

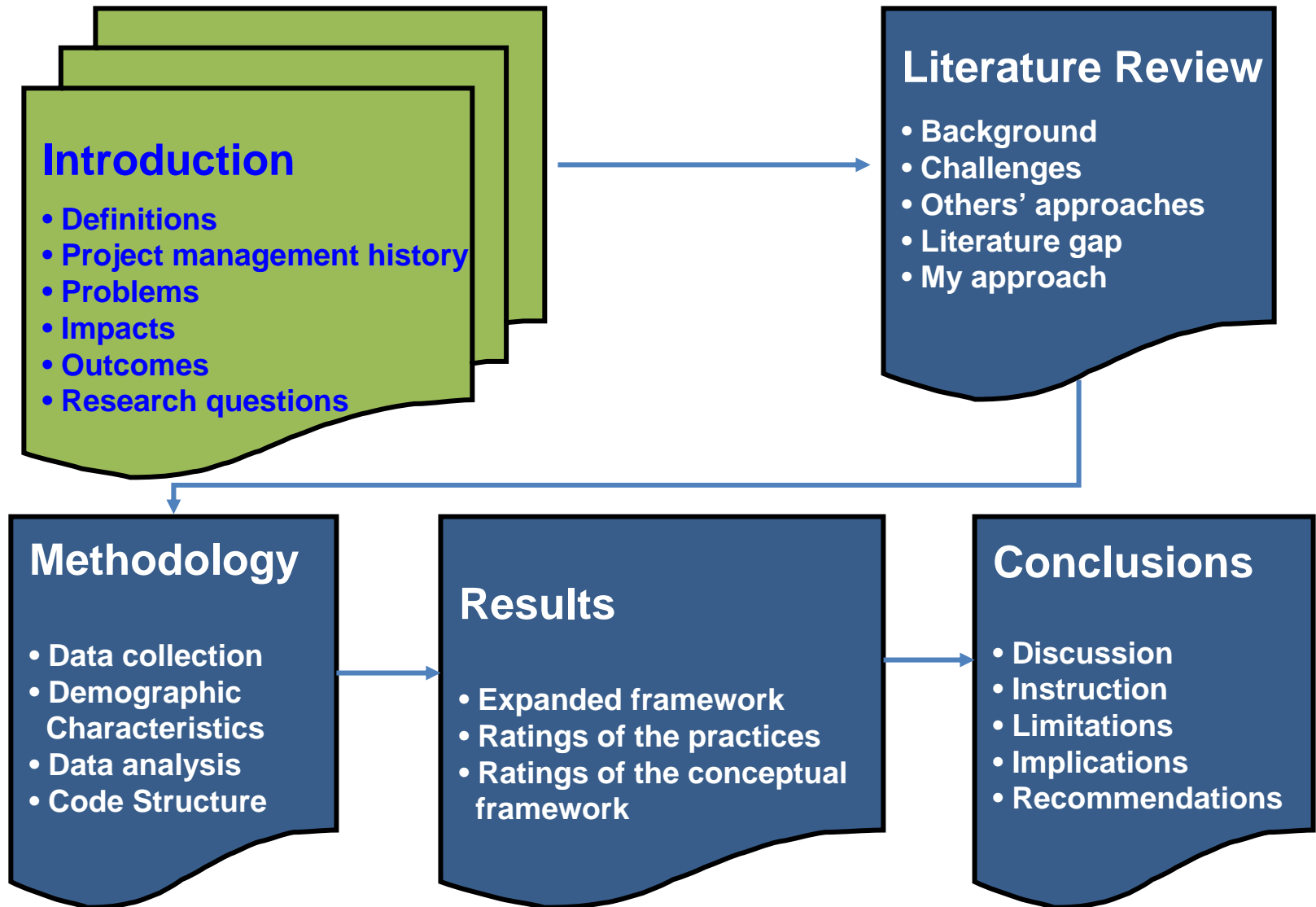
Mapping Agile Project Management Practices to Project Management Challenges for Software Development

Saya Poyu Sone

College of Business, Argosy University

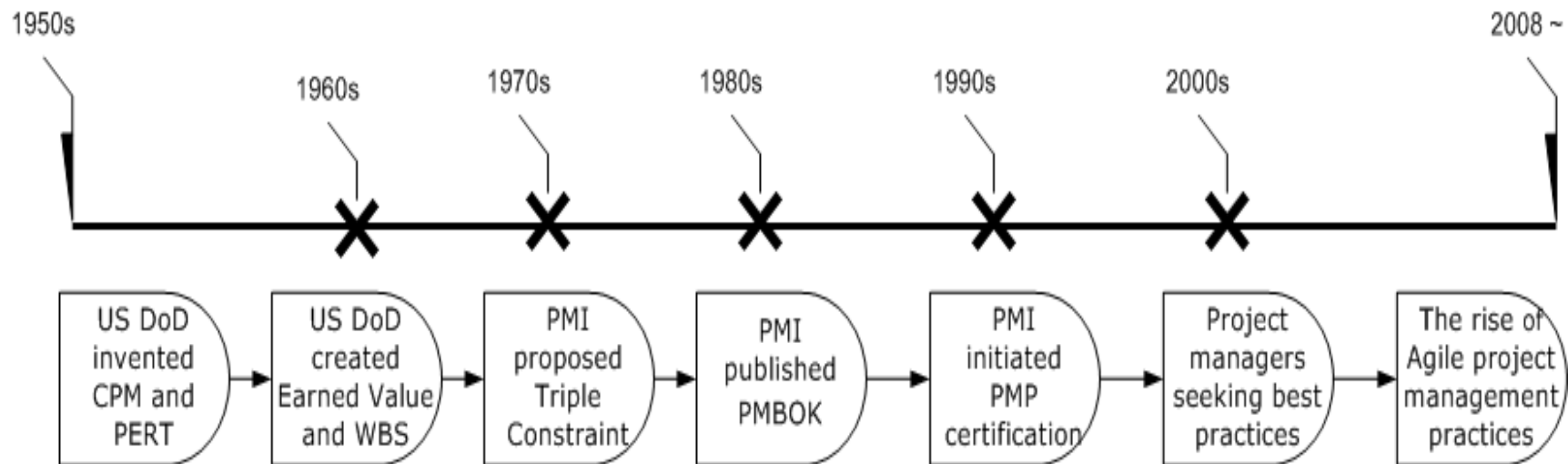
Dissertation Committee

Sean Robinson
Ahmed S. Sidky
David F. Rico
Grace Klinefelter



Waterfall process	Step-by-step, detailed process groups, formal project plans, well documented customer requirements, and rigorous testing
Agile Manifesto	Focus on primary values - Individuals and interactions, working software, customer collaboration, and responding to change
Agile Principles	Embrace change to deliver customer value, plan and deliver software frequently, human-centric, technical excellence, and customer collaboration
Agile Methods	Iterative development, customer feedback, well-structured teams, and flexibility
Declaration of Interdependence	Increase return on investment, deliver reliable results, expect uncertainty, unleash creativity and innovation, boost performance, and improve effectiveness
Agile Project Management	Interact with skilled individuals, deliver working software products, establish close interaction with customers, and adopt changes in a quick manner

History of Project Management



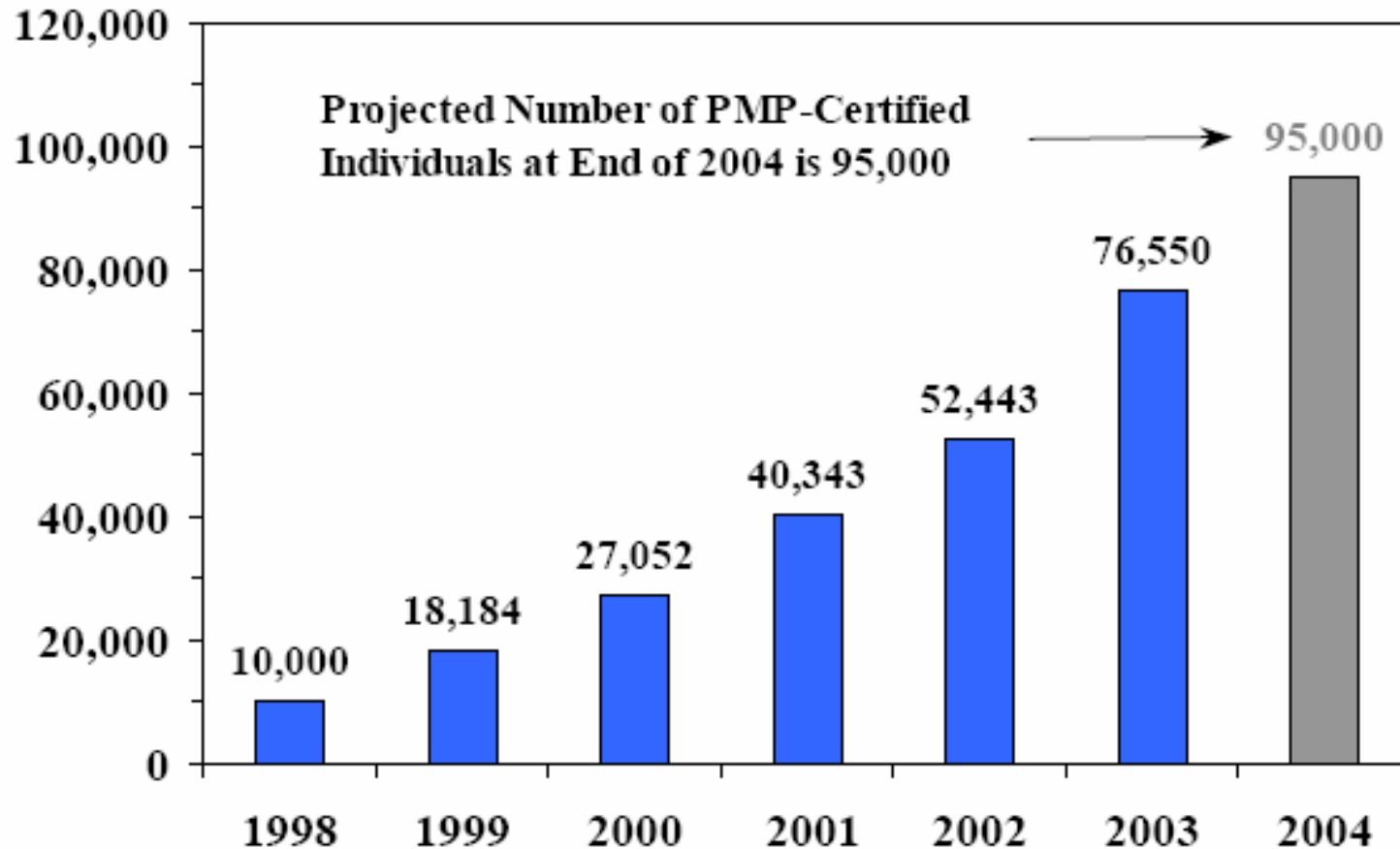
What went wrong with the traditional project management method?



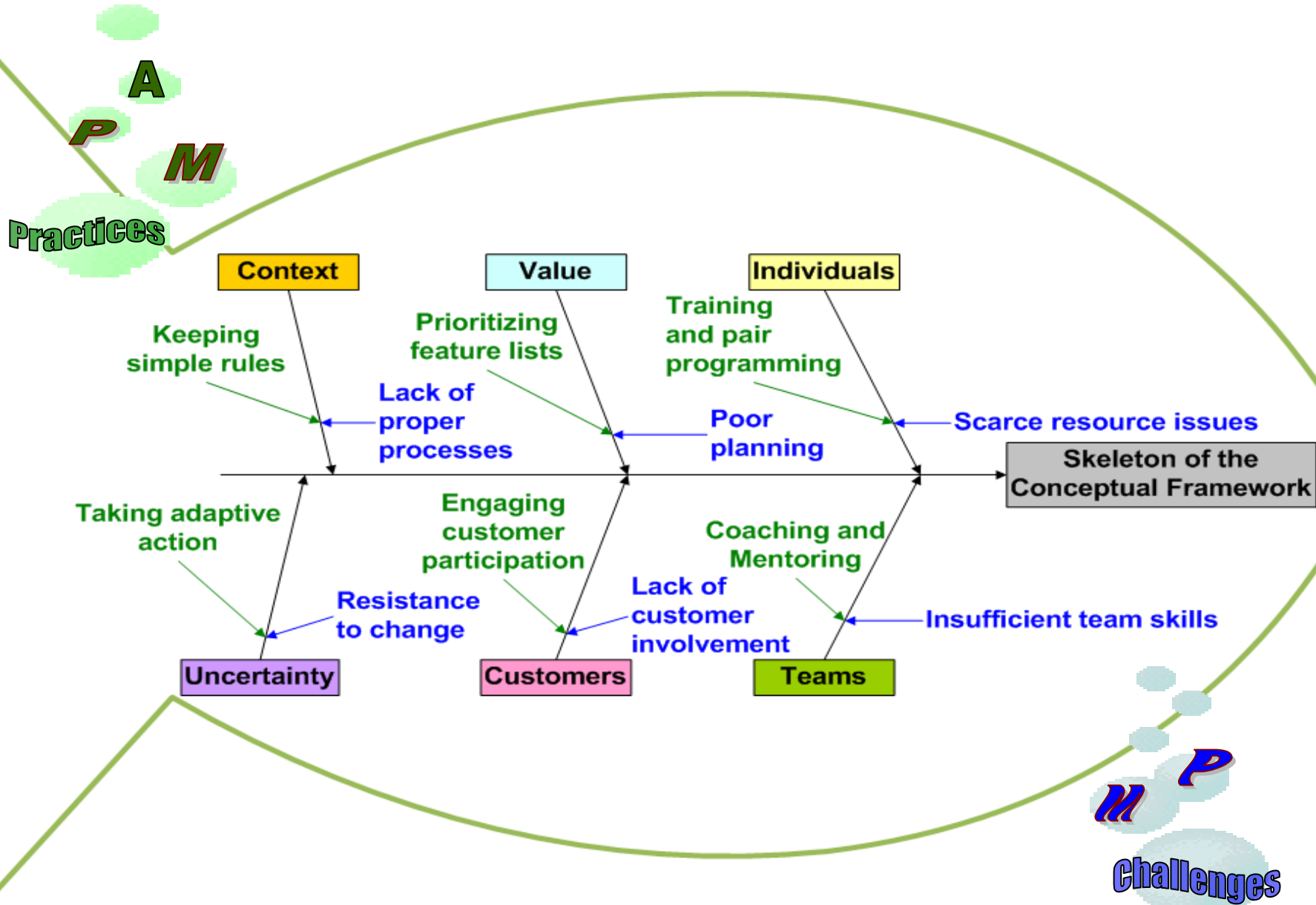
Traditional software development life cycle

Pros.	Cons.
Peace of mind – first complete detailed specifications, then build	Waste too much time in writing detailed specification
Well planned – provide estimation effort and cost at definition phase	Unreliable estimation during design phase
Management favor – provide predicible release schedule and detailed activities	Lack of adaptation to unpredictable change
Linear process – know what is the next step	Lack of flexible adaptive steps driven by build-feedback cycles

260,000 certified project management professionals in 2007

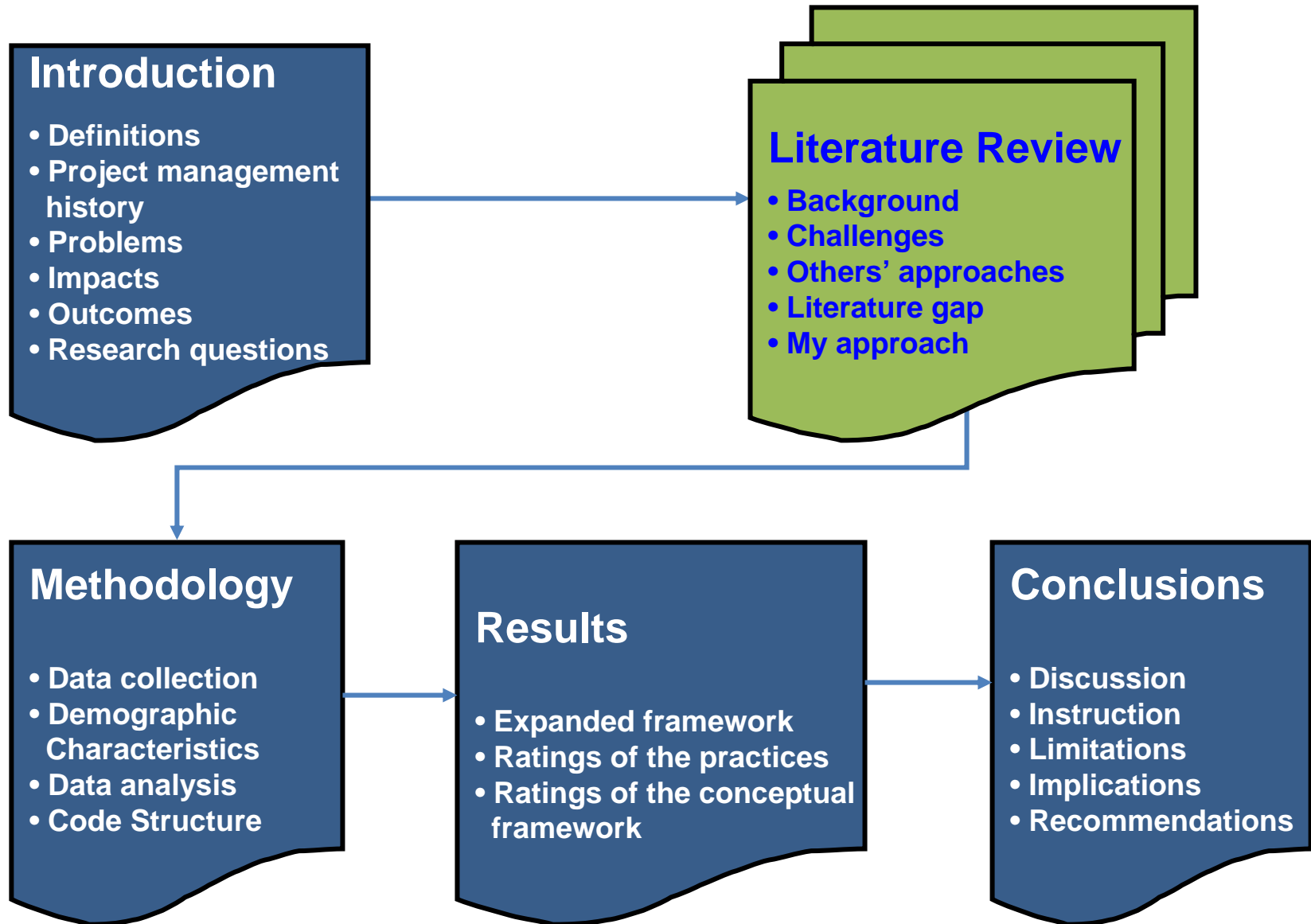


Source: Stine (2004)



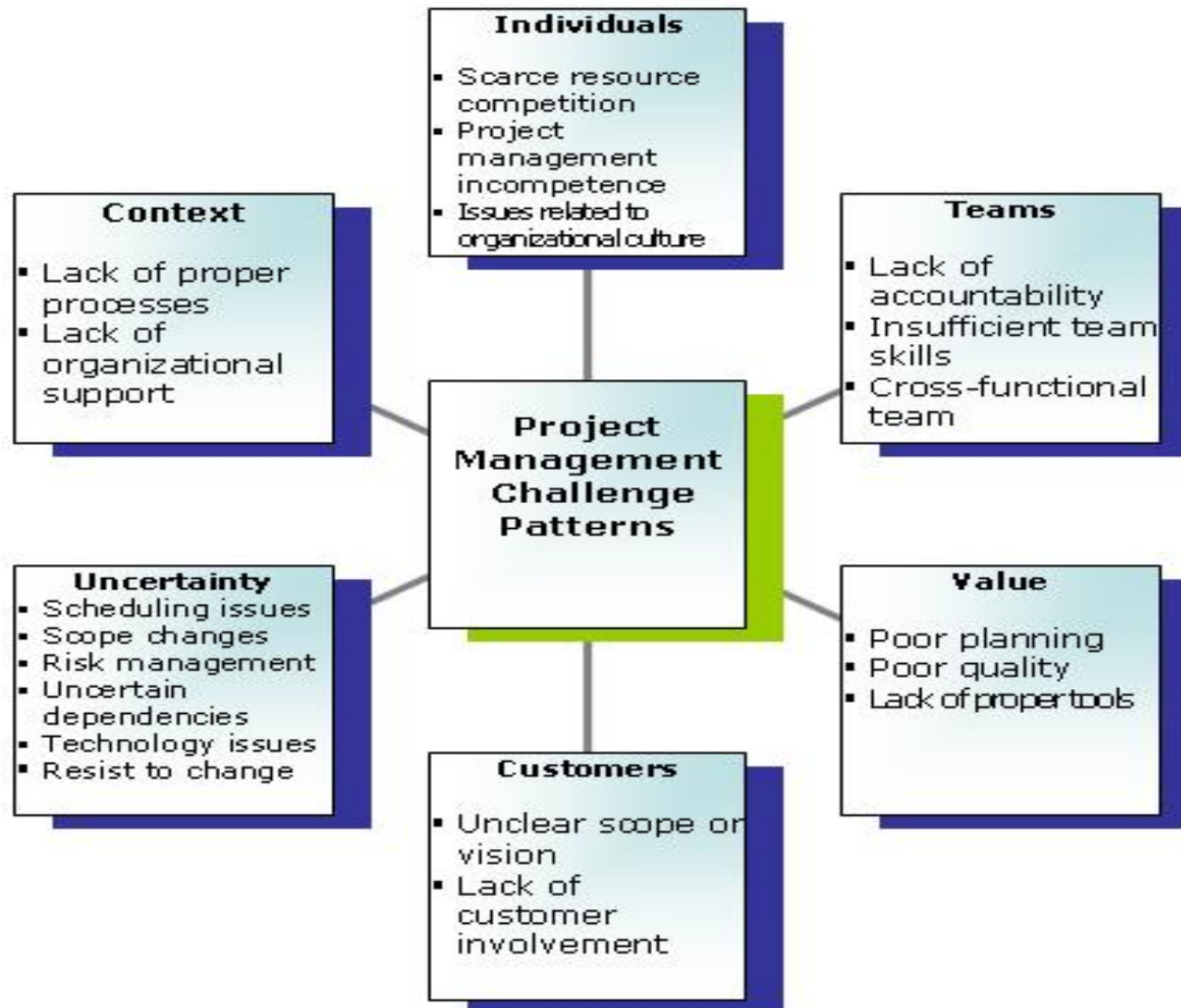
Three Research Questions

1. What Agile project management practices are useful in solving specific project management challenges?
2. How effective are Agile project management practices in solving specific project management challenges?
3. How useful is the conceptual framework for mapping Agile project management practices to specific project management challenges?



Successful projects should achieve six Declaration of Interdependence objectives

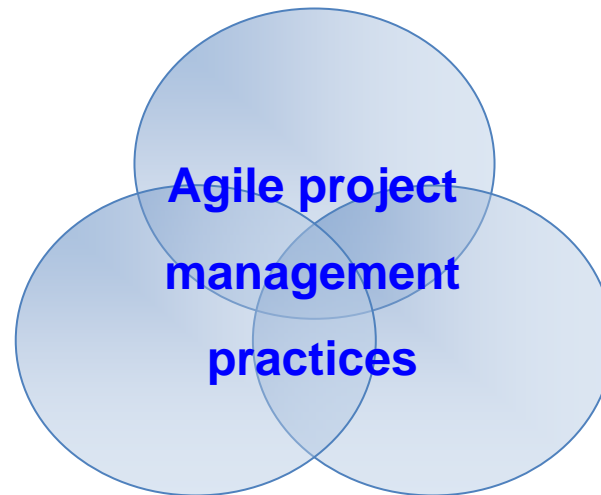
DOI Value Area	DOI objectives	Methods
Individuals	Unleash creativity and innovation	Recognizing valuable individuals who can make the differences
		Creating an environment where individuals can deliver values
Teams	Boost performance	Establishing group accountability for results
		Building a viable team that shares responsibility for team effectiveness
Value	Increase return on investment	Focusing on continuous flow of value
Customers	Deliver reliable results	Sharing product ownership
		Engaging customers in frequent interactions
Uncertainty	Expect uncertainty	Managing changes through iterations
		Anticipating changes
		Adapting changes
Context	Improve effectiveness and reliability	Simplify processes
		Using situational specific strategies and practices



Others' Approaches

Highsmith's
Agile Process Framework

Product vision and Iteration plan



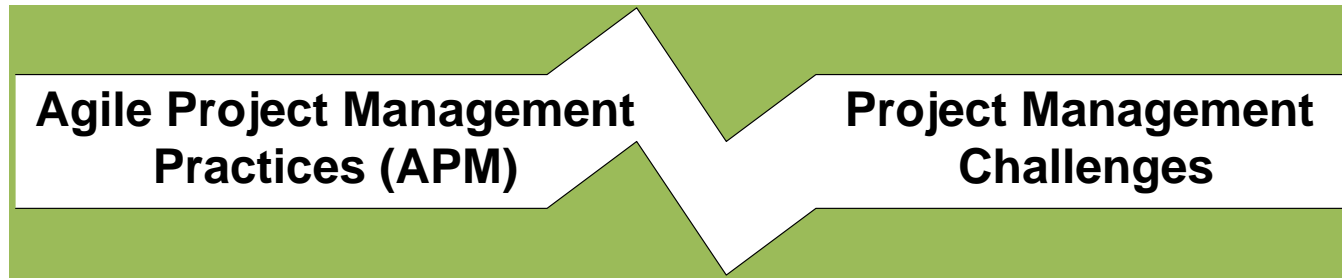
Augustine's
Complex Adaptive System (CAS) Model

Delivery of customer value

DeCarlo's
eXtreme Project Management Model

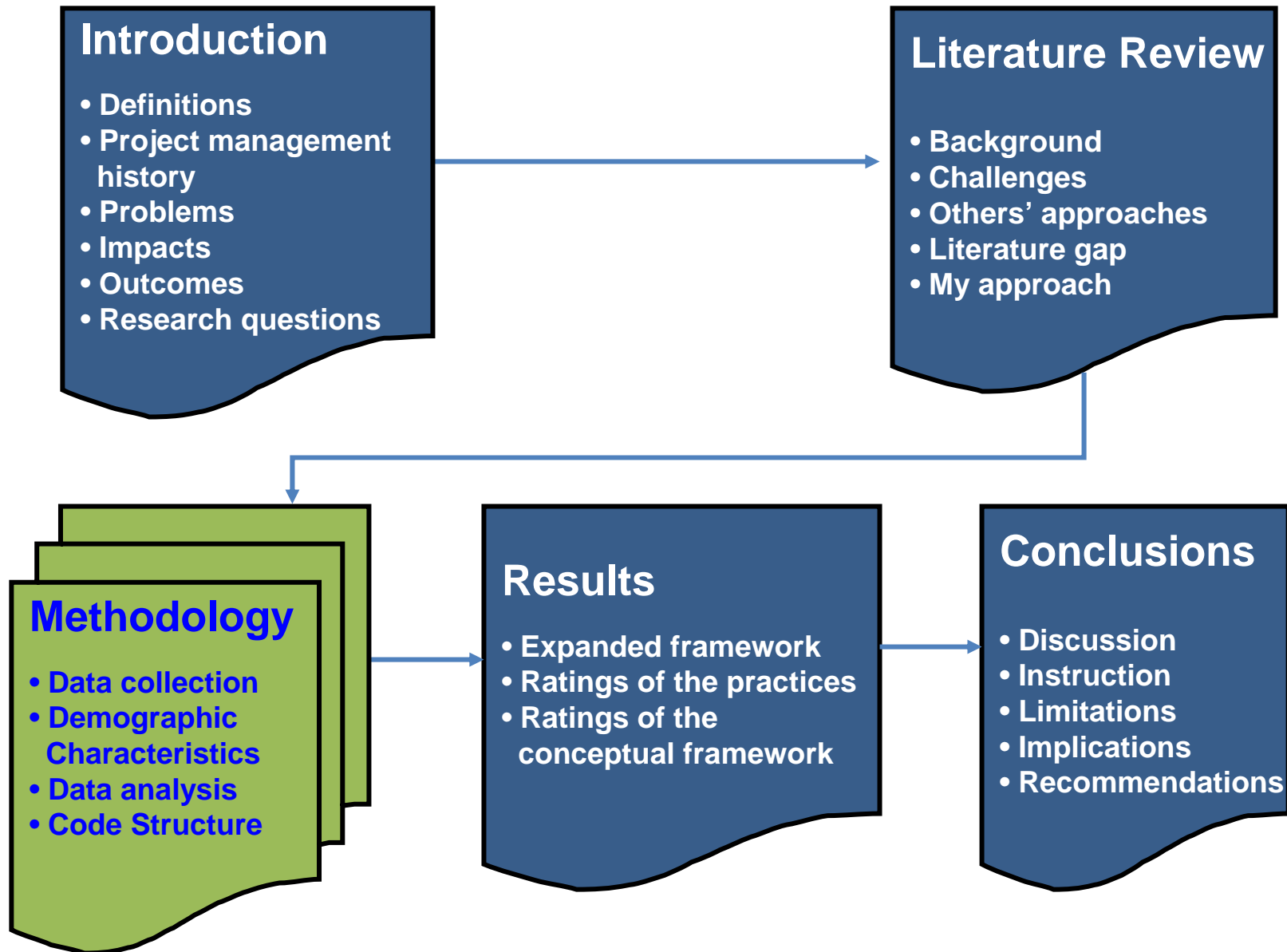
4 accelerators
10 shared values
4 business questions
5 critical success factors

Literature Gap

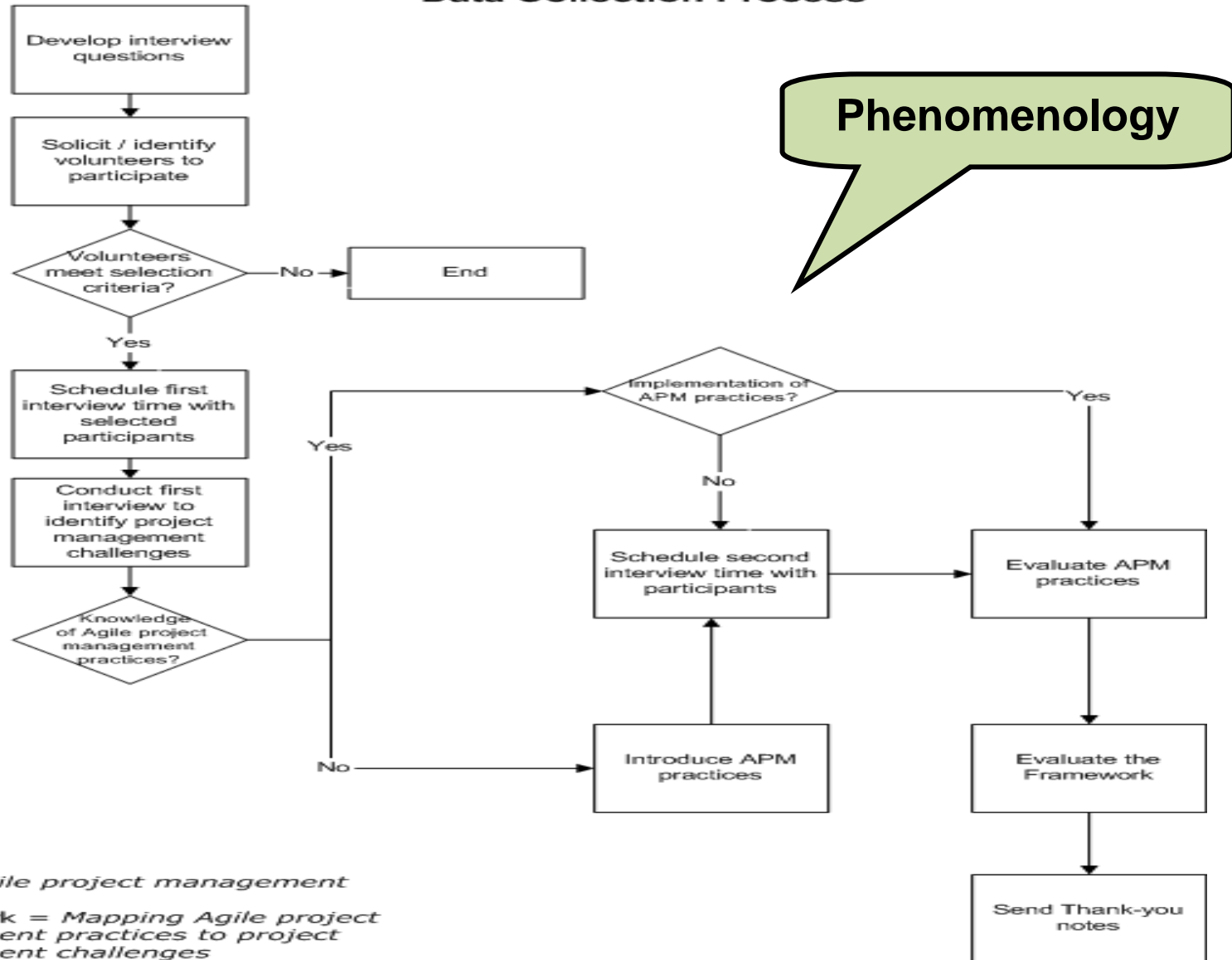


- Are there sufficient scholarly studies of APM?
- Are there any APM study based on any research methodologies?
- Are there any studies linking APM to project management challenges?
- Are there any theories supporting the implementation of APM?

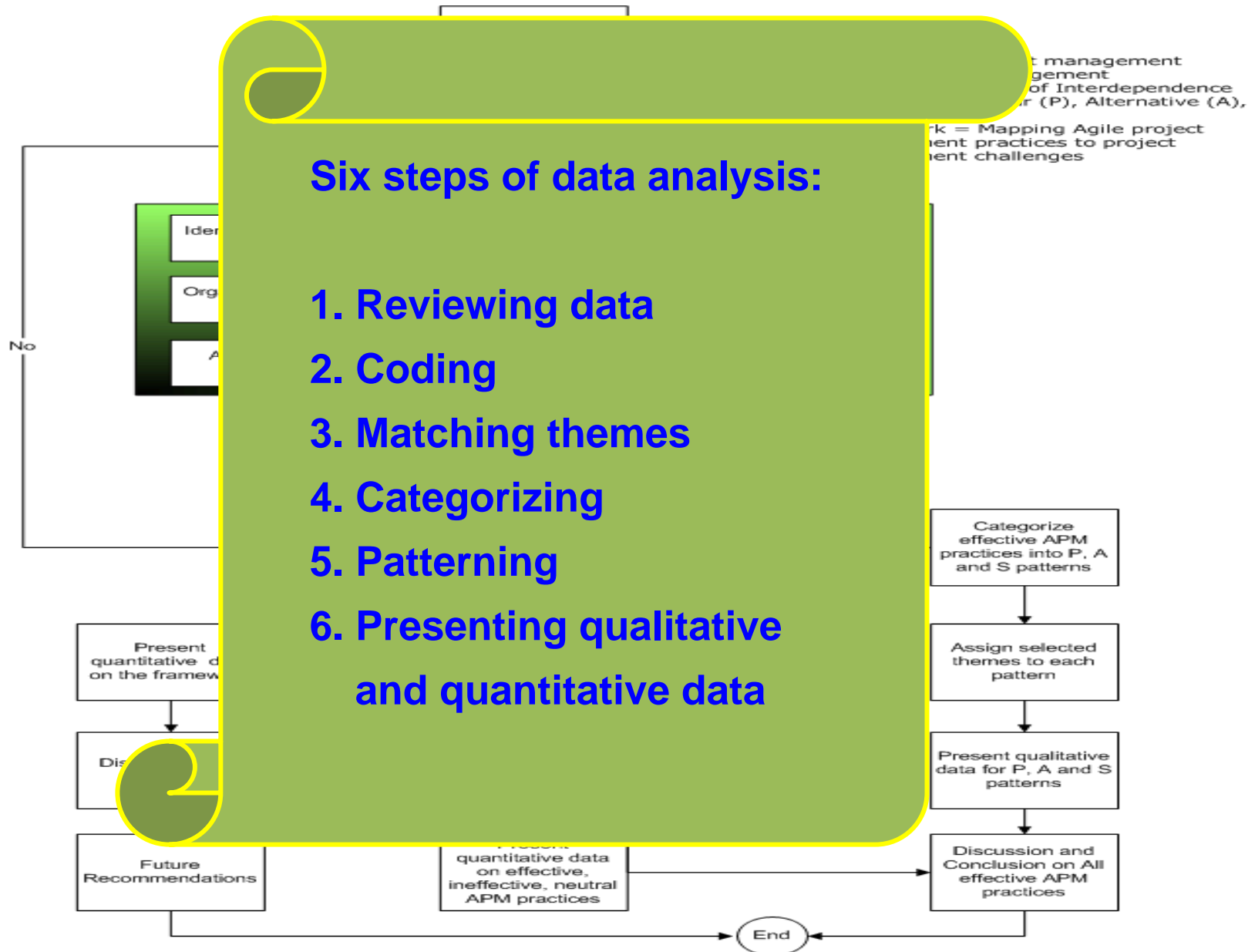
Mapping Agile Project Management Practices to Project Management Challenges Framework			
DOI Value Areas	APM Major Practices	H (+)	PM Major Challenges
Individuals	Hiring the right people	1.	Project management incompetence
	Training and pair programming	2.	Scarce resource competition
	Maintain quality of work life	3.	Issues related to organizational culture
	Decentralizing control		
Teams	Emphasizing commitment and leadership	4.	Lack of accountability
	Coaching and mentoring	5.	Insufficient team skills
	Building a self-organizing team	6.	Cross-functional team
Value	Prioritizing feature list for return on investment	7.	Poor planning
	Creating innovative products		
	Eliminating waste		
	Sharing open information	8.	Poor quality
	Using right tools	9.	Lack of tools
Customers	Creating simple vision statements	10.	Unclear scope or vision
	Engaging customer participation	11.	Lack of customer involvement
Uncertainty	Applying iterative and incremental strategies	12.	Scheduling issues Scope Changes
	Observing and assessing practices	13.	Risk management Uncertain dependencies Technology issues
	Taking adaptive actions	14.	Resistance to change
Context	Keeping simple rules	15.	Lack of proper processes
	Building customer-value organization	16.	Lack of organizational support



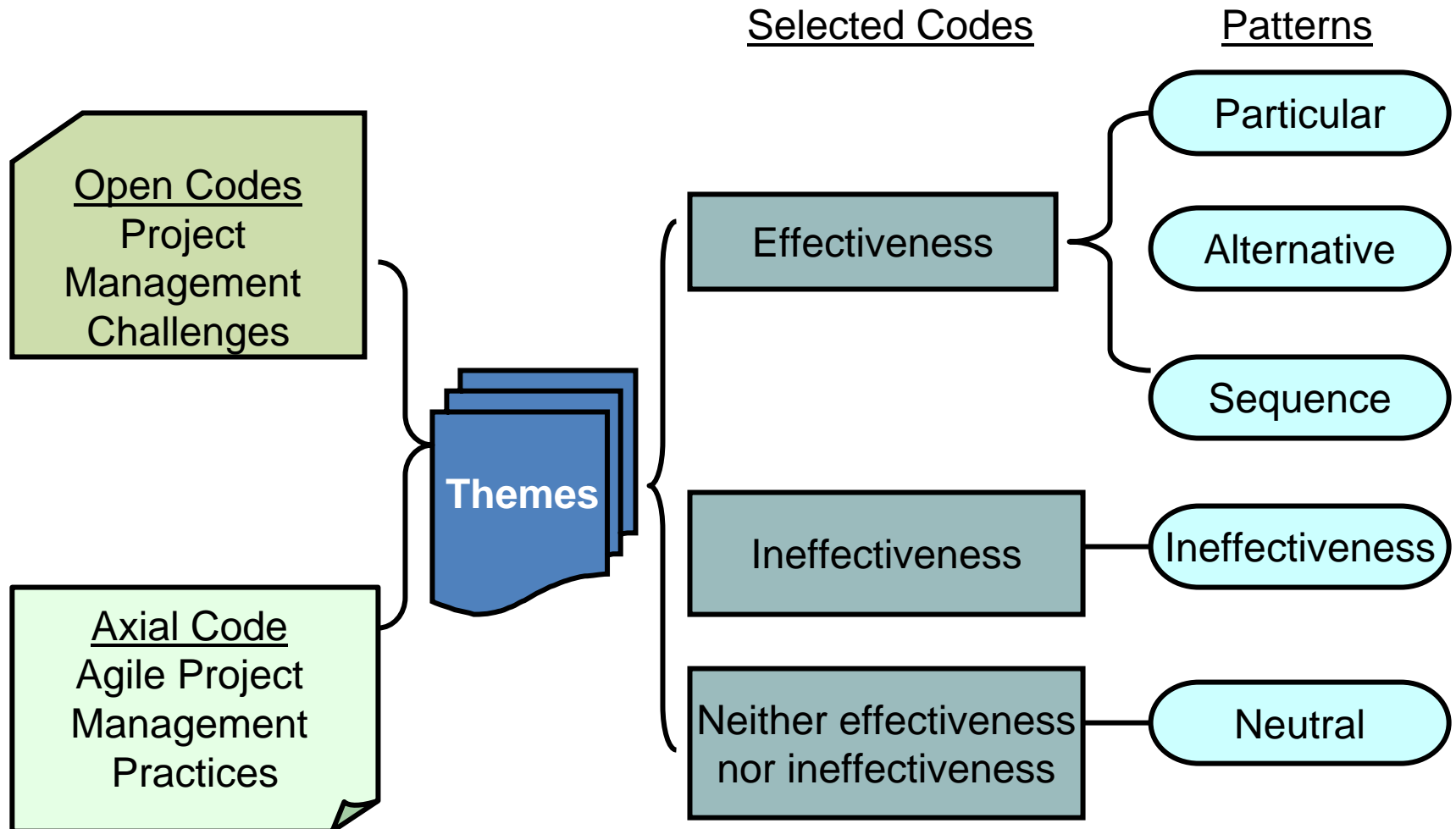
Data Collection Process

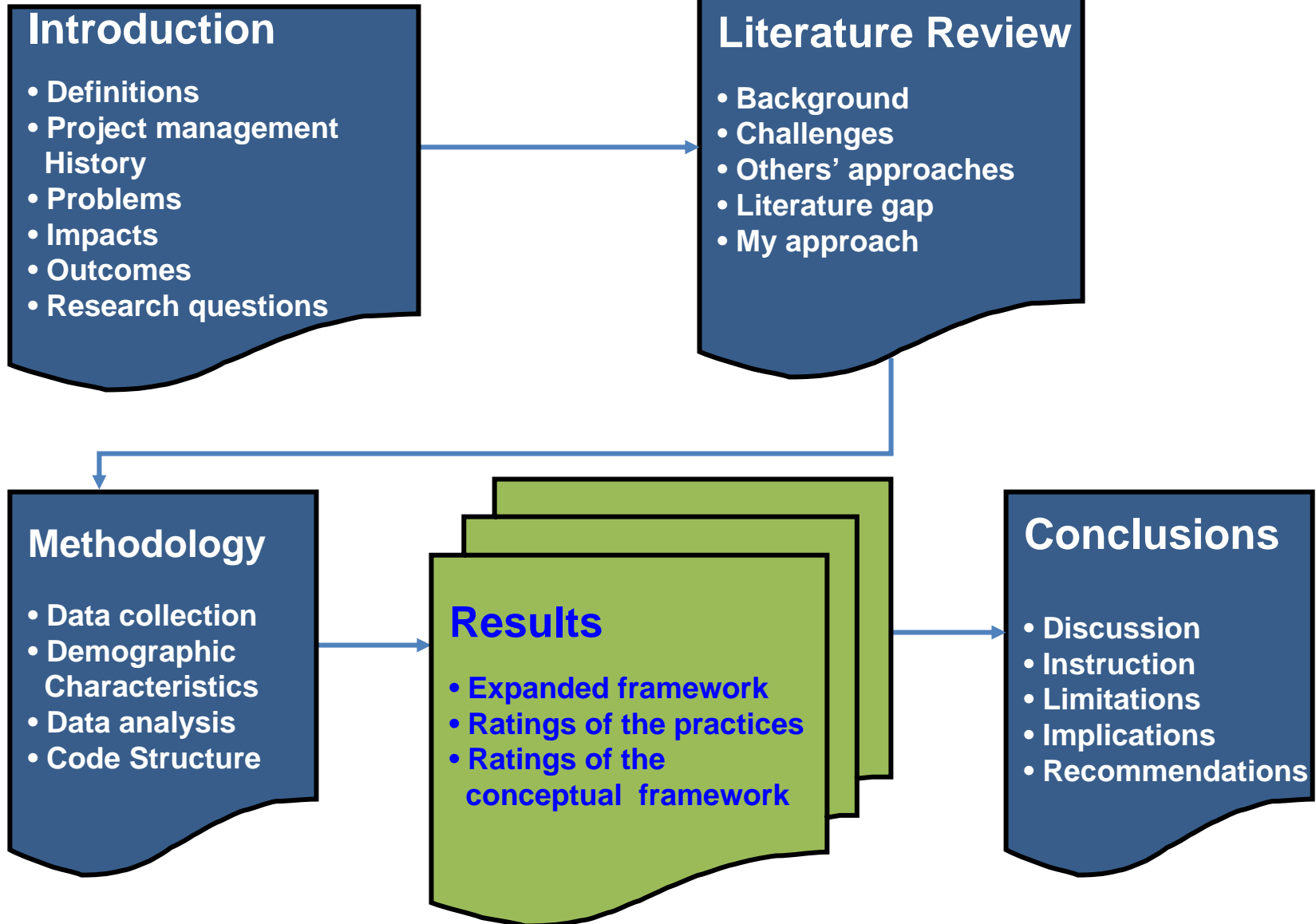


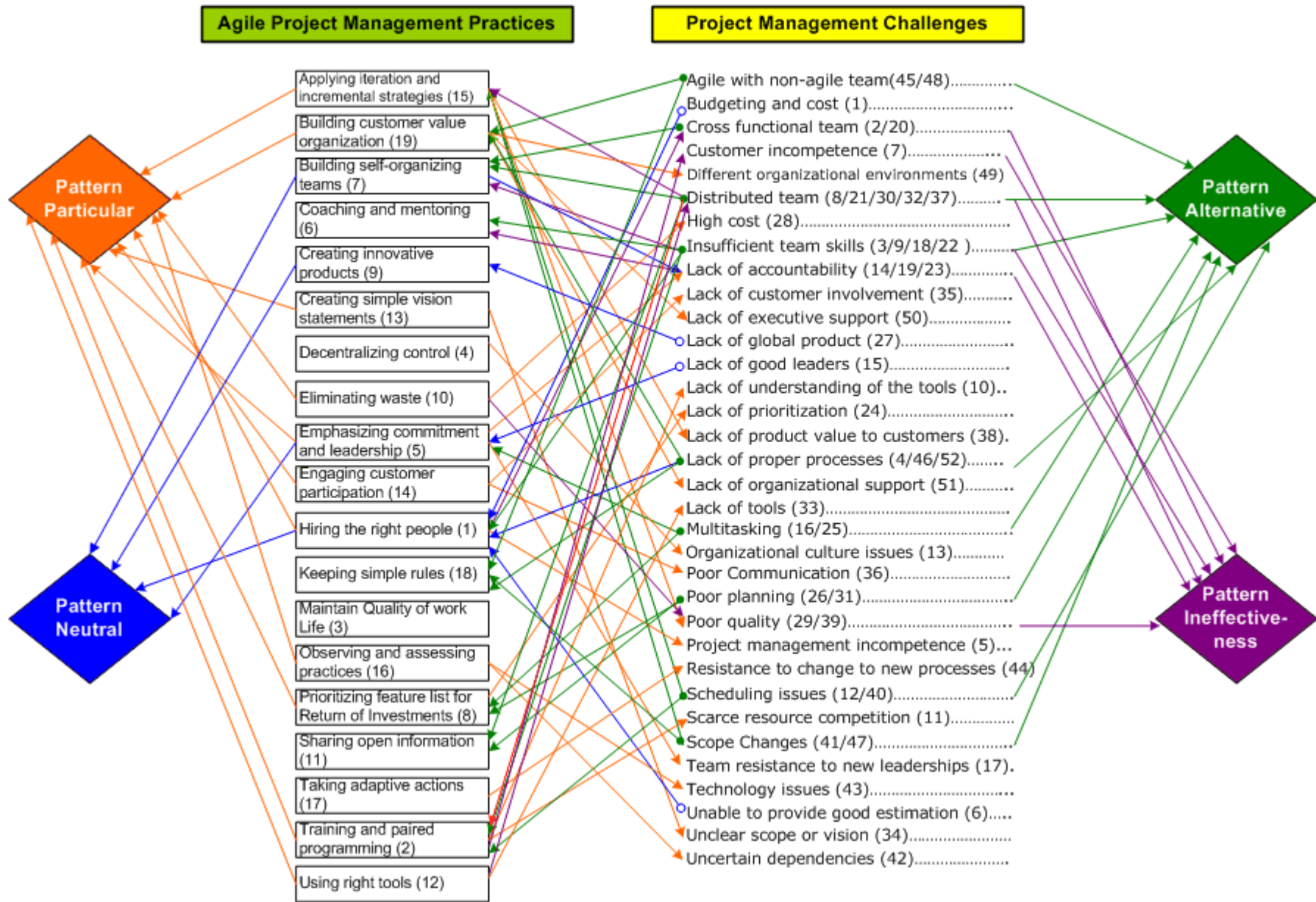
Demographic Backgrounds	Counts
Project Management Experiences	
3-6 Years	5
7-13 Years	9
14-20 Years	8
21-25 Years	5
Project Management Knowledge in	
Agile (Certified ScrumMaster)	5
Waterfall (PMP)	12
Both	1
Other	9
Organizational Environments	
Agile	10
Waterfall	3
Mix	11
Other	3
Project Types	
Government	10
Commercial	13
Non-profit	2
Mix	2

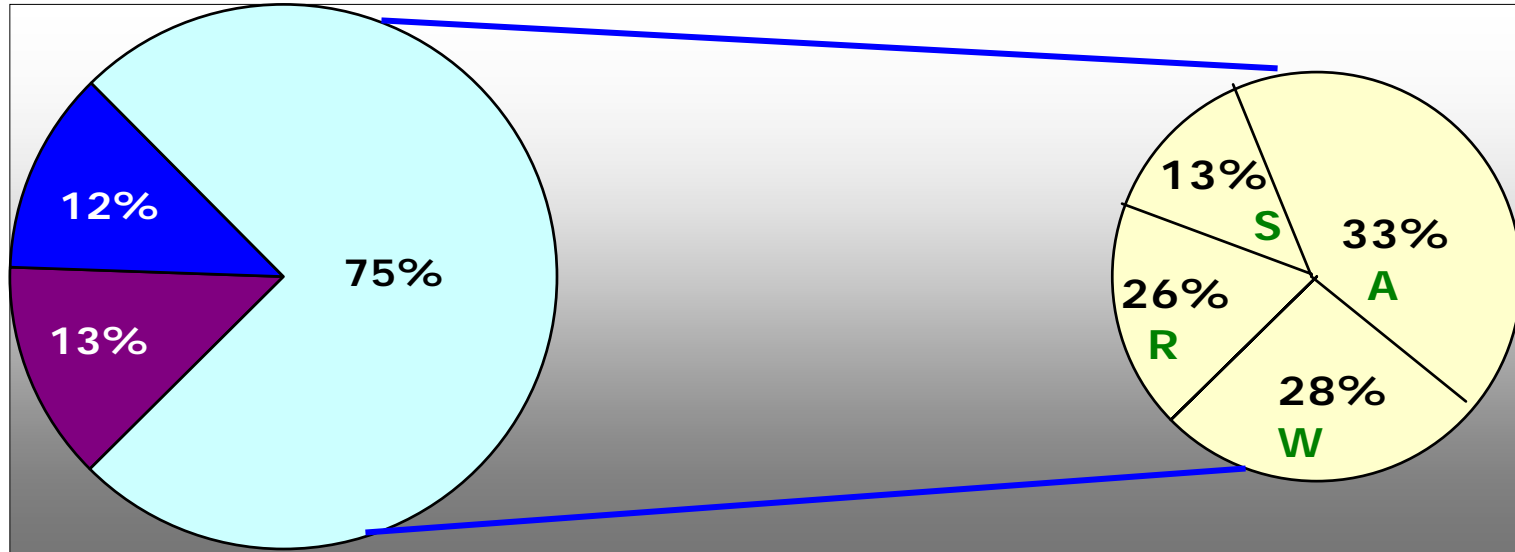


Code Structure





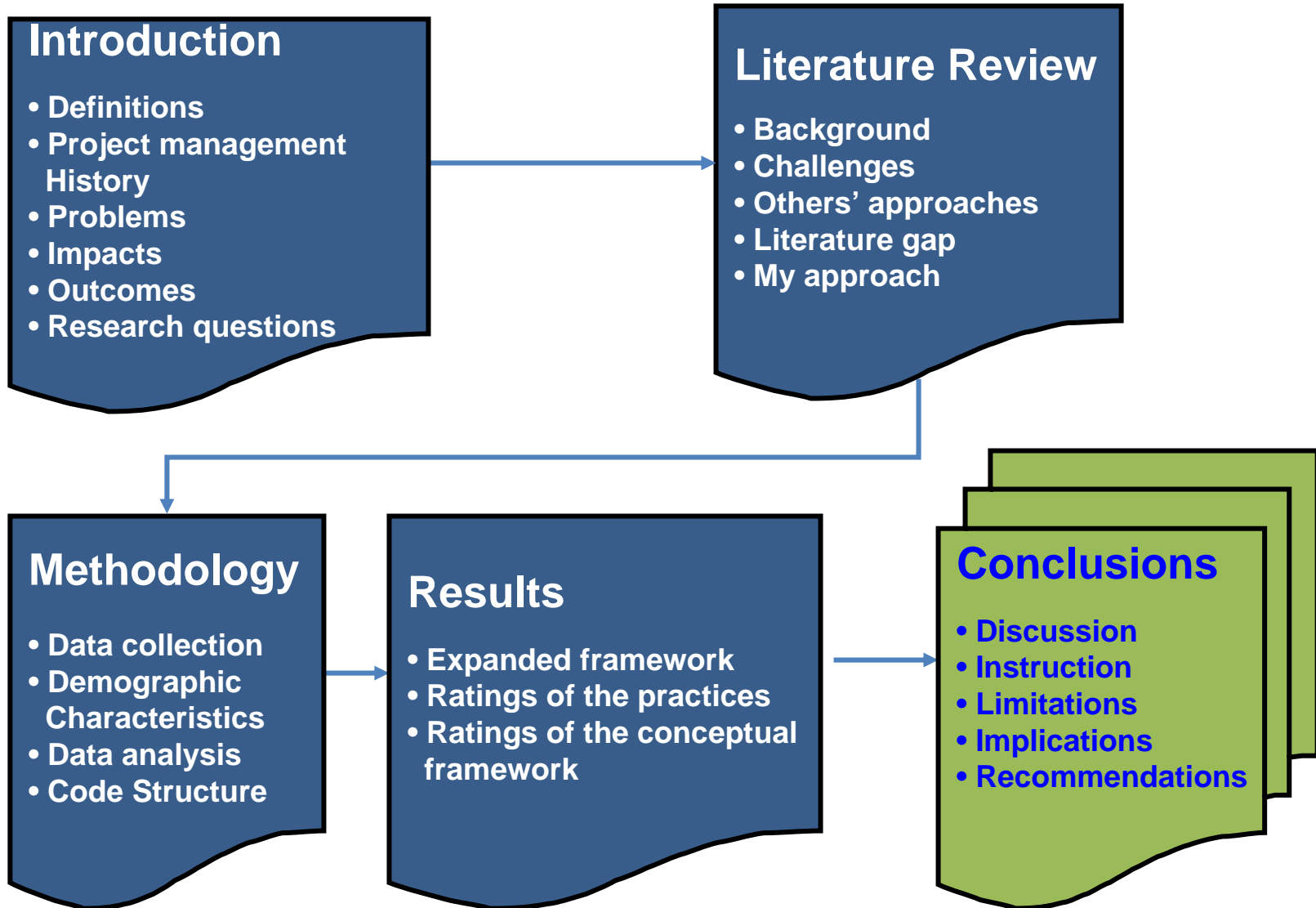




■ Ineffectiveness ■ Neither ■ Effectiveness

R: strong agree **A:** agree
W: somewhat agree **S:** slight agree

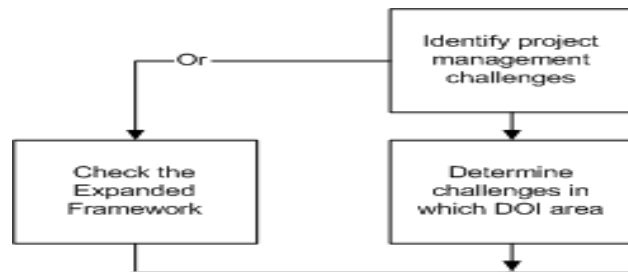
Demographic Backgrounds	1	2	3	5	6	7
Project Management Experiences						
3-6 Years				5.5		
7-13 Years				5.6		
14-20 Years					6.4	
21-25 Years				5.3		
Project Management Knowledge in						
Agile (Certified ScrumMaster)					6	
Waterfall (PMP)				5.6		
Both						
Other				5.6		
Organizational Environments						
Agile					6	
Waterfall				5.3		
Mix				5.5		
Other				5		
Project Types						
Government				5.4		
Commercial				5.4		
Non-profit					6	
Mix						7
Usefulness Tendency						
Strongly Disagree	1					
Disagree	2					
Somewhat Disagree	3					
Neither Disagree or Agree	4					
Somewhat Agree	5					
Agree	6					
Strongly Agree	7					



	APM Major Practices	Challenges from Literature	Added Challenges from Data
Individuals	Hiring the right people	Project management incompetence	Insufficient team skills
	Training and pair programming	Scarce resource competition	Distributed team, Insufficient team skills, Lack of understanding of tools, Scheduling issues
	Decentralizing control	Issues related to organizational culture	
Teams	Emphasizing commitment and leadership	Lack of accountability	Multitasking, Team resistance to new leadership
	Coaching and mentoring	Insufficient team skills	
	Building a self-organizing team	Cross-functional team	Distributed team
Value	Prioritizing feature list for ROI	Poor planning	Lack of prioritization, Multitasking
	Creating innovative products	Poor quality	
	Sharing open information		Poor planning, Distributed team
	Eliminating waste		High cost
	Using right tools	Lack of tools	
Customer	Creating simple vision statements	Unclear scope or vision	
	Engaging customer participation	Lack of customer involvement	Poor communication
Uncertainty	Applying iteration and incremental strategies	Scheduling issue, Scope Changes	Lack of product value to customers, Poor quality
	Observing and assessing practices	Uncertain dependencies, Technology issue	
	Taking adaptive actions	Resistance to change to new processes	
Context	Keeping simple rules	Lack of proper processes	Agile with non-agile team, Scope changes
	Building customer-value organization	Lack of organizational support	Agile with non-agile team, Different organizational environments, Lack of executive support, Lack of proper processes

Specific challenges need a sequence of Agile project management practices.

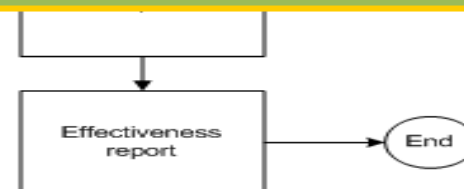
Distributed team	<ol style="list-style-type: none">1. Training and pair programming2. Building self-organizing team3. Sharing open information4. Using right tools
Insufficient team skills	<ol style="list-style-type: none">1. Emphasizing commitment and leadership2. Coaching and mentoring
Resistance to change to new processes	<ol style="list-style-type: none">1. Hiring the right people2. Taking adaptive actions
Unclear scope or vision	<ol style="list-style-type: none">1. Creating simple vision statements2. Engaging customer participation



Five steps to develop individual's framework

1. Identify challenges in six DOI areas
2. Find matched themes and patterns
3. Check the effectiveness ratings
4. Implement the Agile project management practices
5. Review the practices and effectiveness

APM = *Agile project management*
DOI = Declaration of Interdependence



Limitations

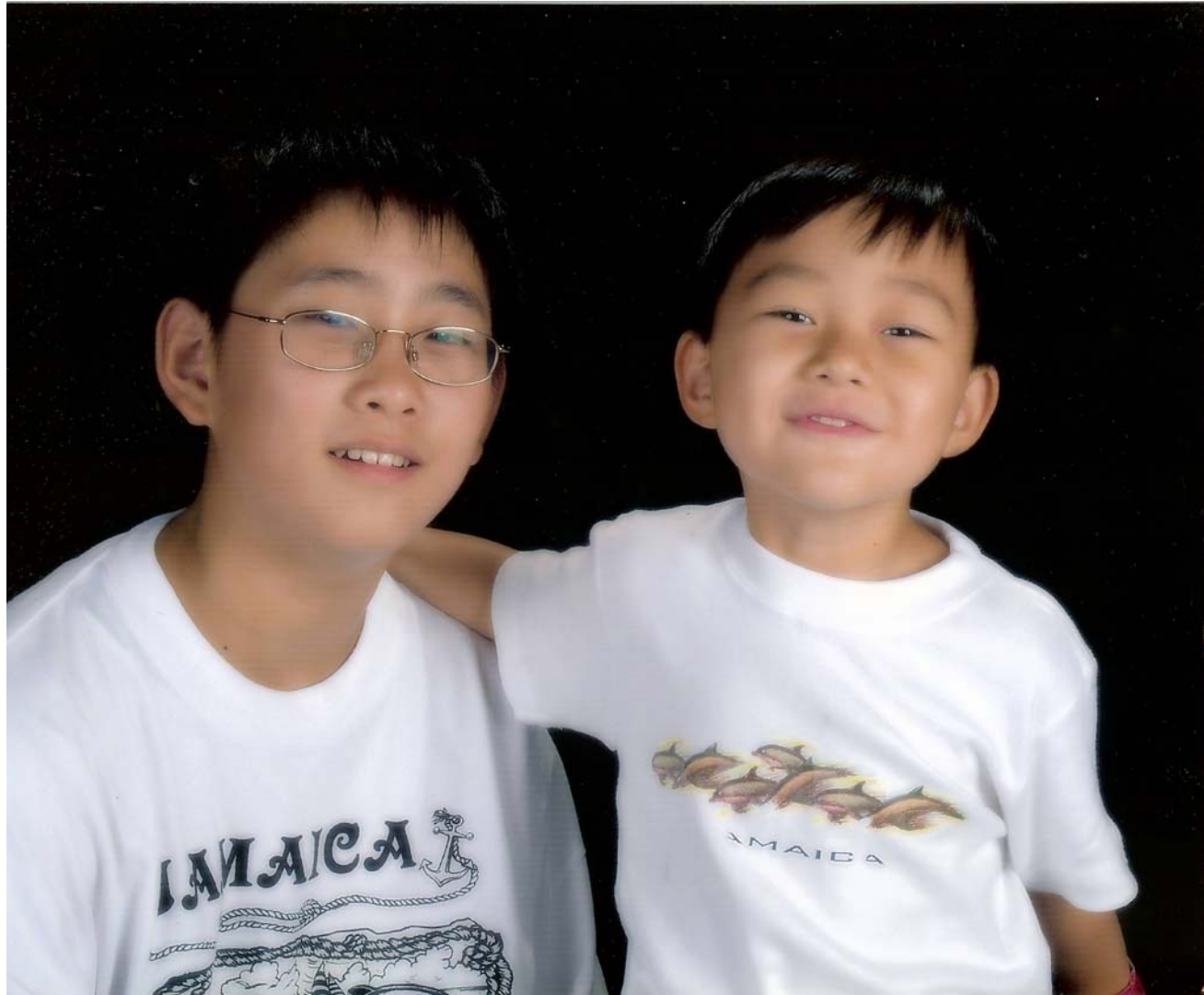
- ❑ Was this study for all Information Technology projects?
- ❑ What was the timeframe for this study?
- ❑ Why were some practices not evaluated?
- ❑ Were all Agile project management practices examined in this study?
- ❑ Were there many practitioners share their own solutions?
- ❑ Did practitioners encounter all challenges mentioned in the literature?

- ✦ This study evaluated the Declaration of Interdependence statements through quantitative and qualitative data and suggested that they are valid, effective, and applicable statements.
- ✦ It organized and ranked project management challenges into six Declaration of Interdependence value areas based on studies and surveys.
- ✦ It corresponded Agile project management practices of scholarly studies to Declaration of Interdependence methods.
- ✦ This research developed and expanded a conceptual framework to verify the effectiveness of the Agile project management practices in dealing with project management challenges for software development projects.
- ✦ The data results highlight 75% of the Agile project management practices were effectively in dealing with project management challenges for software development projects.
- ✦ This study provided an instruction for project management practitioners to use the framework and to develop their own framework.

Recommendations

- Use case study approach to focus only one company
- Limit to specific type of project domain or project type
- Conduct group discussion for consensus on the ratings
- Use action study to observe the implementation of Agile project management practices
- Further study to explore the expanded framework

Thank you!



Questions?



Contact Info:

sayasone@yahoo.com

703-651-3954

www.sayasone.com