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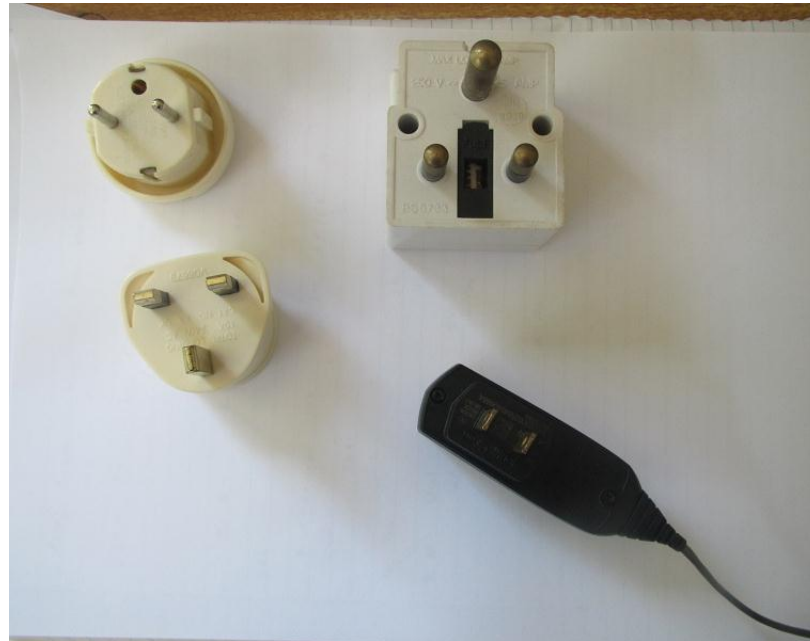
# Harmonisation of Standards for Renewable Energy Systems

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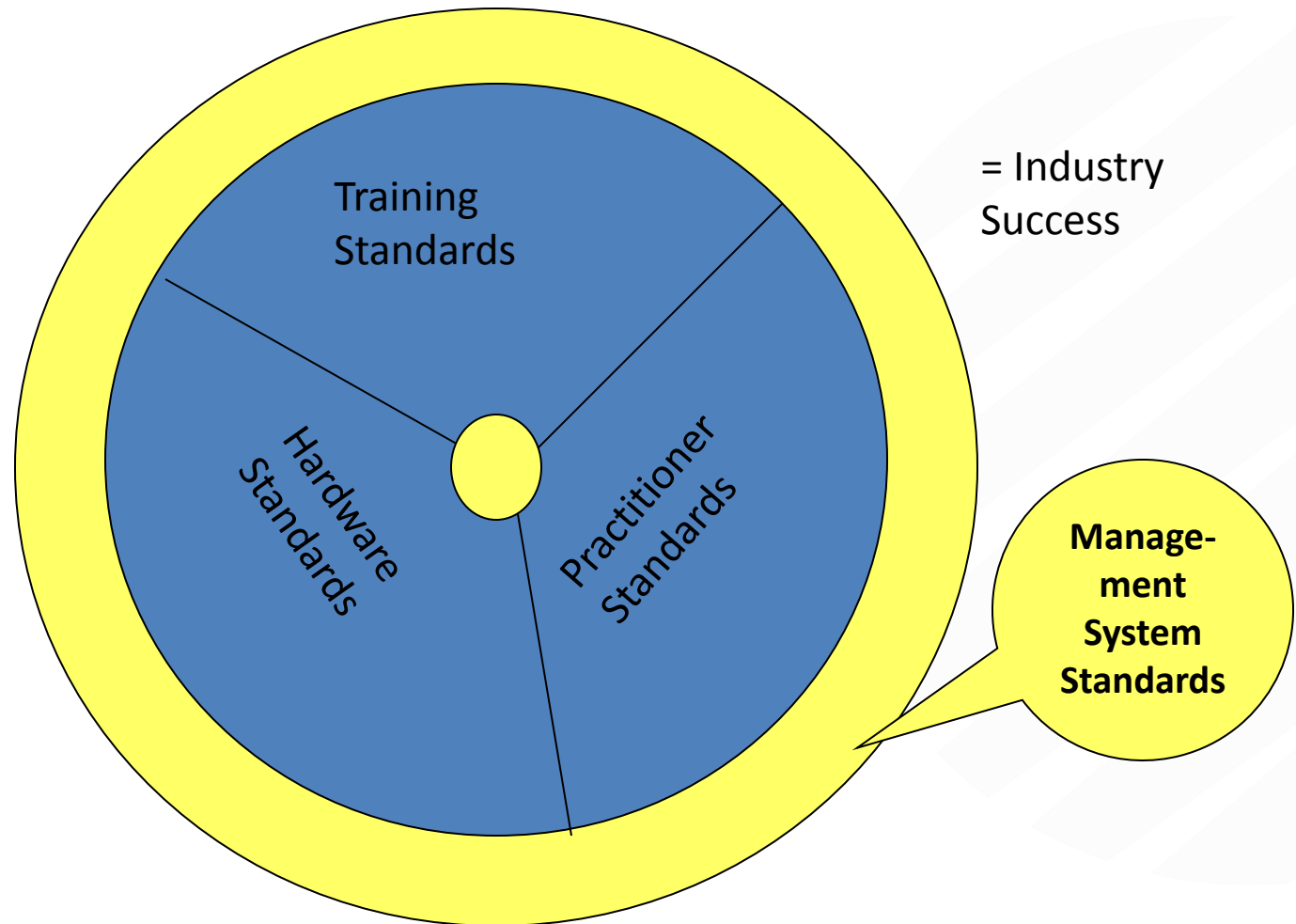
# What is harmonisation?





# Components of a Quality System

Four  
Pieces  
of the  
Whole  
Donut



# What type of Standard?

- Performance of Products
- How to measure performance? In field ? In Lab?
- How to test products? Field? Lab?
- Quality of material/sub assembly within a product
- Safety of the equipment
- Safety of the installation
- Installation of the equipment to ensure that it performs to a minimum standard.



# RE?

- Solar water Heating
- Photovoltaics
- Wind Generators
- Hydro Generators-
- Biofuels
- Geothermal
- Landfill Gas
- Waste to energy
- Grid connect systems
- Off grid systems



# Who develops standards?

International organisations:

- ISO
- IEC

Country organisations eg

- UL in USA
- Australian Standards, Japanese Standards etc



# Steps in complete Harmonisation

- Having an organisation that will manage the process.
- Identify all the standards that exist.
- Establish a committee that reviews all of the standards and provides a recommendation on how they are harmonised.
- A harmonised standard could be produced -  
However, every country must be contacted, where these might be applicable and determine whether that country would adopt the harmonised standard..





# Priority-Product Standards

- Global Market now
- Do not want manufacturers having to develop different products for different countries
- Important not many product standards



# Issues with Harmonisation of Installation Standards

- Many countries do have their own standards to reflect their safety criteria..
- Even within countries utilities can have their own “guidelines” on top of standards
- It is very difficult to ever get ONE standard for all BUT they can be similar..



# Issues with Harmonisation of Standards- General

- Developing standards is time consuming and
- Committees are generally volunteers—so they are time pressed because of their expertise.
- Human nature and country politics can play a role in the development of a harmonised standard.
- For developing countries—the cost of the standards can be prohibitive—so even if they want to adopt the standards, the people in the country cannot afford to buy legal versions!!



# THANK YOU

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