Effective
Standards Work

COX SOFTWARE ARCHITECTS

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Agenda

- **Introduction and Preliminaries**
- Software Architecture
- Questions: First Slicing
- Questions: Second Slicing
- Five Secrets
- Conclusions
- Summary, Questions, References

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Introductions (1)

- Who am I?
  - Consulting enterprise architect
  - Elected to OASIS Technical Advisory Board
  - Skilled at building standards and products from ideas to adoption
  - Business, marketing, and technical background

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Introductions (2)

- Who are you?
- Why are you here?
- What do you expect?

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Preliminaries

- Topic is software standards
  - Many suggestions also apply to software projects
- Interoperation and Conformance
  - Usually need interoperation or compatibility
    - Interop tests can help standard and/or products
    - You'll benefit from implementing based on draft standards

What is a Standard?

- Simplistic definition:
  - A standard is a consensus specification used to achieve broad interoperation
- Ideal
  - The strength of the ideas/technical merit drives standards

Ideas ⟹ Standard ⟹ Adoption ⟹ Universal Use
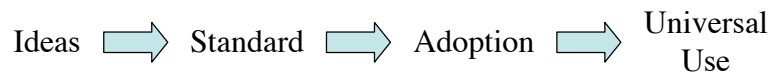
Consider That…

- Reality is much messier
  - Even the words vary in meaning
- Many inputs, much work hidden in the simplified ideal
- Standards may be *technical* but standards projects are both *technical and social*
- Success takes planning and understanding

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What's in a Word?

'When I use a word,' Humpty Dumpty said, in a rather scornful tone,' it means just what I choose it to mean, neither more nor less.' - Lewis Carroll

"A standard is a consensus specification, broadly used to achieve interoperation"

- Consensus
- Specification
- Broadly used
- Interoperation

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Start Out Right

- Consider how you start a project
  - What do you know?
  - What don't you know?
  - What are the risks?
  - What are the costs?
  - What are the consequences of failure?
  - What are the consequences of success?
- Choose a project and answer those questions
  - Don't identify the project; this is for your use today

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Software Architecture

The software architecture of a program or computing system is the structure or structures of the system, which comprise software elements, the externally visible properties of those elements, and the relationships between them. - Wikipedia

- Architect's view of project stages (idealized)
  - Define, then
  - Design, then
  - Deliver, then
  - Deploy
- Reality: forward/back links between all the stages

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How Projects Work

- **Coordination adds complexity**
  - Architects reduce high level complexity
- **It always takes longer than you thought**
  - "The second half takes the other 90% of the time"
- **Process is and should be front-loaded**
  - Are you all pushing the same direction?
  - Understand your goals and needs

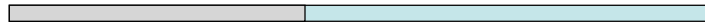Page 12

Architecture and Projects (1)

- Does a front-loaded process have too much overhead?
  - Can speed final results, with care:

Without architecture

With architecture and planning

Undisciplined architecture phase

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Architecture and Projects (2)

- At every stage evaluate how your product architecture fits with the draft standard
  - Implement/prototype on top of draft spec
  - Prototype native implementation base
  - Prototype interoperability if possible
  - Consider quality of alignment

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Improve Your Understanding

- Good questions make understanding easier
- More important than knowing the answer
- Understand what you don't know
- Several ways to slice the problem
  - One may fit you/your project better
  - Both bring out similar information
- Bring the project into focus!

Questions You Need to Answer

1. What is being standardized — a system, a protocol, a vocabulary, a model?
2. Where is the technology in its lifecycle?
3. What is the time to market (of the standard, of products and technologies using it)?
4. What is the coverage of the standard—core, ancillary, broad, narrow?
5. Who has built a business in the technology?
6. Who will build a business using the standard?
7. What effort will be put into standardization?
8. What provisions for intellectual property issues must the project address?
9. Where could and should the standardization effort take place?

First Slicing - The Newspaper

- Outline of a newspaper article
- Expose important information early
- Conventional order
- Need a [marketing] headline
  – How will you explain the project?

Newspaper *vs* Standards Projects

Who?	Why?
Where?	Who?
What?	What?
When?	When?
How?	How?
Why?	Where?
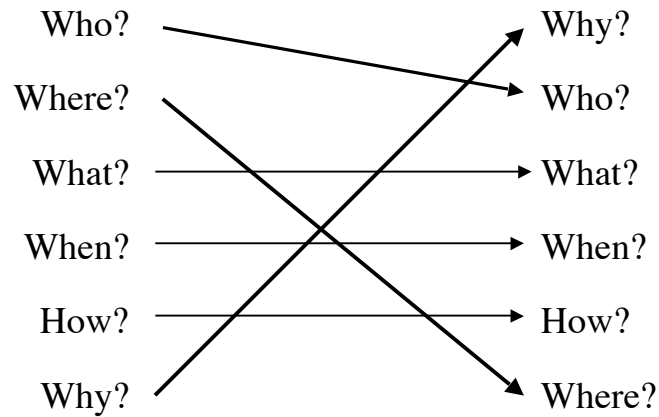
Why?

- Inspiration?
- Motivations?
  - Economic
  - Technical
- Quality of collaboration
- Sustain interest?
- Buy side? Sell side?
- Do you need a standard?

Who?

- Use the "Why" answers to
  - Identify prospective participants and understand their motives
  - Estimate their degree of commitment
  - Identify those who would oppose the project and their motives
- Use your analysis to guide recruiting, negotiate buy-in

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What?

- What is the proposed standards project?
- Does the project meet the needs of "the community"?
- How does the project fit the landscape?
  - Other projects, other standards, products

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When?

- What is the market window for the proposed project?
  - What range of times will the result be useful?
- May adjust when it's delivered by asking
  - Is it too ambitious?
    - Too big, too small, just right?
  - Is it useful enough?

How?

- Is there a critical mass of
  - Participants?
  - Intellectual Property Rights contributors?
  - Potential users of the eventual standard?
  - Potential supporters of the eventual standard?
- Will there be sustained interest to complete?
- Do you have a project plan? A marketing plan?
  - Negotiate the actual plans

Where?

- Evaluate potential venues
  - Private consortium (new, existing)
  - Standards group (new, existing)
- Criteria include
  - Costs of the effort and managing contributors
  - Processes and definitions
  - IPR issues, policies, and solutions
  - Openness
  - Overhead costs (money and time)

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Second Slicing - Time+Topics

- Many questions fit in multiple categories
- Group differently
- Similar questions, but organization may better fit your style or your project

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Motivation and Interest

- Are there enough potential contributors to complete the project in a reasonable time?
- Is there enough interest to maintain commitment?
- How contentious will the work/result be?
- How might adopters use the standard?
- How will adopters go from current practice to the standard?

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Economics

- What is the value to the proposers and contributors of the effort?
- What would stakeholders lose with adoption?
- Do economic forces align with delay or rapid completion? Adoption?
- Is there a reasonable alignment of interests among the contributors and users?
- What resources are required?

Definition

- What is proposed for standardization?
- Is the proposed work complete enough?
- Is the proposed work central to the technology?
- What work is needed to produce a useful standard?
- For each person and company involved, what is their definition of "success"?

Intellectual Property Rights

- Separate set of issues
- Who owns or could assert IPR?
- Can all owners be convinced to contribute IPR? What if they can't?
- What do the IPR stakeholders expect from the standard?
- Is it safe for the project to accept contributions?
- Does the standards venue have an IPR policy? How does it affect the project?

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Timing

- What is the market window for a finished standard?
- Can the project realistically hit that market window?
- What if it takes 2 or 3 times longer?
  - Schedule risk
- When and how can products be available?

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Venue (1)

- What stature for the result is desired?
  - Stature and importance of venue's other stds
- Natural relationship between subject areas?
- Clear and acceptable IPR policy?
- What support will the venue provide?
  - Training? Support? Community?
- Does the venue collaborate with other venues?
  - ISO and other "higher level" standards?

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Venue (2)

- What are the direct and indirect costs?
  - For you and for other participants?
- Is there a clear process?
  - From charter to final approval?
- How effective and efficient is the process?
- What "consensus" and "openness" is required?
- Have others been pleased with the venue?

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#1: Understand the Landscape

- What is the context for the standards project?
- Answers to these questions are important:
  - Where is the technology in its lifecycle?
  - Who has built a business in the technology?
  - Who will build a business using the standard?
  - What intellectual property issues need to be addressed?
  - What are others doing that will affect the standard?
- Additional questions are in the references

#2: Understand Why and What

- What will the project produce?
  - What is being standardized?
  - Is the standard broad? Narrow? Core? Ancillary?
- Why is the Standard being produced?
  - What are others' motivations? Economic? Technical?
  - What are your reasons?
  - Is it worth the effort?
- How does the project fit in the landscape?
- Bring the project into focus!

#3: Keep Asking Questions

- Don't be afraid to ask others
  - Why they prefer something
  - What they hope to accomplish
  - What their goals are
- Consider inconsistencies
- And understand your own answers!

#4: Invest in the Work

- Be a better contributor (and get your ideas across more effectively) by investing:
  - Offer to edit (if you can afford it)
  - Write position papers and text for drafts
  - Communicate clearly, concisely, & consistently
  - Talk with and understand others in the project
  - Implement and interoperate using draft specs

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#5: Work Well with Others

- Always be aware of your and others' needs/goals
  - Alliances may not be obvious
- Build coalitions where you can
  - Find common ground, trade support
- Build consensus where you can
  - And lock it down
- Try not to revisit issues
- Socialize ideas informally
  - Informal discussions at meals/breaks useful

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Remember…

- Alliances aren't always visible
  - Analyze, consider who benefits and how
  - Alliances may shift as the subject changes
- If you don't succeed, regroup and keep trying
  - Limited goals are easier to reach
- Keep thinking about your product architecture
  - You may be surprised at what you do/don't need

Review Questions

1. What is being standardized — a system, a protocol, a vocabulary, a model?
2. Where is the technology in its lifecycle?
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Where to go from Here?

- Ask the first level questions we've sampled
  - Follow up with questions tailored to the situation
- Work with others to expand your capabilities
  - Collaborators, consultants, colleagues
  - "Have you thought about…?"
- Work to understand the situation
  - Think about others' goals and needs
  - Don't answer as *you*, anticipate answers as *them*
  - Validate whenever possible

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Summary

- Success factors in a standards project are similar to success factors in a software project
- Understand the landscape
- Know what you need and want
- Know the questions to ask and follow up
  - Get the right help when you need it
- Invest in the work
- Social activities build technical standards

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Questions

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References

- Information, free newsletter signup at www.CoxSoftwareArchitects.com
- OASIS Committee FAQs linked from
  docs.oasis-open.org/templates/