

ISITEP

D6.1.3- LOGISTIC TOOL

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V.1.0	19/03/2016	All	All	Initial version

PUBLISHABLE EXTENDED ABSTRACT

This document includes a general description of the Logistic Tool (task 6.1.3). The Logistic Tool is an integrated part of The Infrastructure Dimensioning Tool that will support the deployment of the ISI developed solution by assisting the stakeholders' decision makers through the provision of the network elements required for the realization of the anticipated interoperability functionalities. The dimensioning tool will receive input related to the "disaster" area (the area where common transnational operations take place), such as the number and the type of the first responder forces that are expected to operate in the area, as well as information related to the existing infrastructures (e.g. Base Stations, Switching nodes, etc.). In addition, information related to end user traffic load, available traffic resources, bandwidth requirements of the ISI connections will also be taken into account. The output of the tool will be an estimate of all network elements required to fulfill the communication needs within each operational scenario.

The document is classified as Public as it does not deal with any potential security frameworks and mechanisms of the ISITEP security solution for network interconnection and there are no national security sensitive issues in the document.

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1 INTRODUCTION

The ISITEP project pursues the vision of allowing first responders of European ISITEP federated countries to seamlessly interoperate by overcoming current operational and technological barriers. New European entrants will be easily federated into the ISITEP European network to achieve seamless interoperability.

To achieve ISITEP's vision the project will develop a Logistic Tool which is an integrated part of The Infrastructure Dimensioning Tool.

1.1 Document Scope

This document will provide a general description of the Logistic Tool.

1.2 Tool Access Levels

The Logistics sub tool can be accessed with two ways, namely

- As a user of the tool
- As the tool administrator.

For the users of the tools, credentials are given to each user. These are email and password. In order to access the tool functions, the user must have valid credentials. Tool administrators can create additional users.

The tool can be accessed in the URL <http://eu.majorproject.net/>

In order to access the tool functions the user must have valid login credentials. Tool administrators can create additional users.

1.3 Tool Technology

The tool has been built with Microsoft ASP.NET MVC 5 using C# and javascript programming languages.

SQL Server 2012 database server has been used in order to store user and content data.

2 DEFINITIONS AND ABBREVIATIONS

2.1 Definitions

This section intends to capture the definitions of some key terms used in the document for the purpose of increased consistency. Most of the definitions are obtained from official 3GPP and ETSI documents:

Access control: the prevention of unauthorized use of resources, including the use of a resource in an unauthorized manner.

Authentication: the act of positively verifying that the true identity of an entity (network, user) is the same as the claimed identity.

Confidentiality: the property that information may not be available or disclosed to unauthorized individuals, entities or processes.

Data integrity: the property that data has not been altered or destroyed in an unauthorized manner.

Encryption: the conversion of plaintext to cipher text.

Key: a sequence of symbols that controls the operations of encipherment and decipherment.

Key management: the generation, selection, storage, distribution, deletion, archiving and application of keys in accordance with a security policy.

Migration: act of changing to a location area in another network (either with different Mobile Network Code and/or Mobile Country Code) where the user does not have subscription (e.g. ITSI in TETRA) for that network. In this document, migration is used as a synonym of roaming.

Plaintext: information (including data) which is intelligible to all entities.

Profile: the capability of particular equipment. This is defined separately for individual subscriber terminals and individual infrastructures.

Provision: the act of supplying a given service (Note: A communication system may be capable of supporting a service. However, it may not supply the service to certain subscriber terminals for which the service is not subscribed.)

Repudiation: denial by one of the entities involved in a communication of having participated in all or part of a communication.

Roaming: utilization of a mobile terminal in a network other than the one where the mobile is subscribed but on which the mobile can still be located and operated by agreement between the respective network operators.

Security assurance: it is the confidence that a network product / terminal / system meets its specific security objectives. Assurance is usually verified by performing an evaluation.

(Security) certificate: it is an official document attesting that the evaluation of the network product / terminal /system against some security assurance specifications was conducted correctly and was successful.

Security domain: a set of entities and parties that are subject to a single security policy and a single security administration. The network security design can consider different domains and sub-domains to surround and delimit the responsibilities in network management and security control.

Security service: a service provided by a layer of communicating open systems which ensures adequate security of the systems or of data transfers.

Security threat: a security threat is defined as a potential violation of security. Examples of security threats are loss or disclosure of information or modification/destruction of assets. A security threat can be intentional, like a deliberate attack, or unintentional due to an internal failure or malfunctions.

2.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

Acronym	Definition
3GPP	3rd Generation Partnership Project

AI	Air Interface
AIE	Air Interface Encryption
AIM	Air Interface Migration
ASSI	Alias Short Subscriber Identity
AuC	Authentication Center
CCK	Common Cipher Key
CDR	Call Detail Record
DCK	Derived Cipher Key
DoS	Denial-of-Service
DDoS	Distributed DoS
E2EE	End to End Encryption
ESI	Encrypted Short Identity
GCK	Group Cipher Key
GTSI	Group TETRA Subscriber Identity
GW	Gateway
IOP	Interoperability Profile
IP	Internet Protocol
ISI	Inter System Interface
ISSI	Individual Short Subscriber Identity
ITSI	Individual TETRA Subscriber Identity
KMC	Key Management Center
KSS	Key Stream Segment
LI	Lawful Interception
MoU	Memorandum of Understanding
MNI	Mobile Network Identity
MPLS	Multi Protocol Label Switching
MS	Mobile Station
MT	Mobile Terminal
NGN	Next Generation Network
OTAK	Over The Air re-Keying
OTAR	Over The Air Rekeying
PC	Professional Computer
PDA	Personal Digital Assistant
PEI	Peripheral Equipment Interface
PMR	Professional/Private Mobile Radio
PPDR	Public Protection and Disaster Relief
PS	Public Safety
PSTN	Public Switched Telecommunications Network
RS	Random Seed
SC	Security Class
SCK	Static Cipher Key
SDS	Short Data Service
SFPG	Security and Fraud Prevention Group
SIM	Subscriber Identity Module
SwMI	Switching and Management Infrastructure
TAA1	TETRA Authentication and key management Algorithm suite 1
TE	Terminal Equipment
TEAx	TETRA Encryption Algorithm number x
TEDS	TETRA Enhanced Data Services

TEI	Terminal Equipment Identity
TETRA	TErrestrial Trunked Radio
TG	Talk Group
VLAN	Virtual Local Area Network
VoIP	Voice over IP
VPN	Virtual Private Network
WS	Work station

3 TECHNICAL IMPLEMENTATION – USER INTERFACE

3.1 Database

The following diagram shows cost estimation database structure.

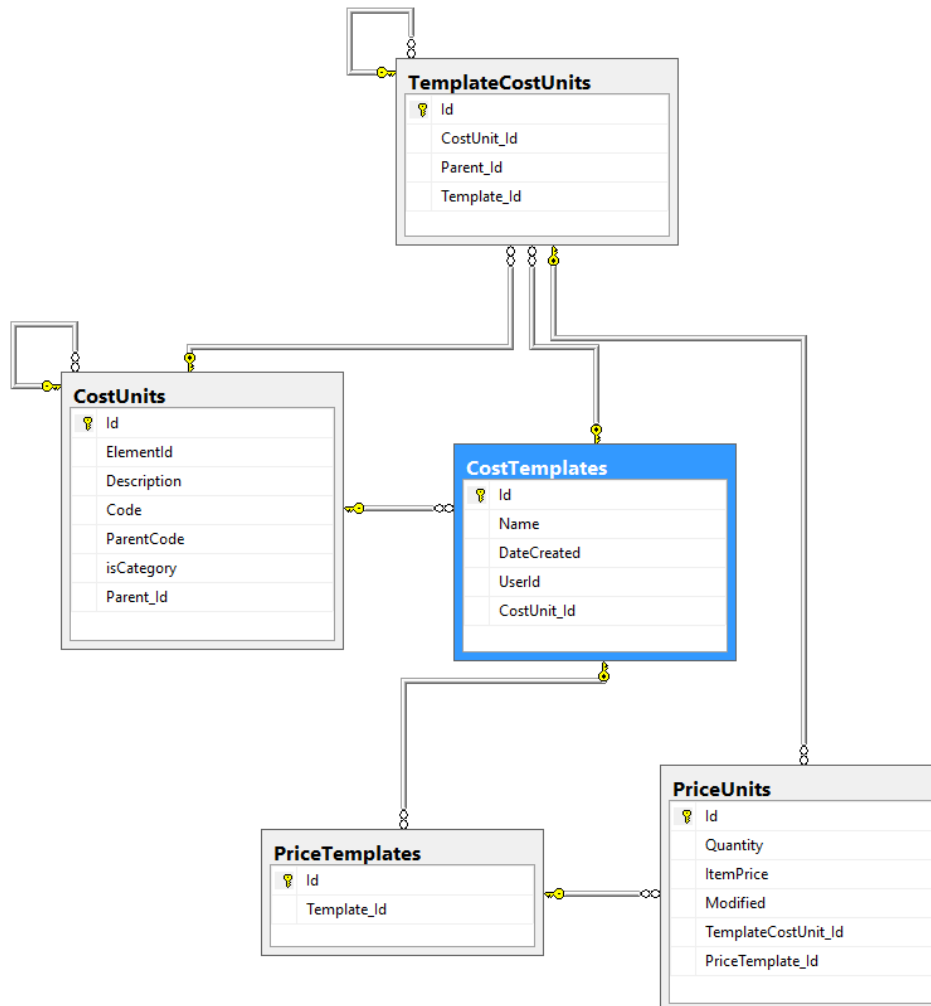


Figure 1. Cost estimation database structure

The database table TemplateCostUnits has been created in order to assign cost units to cost Templates.

The database table CostUnits has been created in order to store cost units details.

The database table CostTemplates has been created in order to store cost template details.

The database table PriceTemplates has been created in order to relate price units to cost templates.

The database table PriceUnits has been created in order to store price of items and relate prices to cost templates.

A different table (Table NetStations) is used to store data related with infrastructure equipment of the following types:

- a. Tetra base stations
- b. TetraPOL base stations
- c. Mobile stations
- d. Handheld devices

The specification of the database table NetStations can be seen in Table 1. The column named *Type* of the database table can contain an integer number from 1 to 4 indicating one of the described different types of stations.

Column Name	Column type	Column data usage
Id	Integer Number (Auto increment)	Unique identifier (primary key) of the station model entry
ModelName	Alphanumeric characters	The name of station model
TxPower	Decimal number	The Tx Power parameter of the station model
AntennaGain	Decimal number	The Antenna gain parameter of the station model
CableLosses	Decimal number	The cable losses parameter of the station model
ConnectorLosses	Decimal number	The connector losses parameter of the station model
NumberTxRx	Integer Number	The number of TxRx of the station model
OtherLosses	Decimal number	The other losses parameter of the station model
ReceiverSensitivityDynamic	Decimal number	The receiver sensitivity in dynamic condition of the station model
ReceiverSensitivityStatic	Decimal number	The receiver sensitivity in static condition of the station model
ReceiverSensitivityDynamicUpload	Decimal number	The upload receiver sensitivity in dynamic condition of the station model
ReceiverSensitivityStaticUpload	Decimal number	The upload receiver sensitivity in static condition of the station model
Type	Integer number	The type of the station model
isDefault	Boolean	It indicates whether the station model is added on the system set up (default) or by a user

Table 1.NetStations database table specification

3.2 Cost Estimation UI

Within the project screen the users can start new cost estimation for the Project.

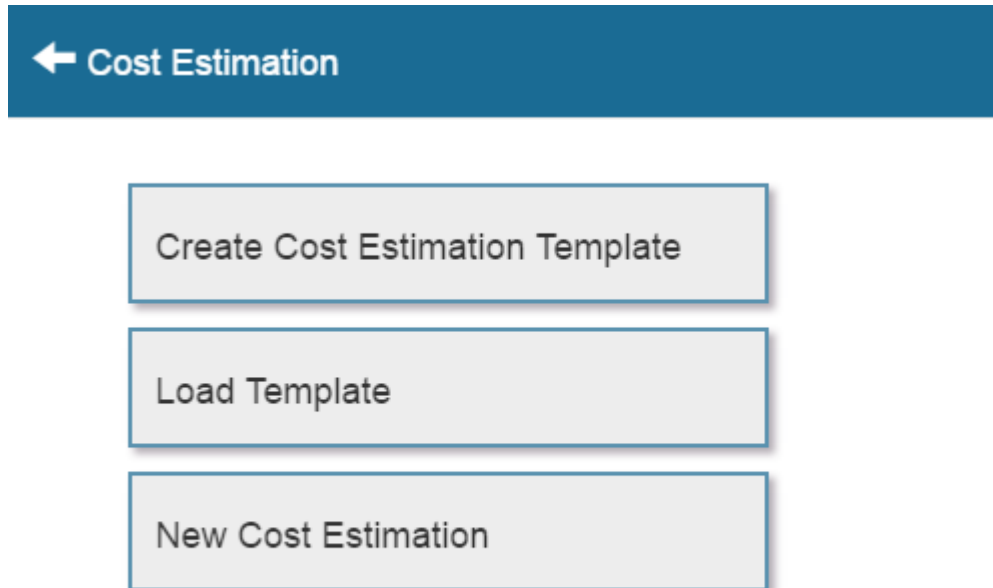


Figure 2. Cost Estimation Main Menu

Users have the option to create a new Cost Template or to use an existing one.

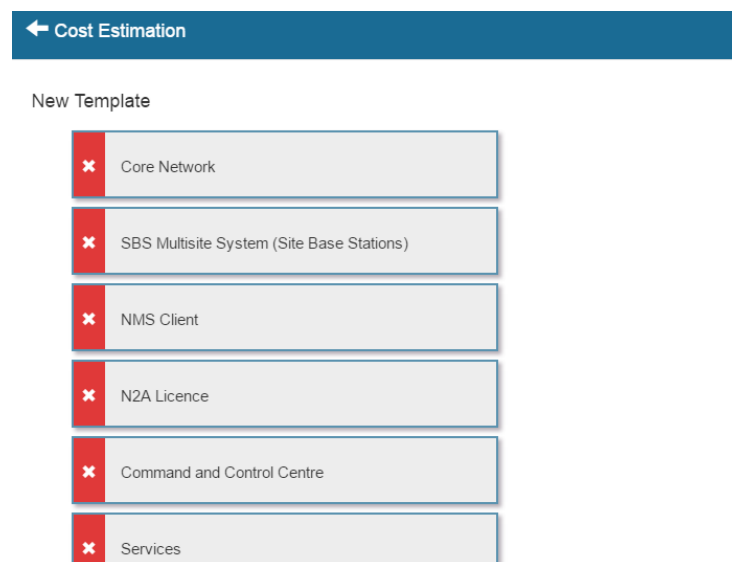
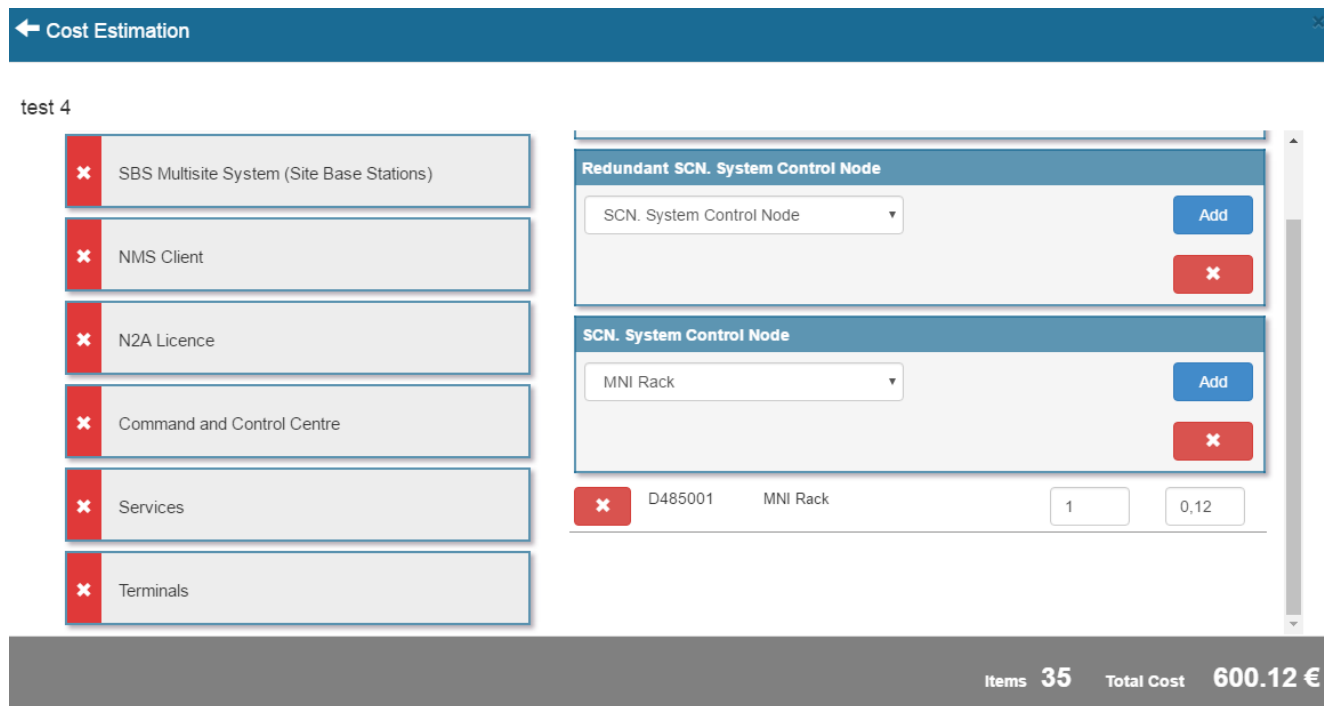


Figure 3. New Cost Template

Following the cost template selection the user can add cost item and see the total cost for the solution,.



test 4

×	SBS Multisite System (Site Base Stations)
×	NMS Client
×	N2A Licence
×	Command and Control Centre
×	Services
×	Terminals

Redundant SCN. System Control Node

SCN. System Control Node

Add

×

SCN. System Control Node

MNI Rack

Add

×

×	D485001	MNI Rack	1	0,12
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Items 35 Total Cost 600.12 €

Figure 4. Example of Cost Result

3.3 Base station models

Entering the “Setup parameters” area from the main dashboard of the tool the user can access the GUI of logistics sub tool.

The specific GUI is shown in Figure 5.

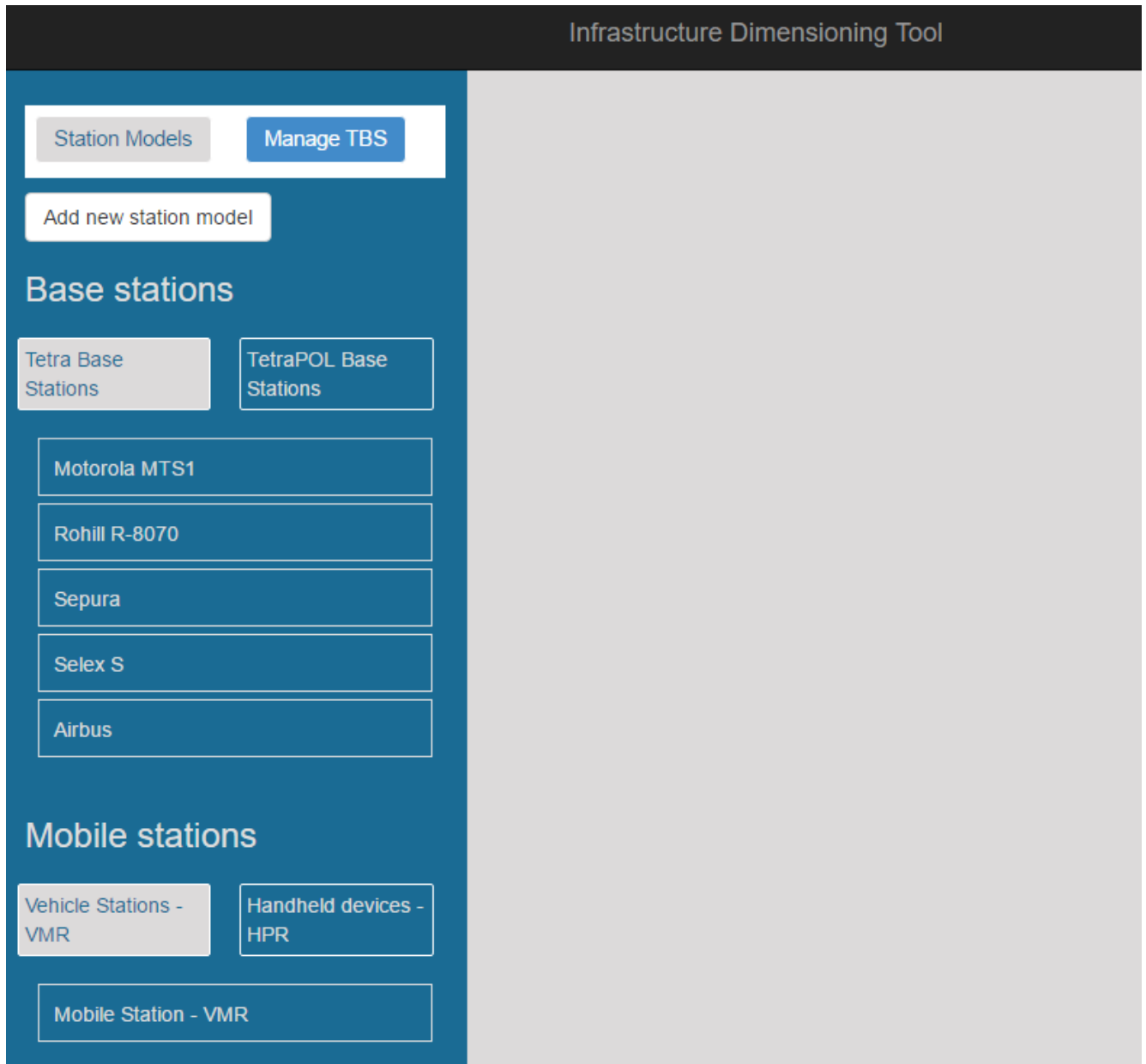


Figure 5. GUI of logistics sub tool

Using the logistic sub tool the users can add and modify the base station models to be available to-the Network dimensioning sub tool (D6.1.2). In addition, all parameters for the cost estimation are stored. In the logistics tool the following types of devices and data are used/stored.

- a. Tetra Base stations
- b. TetraPOL base stations
- c. Vehicle stations
- d. Handheld devices
- e. Financial data

3.3.1 Tetra base stations

The user can view the list with added Tetra base station models by clicking on the tab labeled “Tetra base stations”.

The specific GUI state is shown in Figure 6.

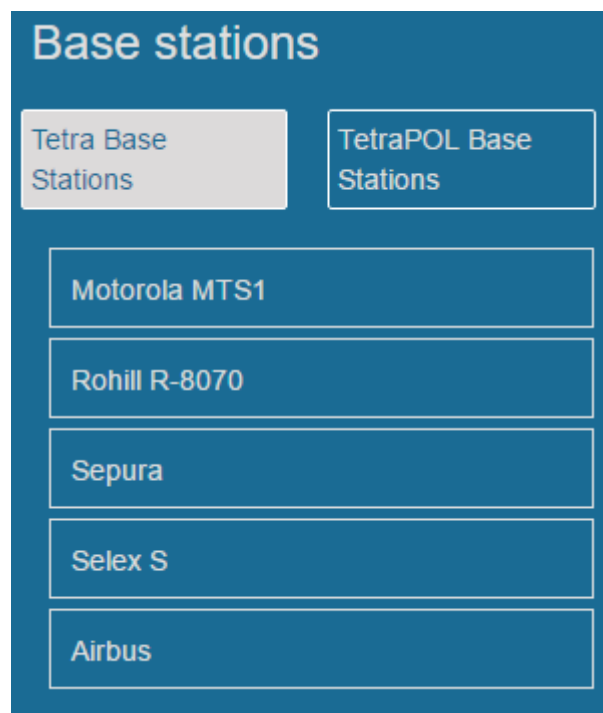


Figure 6.Listing of Tetra base station models

3.3.2 TetraPOL base stations

The user can view the list with added TetraPOL base station models by clicking on the tab labeled “TetraPOL base stations”.

The specific GUI state is shown in Figure7.



Figure 7. Listing of TetraPOL base station models

3.3.3 Vehicle stations

The user can view the list with added vehicle station models by clicking on the tab labeled “Vehicle stations - VMR”.

The specific GUI state is shown in Figure4.

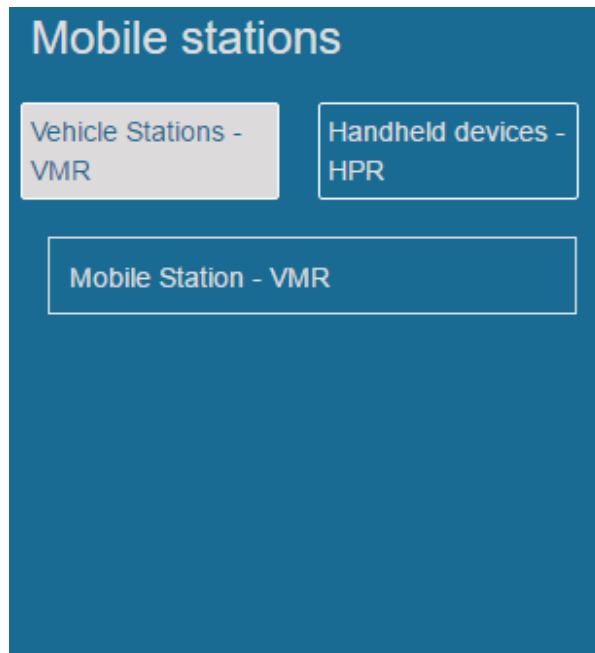


Figure 8. Listing of vehicle station models

3.3.4 Handheld devices

The user can view the list with added handheld devices models by clicking on the tab labeled "Handheld devices - HPR".

The specific GUI state is shown in Figure5.

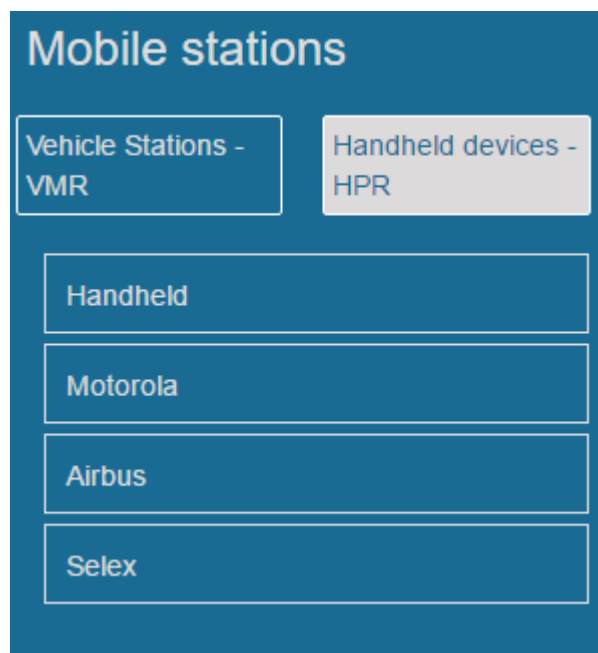
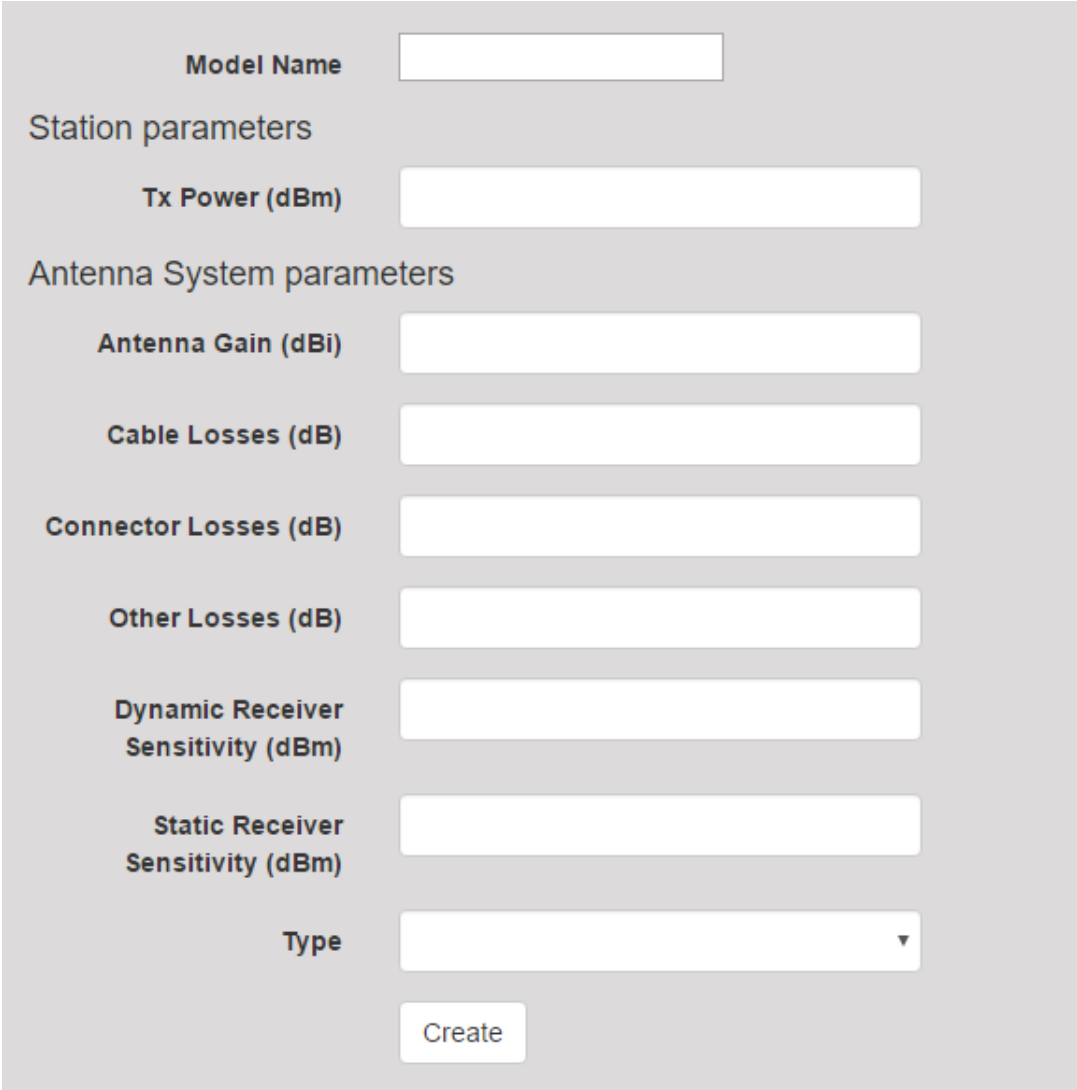


Figure 9. Listing of handheld device models

3.4 Add/modify base station models

The user can add a new base station model by clicking on the button labelled “Add new station model”.

After pressing the button the form in Figure 6 is displayed containing all the required editable parameters of a base station model. After entering the desired values on the input fields, the user can choose the type of the base station that is going to be added using the dropdown menu labeled “Type”.



The form is a vertical stack of input fields on a light gray background. It starts with a text input field for 'Model Name'. Below it is a section header 'Station parameters' followed by a text input field for 'Tx Power (dBm)'. The next section is 'Antenna System parameters', which includes five text input fields: 'Antenna Gain (dBi)', 'Cable Losses (dB)', 'Connector Losses (dB)', 'Other Losses (dB)', and 'Dynamic Receiver Sensitivity (dBm)'. Below these is another text input field for 'Static Receiver Sensitivity (dBm)'. At the bottom of the form is a dropdown menu for 'Type' and a 'Create' button.

Figure 10. Form for adding a new base station model

By clicking over a station model, the user can edit its parameters from the displayed form which is prefilled with the current values of the selected entry.

4 TESTING

Table2 contains the checklist of tests that have been performed on the Logistic Tool.

Create Cost Template	2016.02.23	Passed
Load Cost Template	2016.02.23	Passed
Add Cost Items	2016.02.23	Passed
Cost Calculations	2016.02.23	Passed
Add Tetra base station model	2016.02.23	Passed
Add TetraPOL base station model	2016.02.23	Passed
Add Vehicle station model	2016.02.23	Passed
Add Handheld device model	2016.02.23	Passed
Modify parameters for each type of station models	2016.02.23	Passed

Table 2.Tests checklist