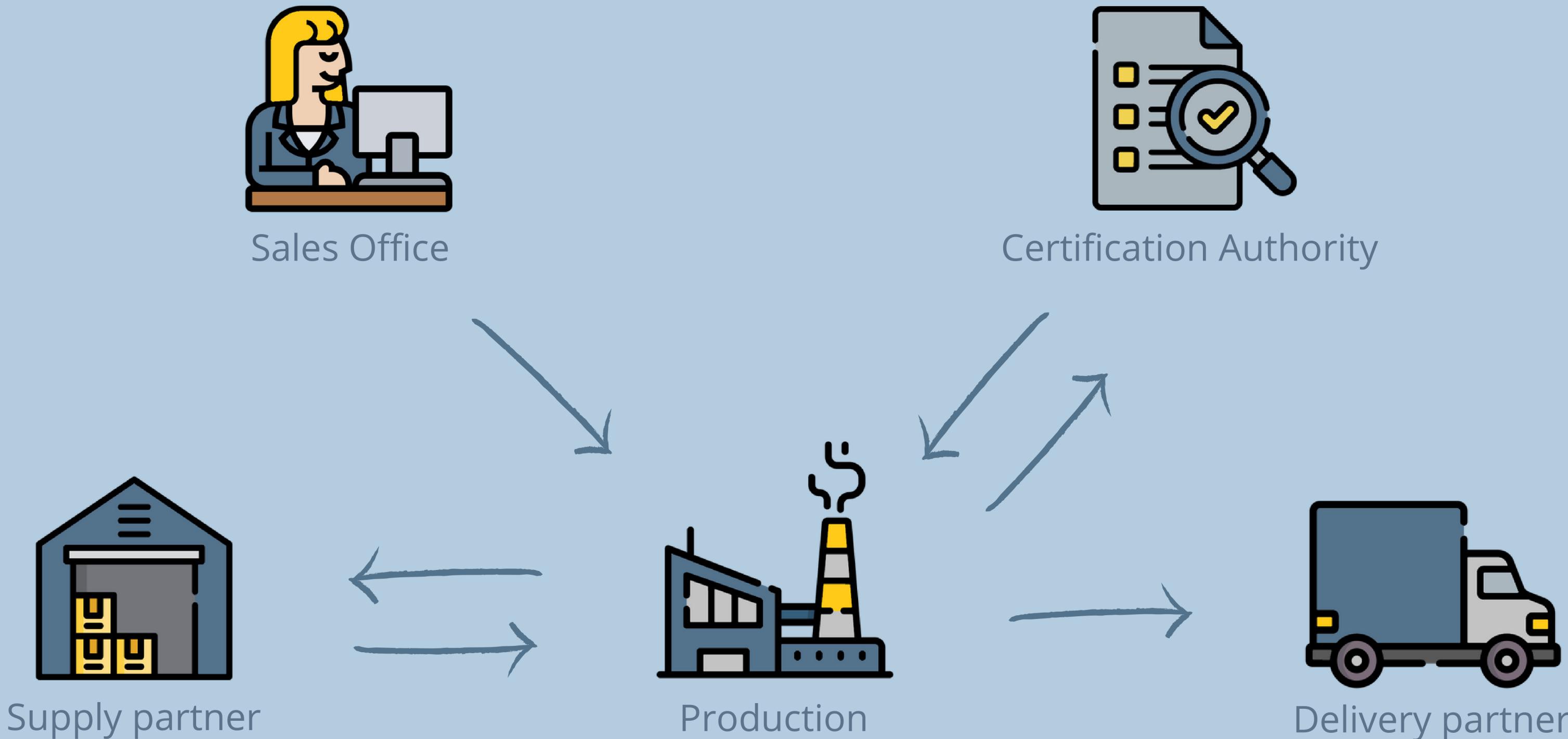
Service description

Medically is a company that manufactures high quality and innovative medical machinery and equipment for hospitals and private organizations.

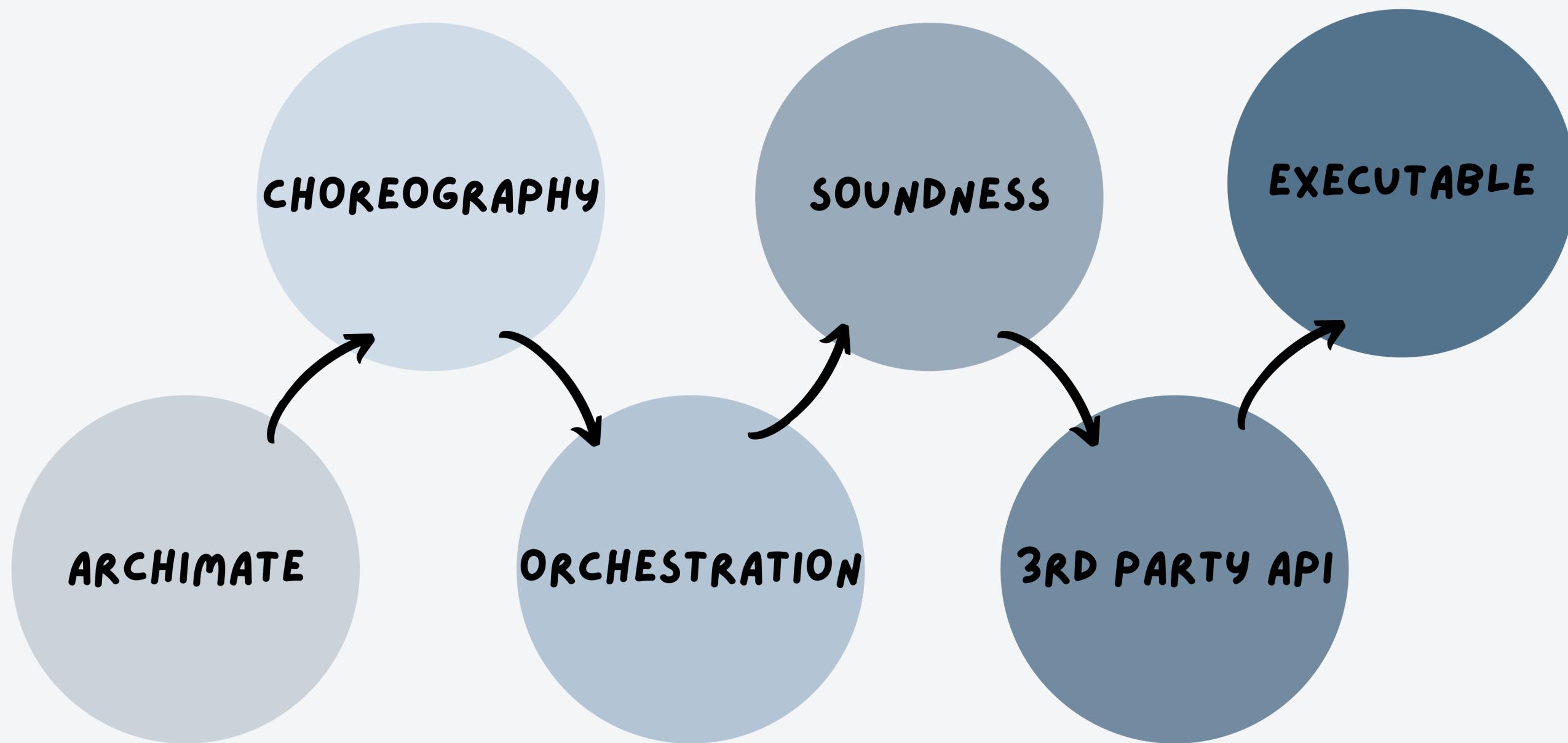
Starting from the kind of machine, the model and the quantity that the costumer wants, our company produces and delivers them on request.

Our focus will be on the Production Management Process.

A Production Process general overview



What we have worked on

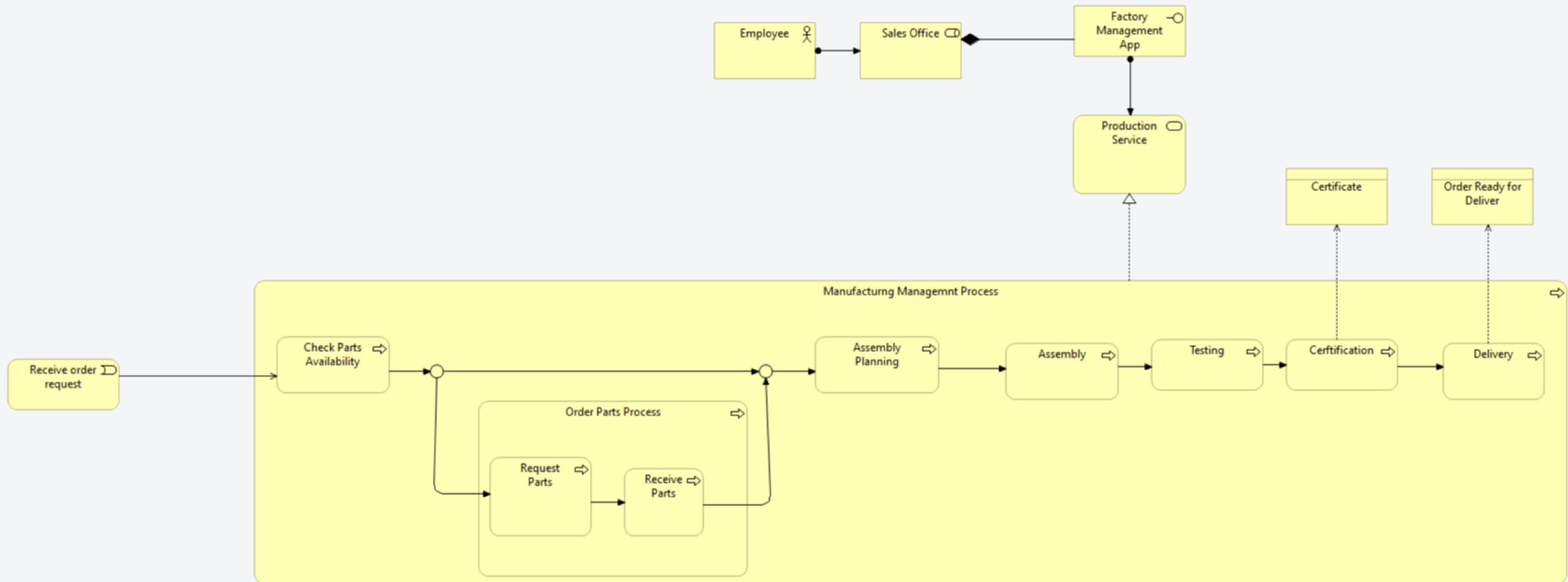


ARCHIMATE MODEL

Archimate is a language for enterprise architecture modeling to support the description, analysis and visualization of the architecture.

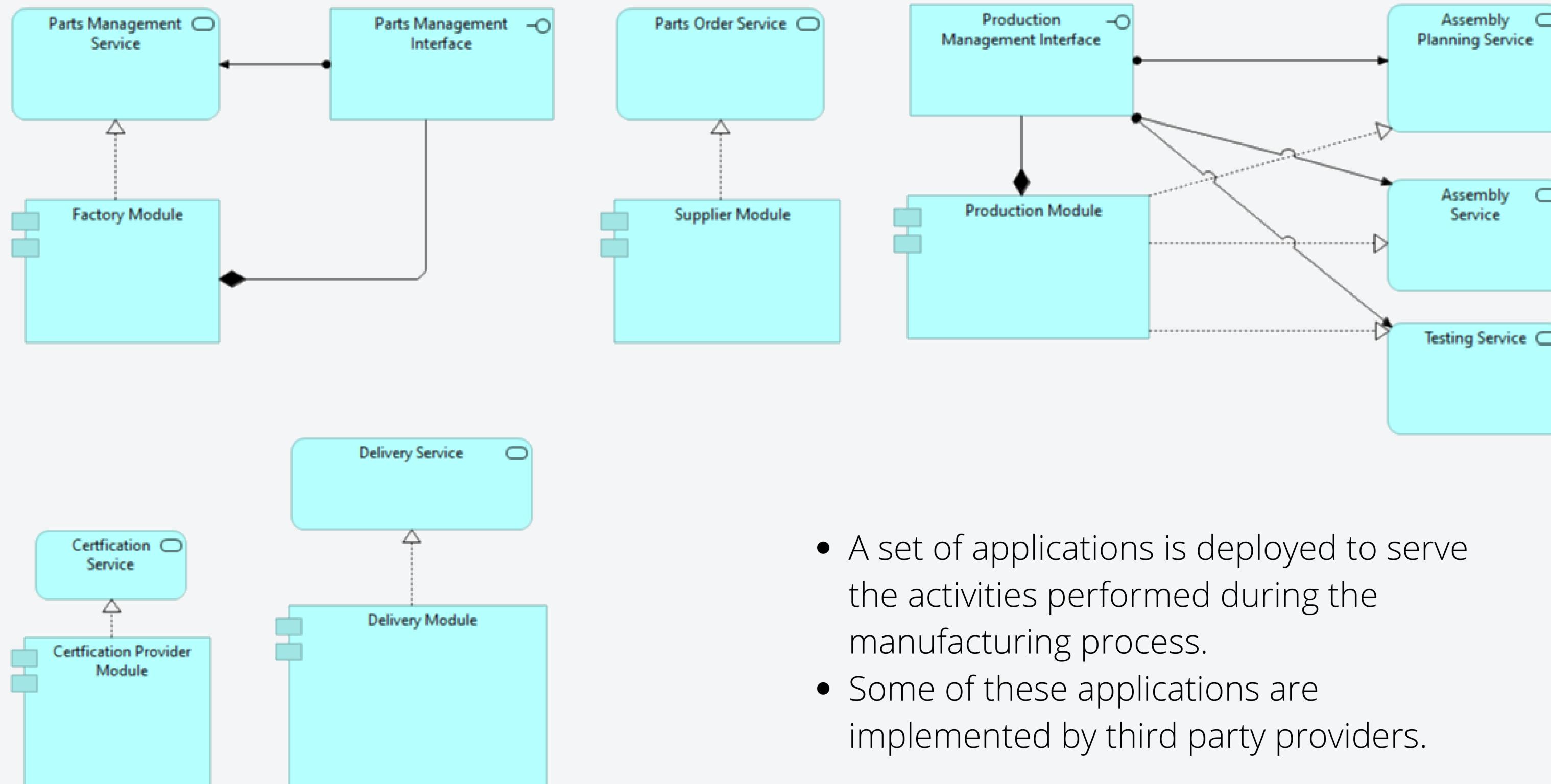
The goal of the Archimate model is to define the process, how the consumer is connected to the enterprise and how the processes are related.

Business Layer

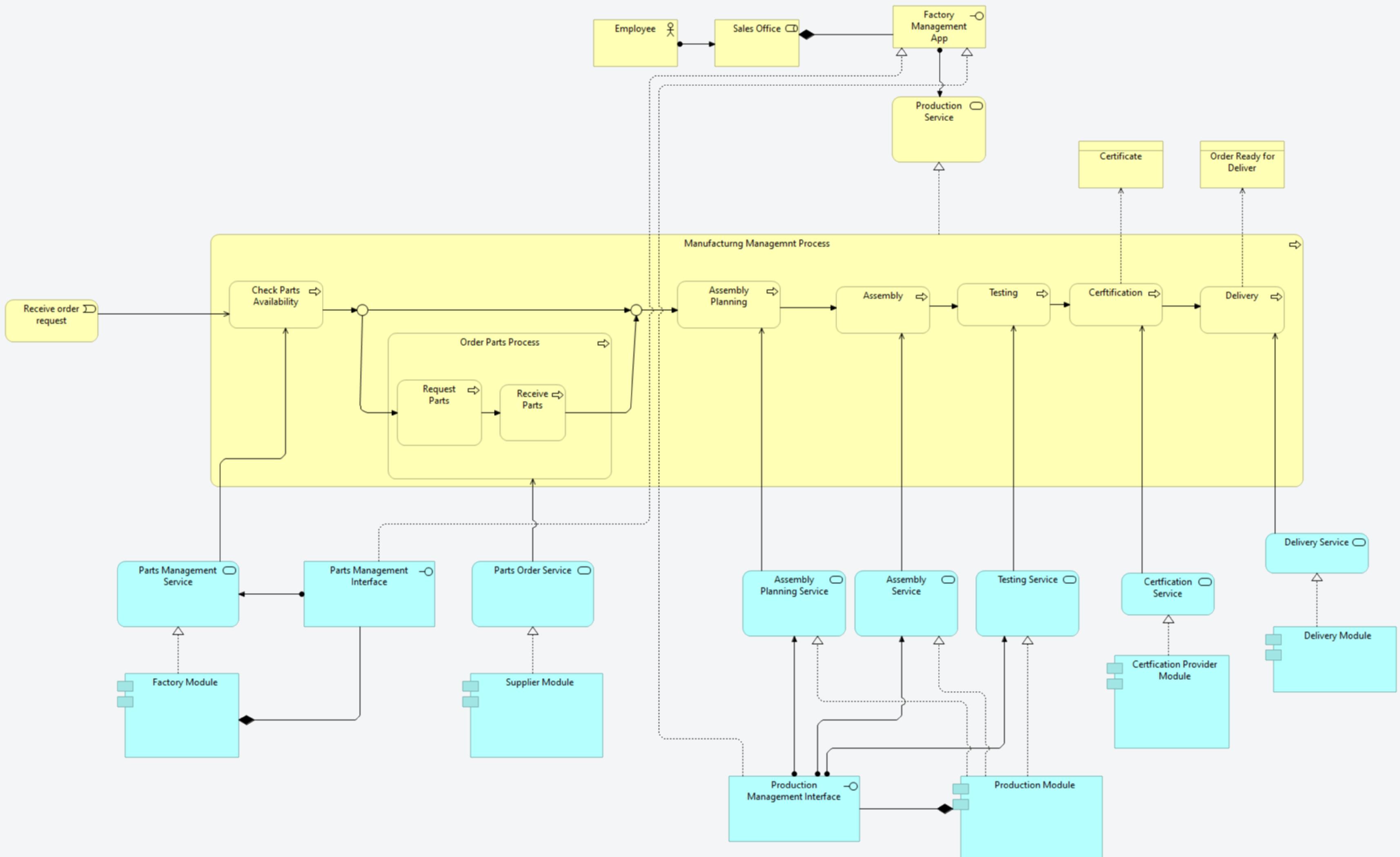


The customer of the service is the sales office of the company, which upon receiving an order uses the production service to request the manufacturing of the needed medical machinery

Application Layer



- A set of applications is deployed to serve the activities performed during the manufacturing process.
- Some of these applications are implemented by third party providers.

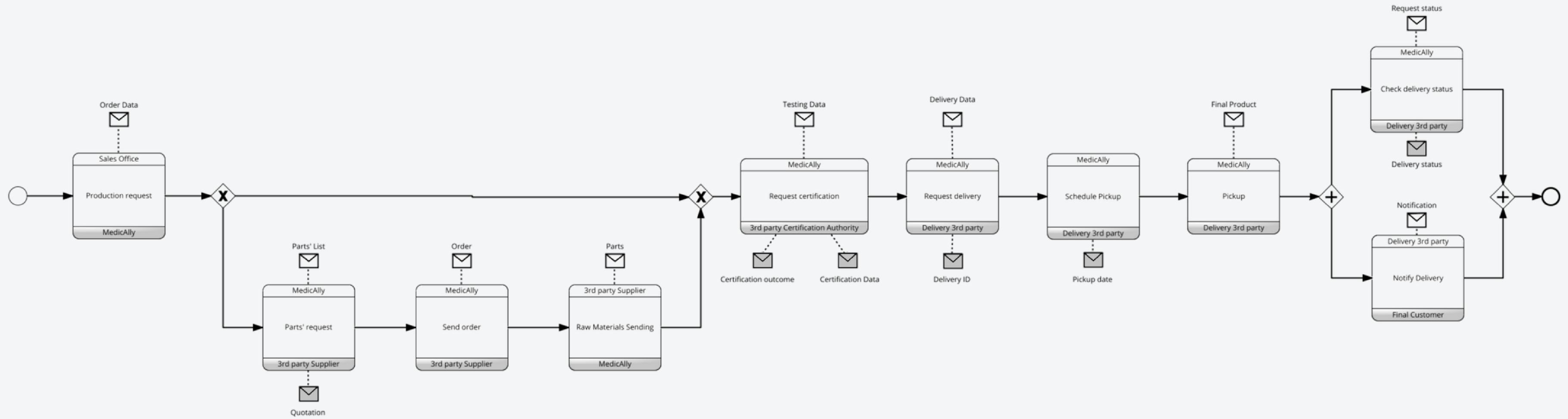


CHOREOGRAPHY

The choreography diagram provides a high-level perspective focused only on the relationships among the organizations, but without specifying the internal processes and taking the standpoint of any of the participants.

Its purpose is to show the interaction between participants in a different format and concentrate on the message flow instead of the individual detailed tasks of a process.

Public Protocol:

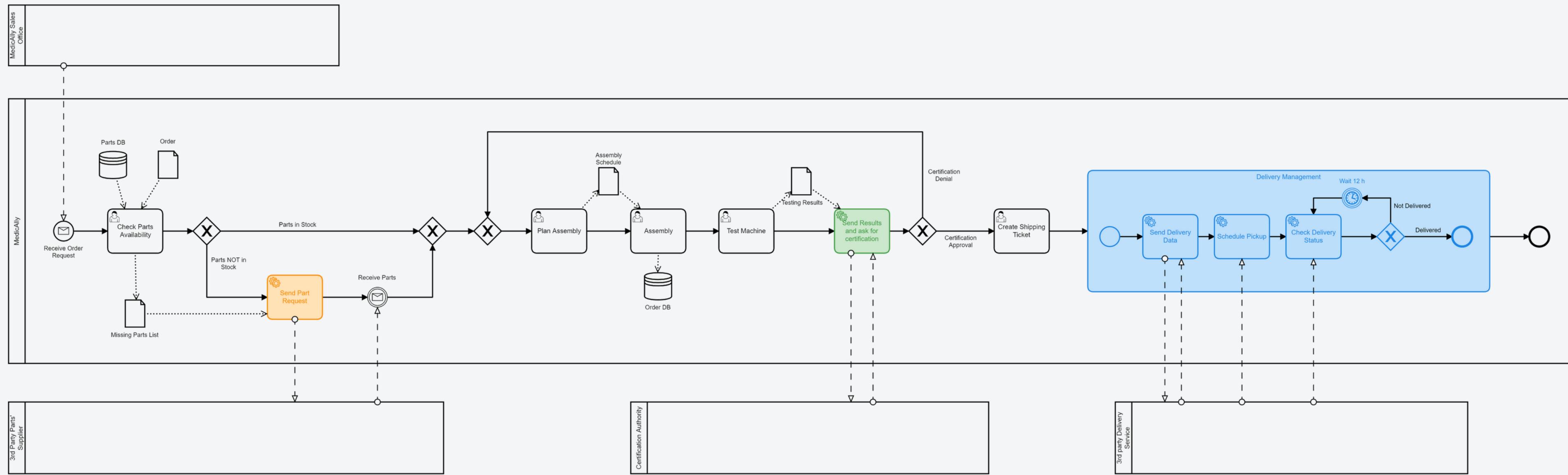


- The beginning of the process follows the order by the customer.
- If the Production Department doesn't have the needed parts, a parts' request and the order are sent and the parts are then received.
- Once production is completed, the machinery is tested and the certification of conformity is requested.
- The delivery is then requested by MedicAlly and it ends with a notification from the delivery 3rd party.

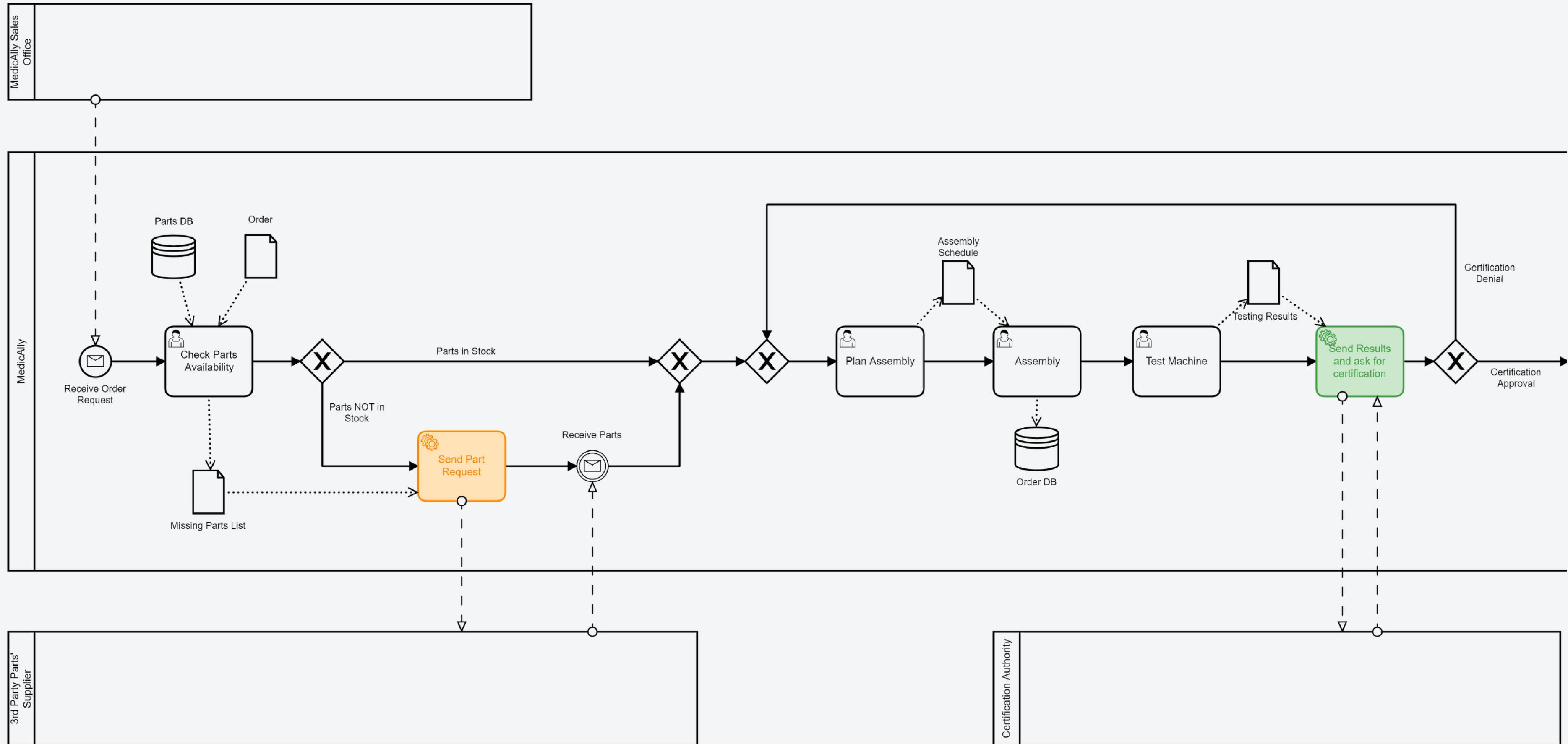
ORCHESTRATION

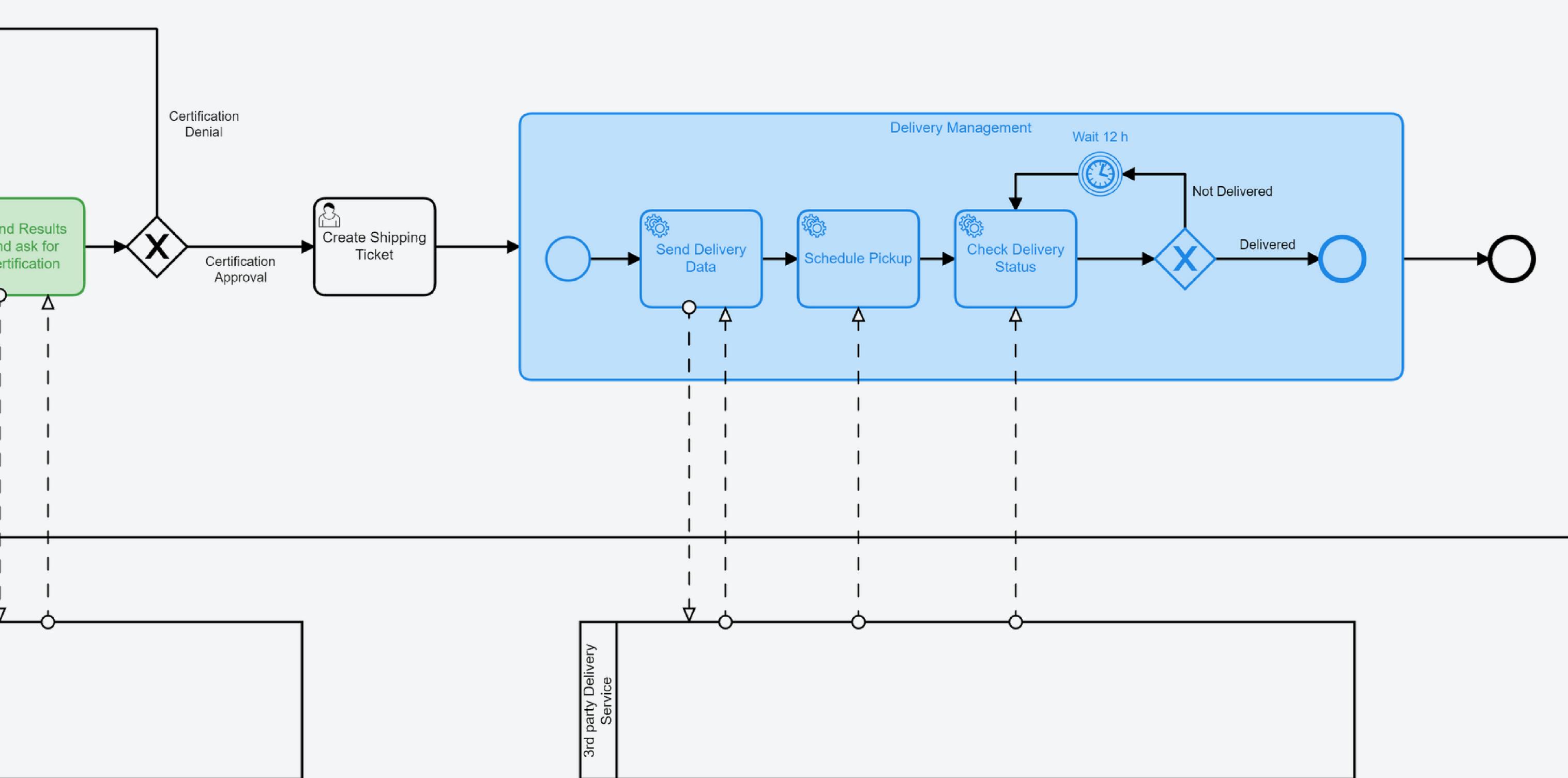
Orchestration concerns the management of activities executed under a common controlling element (the orchestrator). Usually, the boundary of an orchestrator is an organization. The orchestrator controls the execution of the business process according to a control-flow model. The control-flow is usually modelled based on a set of patterns.

ABSTRACT ORCHESTRATION



- The Manufacturing department of MedicAlly checks the availability of the parts, and, if needed, to send an order to the 3rd party supplier.
- The financial part is taken care of by the administrative office in another business process.
- The assembly is planned using internal resources and then performed.
- The produced machinery is to be tested and certified by a 3rd party Certification Authority to issue of the certification so that the medical machine can be utilized.
- The delivery service is assigned to an external delivery company.

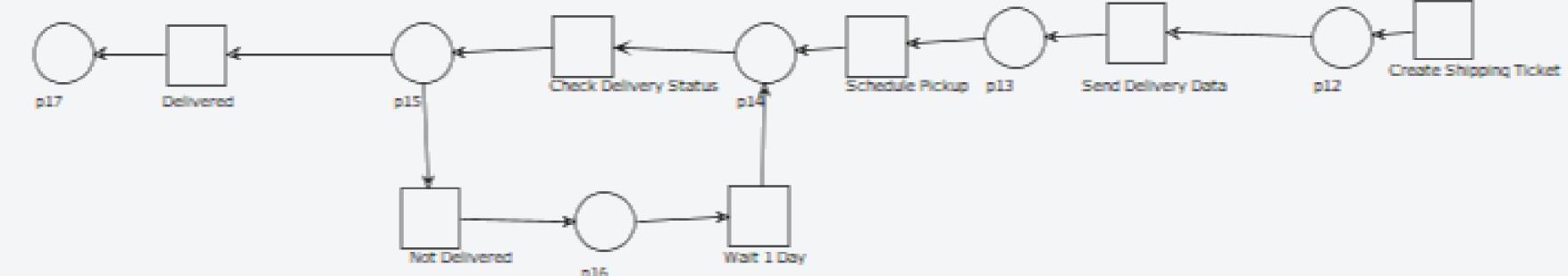
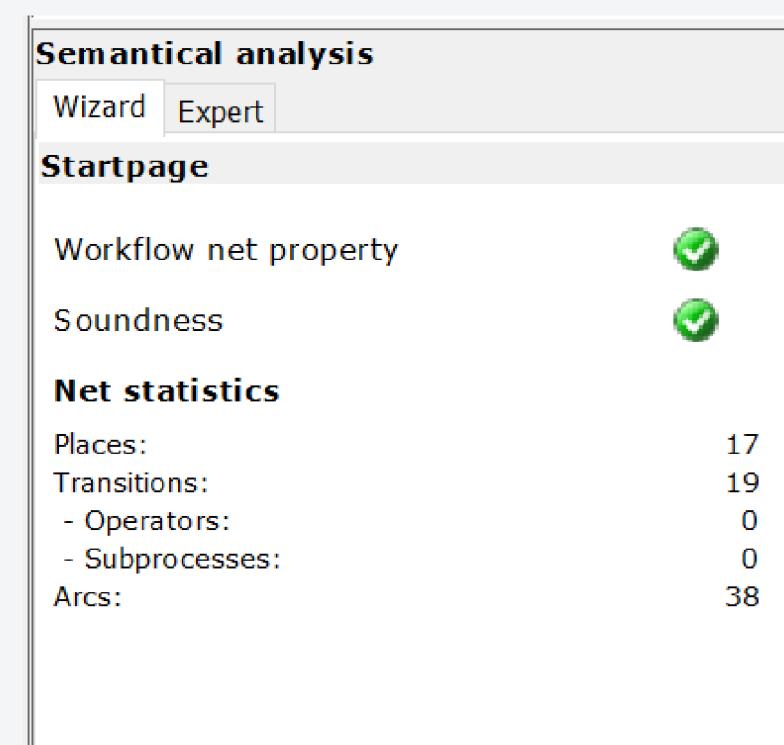
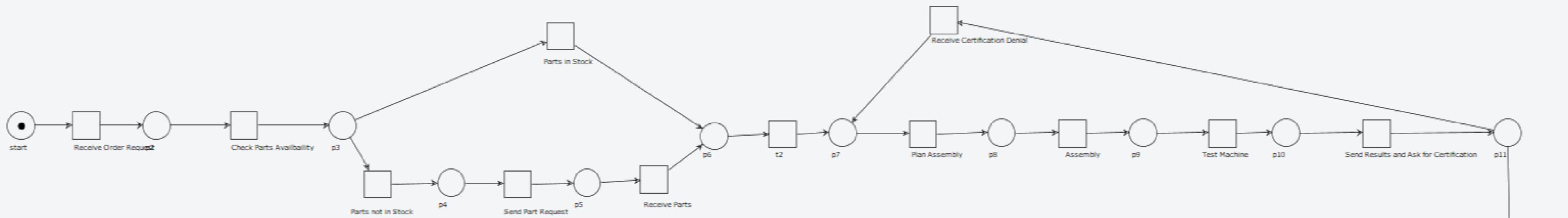




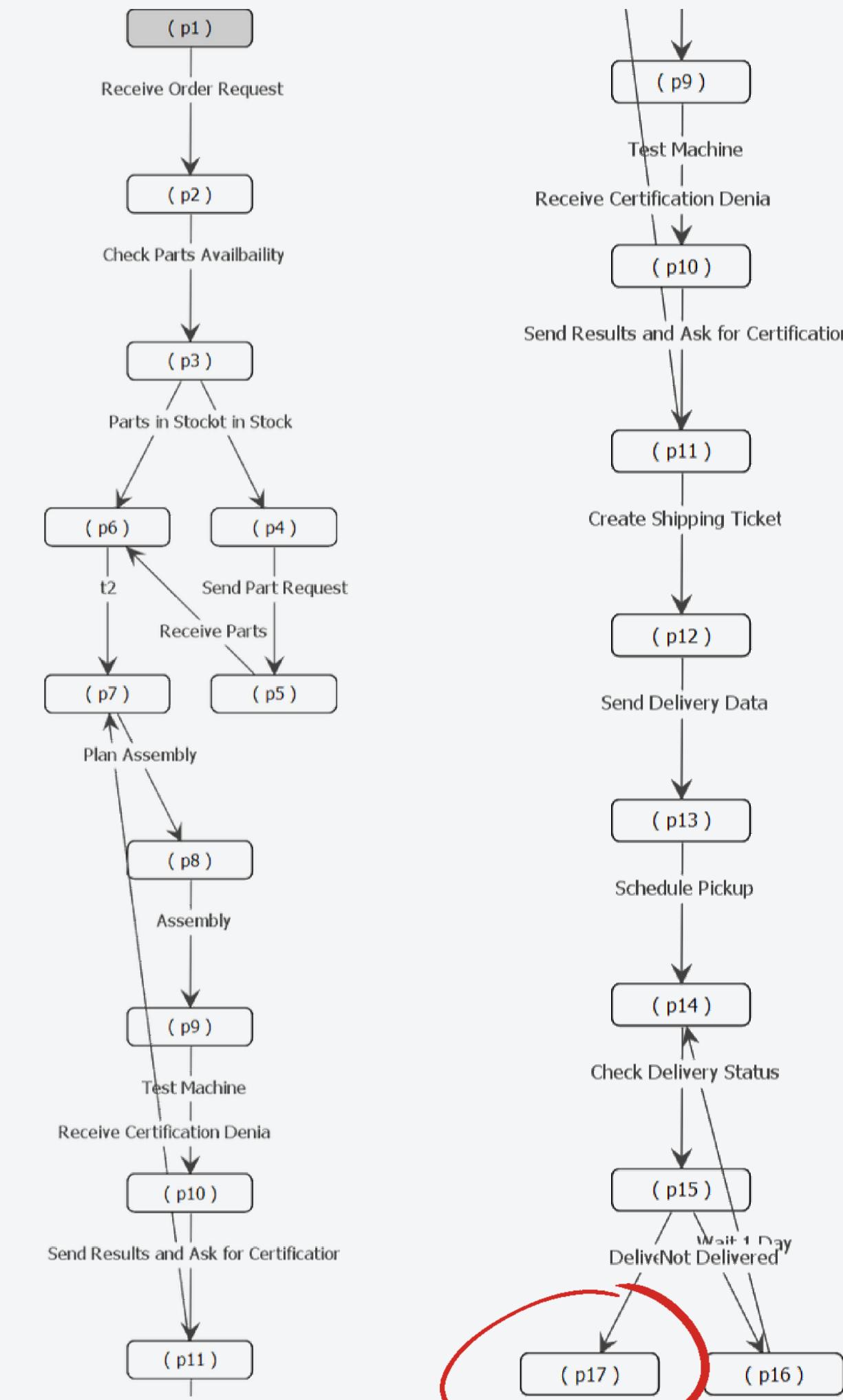
- During the delivery sub-process, different activities are performed as steps.
- At the end of this sub-process, MedicAlly wants to be sure that the delivery has happened and checks for it periodically until it receives a confirmation. Then the whole process can end.

SOUNDNESS

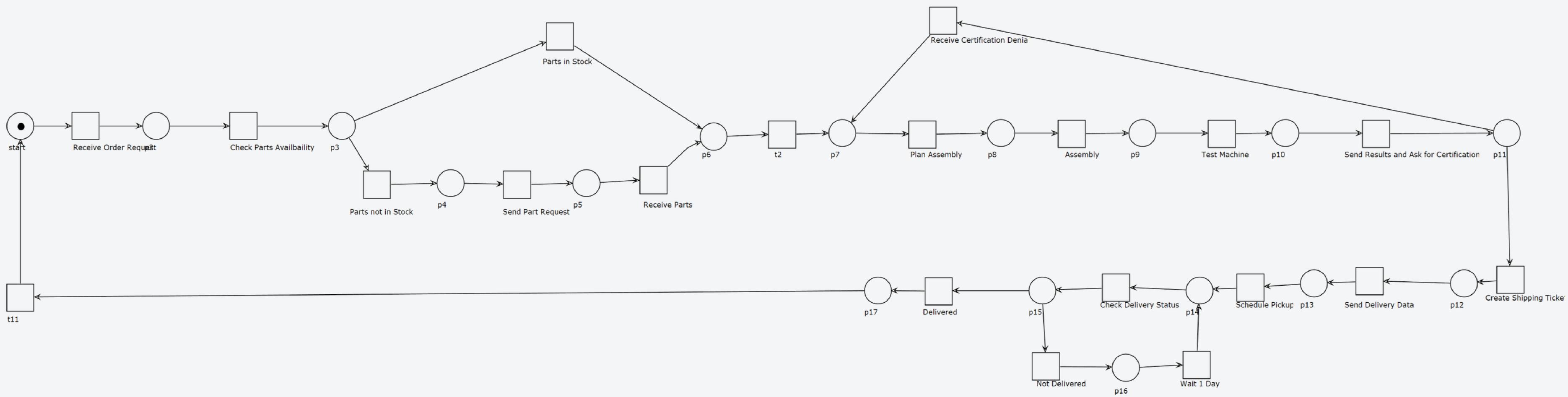
The soundness is a property that allow to identify correct WF-nets. A WF-net is sound if and only if, for any case, the procedure will terminate eventually, and at the moment the procedure terminates there is a token in place 'o' (the final place) and all the other places are empty.



COVERABILITY GRAPH



EXTENDED PETRI NET



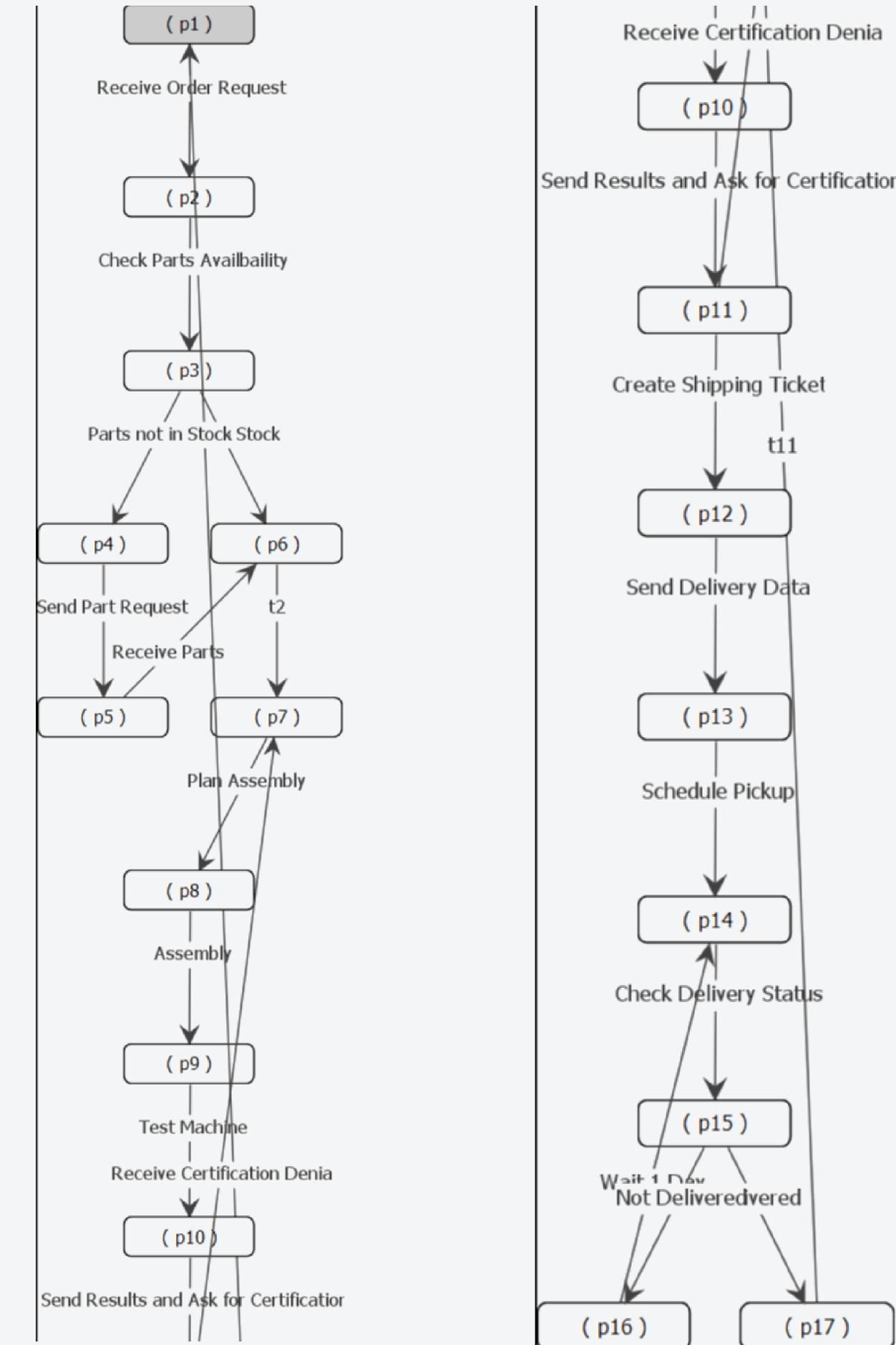
COVERABILITY GRAPH

Of the Extended Petri Net

Van der Aalst:

- Liveness
- 1-boundness

Soundness



REST API

Medically External REST API 1.0.0

[Base URL: localhost:3000/]

Medically 3rd party services

Contact the developer

Schemes

HTTP ▾

default ^

GET /**delivery** Creates shipping ticket ▾

GET /**delivery-pickup** Schedule pickup at warehouse ▾

GET /**delivery-status** Shows the status of the delivery ▾

GET /**certifications** Validate the machine conformity ▾

POST /**partsService** Request parts to the supplier ▾

GET /delivery Creates shipping ticket



Parameters

Try it out

Name	Description
------	-------------

deliveryAddress * required

string

(query)

deliveryAddress

pickupAddress * required

string

(query)

pickupAddress

weight * required

string

(query)

weight

receiver * required

string

(query)

receiver

Responses

Response content type

application/json



Code	Description
------	-------------

200

SUCCESS

Example Value | Model

```
{  
  "id": "3fa85f64-5717-4562-b3fc-2c963f66afa6",  
  "deliveryAddress": "string",  
  "receiver": "string",  
  "price": 0,  
  "status": "string"  
}
```

GET

/delivery-pickup Schedule pickup at warehouse



Parameters

Try it out

Name	Description
------	-------------

id * required string (query)	Shipping ID
---	-------------

Responses

Response content type

application/json



Code	Description
------	-------------

200	SUCCESS
-----	---------

[Example Value](#) | [Model](#)

```
{  
  "id": "3fa85f64-5717-4562-b3fc-2c963f66afa6",  
  "deliveryDate": "2022-07-12"  
}
```

GET

/delivery-status Shows the status of the delivery

^

Parameters

Try it out

Name	Description
------	-------------

id * required string (query)	Shipping ID
---	-------------

Responses

Response content type ▼

Code	Description
------	-------------

200	SUCCESS
-----	---------

[Example Value](#) | [Model](#)

```
{  
  "id": "3fa85f64-5717-4562-b3fc-2c963f66afa6",  
  "status": "string"  
}
```

GET

/certifications Validate the machine conformity



Parameters

Try it out

Name	Description
------	-------------

typeofMachine * required

string

(query)

type of machine

location * required

string

(query)

Destination location

headtechnician * required

string

(query)

Technician information

Responses

Response content type

application/json



Code	Description
------	-------------

200

success

[Example Value](#) | [Model](#)

```
{  
  "id": "3fa85f64-5717-4562-b3fc-2c963f66afa6",  
  "typeofMachine": "string",  
  "location": "string",  
  "headtechnician": "string",  
  "result": "string"  
}
```

POST

/partsService Request parts to the supplier

**Parameters****Try it out****Name** **Description****Parts** * required

object Request parts to 3rd party supplier
(body) Example Value | Model

```
{  
  "id": {  
    "qte": 0  
  }  
}
```

Parameter content type

application/json

Responses

Response content type

application/json

**Code** **Description**

200
SUCCESS

Example Value | Model

```
{  
  "status": "string",  
  "price": 0,  
  "date": "2022-07-12"  
}
```



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