



Agile Architecture

Closing the Loop

APLN Orange County

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Creating New Frontiers

Key Questions

- **What is the role of architecture in an agile project?**
- **How do you keep architecture engaged early and throughout in a fast-paced development effort?**
- **How do you make agile architecture work in a larger corporation?**

Agile Architecture

- **“A complex system that works is invariably found to have evolved from a simpler system that worked. A complex system designed from scratch never works and cannot be patched up to make it worked. You have to start over, beginning with a working system.”**

John Gall

Agile Architecture

- **The fact is Big Design Up Front (BDUF) rarely works for creating a new complex system**
- **Agile makes it possible to create a new complex system quickly by making sure that **each iteration produces a working system** that satisfies requirements**
 - **Implies acceptance of inevitable instability in the architecture**
 - **Potential for rework is offset by rapid implementation**



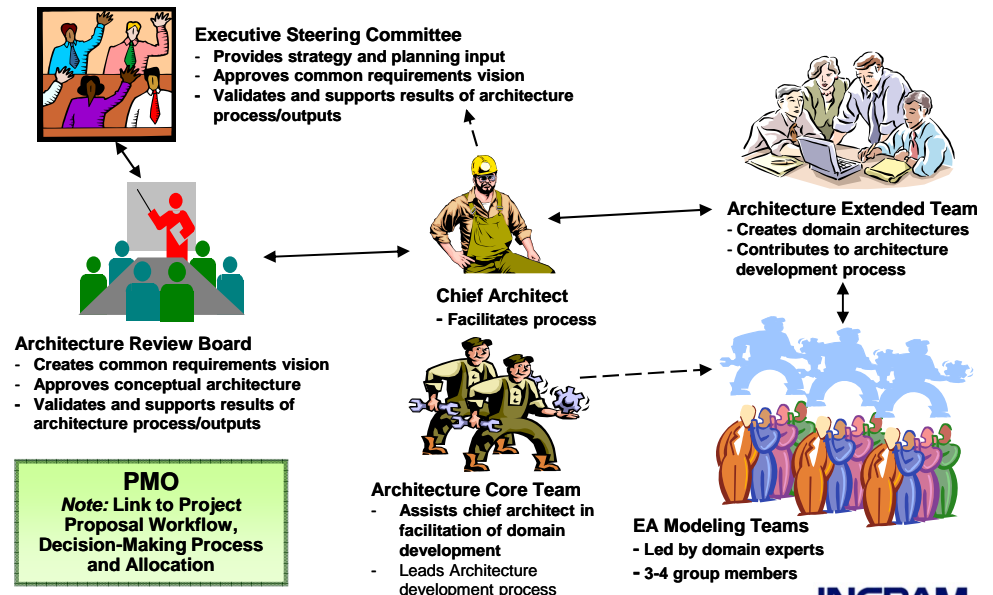
BDUF on large projects typically produces designs that have large gaps that will only be discovered during or at the end of the project.

Agile Architecture

- Agile architecture means that appropriate software architecture is **engineered** in right from the start and throughout
 - Rigorously eliminate fragile architectural practices
 - Establish a set of patterns that work for your team and apply them consistently
 - Include operations considerations (metrics, diagnostics, ...)
- This **raises the bar** on the development team
 - Not all [lead] developers are engineers

Agile Architecture

- **Multiple architecture teams exist in most larger organizations**
 - **Governance and compliance understanding paramount**
 - **Stage/Gate not always Agile friendly**
 - **Architecture likely to change after initial approvals are obtained: this creates a guaranteed gap between architecture and development**



Architecture Engagement

- **Agile development is fast-paced and demanding**
 - **Architecture decisions are made frequently during the life cycle of a project**
 - **Test-driven development (TDD) accelerates the ability to change as new requirements impact the existing architecture**

- **Just as with the Customer, the **Architect must be fully engaged** in order to make decisions quickly**
 - **Normally architect is assigned but is not directing the team**
 - **If the architect is not readily available the developers will tend to make decisions themselves**

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Architecture Engagement

■ Recommendation: **Make the Architect the Lead Developer**

■ Benefits

- Immediately and permanently resolves the mismatch between Architecture and Development
- The Architect typically has training and/or experience that guide the team toward solid engineering practice
- Allows architect to retain/enhance key technical skills

■ Challenges

- Must overcome career and motivation obstacles to be truly successful
- Must select an architect with engineering mindset and willingness to lead development team, again

Architecture Engagement

■ For larger engagements

- Architect/Lead Developer to manage overall effort
- Architect/Lead Developers for major components
- Lead Developers for ancillary or lower risk components


Corporate Agile Architecture

- Larger organizations have typically retreated away from agile development processes due to
 - Lack of documentation
 - Lack of requirements traceability
 - Lack of formal architecture practices
 - Perception that security compliance is greater in waterfall development efforts

- Use “Just-in-Time Documentation”
 - Obtain agreement from governing bodies on **minimal documentation** required
 - Produce documentation as requirements are set, architecture is stabilized, tests and deployments defined

Conclusion

- **Architecture is an essential part of a rapidly evolving development project**
- **Make your architects your lead developers to eliminate gap between architecture and development**
- **Manage architects' aspirations, ensure personal development**
- **Engage external architecture groups early to eliminate obstacles**
- **Develop minimal documentation to augment agile process as required to support enterprise requirements**



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