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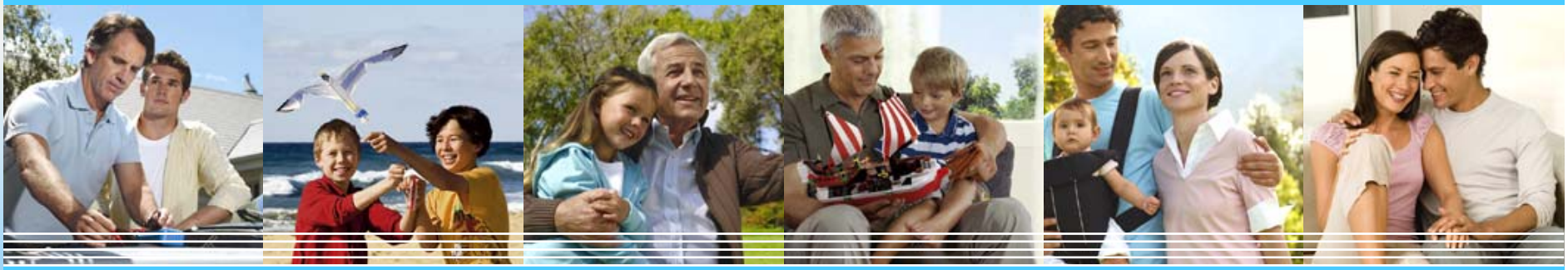
User friendly management of continuously improving standard macro systems



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Topics

- Motivation
- Developing Standards
- User friendly aspects
- Example Macro Supporting Standards
- Conclusion and Perspective

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Motivation

- Standardization means efficiency
- Standardization has high and growing priority
- Standards and standard macros change more often then expected
- Need to manage standards
- In a user friendly way

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Developing Standards

- Where does standards macros come from?
  - User macros (high potential)
    - Knowledge base
    - Best knowledge of user requirements
    - Motivation
  - Complex pre-specified macros
    - Support time consuming repeating complex tasks
    - Buy-in when having internal resource issues
    - E.g. treatment emergent flag calculation, demography table creation

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Developing Standards

- Managing numerous standards?
  - Documentation and training material
  - Pre-defined location
  - Group standards
  - Version control
- What does the user want and need?
  - Respect user requirements
  - Defined location
  - Reliability
  - Simple use of systems

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User friendly aspects

- Users as major supporter for standards
  - Knowledge to enhance daily work
  - Feedback for continuous macro improvements
  - Higher acceptance, when user requirements are implemented

- User Requirements
  - How to address new requirements?
    - Simple change request list, low effort
  - Are user requests handled?
    - Should be major part of life cycle

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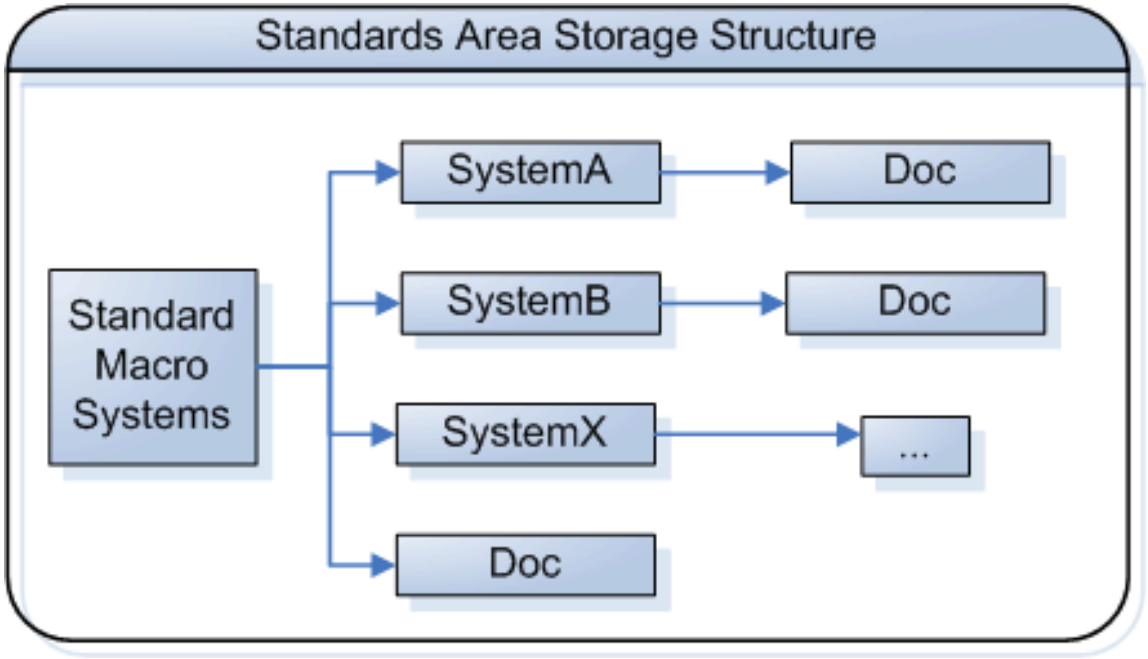
User friendly aspects

- Location



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User friendly aspects

- Reliability
  - Reruns must result in same values!
  - Backward compatibility for general updates
  - Defined breaks for non compatible changes

⇒ Version Control

  - Main version for non compatible changes (e.g. V1, V2, …)
  - Sub version for backward compatible changes (e.g. V1.1, V1.2)

  - Concept of minimal major updates for users

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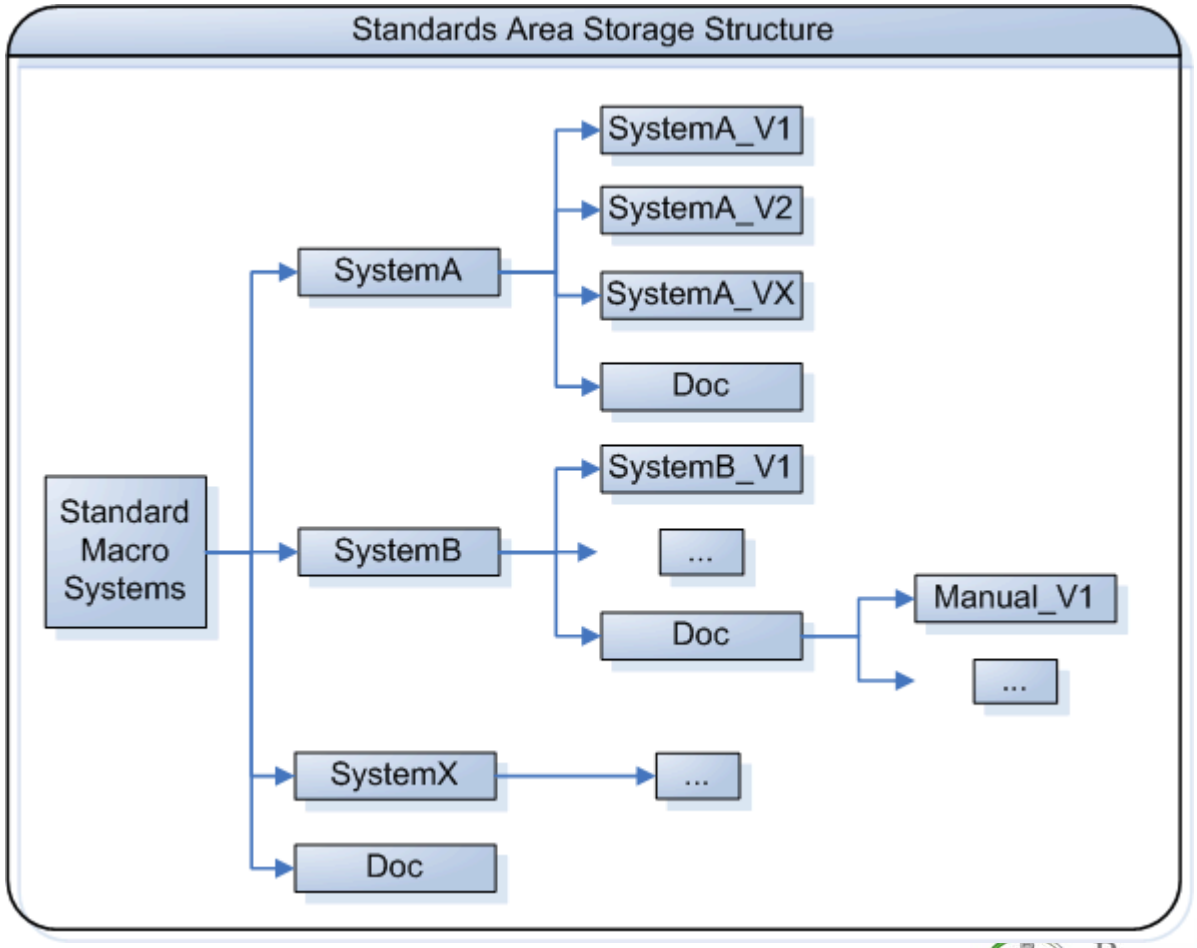
User friendly aspects

- Reliability



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User friendly aspects

- Usage

	Advantages	Disadvantages
SAS Config	Immediately available	Invisible for users Backward compatibility problematic
Include	Visible for users User control	High effort Many include lines required
Group Include	Visible for users User control	Some effort (use locations) Some include lines required
Compiled Catalog	Invisible for external users	Invisible for internal users No system version mixtures
SASAUTOS	Hierarchy	Some effort (use locations)

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User friendly aspects

- Usage
  - SAS configuration for initialization macro (constant over time)
    - %initsystems
  - Use Macro to create SASAUTOS to minimize effort and provide flexibility
    - Create SASAUTOS in %initsystems for systems in versions
  - Use Catalog only for CROs

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Example Macro Supporting Standards

- Requirements
  - Initialization of systems and versions (also unknown ones)
  - Option to use in different environments
  - Print important user information to log
  - Reset already loaded macros

- Example:
  - %initsystems(<system> = <version>,<system>= <version>…)
    - Structure: c:\evaluations\systems\toolbox\toolbox1
    - Call: %initsysems (toolbox = 1);

  - Additional parameter to specify special basedirectory

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Example Macro Supporting Standards

- PARMBUFF to allow flexible parameters

```
%MACRO initsystems () / PARMBUFF;

        %PUT &syspbuff;

%MEND initsystems;

%initsystems(systemA = 1, systemB = 3);

Output: (systemA = 1, systemB = 3)
```

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Example Macro Supporting Standards

- Analyse availability and initialize systems
  - Loop over parameter groups
  - Build path according directory rules
  - Check existence of path `%sysfunc(fileexist(&l_path))`
    - Error message, when not available and parameter is no “other standard parameter” like path
    - Print information, when path is available and add to macro variable used for SASAUTOS at the end
  - Set SASAUTOS to valid system paths
- Use OPTIONS MRECALL
- Clear already compiled macros from session
  - WORK.SASMACR

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Conclusion and Perspective

- %initsystems available via SAS configuration
  - For non-standard environments via include
- All other standard macro systems available in hierarchy after initialization
  - %initsystems(toolbox=1, tablebox=2, testareainit=2);
- User friendly backward compatible updates due to main and sub versions
- Environment switch without hard program path changes

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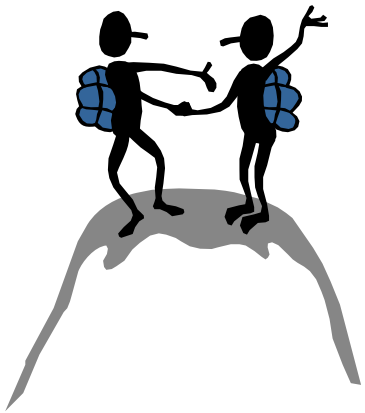
Conclusion and Perspective

- User friendliness?
  - Easy to use systems
  - Reliable backward compatibility
  - Simple macro systems overview
  - Training and documentation material
  - Active macro support
  - Platform to address new requirements



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All systems rise and fall with the user!!!

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Thank you for your attention!