Web-based Viewer for Fractal Enterprise Models

What
A web-base application which allows to navigate through and view diagrams in a package of interconnected enterprise models built with the help of FEM toolkit. FEM is an abbreviation of Fractal Enterprise Model; more information on FEM and FEM toolkit, see https://www.fractalmodel.org/fem-toolkit/.

Why
FEM toolkit is a stand-alone application that facilitates a modeler to build a package of diagrams that describe the current or/future operational activities of an organization. In essence, it is a Windows application that uses MS SQL Server for storing the data. It can also be installed on Mac and Linux using virtual Windows environments, though with some difficulties. Installation, even on Windows, is a bit heavy, as it requires installing SQL server. This is ok for a modeler who needs the toolkit’s full functionality to build and change models. However, when models have been built, they might need to be studied and used by the stakeholders, some of them not having enough computer skills to use FEM toolkit. Currently, there is only one way to hand the diagrams to the stakeholders, i.e. by producing graphical images like, jpg, png, PDF, etc. The disadvantage of this approach is that the user cannot browse through the interconnected set of diagrams, for example via finding all occurrences of a certain element in all diagrams. Neither it is possible to see the properties of elements that have no graphical representation, these are shown in the toolkit via a menu.

Approach
FEM toolkit is built based on the ADOxx metamodeling environment https://www.adoxx.org. The latter allows to export the diagrams in a graphical format, i.e. as pictures, and in XML format in which the positions, sizes, and properties of all elements are defined. A simple version of a FEM viewer can be built based on these two exports. The first one is used to show the diagram itself in the WEB environment, the second one is used to define areas of the picture that correspond to the individual elements of the diagrams. These areas can be used to arrange navigation and show properties. Presumably, the viewer can be build using JavaScript directly, or using some higher-level platform/library, like https://vuejs.org/ or https://reactjs.org/.

Expectations and Conditions
We expect a working application, and it can be simple and with reduced functionality. The primary functionality we expect is that there is some navigation system that allows the user to browse through the set of diagrams. A step further could be that FEM elements and relationships are re-rendered with some front-end framework (such as GoJS), and the resulting diagram is somewhat interactive, such that elements, e.g., can be moved. The simplest application will be enhanced and changed in other projects. Therefore, we need full rights on changing and further developing the viewer. This can be achieved, for example, under Creative Commons Attribution-ShareAlike 4.0 International License (https://creativecommons.org/licenses/by-sa/4.0/).

Contacts
Ilia Bider ilia.bider@ut.ee
Steven Leego steven.leego@ut.ee