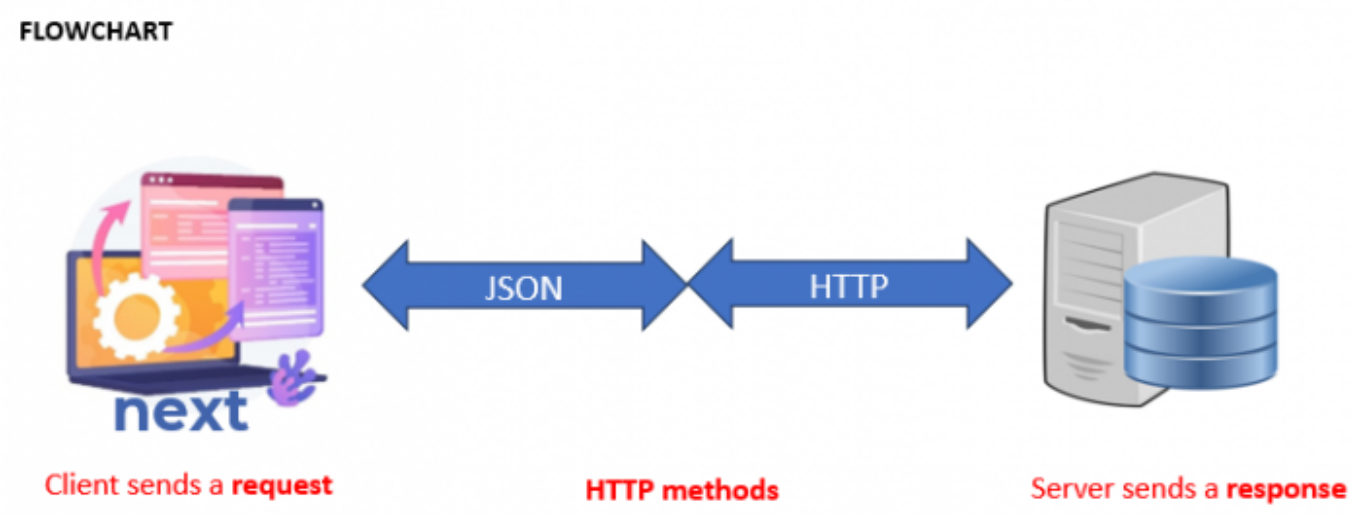
SmartMoM - Integration

With the goal of visualizing all factory data and KPIs in a BI tool running on the German Edge Cloud platform, FIP requires IMPROVE 4.0 integration with SmartMoM (German Edge Cloud's application used for production master data management).

Communication will be via REST API through which IMPROVE 4.0, purely performing the function of REST client, will provide the requested data, related to the production lines currently being monitored in Peschiera, to the server. As such, it will be up to IMPROVE 4.0 to make an initial REST call to obtain an authentication token, which will be necessary for the subsequent execution of the corresponding API.
The APIs agreed upon are, specifically, two:

- one REST POST for retrieving data related to Work Orders Statuses;
- one REST POST for retrieving data related to Machine Statuses.

Details and documentation related to the parameters (both mandatory and non-mandatory) that will be transmitted via these APIa have already been discussed in a preliminary meeting between the parties, where German Edge Cloud made itself available for any future interactions that may facilitate the NeXT team with the integration process.



It has been agreed that data will be exchanged on an event-by-event basis to enable the server to receive, in near real time, information regarding orders and machine status.

A cloud-based server will be provided that can enable appropriate testing activities to be performed in parallel with developments: the estimated timing includes, in addition to and prior to the aforementioned software development and testing activities, the entire process of analyzing the documentation mentioned above, preparatory to the data mapping required for proper communication between the two systems, and the implementation of the mapping itself for all required parameters.

In the following paragraphs are specified the data available in Improve 4.0. For any additional required data it will be necessary to evaluate if they are stored or not in the IMPROVE 4.0 platform.

IMPROVE 4.0 side: Work Order Status

IMPROVE 4.0 can provide the following family of data:

- work order number or confirmation order number

- work center
- number of produced items
- number of scrap items
- standard takt time (priveded by Sap)
- real takt time (calculated by the system if the related module will be activated)

For any produced item and for any scraped item IMPROVE 4.0 can call the related REST POST API.

IMPROVE 4.0 side: Machine status

IMPROVE 4.0 can provide the following family of data when a machine stop starts:

- work center
- time of beginning of the stop machine
- stop reason

IMPROVE 4.0 can provide the following family of data when a machine stop ends:

- work center
- time of ending of the stop machine
- stop reason

Each event can be sent once is detected via REST POST API.

Fix Me! If an operator changes the stop information a posteriori how IMPROVE 4.0 can update the GEC platform ?

MAPPING Informations

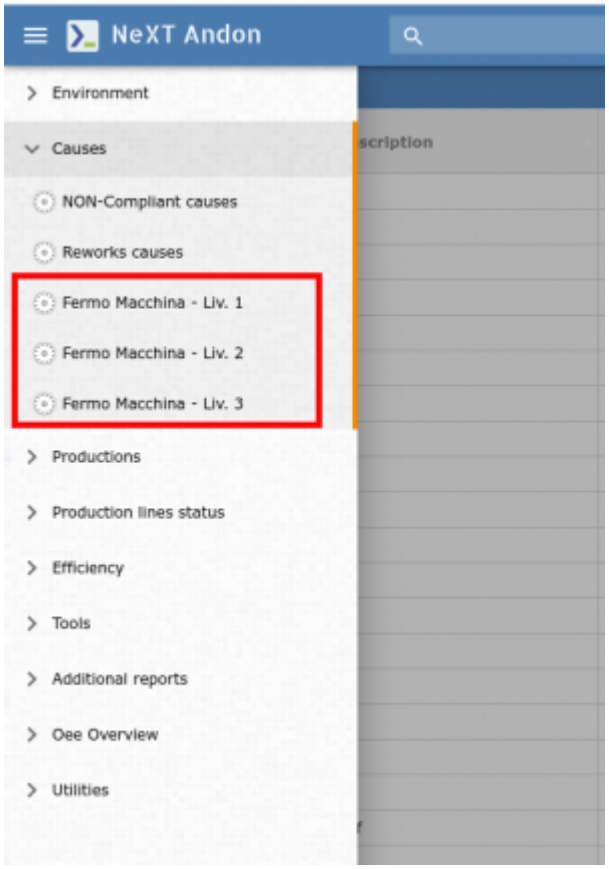
It is required to create a mapping between IMPROVE 4.0 dataset and GEC platform dataset, in particular for the following structures:

- stop causes
- work centers

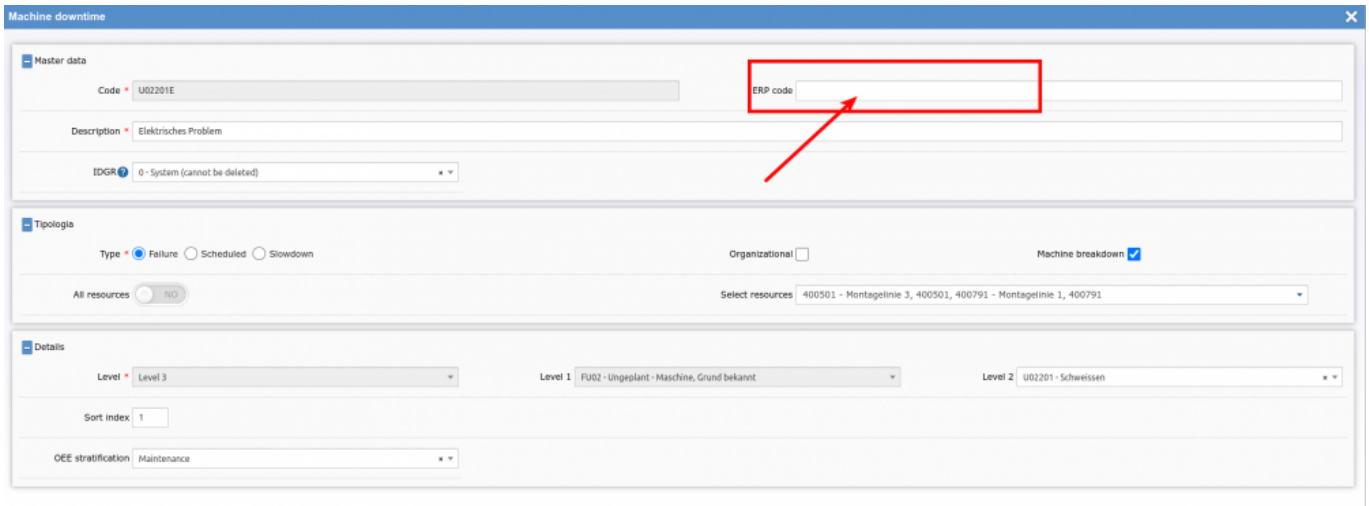
In both the cases IMPROVE 4.0 provides a page where the user can by himself set this mapping.

Stop Causes

Using the related menù it is possible to access to the machine stop causes list:

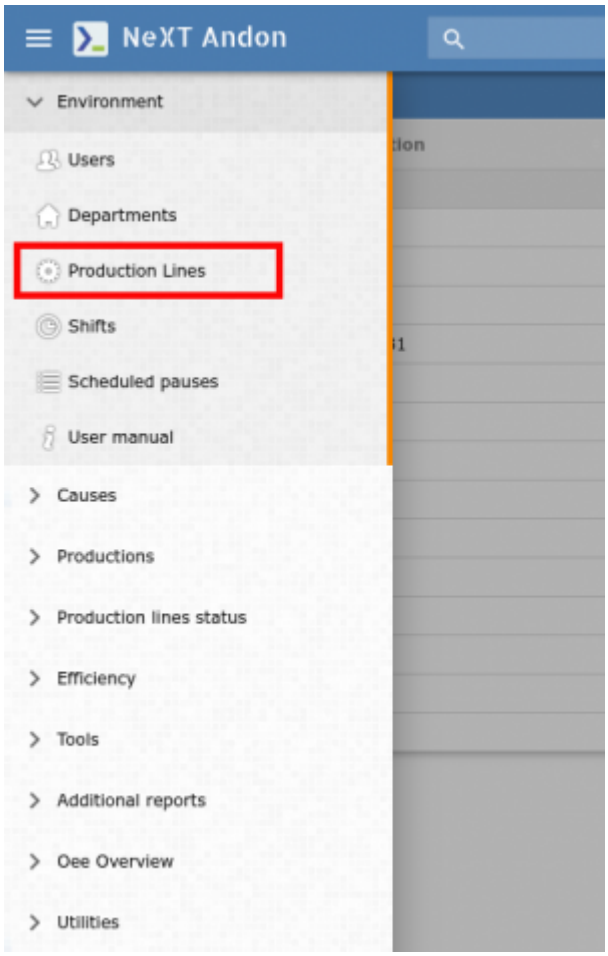


Opening the page of a specific machine stop cause, it is possible to configure the GEC platform related code in the indicated field:

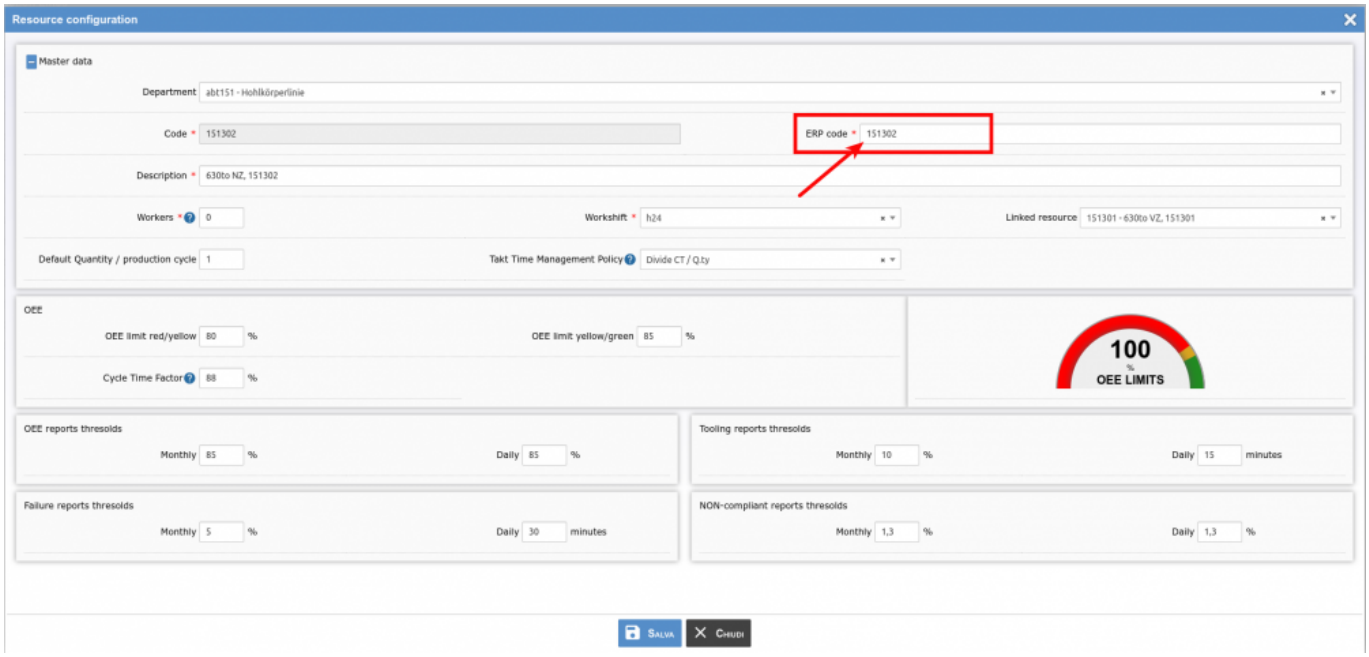


Work centers

Using the related menù it is possible to access the work centers list:



Opening the page of a specific work center, it is possible to configure the GEC platform related code in the indicated field:



For the case of work-center it is necessary to check if GEC platform will use the same code of the SAP system. If YES, no additional operation will be required since IMPROVE 4.0 is already configured for this scope. If NOT, it will be necessary to add another field in the same page for mapping the GEC platform work centers codes.

Activities

Activities will be divided as follows:

- Credential retrieval to obtain the token for access to the provided API, study and test of the provided APIs, implementation of the interface (middleware) for sending data to the server;
- Support to the users for mapping out causes of downtime currently set in the NeXT system for FIP according to the nomenclature of the German Edge Cloud system;
- Preparation of the software module for API #1, cloud testing and activation in production environment;
- Preparation of the software module for API #2, cloud testing and activation in production environment.