User guide

1   Homepage

Figure 1 shows the homepage. This page consists of two parts. On the one hand the header which can be used to navigate back to the homepage, to login/logout, to sign up, to contact us (Do you have a case for us?). On the other hand, the body which can be used to navigate to the companies, software and cases. Each page gives an overview of all the companies/software/cases that are present on the website. The body also contains a search function, so users seeking for a specify object get an overview off all the data connected to this object. For example, when somebody wants to know everything about "Analysis" figure 2 is obtained[1]. With the search function you can search on company/software/case names, sectors, categories and functions. Examples of sectors are: Agriculture, Assembly, Automotive, Building, Chemicals, Equipment, Food … Section 5 *Theory* gives more information about the categories and functions.
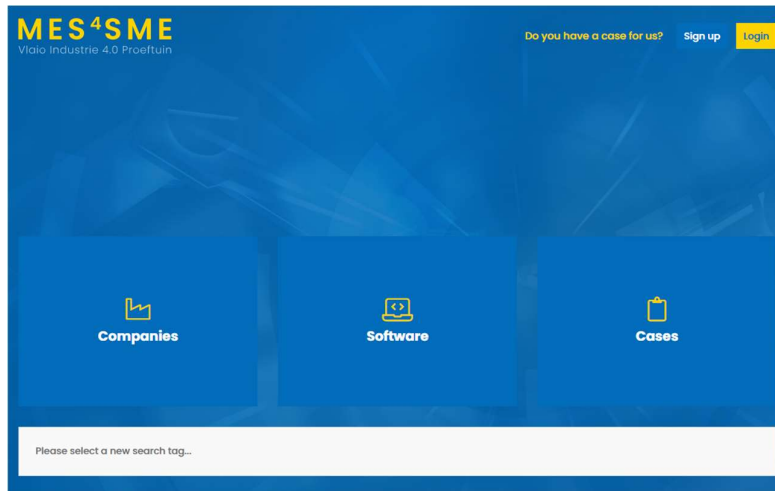

Figure 1: Homepage

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[1] Note: This picture was taken when only the testcompany Universiteit Gent and the testsoftware Flexas was public. These are not real. They were added just for demonstration purposes.
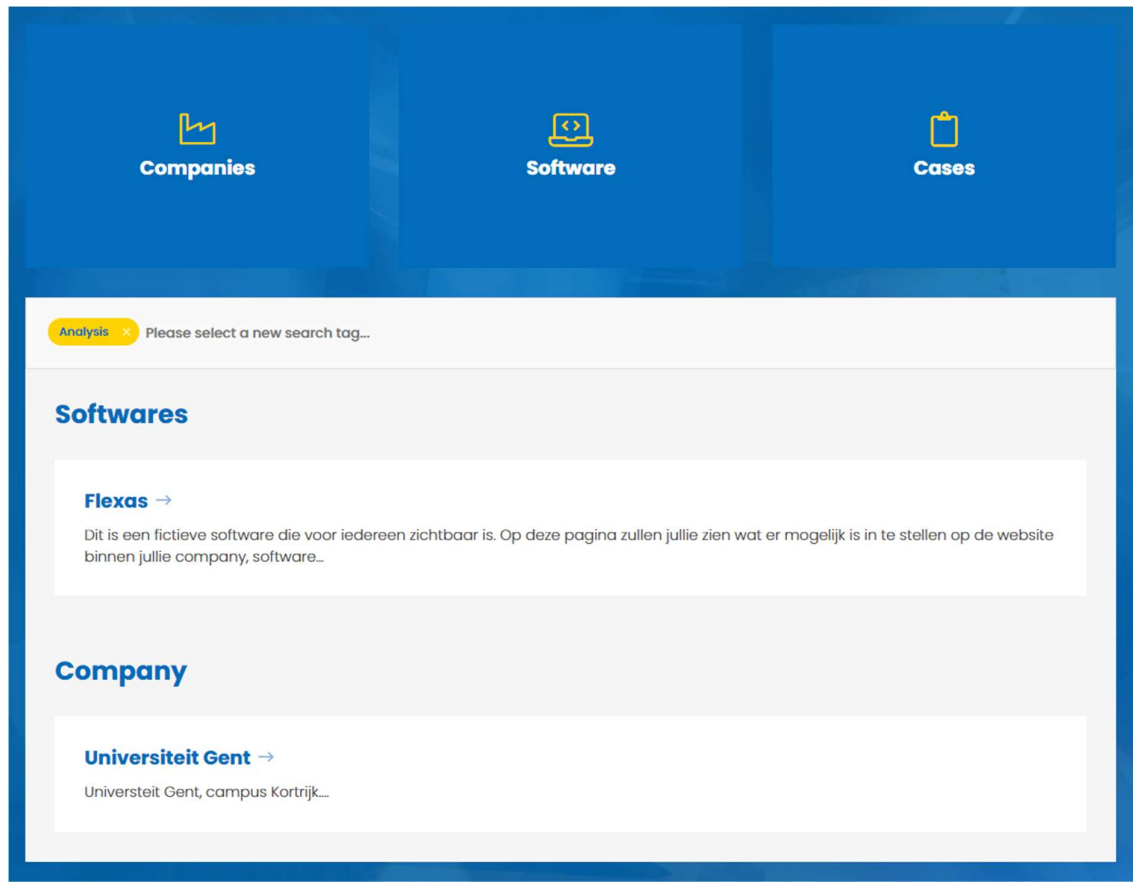
Figure 2: Searching on "Analysis"

2   Companies

Figure 3 shows the overview of the companies. Each company is presented as a card. Each card shows the name or the logo of the company, gives a short description and shows the address. Clicking on this card or on the "Read more" button, brings you to the detailed information page of this company. Figure 4 shows the detailed page of a company. The general data is shown at the top. The next part contains company specific content. After this content, a list of the cases and software linked to this company is given. Clicking on these cards lets you navigate to the detailed page of this software/case. All contacts from this company are shown at the end of the page.
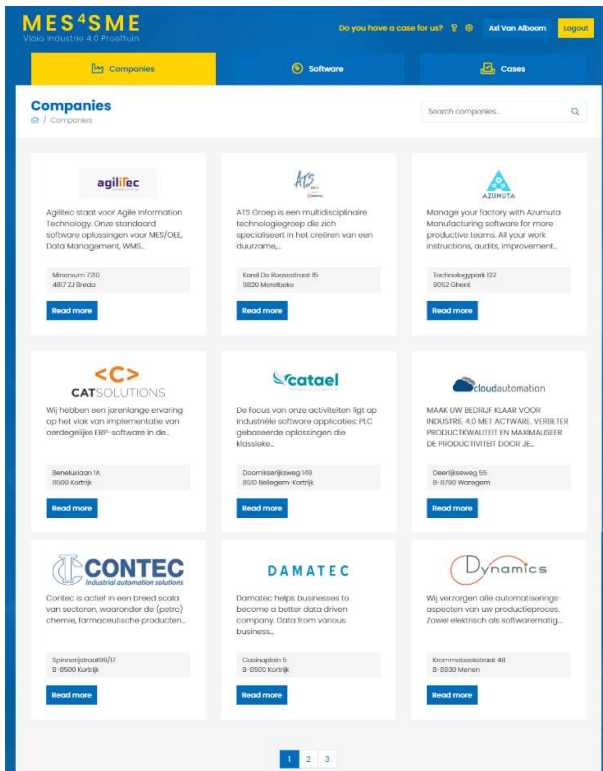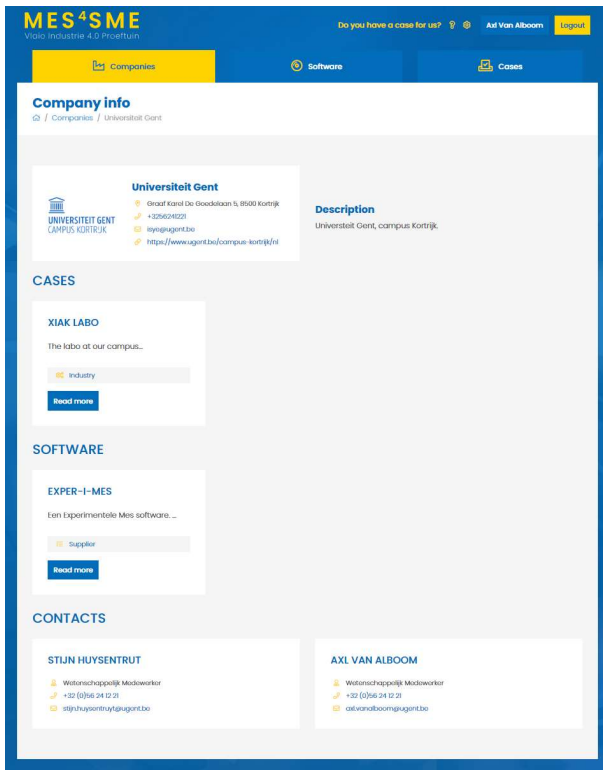
Figure 3: Overview of all the Companies

Figure 4: Overview of a specific company

3   Software

Figure 5 is the overview of all the software. Each software is presented as a card. Each card shows the name or the logo of the software and gives a short description. Clicking on this card or on the "Read more" button, navigates to the detailed information page of this software. Figure 6 shows the detail page of a software. The general data is shown at the top. The next part contains software specific content.

After the content, the categories and functions belonging to this software are given. The page ends with a list of all the cases and all the companies that use this software. It's possible that a software is used by multiple companies, for example when two companies have the authority of the suppling company to implement the software with their customers. Clicking on these cards lets you navigate to the detailed page of this company/case
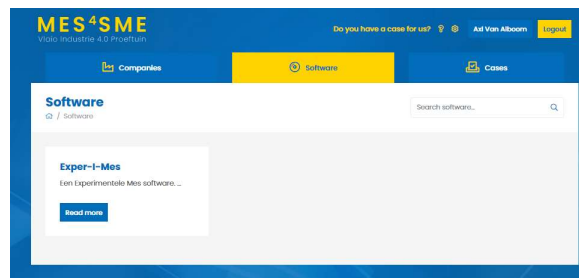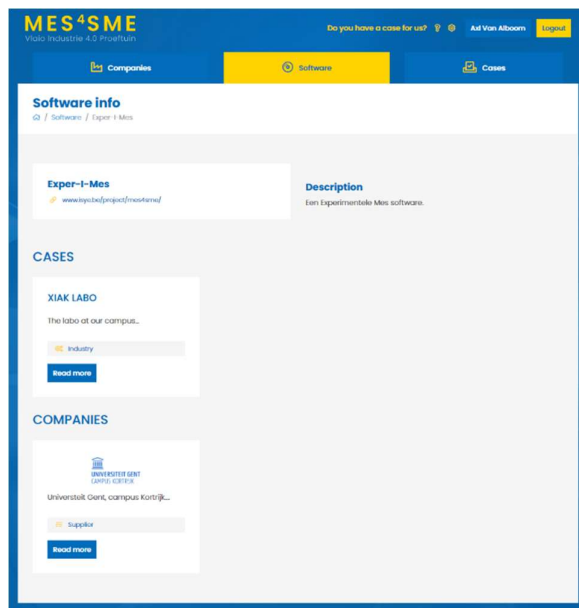

Figure 5: Overview of all the software

Figure 6: Overview of a specific company

4   Cases

Figure 7   is the overview of all the cases. Each cases is presented as a card. Each card shows the name or the logo of the case and gives a short description. Clicking on this card or on the "Read more" button, navigates to the detailed information page of this case. Figure 8 shows the detail page of a case. The general data is shown at the top. The next part contains software specific content. The page ends with the company and the software belonging to this case. Clicking on these cards lets you navigate to the detailed page of this company/software.
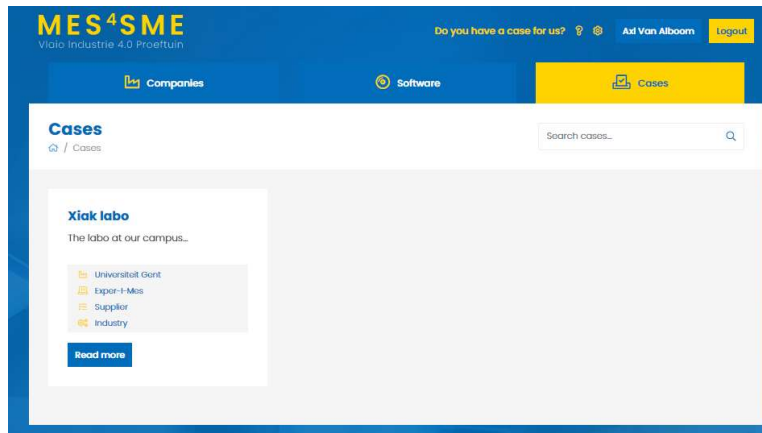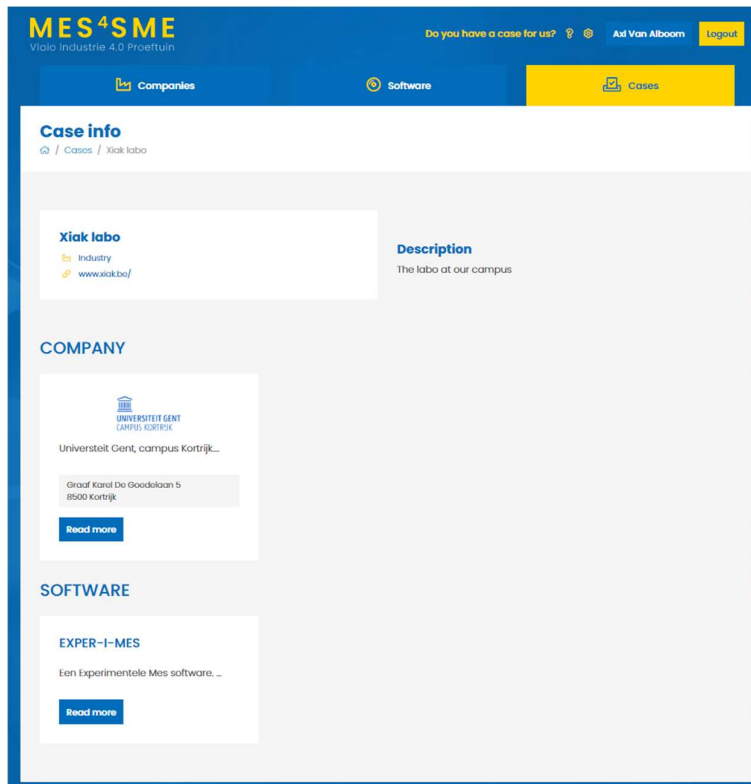

Figure 7: Overview of all the cases

Figure 8: Overview of a specific case

5 Theory

5.1. ISA 95

5.1.1. Company distribution

A company can be distributed into 5 levels. Level null represents the production process. Level one and two correspond to the bottom layer of the CIM pyramid. Level one represents the sensors and actors, while level two are the control systems (SCADA, PLC, iPC, DCS). In this model there are three types of production processes.

Level four corresponds to business management level from the CIM pyramid. At this level things like sales, marketing, finance, human resources, ... managed. These functionalities are typically provided within an ERP package.

The third level of the model corresponds to the production management level of the CIM pyramid. Applications at this level ensure the preparation of a detailed planning, optimization of the production process, management of the production process... All applications on the website focus on this level.
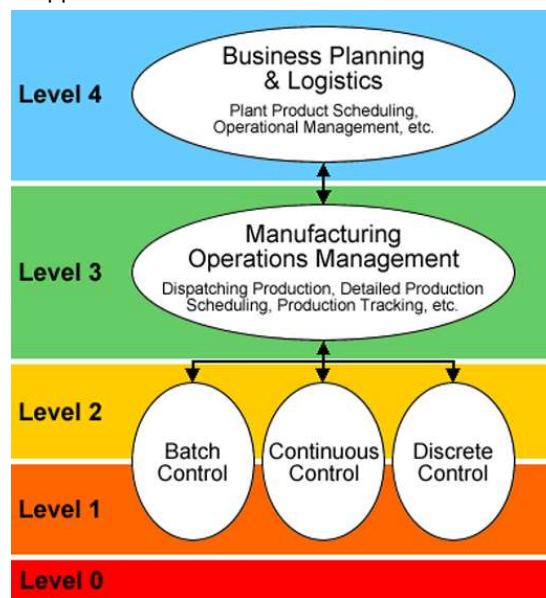

Figure 9: Company distribution

5.1.2. Functions

ISA 95 uses the activity model (Figure 10) to describe and analyse all activities present on level 3. These activities can be summarized in eight functions: Resource management, Definition management, Detailed scheduling, Dispatching, Execution management, Data collection, Analysis, Tracking. The activity model can be split into three divisions.
- Master data: All necessary information about the resources and product definitions (Yellow)
- Implementation: Management of resources when carrying out activities (White)
- Analysis: Analysis of product-related data for further optimization of the process (Red)
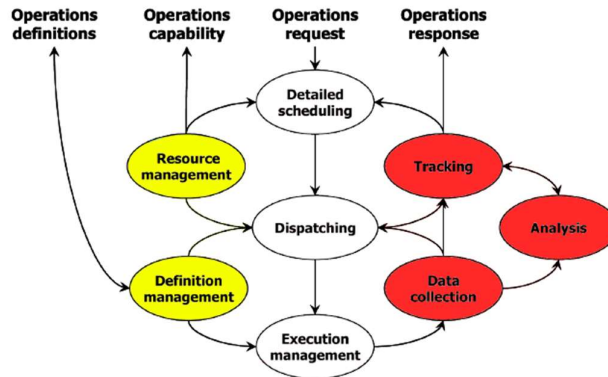
Figure 10: The generic activity model

The generic activity model represents a cycle. The master data is data necessary for carrying out the activities. The **resource management** contains information about the available resources, while the **definition management** contains information about how the activity must be carried out. The cycle starts with receiving an operations request. This forms the basis for making a **detailed planning** that takes into account available resources, planned maintenance… The **dispatching** activity collects all necessary information per resource. The **execution management** is responsible for carrying out and checking the activities and ensuring that the dispatching information end up with the right resource at the right time.

The second part of the cycle starts with **data collection**. This activity collects information from the workplace. This can be done manually or automatically. The **analysis** activity performs analyses on the received data. The calculation of key performance indicators (KPI) belongs to this activity. The **tracking** activity reports this data back to level four.

5.1.3. Categories

Different activities can focus entirely on production, but others are concerned with maintenance, for example. Four categories are available on the third level: production, maintenance, inventory and quality. This gives the eight functions an interpretation for each of these categories. For example, a certain software can offer data collection for the production floor (production) and the warehouse (inventory), while another software can only deal with the planning of production.