



Elektroinstallation  
von A bis Z

Why?

Task Force

XML Encoding

Project -

Manufacturer Data -

Outlook

# XML Encoding

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**KNX Task Force IP, chair**

$S = V \cdot N$

# Why XML Data Encoding?

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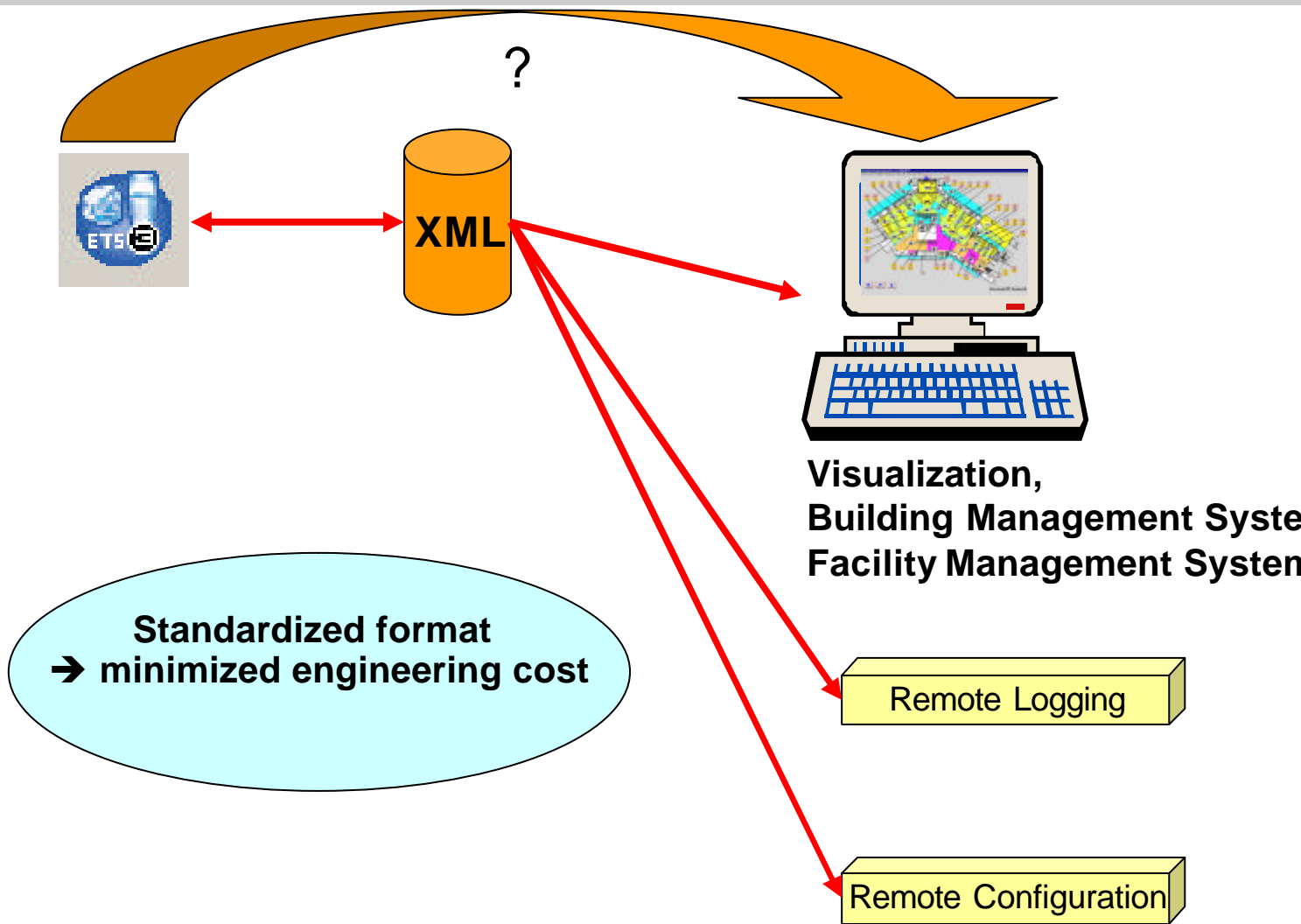
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$S = V \cdot N \cdot S$

# Why XML Data Encoding?

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- **Data exchange with supervisory control and data acquisition (SCADA) systems as well as other applications for visualization and other building management functions requires a standardized format to minimize engineering cost in projects.**
- **eXtensible Markup Language (XML) is the established means of encoding data for data exchange.**

$S = V \cdot I$

# KNX Task Force IP

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- **KNX Association Task Force IP has the task to define XML Data Encoding for KNX for the purpose of**
  - **exporting data from ETS about a given network configuration in order to use it for instance for visualisation configuration;**
  - **exporting / importing data from / into ETS in general.**

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# ETS3 – the starting point

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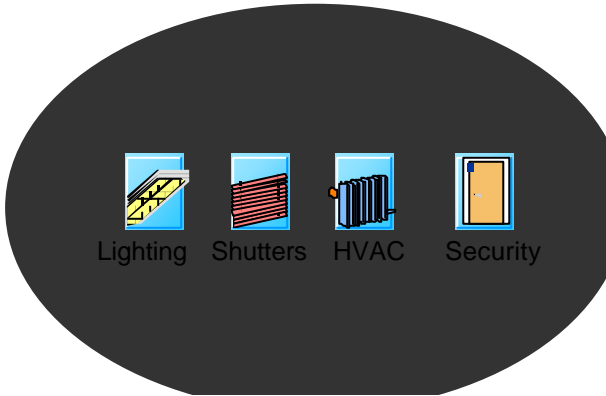
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... Building Structure



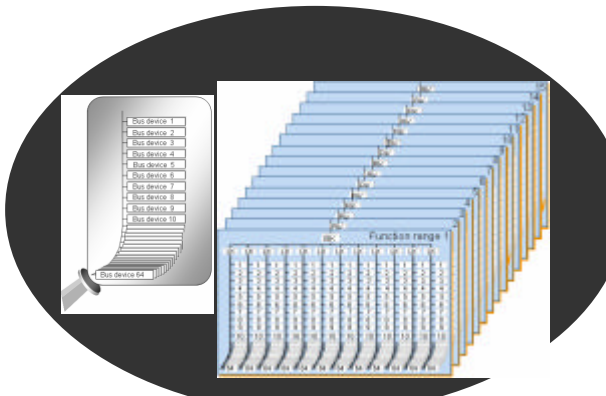
... Functions



Information about ...



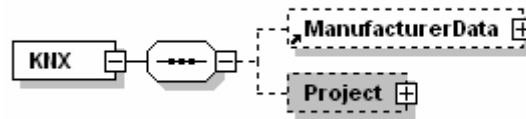
... Devices



... Network Topology

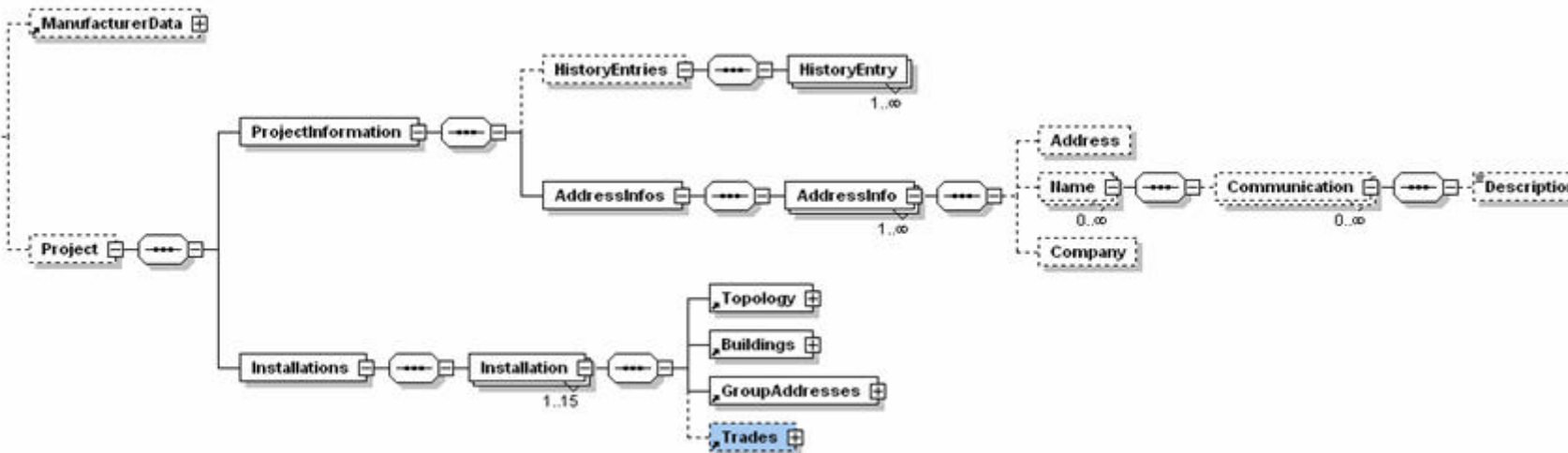
# Categorizing Data

The KNX XML Encoding covers Project information as well as information about Manufacturer specific data that is necessary to be exported.



# Project

- A Project is characterized by information on the Project itself (mainly addresses of Project contacts) as well as on the Installations that are part of a Project.
- In sync with the EIBnet/IP ProjectInstallationID a Project may contain up to 15 Installations.
- Each Installation is characterized by these different views: Network Topology, Building structure, Group Addresses, and (optionally) Trades.



# Where do we place functions and devices?

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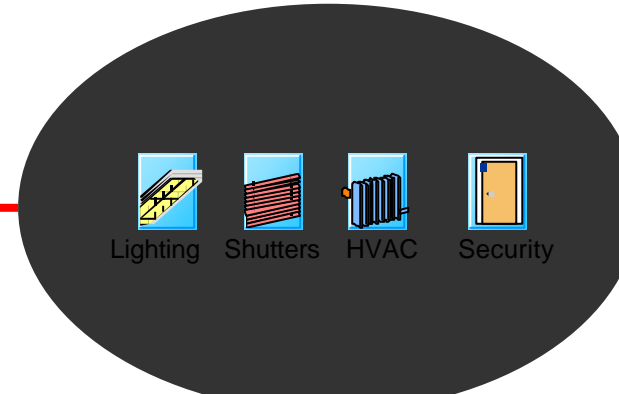
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... Building Structure



... Functions



... Devices

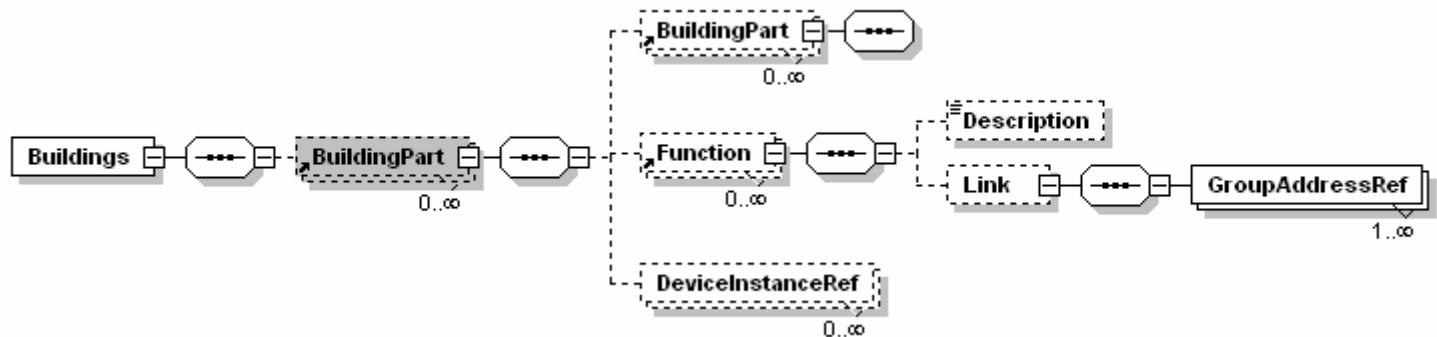
$S = V \cdot I \cdot t$

# Project - Installation Buildings

The view on Buildings describes where devices and functions are located.

For devices this shows where they are physically located in a building (“Installationsort”).

The “location” of a Function corresponds with the control area of a Group Address associated with that Function (“Wirkungsort”).



# How should devices be clearly identified?

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... Building Structure

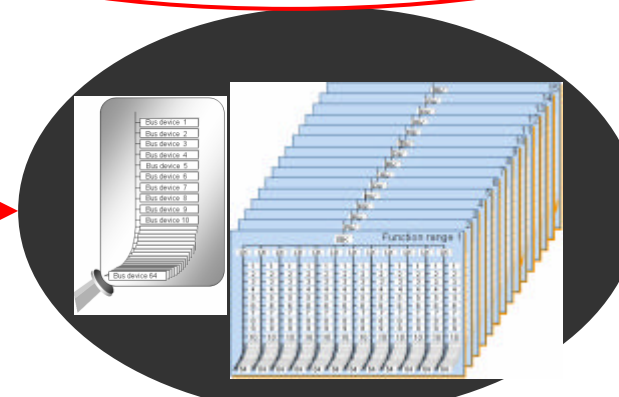
... by location

or

... by network address



... Devices



... Network Topology

# Project - Installation Topology

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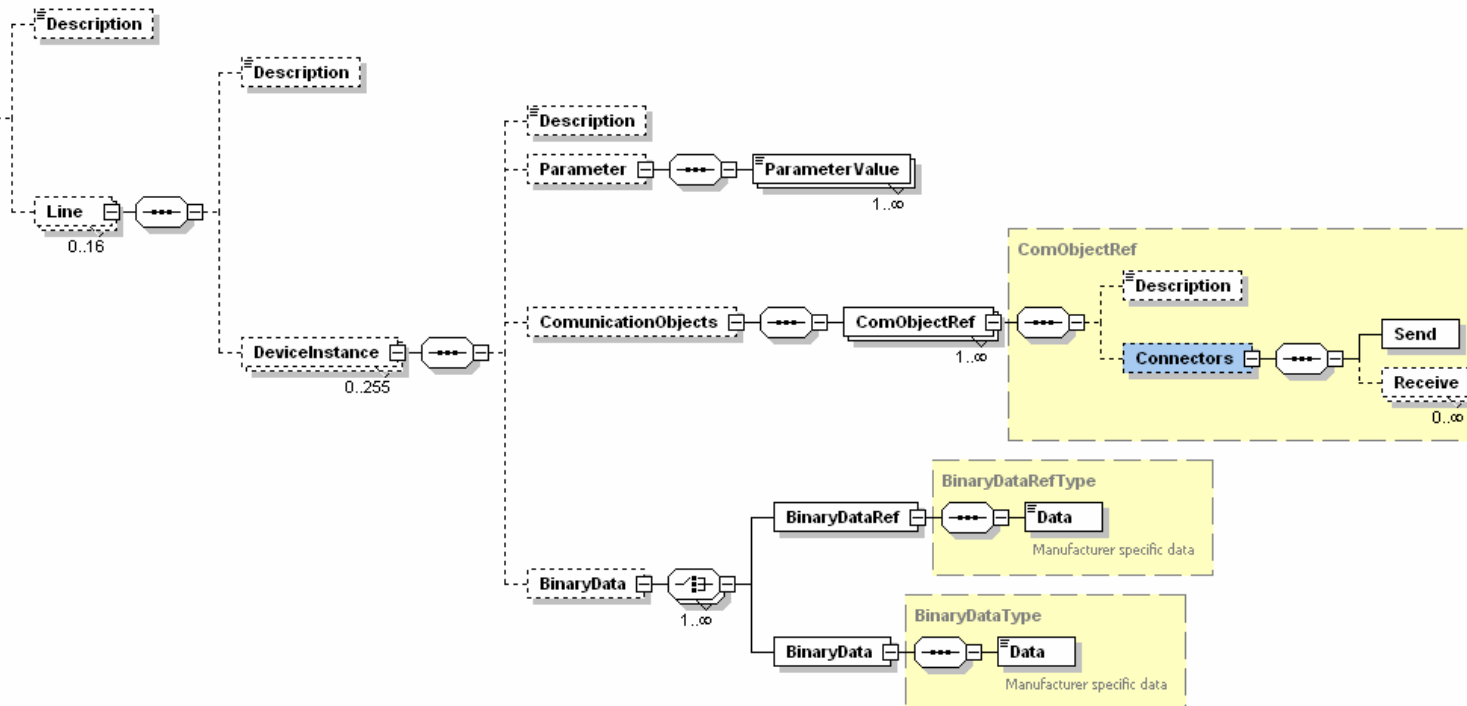
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Topology covers all aspects of the location of a KNX device in the network as well as information about device configuration information (communication objects, parameters, binary data).



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# How should functions be structured?

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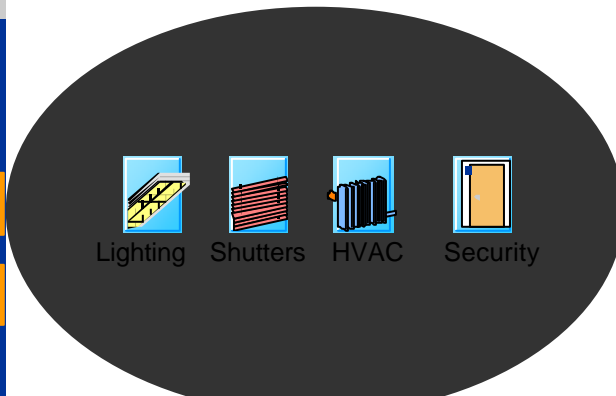
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... Functions

➔ Group addresses!

- Main – Sub
- Main – Middle – Sub
- Space – Function in space (like FGAG)
- ... other ?

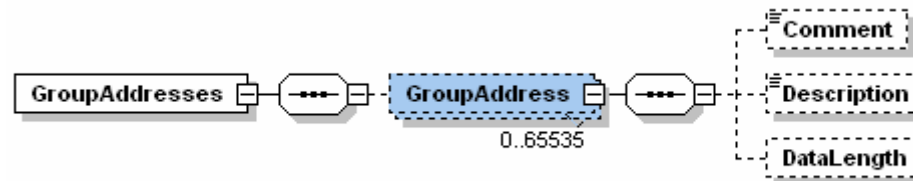
# Project - Installation Group Addresses

**Group Addresses are organized as an unsorted list of the possible range of group addresses in a Project-Installation.**

## Note:

**This schema does not make any provisions for structuring group addresses in e.g. a 2- or 3-tiered view.**

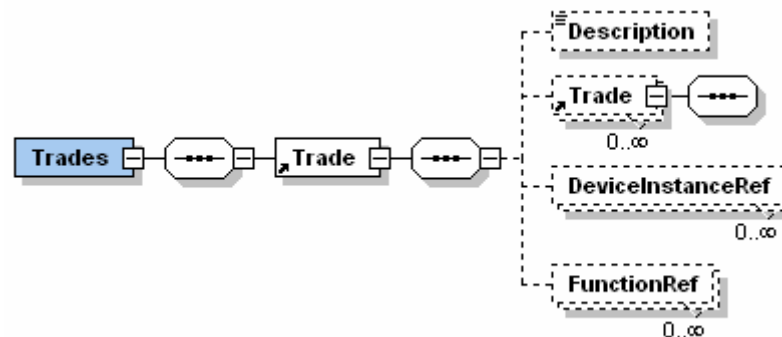
**This target is much better achieved by assigning Functions to the Building view (see previous slides).**



# Project - Installation Trades

ETS2 and ETS3 provide for a view on a Project-Installation by trade (e.g. Lighting, HVAC).

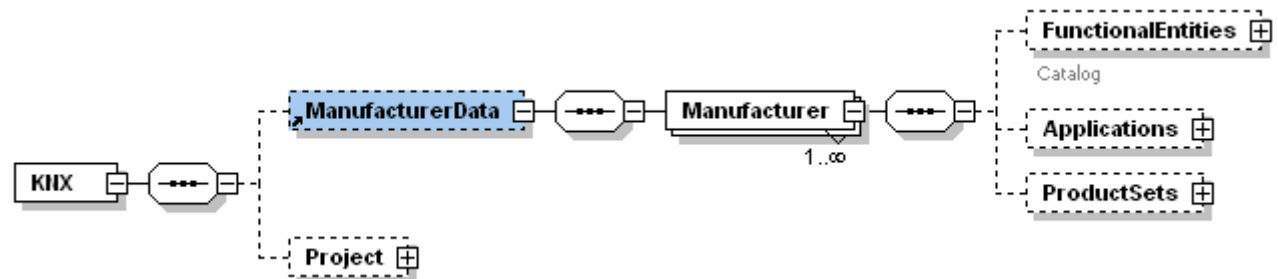
The optional Trades view references the functions associated with a specific trade and the devices needed to implement these functions.



# Manufacturer Data

**Manufacturer Data describes the characteristics of specific devices.**

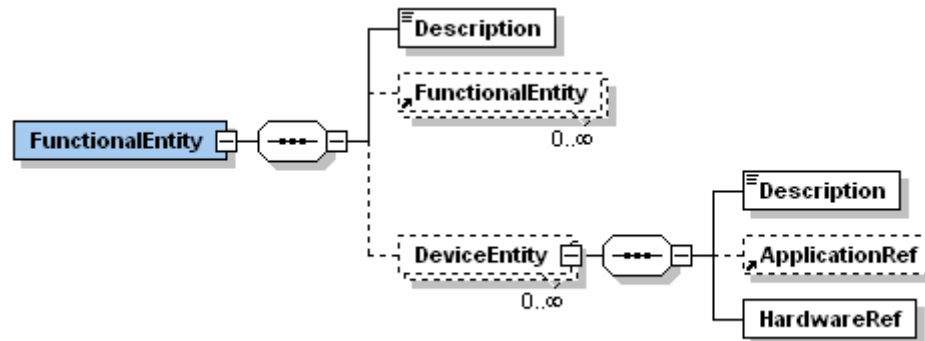
**The ETS database organizes this information as a catalog of Functional Entities, Applications and Product Sets.**



# Manufacturer Data Functional Entities

Functional Entities organize Device Entities in a catalog-like structure.

A Device Entity is characterized as a combination of an Application and a Hardware.

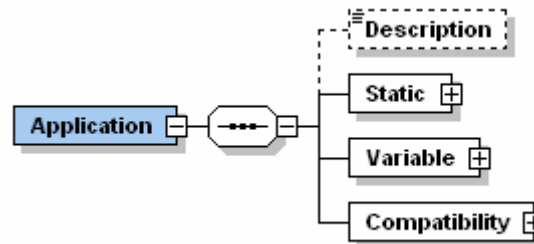


# Manufacturer Data Application

**An Application is characterized by elements that are Static Variable or provide Compatibility information.**

**Static elements contain parameter settings that do not change based on the application of a device.**

**Variable elements contain those parameters that are set for a specific application of a device.**



# Manufacturer Data Application - Static

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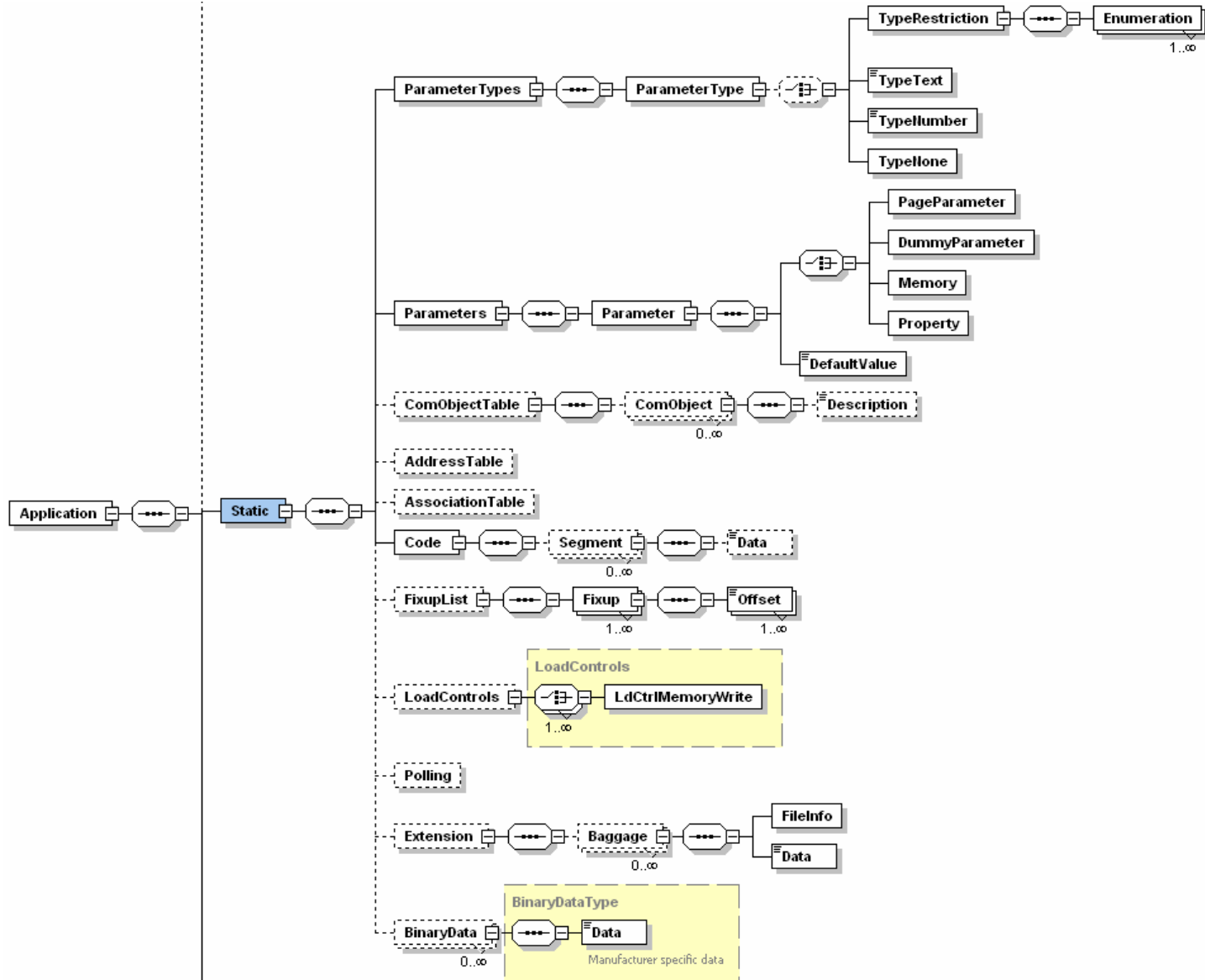
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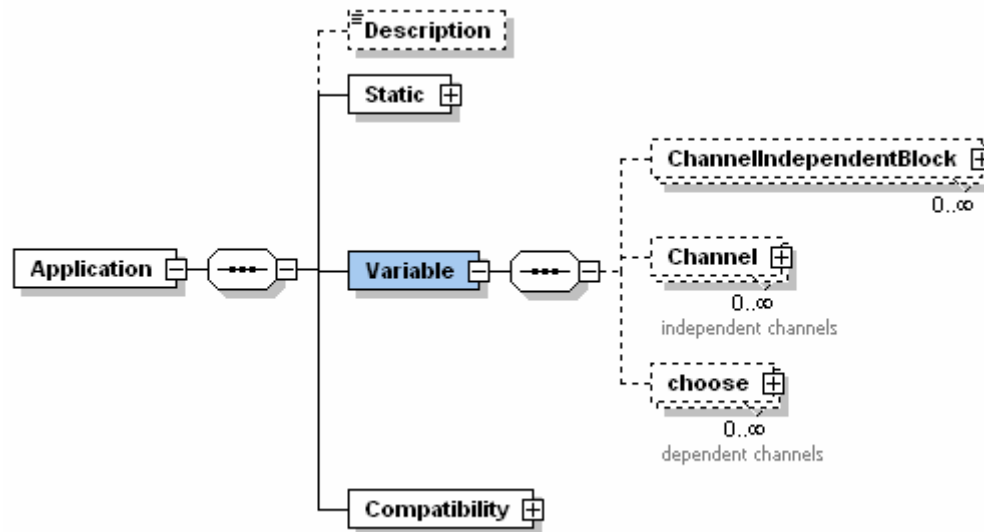
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# Manufacturer Data Application - Variable

The Variable settings for an Application can be separated into three different blocks:

- Channel independent parameters
- Channel related parameters
- Channel related parameters that depend on other settings



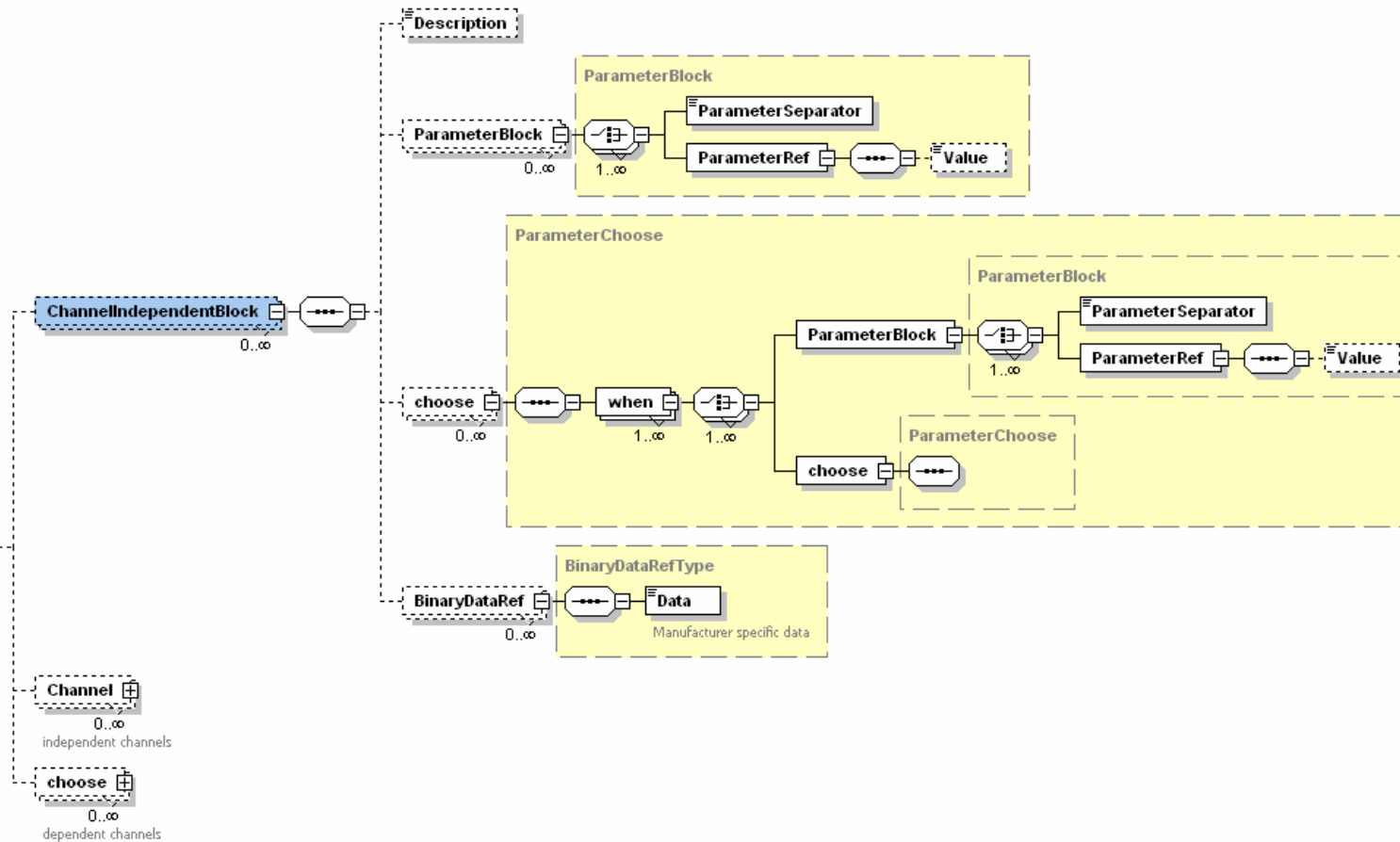
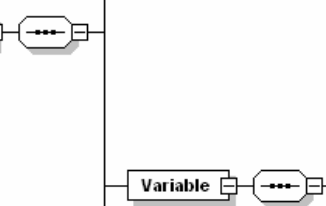
# Manufacturer Data Application – Variable – Channel Independent Block

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S = V = NS

# Manufacturer Data Application – Variable – Channel

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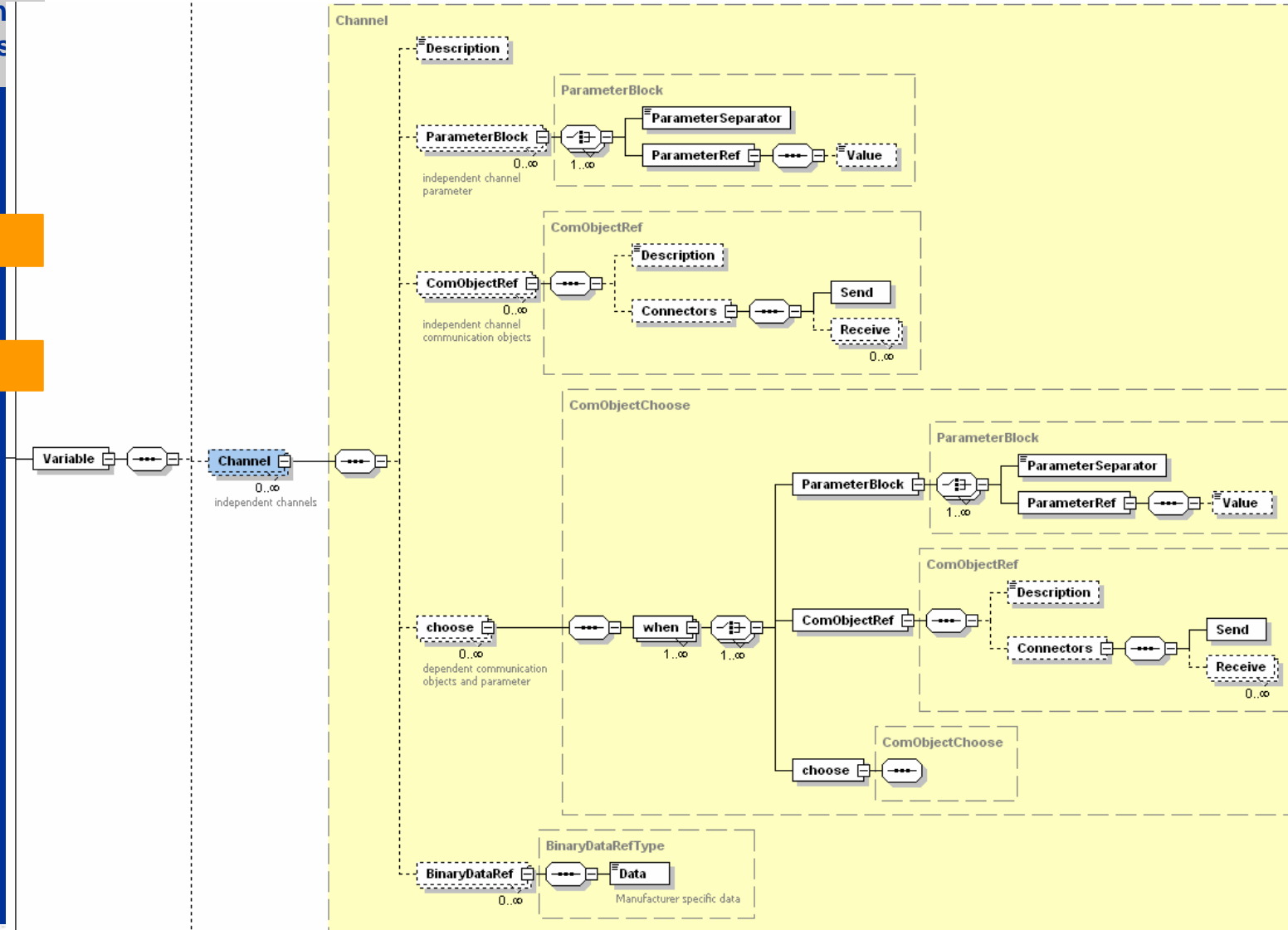
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# Manufacturer Data Application – Variable – Channel (Dependent)

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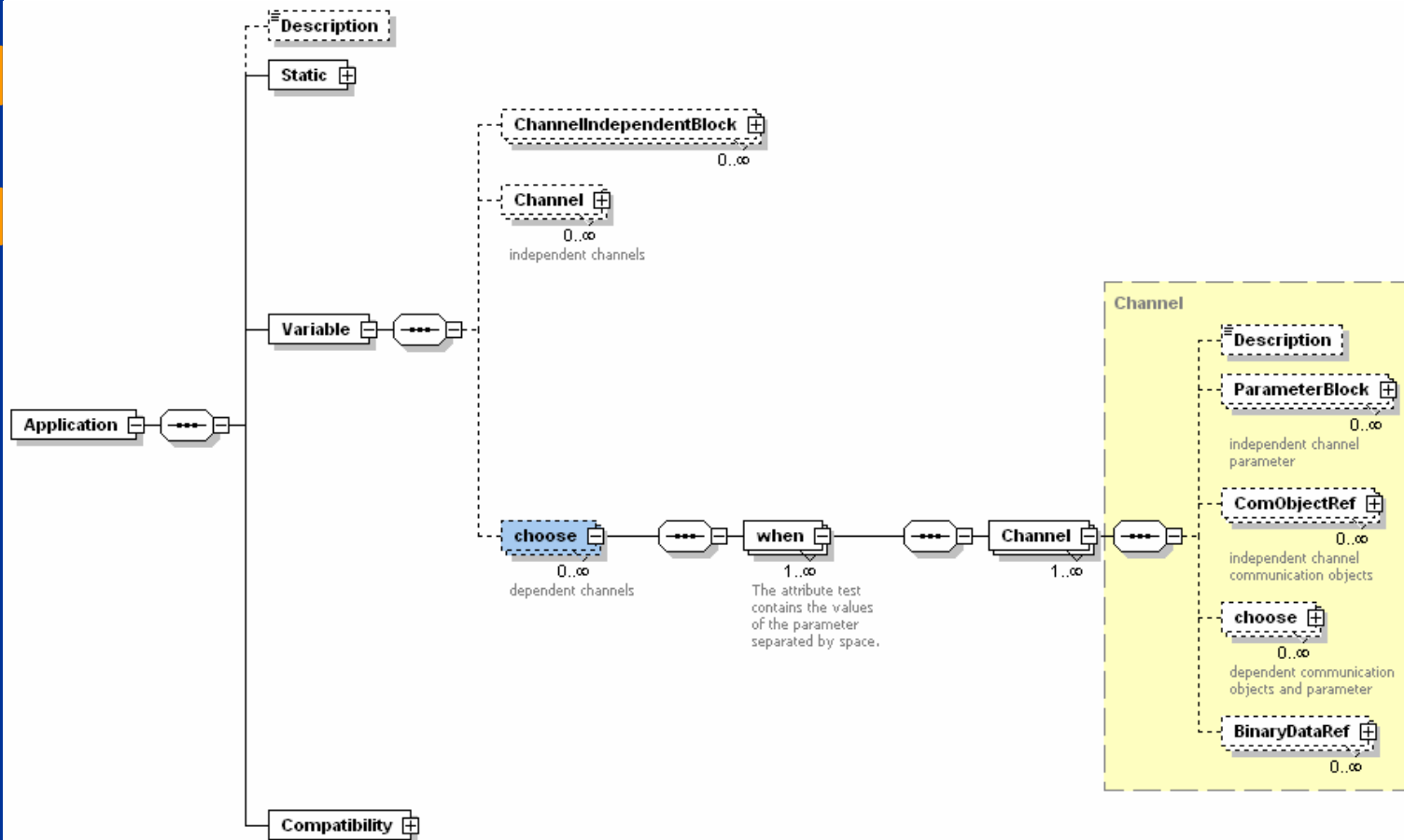
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# Manufacturer Data Application - Compatibility

Compatibility covers those settings that are required for controlling how ETS handles a specific application.



# Outlook

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- **XML Data Encoding provides**
  - **backwards compatibility**
  - **a schema that opens future options for engineering tool**
  
- **Targets ...**
  - **Simple integration of KNX systems into other systems**
  - **Reduce engineering effort and cost**
  
- **... need to be verified**
  - **Implementation in ETS3**
  - **Implementation by SCADA system providers**
  
- **Still Work-in-Progress**
  - **Input is welcome!**

$S = V \cdot I$

# Thank you!

