



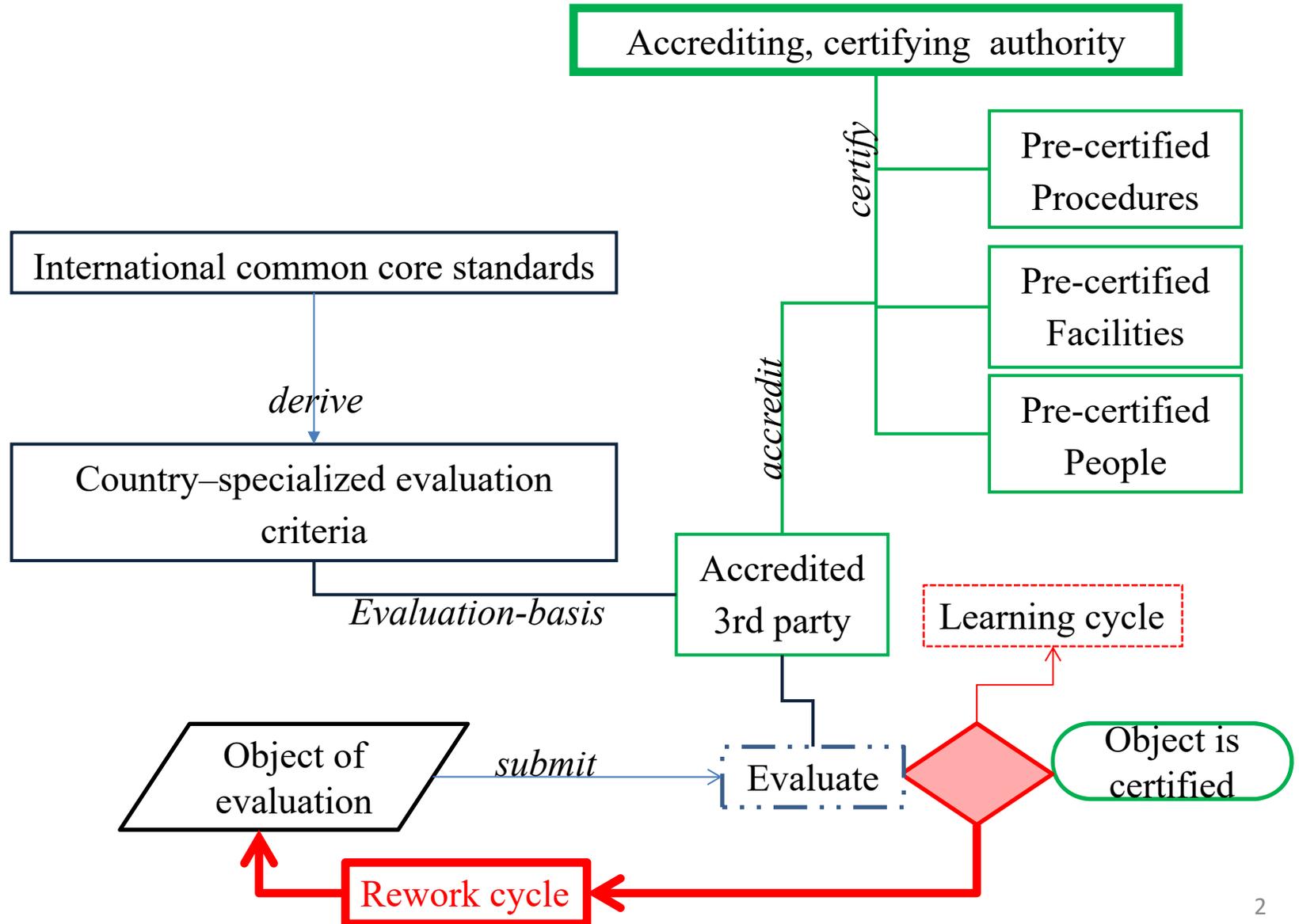
**Domain modeling & Domain Engineering  
an enabler for  
Correct-by-Construction Design**

**Halden HTO Workshop  
October 5, 2023**

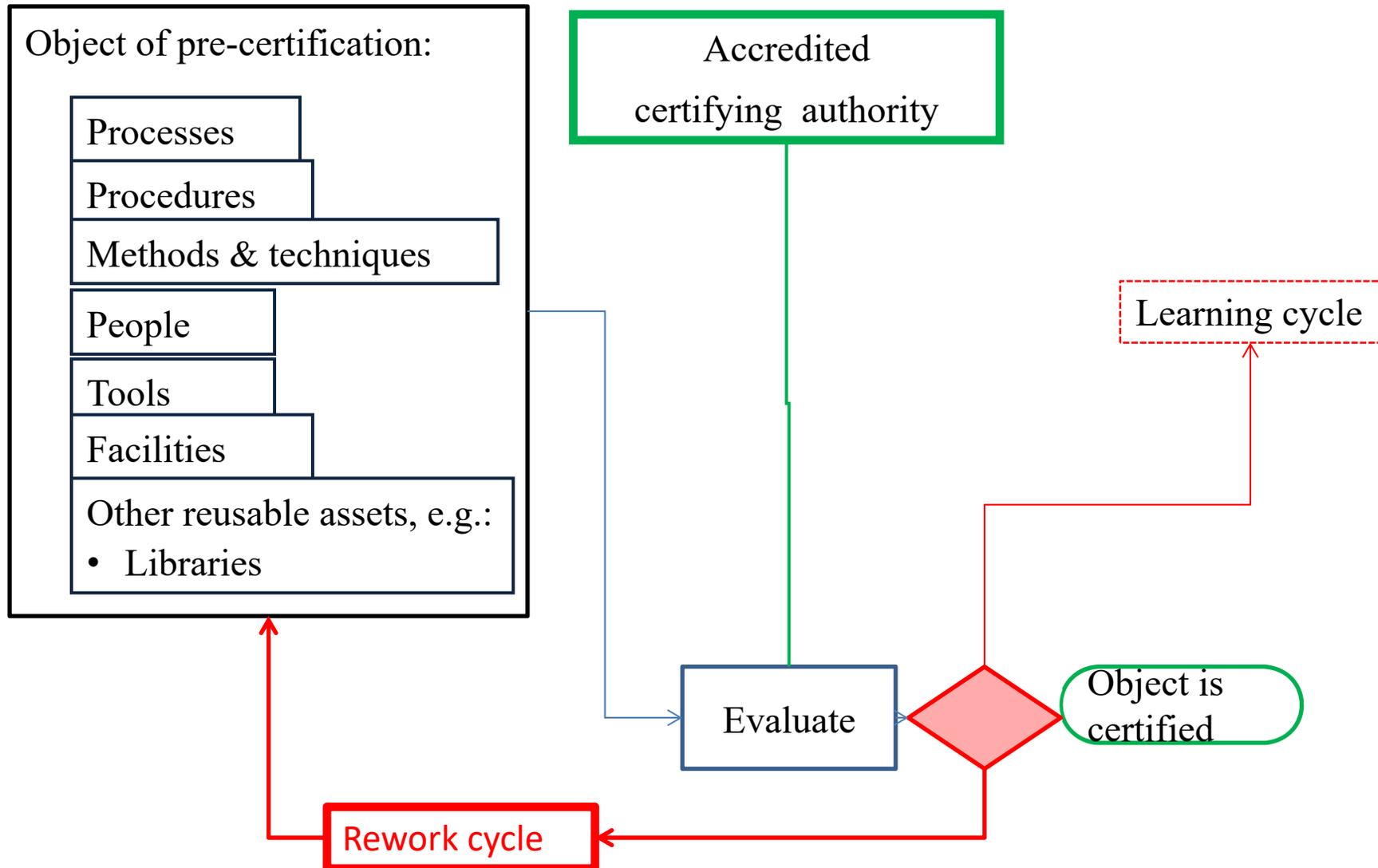
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The views expressed herein are those of the author and do not represent an official position of the U.S. NRC.

## One vision of the Assurance Process

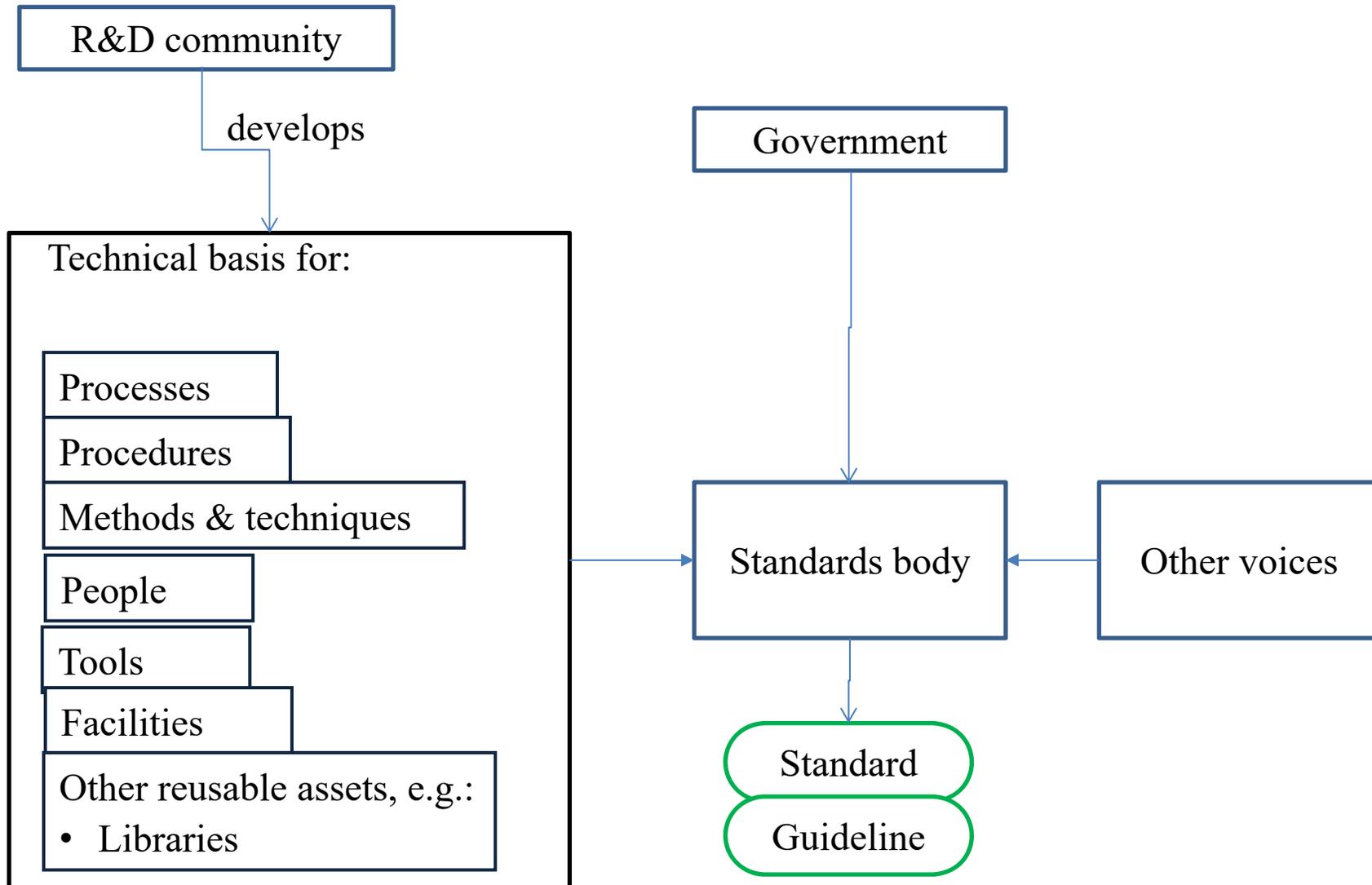


## Envisioned pre-certification activities

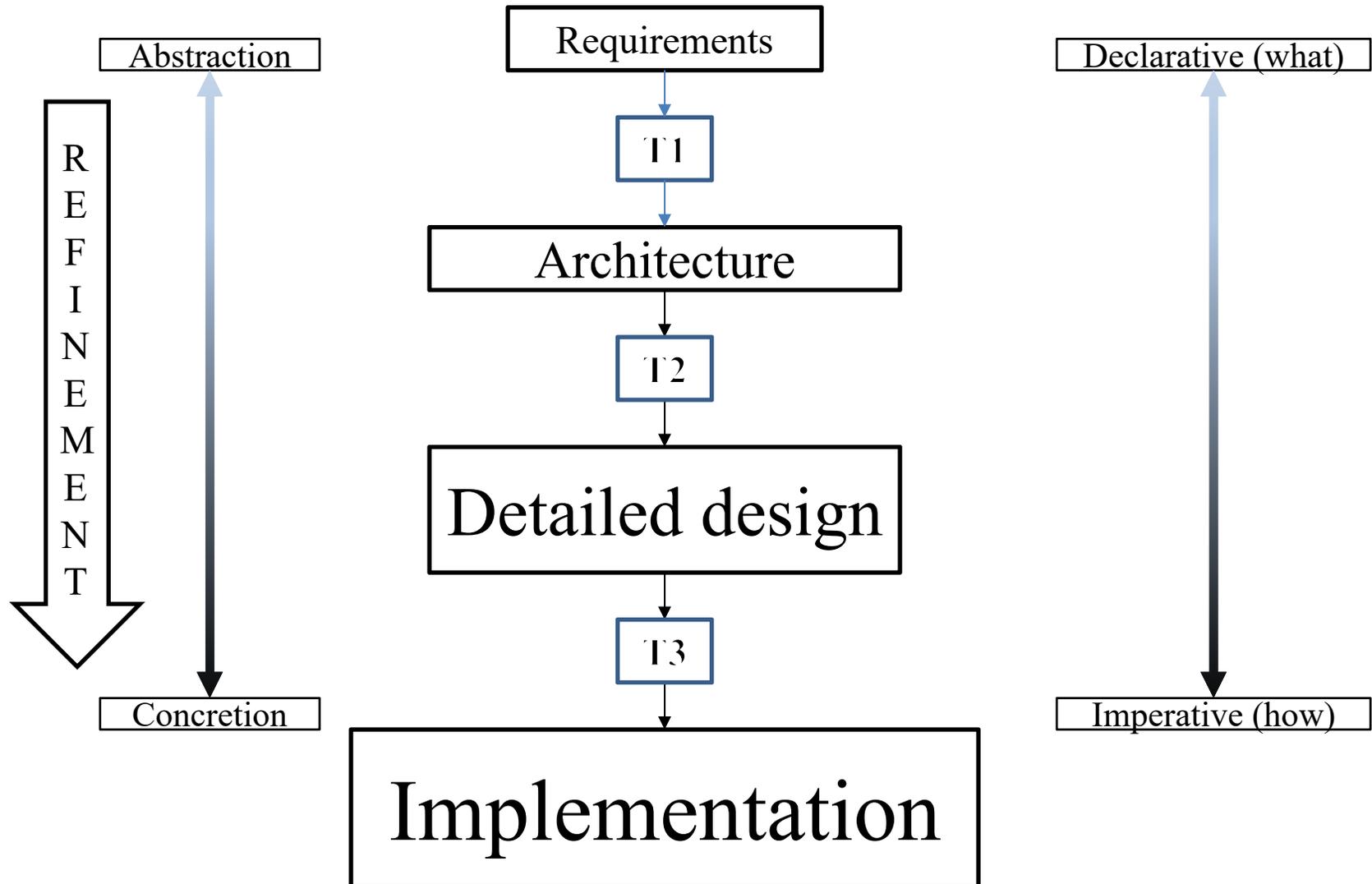




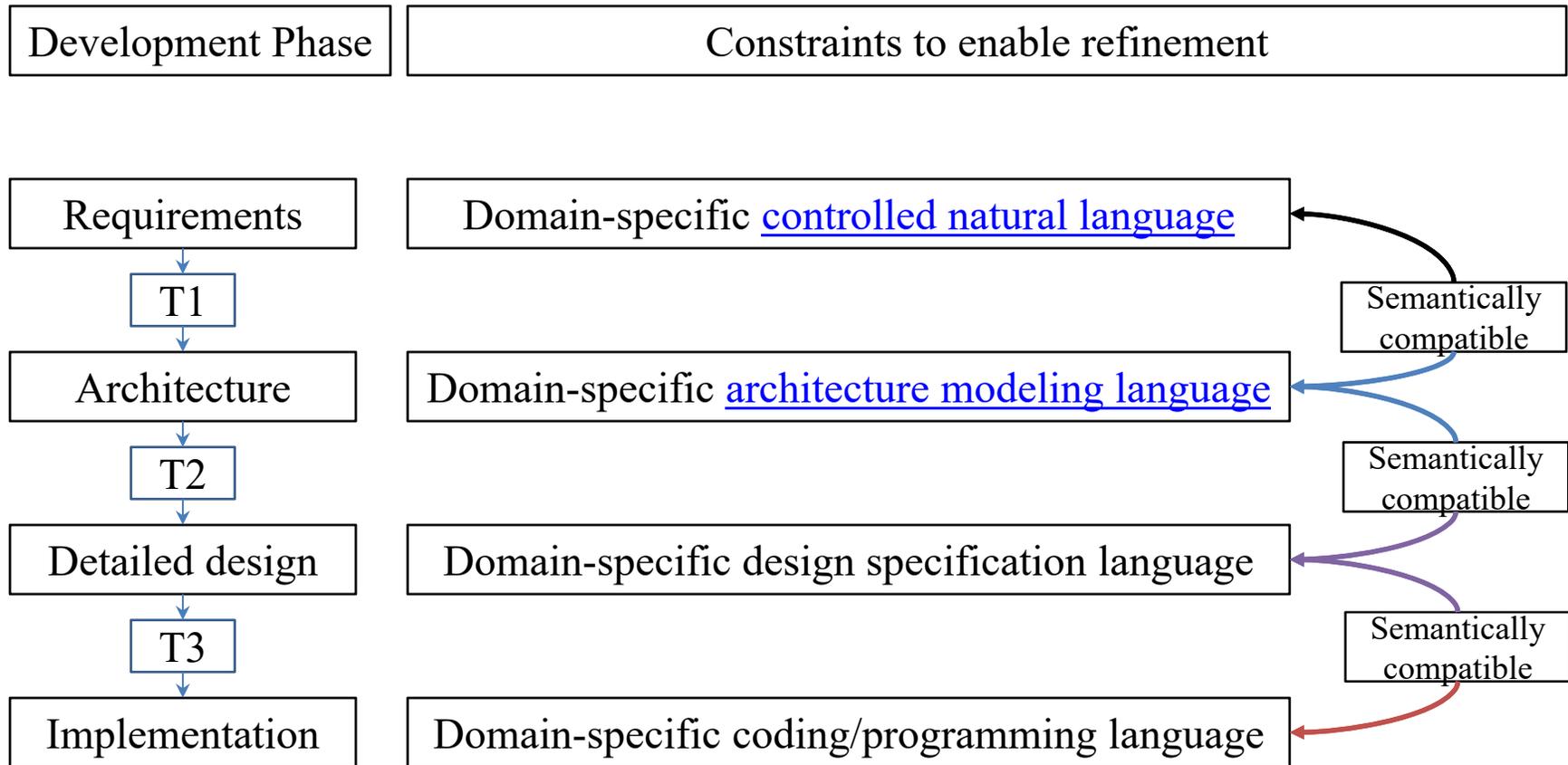
# Creating the appropriate standards: One vision



## Development based on domain engineering



# Leverage domain engineering

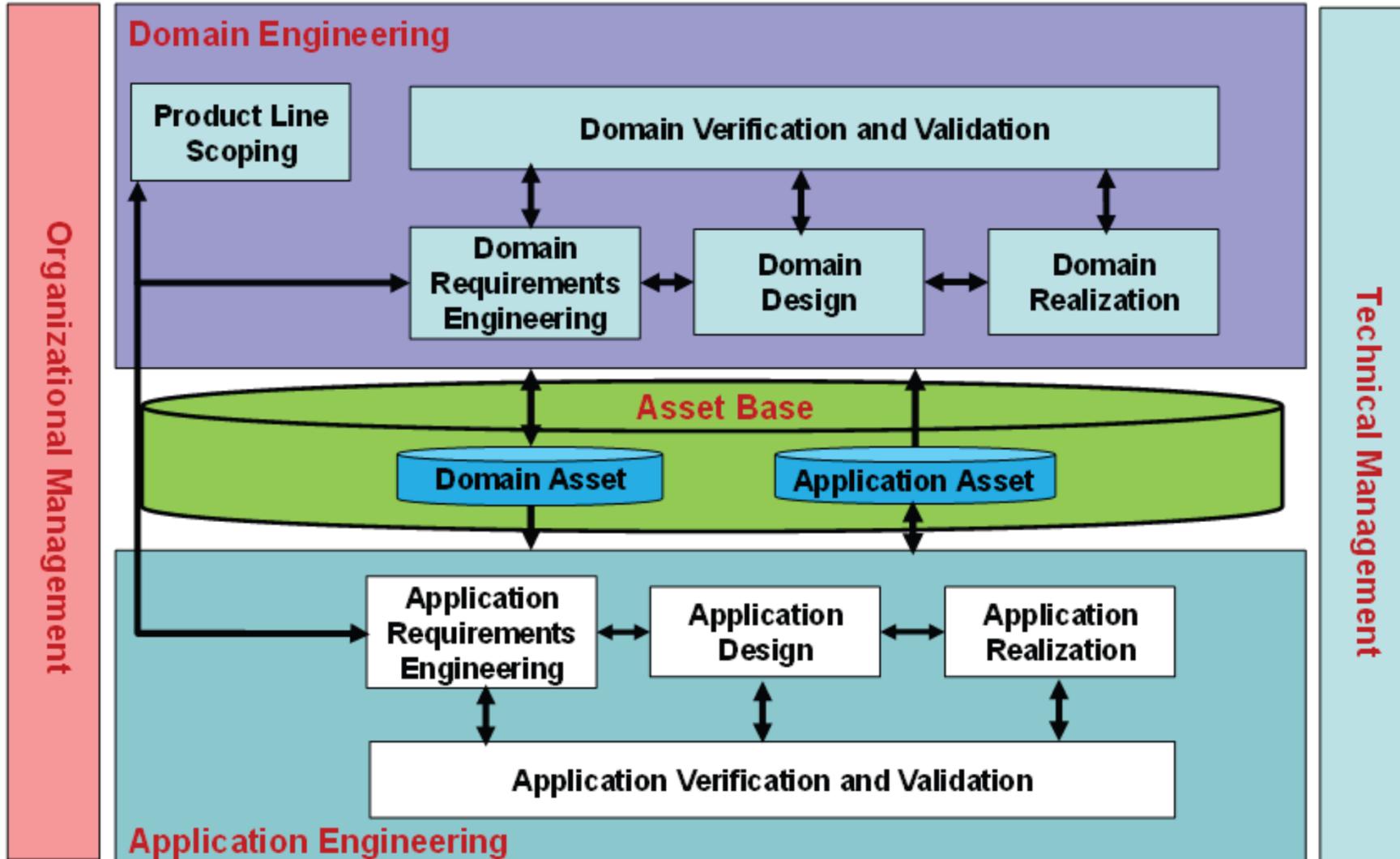


Create pre-certified reusable assets

- Domain modeling
- Domain engineering

(see [NUREG/CR-6263](#); [IEEE Std 1517:2010](#); [ISO/IEC 26550](#) family)

# Reference model





## ISO/IEC 26550 family of standards

ISO/IEC 26550:2015(E)

Software and systems engineering — Reference model for product line engineering and management

ISO/IEC 26551:2016(E)

Tools and methods for product line requirements engineering

ISO/IEC 26552:2019(E)

Tools and methods for product line architecture design

ISO/IEC 26553:2018(E)

Processes and capabilities of methods and tools for domain realization and application realization

ISO/IEC 26554:2018(E)

Methods and tools for domain testing and application testing

ISO/IEC 26555:2015

Tools and methods for technical management

ISO/IEC 26556:2018(E)

Tools and methods for organizational management



## ISO/IEC 26550 family of standards

ISO/IEC 26557:2016(E)

Methods and tools for variability mechanisms

ISO/IEC 26558:2017(E)

Methods and tools for variability modeling

ISO/IEC 26559:2017(E)

Methods and tools for variability traceability

ISO/IEC 26560:2019(E)

Methods and tools for product management

ISO/IEC 26561:2019(E)

Methods and tools for technical probe

ISO/IEC 26562:2019(E)

Processes and capabilities of methods and tools for transition management

ISO/IEC 26563:2022(E)

Processes and capabilities of methods and tools for configuration management of assets

ISO/IEC 26564: 2022(E)

Methods and tools for product line measurement



## ISO/IEC 26550 family of standards

ISO/IEC 26850:2021(E)

Methods and tools for the feature-based approach to software and systems product line engineering

ISO/IEC 26565 to ISO/IEC 26599: To be developed