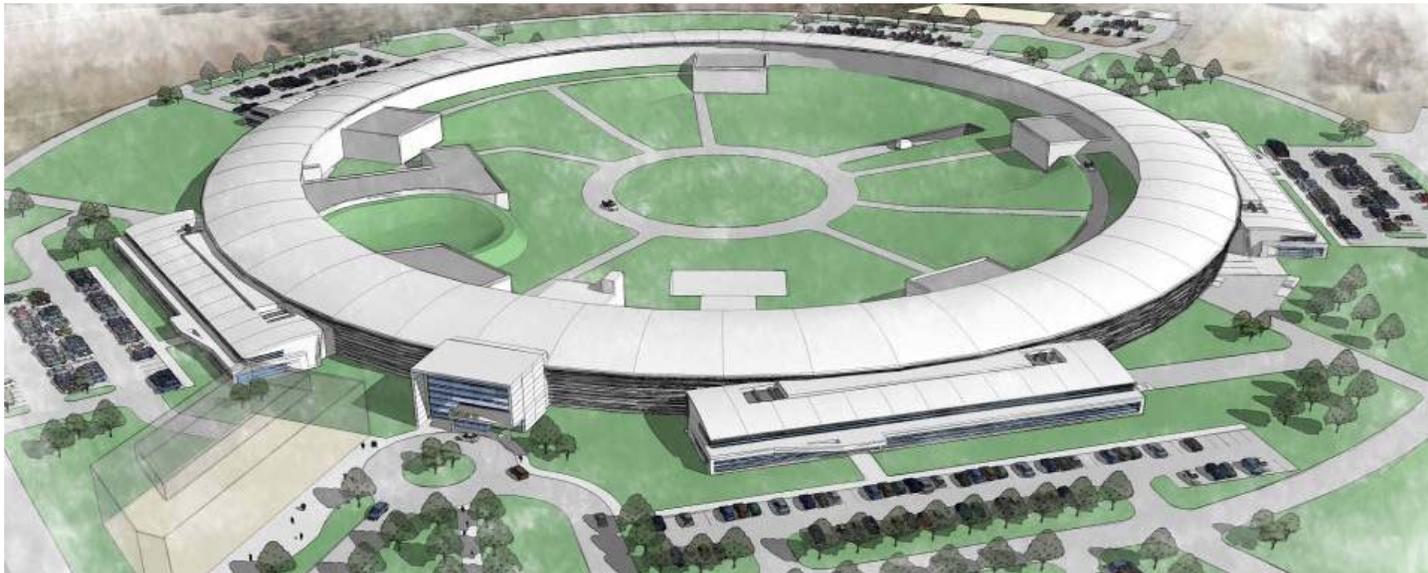


Requirements, Specifications and Interfaces



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Definitions

1. Work Breakdown Structure (**WBS**)
2. Cost Estimate Database (**CED**)
3. Control Account Manager (**CAM**).
4. **Requirement:** An attribute or a function of a WBS element imposed by/to another element of the WBS.
5. **Interface:** A point of interaction between two elements of the project.
6. **Specification:** a single, or a set of, well-defined design parameters of a project's element.
 - **Example:** To obtain a certain energy resolution of an x-ray beam, it *requires* a mirror to be vibration-isolated to a certain level. This imposes precise *specs* on the mirror support. It also generates an *interface* with **Conventional Facilities (CF)**, since there are vibration requirements imposed to the beamline floor structure as

Outline

- Interface Management goals and resources
- Work Breakdown Structure and CAMs role
- Status and development of the XFD Requirements Specifications and Interfaces (**RSI**) documentation.
- Integration with ASD and CFD.

Interface Management

- **Goal**
 - Help NSLS-II project development and integration by coordinating communication and decision processes between project elements.
- **Primary Resources**
 - WBS, CED
 - Expertise: mainly CAMs
- **Derived Resources**
 - o Interface node records
 - o Documentation systems
 1. RSI documents
 2. Node reports
 3. Document Library

Use of Resources in Requirements and Interface Management: WBS and CAMs

- Key to a thorough requirements and interfaces identification and capturing process are:
 - A fully developed WBS, able to include all elements of the project.
 - Clear and detailed WBS dictionary definitions.
- Use WBS dictionary and work with CAMs to detect and define interfaces.
- Spreadsheet tool (see Erik Johnson) to record and define 2-D interface requirements
- 3-D node detection will generally come out of CAM meetings

Example: WBS in interface recording and definition

- Based on the WBS dictionary, work with CAM's to identify interfaces and requirements

WBS #		1.4	1.4.5.5.3	1.4.5.5.4	1.4.5.5.5	1.4.5.5.6
		Exp. Facilities	XAS Wiggler Beamline Utilities	XAS Wiggler BL Specialized White Beam Comp	XAS Wiggler BL Specialized Beam Condition Optics	XAS Wiggler Beamline Personnel Safety System
1.3	Accel. System					
1.3.6	Accelerator Safety Systems					
1.3.7	Insertion Devices					
1.3.8	Accelerator Fabrication Facilities					

Comment:

Reason for interface:
Damping wiggler design,
commissioning, ...

Use of Resources in Requirements and Interface management: Requirements, Specifications and Interfaces (RSI) Documentation

- What is an RSI document?
- RSI Documentation Scope
 - Details requirements, specifications and interfaces.
 - Tool for managing interfaces.
 - Document reference sources and assumptions for design.
 -
- Need to organize RSI reference sources
 - Create central reference library

Managing Requirements and Interfaces

- Integration tool (Erik Johnson)
 - Organize information for parameter and relational databases development.
 - Handle specific queries of interest to automatically generate RSI and node reports, extract/organize blocks of information from database.
- Synergistic work with CAMs, staff members, engineers, contractors, etc.: An iterative, successive approximation process.
- The need to develop pre-defined, sequential steps to manage interfaces: minimize grey zones.
- Live access to updated WBS dictionary and Cost Estimate Database (CED) is crucial.
- Develop node reports

XFD Interface Management status

- Tool to record and define interfaces and requirements in use
- Developing XFD RSI document guidelines/template
 - Will help XFD CAMs in organizing, updating info and generating RSI documents
- First draft of high level RSI documents are being created
- Creating XFD central reference document library
 - Dictated by need to insure all pointers are consistent
 - Considering forming NSLS-II project document library
- Both RSI documentation system and reference library map to the WBS

Experimental Facilities RSI documentation status

1.04 Experimental Facilities

- 1.04.01 EF Management
- 1.04.02 Standard Local Controls & Data Acquisition Systems
- 1.04.03 Standard Diagnostics
- 1.04.04 Standard Optics
- 1.04.05 User Instruments
 - ...
 - 1.04.05.03 Undulator Beamline-3 CHX
 - ...
- 1.04.06 Front End User Requirements Development
- 1.04.07 Optics Labs

Focus on level-4 RSI for user instruments.
Due Nov. 2

Other actions

- Facilitating XFD design development processes by
 - Coordinating/soliciting communication w/ ASD and CFD (information gathering and organizing, issues tracking)
 - Holding weekly meetings:
 - XFD-ASD interface meeting
 - XFD-CFD interface meeting
 - Interface manager meetings
- Identifying and evaluating interface nodes.
- Interface reports, “treaties” between two RSI documents, will be generated by working w/ CAMs and interface managers.

Conclusion

- Requirements and Interfaces management tools have been established.
- We know how to identify, capture and document interfaces and requirements.
- Coordinated effort with CF and AS divisions to manage interfaces
- RSI documentation is developing. Collecting initial requirements and design parameters will drive further design development.
- As XFD relevant info is gathered, it will feed global parameter and relational database to help reaching ion across project.