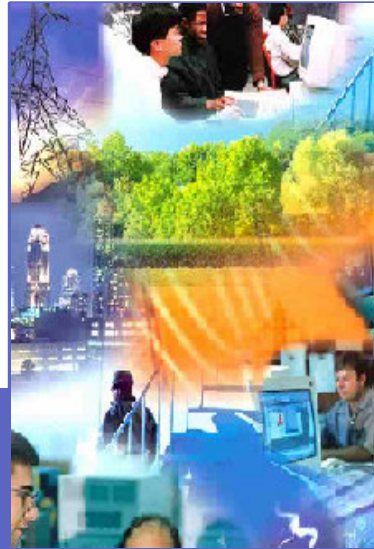




Klaus-Peter Brand

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New opportunities and cost reduction by IEC 61850



IEC 61850

New opportunities

- ❑ **Advanced functions**
- ❑ **Cost reduction**



- ❑ IEC 61850 is more than a communication standard since it provides a **data model** and the **SCL**
- ❑ IEC 61850 support **peer-to-peer** communication on the basis of **Ethernet**, the mainstream communication technology

Examples:

Decentralized interlocking

- *Independent communication of all bay units*

Decentralized synchrocheck

- *Automatic selection of the proper VT based on the substation topology as described by SCL*
- *Sending samples from the remote VT to the Synchrocheck unit*

Intelligent load shedding and restoration

- *Automatic exchange of all data needed*



Examples:

Breaker failure protection

- *Independent communication of units involved including topology detection*

Reverse blocking

- *Exchange of blocking/release signals by serial communication instead of wires*

Line protection

- *extension of the standard according to the NWIP*



Examples:

Point-on-wave switching

- *supported by the distribution of samples if the circuit breaker is able to operate precisely*

Sequences

- *Any kind of sequences mean no wiring but only an extension of the SW to provided the data needed on the bus*



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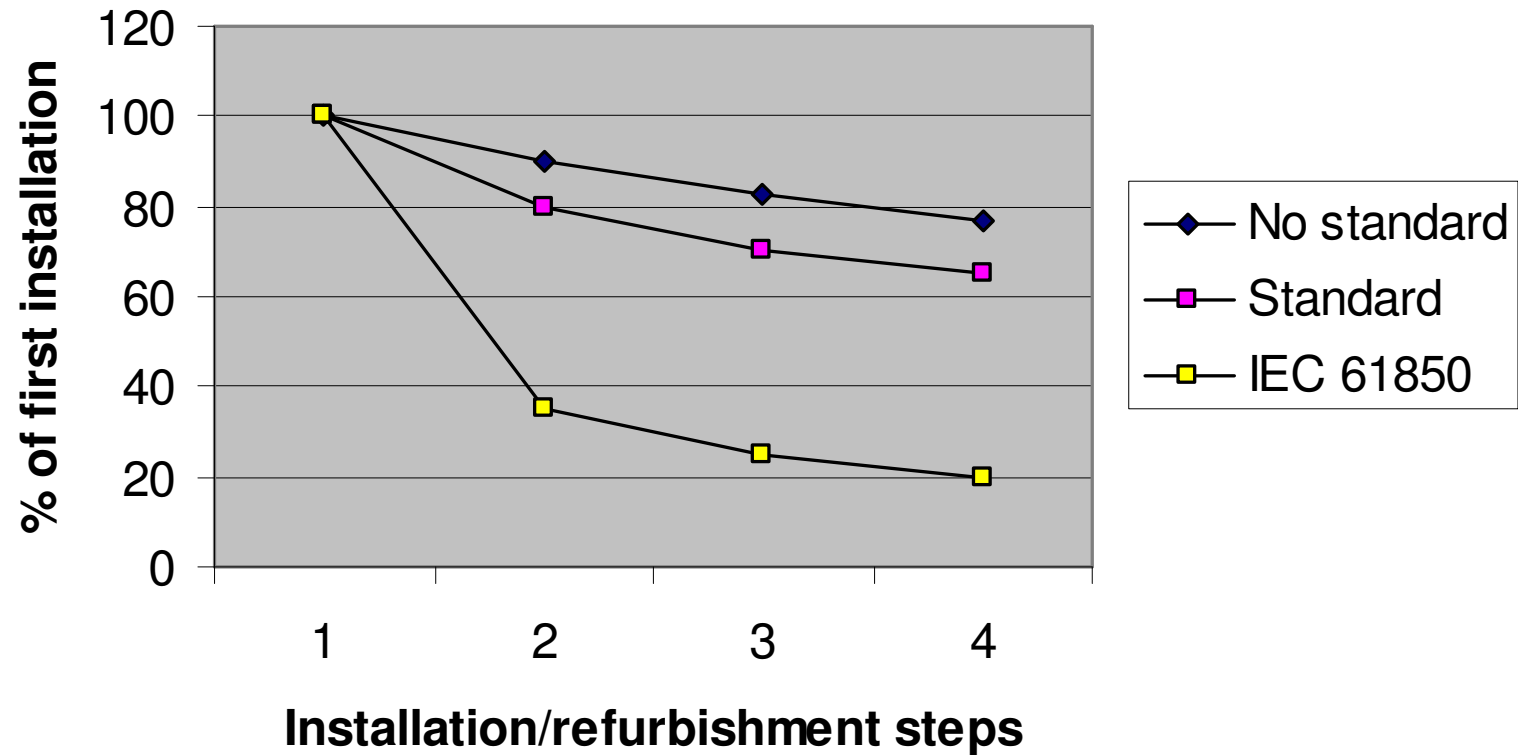


- Cost splitting
 - 40% for HW
 - 60% for Engineering and Testing
- **Same standard used for all IEDs**
- Refurbishment intervals of Substation Automation
 - 10 to 15 years
 - 3 intervals considered per life cycle of the substation
- Cost development per interval
 - HW with same functionality 25 % decay without,
50 % **with standard** (market !)
 - Engineering and testing 0 % decay without IEC 61850
 - Engineering and testing 75% saving **with IEC 61850**



Cost
reduction

Expected impact on life-cycle costs



Source : L.Andersson, K.P.Brand, W.Wimmer
The Impact of the coming Standard IEC61850 on the Life-cycle of Open
Communication Systems in Substations
Transmission and Distribution, Brisbane, Australia, 11-14 November 2001

