Manual Logistics Impact Model (LIMO)

Fontys SoFa G3 2014

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Document Information

Ver.	Date	Author	Description
v0.1	2014-11-07	BS	Initial setup

Introduction

This manual is intended to provide guidance in using the Logistics Impact Modelling (LIMO) application, as developed as part of the Software Factory Project at the second semester of 2014 at Fontys Hogeschool voor Techniek en Logistiek.

Contents

1   General information

1.1   About LIMO

LIMO (Logistics Impact Model) is a tool that helps to gain insight in resources involved in Supply Chains, with the primary goal to determine a scenario in which a minimum of resources is required, in terms of time and cost, resulting from mainly regulatory burden.

LIMO was established in cooperation between TNO Delft, respresented by Ms. Jacqueline De Putter, and Fontys Hogeschool voor Techniek en Logsitiek Venlo, represented by Sofware Factory 2014 Group 3 (Matthias Brück, Dominik Kaisers, Pascal Lindner, Sebastiaan Heijmann, Sven Mäurer and Ben Stassen. Special thanks goes out to mr. Biek Van der Steen (Fontys Logistics) for providing advice and knowledge on Logistics.

1.2   Features

LIMO consists out of the following features:

- Creating and storing hubtypes

- Creating and storing hubs, with the possibility to use a hub type as template

- Defining sequencing of hubs, connected by legs, linked with events

- Defining the probability of event occurrence

- Handling probability with the following distribution types:

    - Cauchy
    - Chi Squared
    - Discrete
    - Exponential
    - F
    - Gamma
    - Log Normal
    - Normal
    - Poisson
    - Triangular
    - Weibull

- Exporting and importing master data (for exchange and collaboration) to and from LIMO-files, which can be stored on all kinds of storage media. See also Section 5

- Generating reports on time and costs, based on defined risk occurrence probabilities and their respective distribution types

- Visual representations of these reports, which can be exported as common images, usable in documents. See also Section 4

1.3   System Requirements

The following requirements must be met in order for the LIMO application to function as designed:

- Microsoft Windows 7 or newer Microsoft Windows operating system

- Java Runtime Environment (JRE) v1.7 installed

- Screen resolution of at least 1024x768px

- PDF reader available (for help documentation)

2 Getting started with LIMO

2.1 Installation

- Locate the installation file (.exe) for LIMO.

- Open the installation file. See Figure 1

- Click Next to select the location where LIMO should be installed. It is recommended to accept the default location. See Figure 2

- Click Next to confirm the installation folder location.

- Click Next to start unpacking files to the specified installation location.

- When the unpacking is completed, information confirmation is displayed. Choose wether or not the application should start immediately after clicking the Finish button. See Figure 3
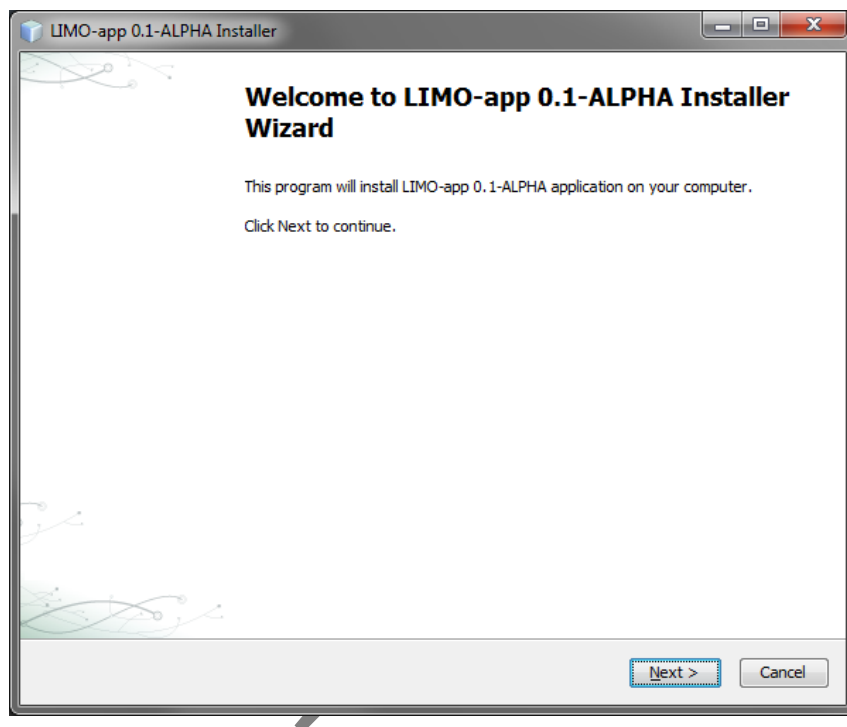
Figure 1: Installation Wizard step 1. Displayed after opening installer file. (.exe)
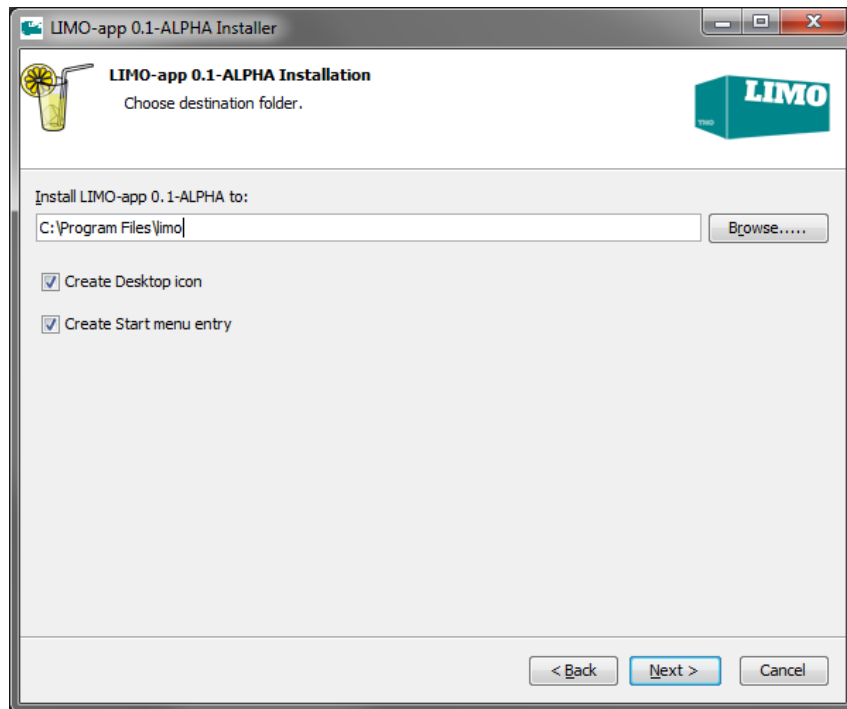
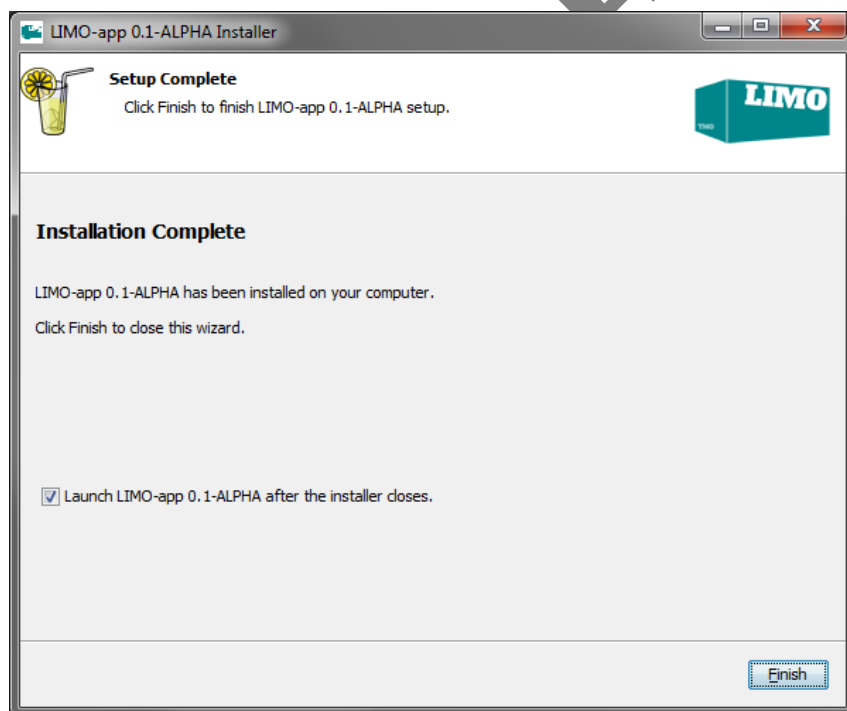Figure 2: Installation Wizard step 2. Define where the application installation components should be stored.

Figure 3: Installation Wizard step 5. Installation completed.

2.2 Initial configuration and master data

After installation is completed successfully as described in Section 2.1, initial configuration of LIMO, providing master data can start.

- Open LIMO using one of the shortcuts created by the installer.

- Open the menu Master Data below the title bar.

2.2.1 Procedure Categories

Procedure Categories help to sort Procedures for Hubs, Legs and Events. This categorization is used in generating the reports.

- Under submenu Procedure Categories, click Procedure Categories Catalog. See Figure 4

- In the Procedure Categories Catalog, right click the white panel and click Add Procedure Category. See Figure 5

- A dialog appears. Fill out the dialog. Click OK to confirm the data. See Figure 6

- Repeat for each Procedure Category you would like to use. You can add or edit Procedure Categories later at any point in time, following the same procedure.
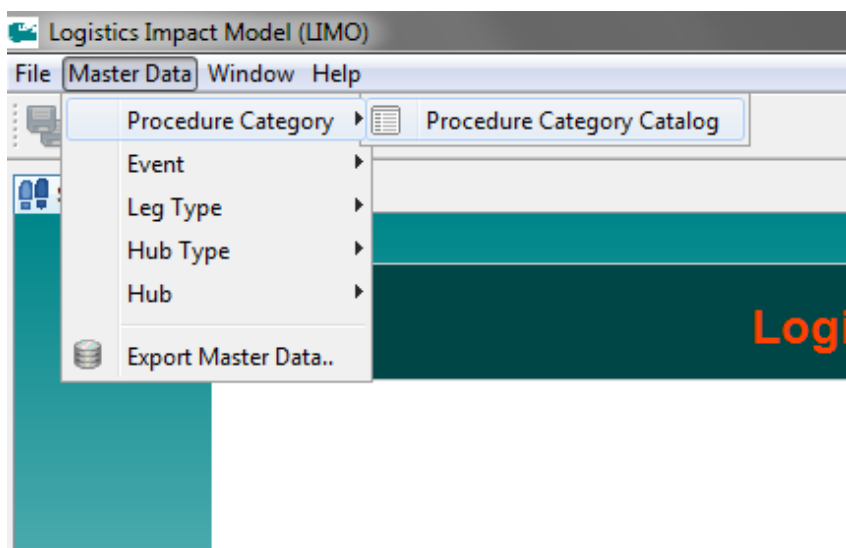

Figure 4: Initial configuration: Managing Master Data - Adding a new Procedure Category 1
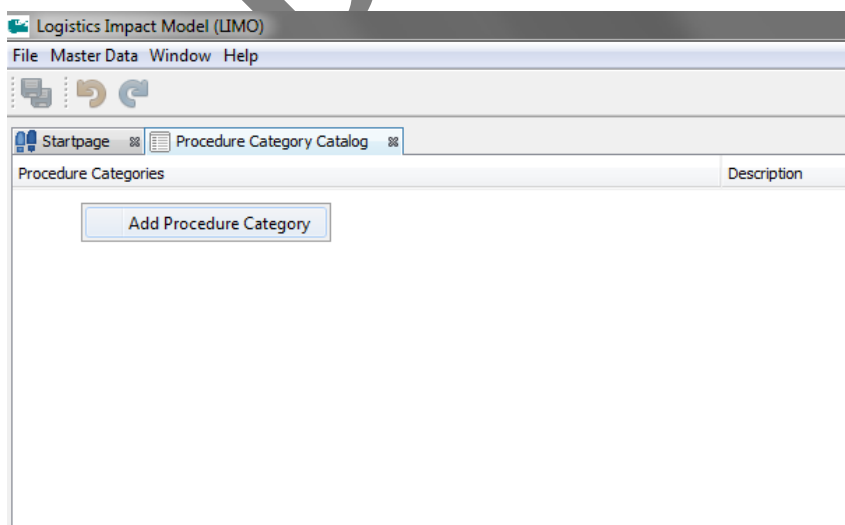

Figure 5: Initial configuration: Managing Master Data - Adding a new Procedure Category 2
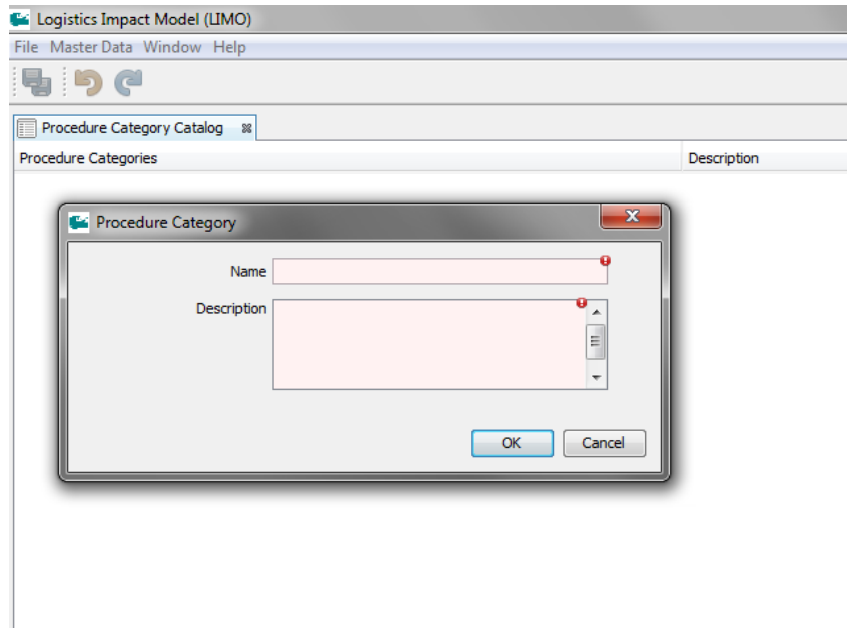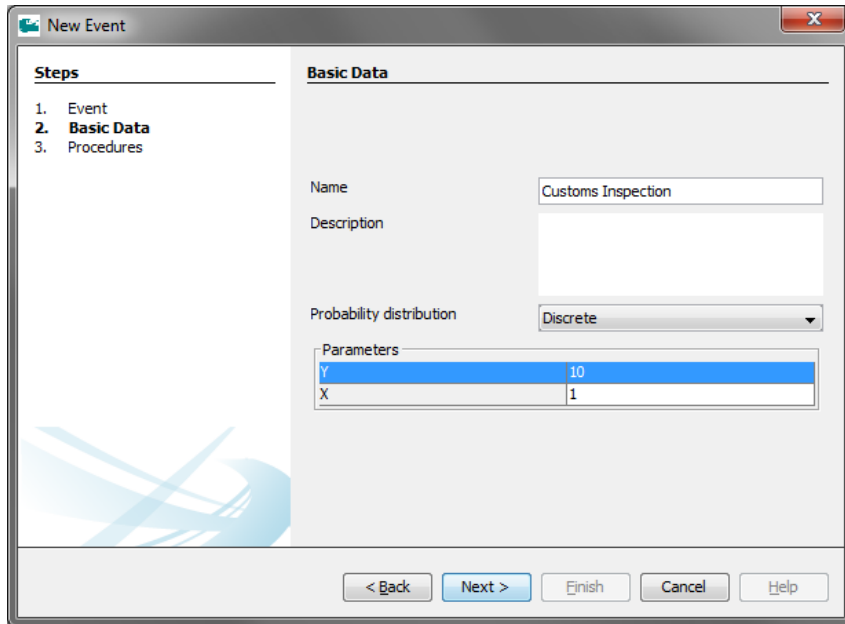
Figure 6: Initial configuration: Managing Master Data - Adding a new Procedure Category 3

2.2.2 Events

An Event is an occurrence that *might* occur at a hub or a leg. The probability of occurrence of these events can be defined using a statistical distribution type of choice.

- Under submenu Events, click New event.. A wizard dialog opens.

- Choose whether you would like to create a completely new Event, or whether you would like to copy an existing event and manipulate it afterwards. Since this is the initial setup, we do not yet have existing events to copy from, so choose *From scratch*. Click Next.

- Enter a name and description for the event that is to be created. Also choose which distribution type should be used for calculating probability of occurrence of this event. After picking the distribution type, provide the parameters that are required for the selected distribution type. Afterwards, click Next. See Figure 7

- **Optional:** If this Event could have sub events (events that could occur if the parent event which is being created does occur) and these Events are already in the Master Data Catalog, they can be specified under Sub Events. Click the Plus button next to the drop down list to add the selected Event in the drop down list as sub event to the event that is being created. Multiple (existing) events can be selected and added as sub events to the event that is being created. After having added all applicable sub events to the event, click Next. See Figure 8

- An event should have at least one Procedure. To add a Procedure to this event, the green plus button at the top right of the Procedures list panel can be clicked. In the window that appears, define a name for the procedure, the unit with which time costs will be defined, the actual time cost (either a single value or a value ranging from a minimum to a maximum) and monetary costs. As soon as these values are provided, click Save to return to the procedures list. The created Procedure will be listed in the Procedure list for the Event that is to be created. See Figure 9

- After clicking Finish, the event is created and stored into the application database. This can be verified by clicking Events under the LIMO menu Master Data, Event, Event Catalog.
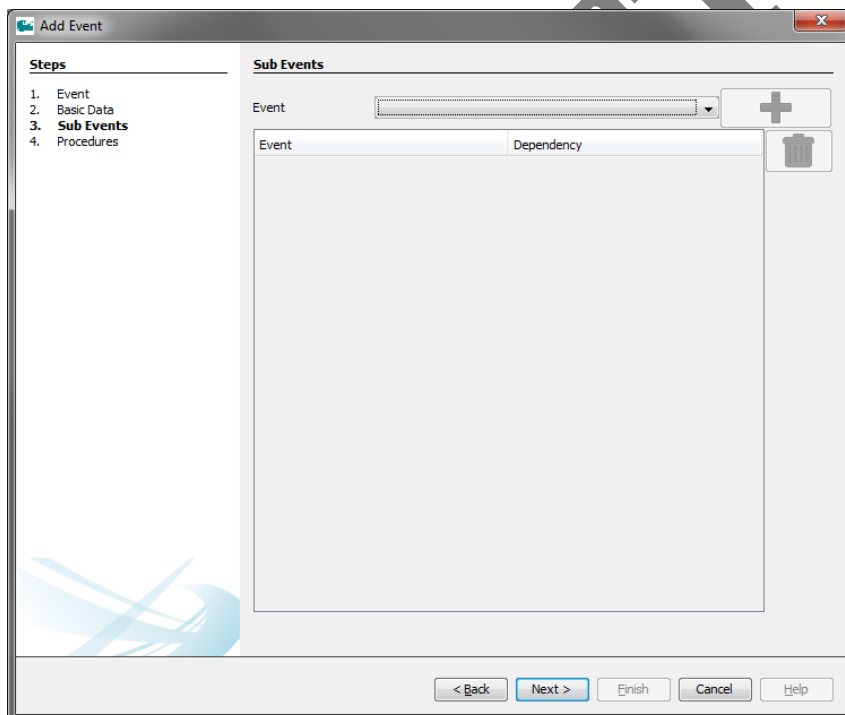
Figure 7: Initial configuration: Choosing a distribution type to handle probability of occurrence of the event

Figure 8: Initial configuration: Adding existing events as sub event to the event that is being created (optional step)
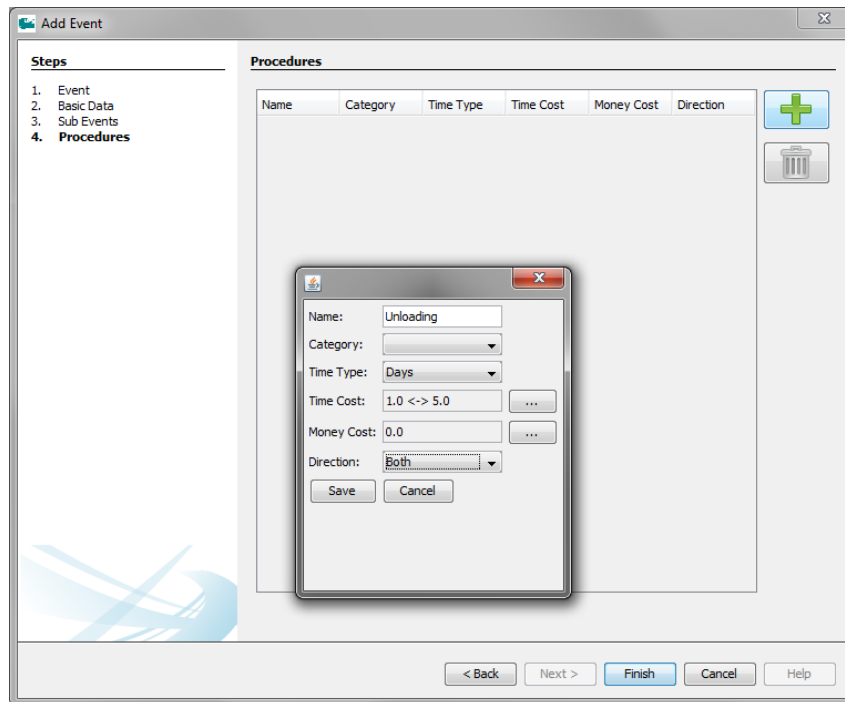
Figure 9: Initial configuration: Adding a procedure to the event that is being created

2.2.3 Leg Types

Leg Types are templates for legs. If multiple legs have commonalities, a Leg Type can be defined for them, so that shared equal properties do not have to be copied manually, but are taken from the predefined Leg Type.

- Under submenu Leg Types, click New Leg Type.. A wizard opens.

- Choose whether you would like to create a completely new Leg Type, or whether you would like to copy an existing Leg Type and manipulate it afterwards. Since this is the initial setup, we do not yet have existing Leg Types to copy from, so choose *From scratch*. Click Next.

- Provide a name and description for the Leg Type. See Figure 10

- A Leg Type should have at least one Procedure. To add a Procedure to this Leg Type, the green plus button at the top right of the Procedures list panel can be clicked. In the window that appears, define a name for the procedure, the unit with which time costs will be defined, the actual time cost (either a single value or a value ranging from a minimum to a maximum) and monetary costs. As soon as these values are provided, click Save to return to the procedures list. The created Procedure will be listed in the Procedure list for the Leg Type that is to be created. See Figure 9

- If applicable, specify Events for this Leg Type. Click Next.

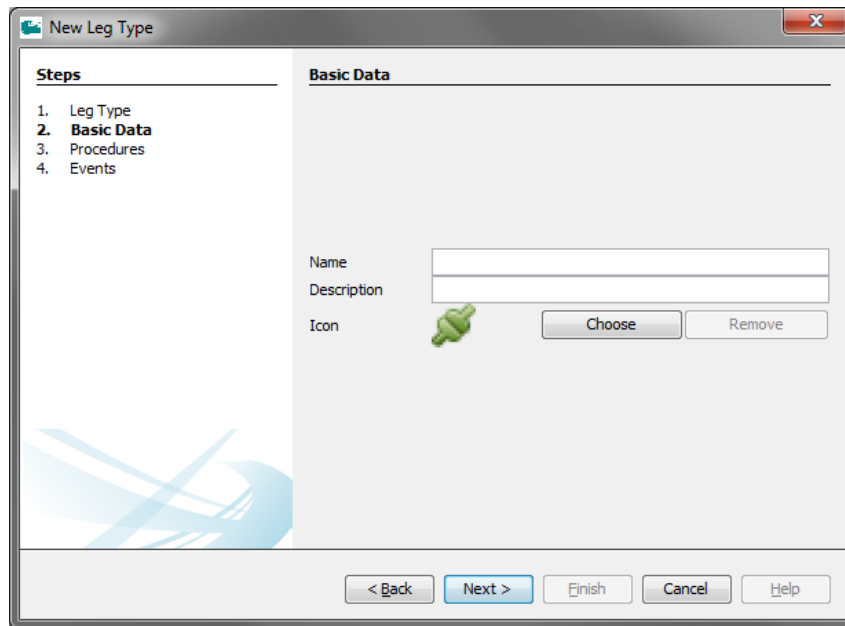- Click Finish. The Leg Type is now saved.

Figure 10: Initial configuration: Creating a Leg Type

2.2.4 Hub Types

Hub Types are templates for hubs. If multiple hubs have commonalities, a Hub Type can be defined for them, so that shared equal properties do not have to be copied manually, but are taken from the predefined Hub Type.
A Hub Type is set up in the same way a Leg Type is.

2.2.5 Hubs

Hubs are locations in supply chains where goods can be unloaded and loaded and forwarded to their next destination.

- Under submenu Hubs, click New Hub.. A wizard opens.

- Choose whether you would like to create a completely new Hub, or whether you would like to copy an existing Hub and manipulate it afterwards. Since this is the initial setup, we do not yet have existing Hubs to copy from, so choose *From scratch* or *Use Hub Type as template*, if you have already defined a Hub Type that could be used as a template for the Hub we would like to create. Click Next.

- Prove a name and description for the Hub. Optionally, pick a suitable icon. Click Next.

- Define the location of the Hub. Click Next.

- A Hub must have at least one procedure. Click the green plus button to add a procedure to this Hub.

- Click Finish. The Hub is now created. Repeat this procedure for all Hubs that are frequently used.

3 Configuring a Supply Chain

4 Exporting statistical data and visualizations for reporting

5 Data exchange

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6   List of terms, definitions and abbreviations

Term	Description
LIMO	Logistics Impact Model
Hub	A location in a supply chain where goods can be unloaded and loaded and forwarded to their next destination.
Hub type	Works as a template for hubs. Ideal when multiple hubs have to be created that have similarities. These similarities can be defined in the hub type template. Afterwards, when creating a new hub, a reference can be made to the hub type template, from which defined similarities will be loaded. Anomalies from these similarities can be overwritten for each hub.
Leg	Connector between hubs.
Event	Situation that can occur at either a leg or a hub. Has probability of occurence as attribute, which can be specified according to the statistical distributions specified in Section 1.2
Procedure	A process that always occurs at either a leg or a hub.