

Breakout: Overall Structure & Tenets

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Issue Areas

- Interoperability Concepts
- Usability & Purpose
 - Readability/Understandability
 - Scope/Audience
 - Actionability (how to apply)

Note: the following slides summarize and provide highlights of our detailed results.

Specific Framework Needs

- Make Purpose and Context more explicit
- Improve readability and document organization
- Explain the Perspective clearly
- Make the framework Actionable
- Discuss facets of interoperability

Specific Framework Issues

- Purpose/Context
 - GridWise & GWAC & companion documents
 - For readers that are not familiar with GridWise, there needs to be a clear, concise (explicit) description of GridWise and the GWAC
 - Recommendations: one page preface
 - The Framework and this document
 - What is the goal of document vs. goal of framework?
 - Recommendations: editorial suggestions for the introduction and executive summary

Specific Framework Issues

- Readability/document organization
 - Recommendations
 - Tenets moved and expanded
 - Before Categorization
 - Interoperability Concepts (see next slides)
 - Standards (see next slides)
 - Scenarios
 - Predigest and include points essential to illustrating
 - Move scenario details to Appendix, add others
- Perspective
 - Recommendations
 - Situate this document more explicitly
 - Provide some perspective on roadmap or expected evolution
 - Better define intentions (including what is out of scope now or always)
- Actionability
 - Recommendations
 - Provide several examples of desired (expected?) actions for different audiences

Standards

- Issue: What is the relationship between the framework and standards?
 - The framework document currently provides no position on standards. This creates confusion for the reader. It skirts the issue of standards, never addresses it explicitly, though they are tightly tied in with the examples for the levels and the scenarios. One key point readers will be looking for is how this relates to standards.
- Recommendations, how to change the document:
 - The framework document should be extended to explain its position on the topic of standards.
 - Create a section on “Standards” in the intro or under “Tenets”. Be explicit in saying that no standards are specified, only used as examples.
 - This would include the use and definition of standards.
 - The framework document should be in alignment with the constitution, in that it’s purpose is not to create new standards.
- What else could be done to address the issue:
 - In future work, plan for companion documents that may provide some guidance regarding standards—on one hand to integrators that may be seeking guidance on which standards, on the other hand to standards groups and developers.
 - Consider future issue: GridWise must use a consensus process to make standards choices, or identify how this will be accomplished outside of GridWise.

Facets of Interoperability

- Definitions of Interoperability in the framework
 - Degrees of interoperability (the varying gap, plug and play vs other degrees)
 - Interoperability vs interchangeability
- Interoperability and the interaction of systems
 - Clarify “system” in the Framework to include “processes”, “physical systems”, “information systems”, “infrastructure systems”, etc.
- Implications of imperfect interoperability
 - Real-world constraints, metrics (quality of service)
- Behavior level interoperability
 - For tightly coupled systems “surface” level interoperability can be insufficient

Common Themes and Overlaps

- Addressing Standards
- The ‘jump’ between the business categories and the technical categories: Is anything missing?
 - E.g. leap from business knowledge to message data structures)
 - Being able to readily relate business processes to information models.

Open Issues: Beyond the Framework

- Beyond the definition of a framework, there are a number of areas where the scope of GridWise could be expanded:
 - The definition of building blocks to apply the Framework
 - Definition of a reference architecture
 - Important aspects for guiding implementations of the Framework
 - Vulnerability assessment
 - Risk assessment
 - Resiliency management
 - Business process and related information models
 - Identification of common business processes and supporting information models
 - Roadmap, actionable guidance
- This would seem to help make the GridWise vision more understandable and provide targets for implementation efforts.

Next Steps to Consider

- Further versions (companion documents or future iterations of this document)
 - Explore who is the intended reader
 - Consider KnowledgeBase/Living document
 - Will the framework get to the right people?
 - Will the purpose evolve?
- Extensions
 - Reference Architecture
 - Prescriptions or suggestions
 - Trade-offs (constantly evolving infrastructure)
 - Roadmap or userguide
 - Checklists (eg for system integrators)

Questions?

Thank you

Understandability

Jeff Harding

Mia Paget

Understandability: Document vs. Framework?

- Brief title of issue: What is the goal of document vs. goal of framework?
- Describe what the issue is: Is v1.0 of this document intended to be the context-setting framework?
- Why this issue is important: There are currently references to the workshop, and other narratives that can confuse a reader.
- Recommendations
 - How to change the document: Edit the introduction and executive summary, avoid using 'the document', move references to the workshop to the 'Background'
 - What else could be done to address the issue: Elaborate this sentence: "This is the first of a series of documents to describe an interoperability framework and articulate interoperability issues to enable discussion with participants at all levels." (p5)

Understandability: Purpose?

- Brief title of issue: What is the purpose of GridWise?
- Describe what the issue is: For readers that are not familiar with GridWise, there needs to be a clear, concise (explicit) description of GridWise and the GWAC
- Why this issue is important: To set the context for the reader, direct him/her more explicitly to background documents if need be.
- Recommendations
 - How to change the document: Add a one page preface with a paragraph on GridWise and a paragraph on the GWAC and list of prerequisite reading. (Adjust Executive Summary and Introduction accordingly)
 - What else could be done to address the issue: As other versions emerge, plan to add references and list of 'companion' documents (eg proceedings from this workshop...)

Understandability: Standards?

- Brief title of issue: What is the relationship between the framework and standards?
- Describe what the issue is: Does the framework provide Process – how to guide, specify and cope with standards (general standards, domain specific, relating standards to each other)? If not, why not? Tell reader.
- Why this issue is important: The document skirts the issue of standards, never addresses it explicitly, though they are tightly tied in with the examples for the levels and the scenarios. One key points readers will be looking for is how this relates to standards.
- Recommendations
 - How to change the document: Create a section on “Standards” in the intro or under “Tenets”. Be explicit in saying that no standards are specified, only used as examples.
 - What else could be done to address the issue: Plan for companion documents that may provide some guidance regarding standards—on one hand to integrators that may be seeking guidance on which standards, on the other hand to standards groups and developers .

Understandability: Readability/Understandability

- Brief title of issue: Overall readability and logic of the document
- Describe what the issue is: The order of the sections can be confusing, some parts would be better to be summarized and moved to Appendix, some additional points about interoperability are needed.
- Why this issue is important: For better comprehension for a broader set of readers.
- Recommendations
 - How to change the document:
 - Switch order of sections 2 and 3 (Tenets before Categorization)
 - Re-label 'Tenets' (so that it is broader than 'system integration', add subsections to discuss some interoperability concepts and issues (e.g., interactions and dynamics with physical systems, degrees of interoperability, standards, and quality of interoperability...))
 - Reduce Section 5 to provide a summary of key points of each scenario and what each illustrates in the framework—Move the scenario details to the Appendix—Add other scenarios that have been submitted. Predigest scenarios to focus on key insights for the framework in Section 5.
 - Based on overall outcome of workshop and on 'Next Steps' that are identified on Day 2, revise/finalize the 'Governance' Section.

Understandability: Perspectives

- Brief title of issue: current perspective is tightly focused on software engineers, single point in time
- Describe what the issue is: The content of the document is currently very tightly focused on software engineering and information systems, doesn't provide the perspective of other forms of engineering.
- Why this issue is important: The reader is not provided with the full image to situate where the framework is today, where it might be going, and how it may evolve and extend beyond this tight focus.
- Recommendations
 - How to change the document:
 - Add a section in the introduction to more explicitly situate the current stage of the framework.
 - Wherever the document talks about 'resolving interoperability', adjust it to be more reasonable (eg 'improving interoperability')

Scope and Target Audience

Jack McGowan
Scott Neumann

Who is the intended reader of the Framework?

- The audience of the Framework document is currently assumed to be knowledgeable of complex system integration and the related issues.
- Should the Framework document be restructured so that it can be understood by and be useful to a broader audience?
- This would be important to permit GridWise to gain a broader base of support and acceptance.
- Should the Framework document be extended to provide information that would assist in the development of business cases?

Beyond the Framework

- Beyond the definition of a framework, there are a number of areas where the scope of GridWise could be expanded:
 - The definition of building blocks to apply the Framework
 - Definition of a reference architecture
 - Identification of common business processes and supporting information models
- This would seem to help make the GridWise vision more understandable and provide targets for implementation efforts.

Infrastructure will Evolve

- The fact that the infrastructure will evolve and continue to evolve is a fact.
- The challenges faced by GridWise will be similar to that faced by urban planners. During the process of evolution, it must be recognized that there are trade-offs to decisions, such as:
 - Initial effort vs. future value
 - Security vs. interoperability
- It is important that the Framework remain dynamic, so that changing business needs can be met and future technical innovations can be leveraged.
- While the Framework must be agnostic with respect to standards and technologies, obviously there will be a variety of standards and technologies used to provide interoperability within the infrastructure.
- In some cases the Framework may need to prescribe or suggest a reference architecture, where there is a well defined path of evolution from the perspective of standards and technologies.

What should the Framework describe to readers as its perspective on standards?

- The framework document currently provides no position on standards. This creates confusion for the reader.
- The framework document should be extended to provide a position on the topic of standards.
- This would include the use and definition of standards.
- The framework document should be in alignment with the constitution, in that it's purpose is not to create new standards.

What other aspects of the infrastructure should be included within the Framework?

- There are other aspects of infrastructure that should be potentially included within the Framework document.
- These aspects would be important for guiding implementations of the Framework. These could include:
 - Vulnerability assessment
 - Risk assessment
 - Resiliency management
 - Business process and related information models
- It would be desirable for these aspects to be addressed by a reference architecture.

Overall Structure and Tenets

U3 - Actionability

Provide roadmap or user guide

- Not clear how the Framework is to be applied. No vision of how implementations will emerge and evolve over time.
- How to measure conformance to the Framework?

Importance:

- Impedes acceptance of the Framework

Provide roadmap or user guide

Recommendations:

- Better define the intentions of the framework document including what is out of scope.
- Better articulate who is expected to provide a roadmap or guide if not GridWise™.
- Move “Tenets” to beginning of document.

Prescribe Standards

- The Framework does not prescribe use of specific standards for interoperability, rather is suggest these choices are left up to any two parties that need to communicate.

Importance:

- Without a single (or few) allowed solutions, there will be a proliferation of incompatible ones, slowing adoption.

Prescribe Standards

- Recommendations:
- Don't wash your hands of standards.
GridWise must use a consensus process to make standards choices, or identify how this will be accomplished outside of GridWise.

Knowledgebase / living document

- The Framework document could become obsolete over time.

Importance:

- The Framework is expected to be viable for many years, yet technology and best practices will surely change.

Knowledgebase / living document

Recommendation:

- GridWise needs to “future proof” the Framework with a plan for handling change.

Is the Framework actionable?

- It is not clear how a reader is expected to apply the Framework to any specific system.

Importance:

- Without clear purpose, readers will either see no value or apply the Framework in unique self-serving ways.

Is the Framework actionable?

Recommendations:

- Provide several examples of desired (expected?) actions for different audiences.

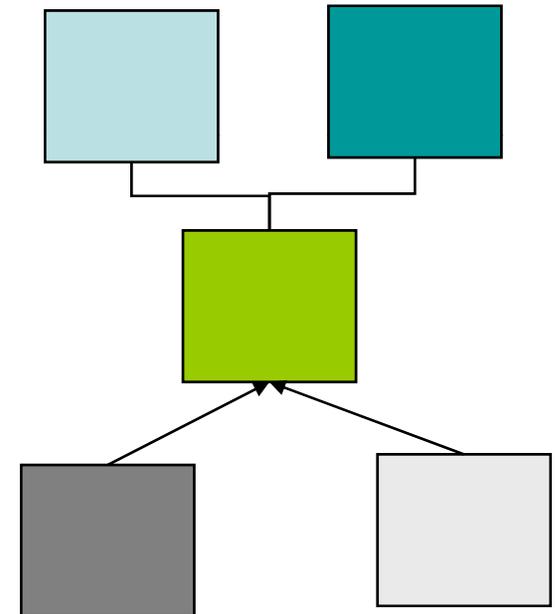
Interoperability

Richard Schomberg

Thomas Yeh

Incomplete definition of “Interoperability” within the Framework

- Issue is that the definitions of Interoperability in the framework are not sufficient to clearly explain “interchangeability” of system components.
- Issue is such that “interoperability” is not the same nor does it guarantees “interchangeability”
 - Explain the similarity and differences between “interchangeability” and “interoperability”
 - The importance of “Plug and Play” is not defined
- Recommendations:
 - clearly articulate the need for interchangeability versus Interoperability
 - Explain in simple language for the system owner/user the benefits of Interoperable/interchangeable components



Understanding of “Interoperability” as defined in the Framework

- The issue is the description of “Interoperability” in the framework can be interpreted differently
- This issue is important because readers may misinterpret “system” as described in the Framework as just cover “information system”
 - Should the definition of “System” be left to the users
 - Or should “System” always be all inclusive so the interactions of systems (e.g. IT and Physical) are included in the definition of “Interoperability”
- Recommendation:
 - Clarify “system” in the Framework to include “processes”, “physical systems”, “information systems”, “infrastructure systems”, etc.

The Framework does not describe imperfect “Interoperability”

- The issue is the Framework does not allow imperfection of interoperability/interchangeability of the real-world
- This issue is important because in the real-world the degrees of interoperability/interchangeability are constrained by naturally limited resources
 - What to do when faced with unexpected responses?
- Recommendations:
 - Framework should make provision for exceptions, ambiguities and different interpretations
 - Performance metric such as QoS is one such example of imperfect interoperability/interchangeability
 - Framework should make provision for an “Authority” to quantify and test the performance metrics

Behavior Level Interoperability

- The issue is that the current definition of Interoperability in the Framework does not explicitly address Behavior level interoperability beyond the “Surfaces”
- This issue is for tightly coupled systems “surface” level interoperability is insufficient to produce Interoperable/Interchangeable systems
- Recommendation
 - The Framework needs to articulate the necessity of achieving behavior level Interoperability/Interchangeability for certain systems