Practical Software and Systems Measurement

Objective Information for Decision Makers

Applying Measurement to Software Architecture

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Agenda

- Intros and expectations
- Objectives of the Workshop
- Brief about Software Architecture Design, (if necessary)
- Integration of SA with Software Life Cycle
- Concerns about SA Design
- Measures for Software Architecture: Discussion
- Synthesis and Conclusions

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Objectives of the Workshop

1. ***Identify measurement categories and specific measures for SA Design***

2. ***Write measures specifications for candidate measures***

3. ***Outline a white paper about SA Design Measurement***

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Brief about Software Architecture

- ***Software Architecture concepts***

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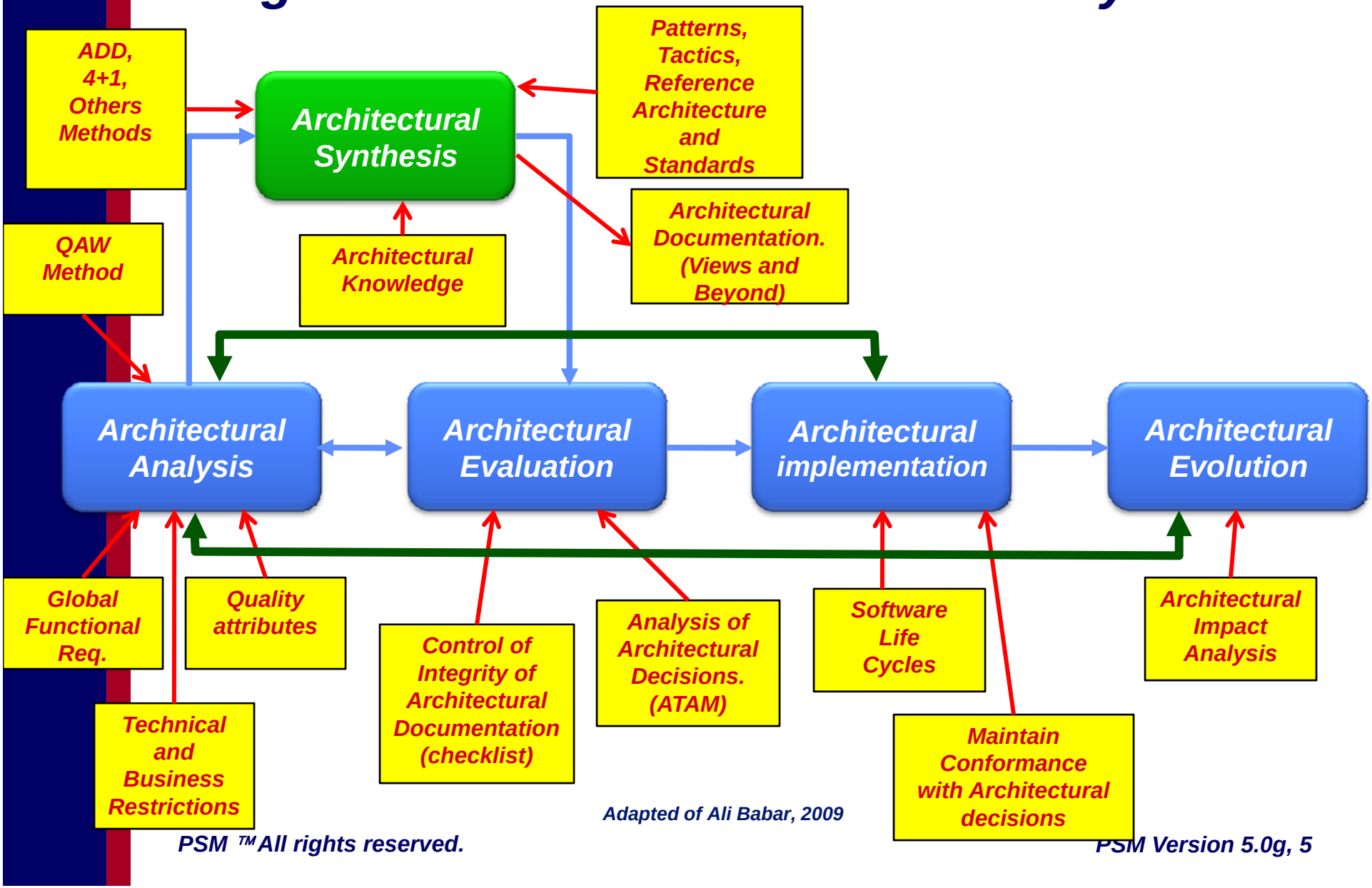
Integration of SA with Software life Cycle



Adapted of Ali Babar, 2009

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Benefits of SA Centric Life Cycles

- ***Allow to achieve the quality attributes required by business objectives.***
- ***Help define a strategy to achieve the development process objectives.***
- ***Help make and organize development teams in order to work in a more efficient way.***

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Benefits of SA Centric Life Cycles - 1

- ***Establish restrictions to design and build the product focusing on quality attributes.***
- ***Help predict the system quality in early stages of the project.***
- ***Simplify the scope and facilitate the analysis while helping take decisions about strategic priorities.***

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Benefits of SA Centric Life Cycles - 2

- ***Help define how the system will be managed, and analyze the impact of change along the product lifecycle.***
- ***Establish main concepts that can be analyzed and prototyped as a system mock.***
- ***Allow for a better cost analysis, estimations and planning.***

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Benefits of SA Centric Life Cycles - 3

- ***It's a basement for strategic reuse of:***
  - ***Requirements***
  - ***Development techniques***
  - ***Source code***
  - ***Components***
  - ***Standards***
- ***Establishes main concepts to support the development of paradigms as a Product Line***

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New methods are hard to introduce

- ***Organizations must figure out:***
  - ***If new methods are useful***
  - ***How transition and use them***
  - ***How to make them fit with other process and methods***
  - ***The estimated cost for adoption***
  - ***The return on investment***

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Actor	Concerns/issues	Measure Category Process Products	Candidate Measures
Senior Manager/Organization	Cost of Implementation of SA Methods Time to Market Productivity Market positions ROI of SA Others?....		
Project Manager	SA Design Estimation, (time and effort) Trade off between Project Schedule and SA Design process Impact in Processes and methods Project Performance Product quality Others?.....		
Software Architect	SA Design Estimation Stakeholders satisfaction Robustness of SA Design Reuse at different levels Quality of SA Design Artifacts, (Views, perspectives and decisions) Adherence to Architectural decisions Demonstrate the value of SA Design Others?...		

Practical Software and Systems Measurement

Actor	Concerns/issues	Measure Category		Candidate Measures
		Process	Products	
Software Developers	Impact in the “creativity” Relationship with the Architect Impact in the schedule Conflict with “Agile Fashion” Others?...			
Testers ?				
Infrastructure ?				
Marketing Team ?				

Introducing the Discussion

1. ***Are the seven Information Categories of PSM enough or we need new ones?***

2. ***For instance, Is the same Customer Satisfaction that Stakeholder Satisfaction?***

3. ***This is a list of potential new categories:***
   1. ***Return of investment***
   2. ***Cultural Change process***
   3. ***Business advantage***
   4. ***Architecture Size and Stability??***
   5. ***Architecture Quality***
   6. ***Architectural Knowledge??***
   7. ***Others?...***

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Discussion – (Workshop mechanism)

1. *Conform teams to work*
2. *Each team takes one, (o more), Actor's concerns*
3. *The team elaborates measurement categories and candidate measures*
4. *Each team exposes its work*
5. *The group introduces comments*
6. *Break*
7. *Synthesis of materials and conclusions*

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