

# Comparative Study of Traditional Requirement Engineering and Agile Requirement Engineering

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# Outline

- **Introduction**
- **Traditional Requirement Engineering (TRE)**
- **Agile Requirement Engineering (ARE)**
- **TRE vs ARE**
- **Shift from TRE to ARE**
- **Why this shift should help?**
- **Case Study**
- **Summary**

# Introduction

- Requirement Engineering applies different techniques and methods for the requirement analysis during development of software.
- TRE - complicated process
- Need - Flexible and speedy process
- **Solution - Agile Requirement Engineering**

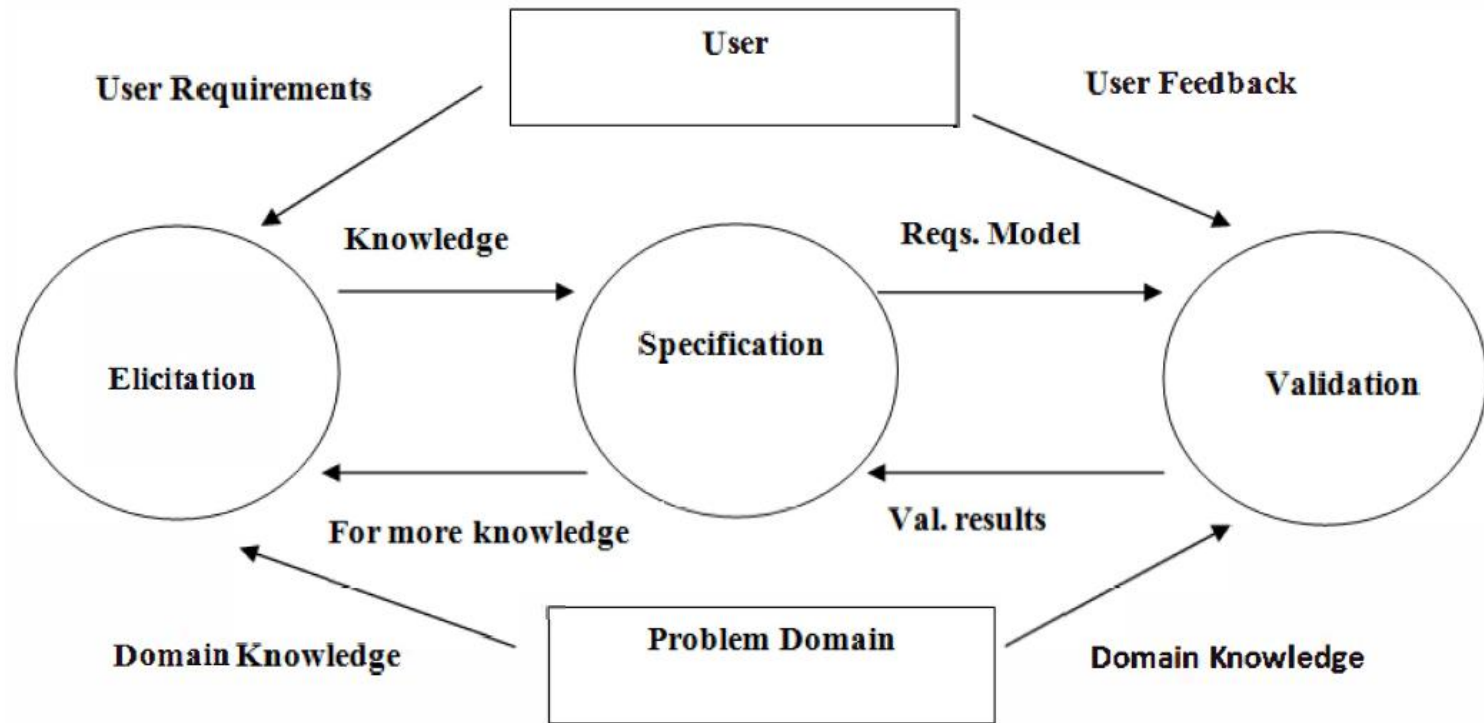
# Traditional Requirement Engineering (TRE)

- Identifying, modeling, communicating and documenting the requirements for a system
- Paetsch et al. [2] mentioned that:
  - Customer interaction only in early stages
  - Describes what is to be done than how to do
  - Prevents costly rework

# Traditional Requirement Engineering Phases

- Elicitation – interviews, use-case, focus groups, brainstorming, prototyping
- Analysis and Negotiation – Joint Application Development (JAD), prioritization, modelling
- Documentation
- Validation
- Management

# Traditional Requirement Engineering (TRE)



A traditional linear iterative requirements engineering model (Batool et al. [1])

# Agile Requirement Engineering (ARE)

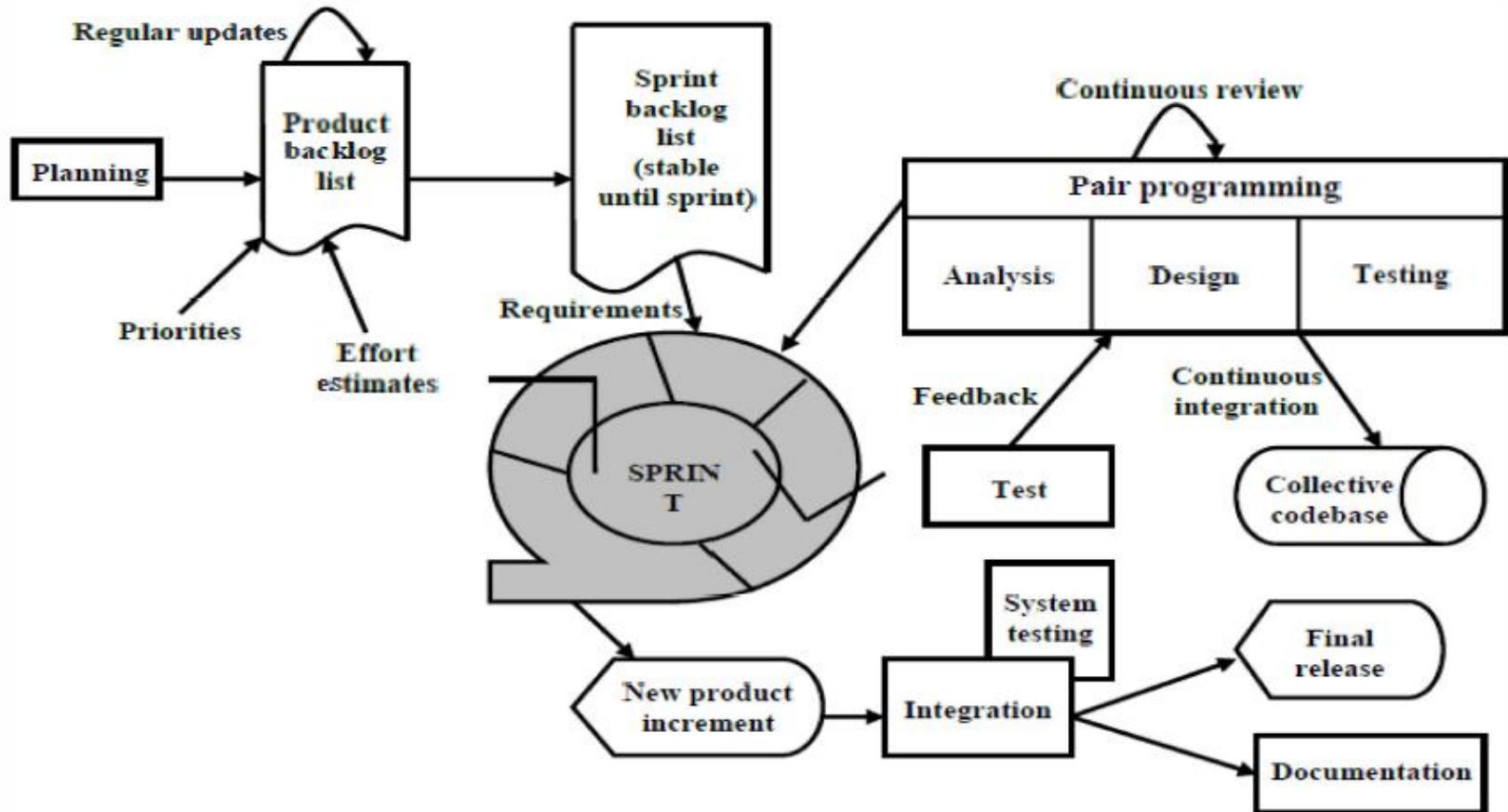
- Batool et al. [1] regard ARE as:
  - More flexible and quicker.
  - Benefit of constant communication between customers and developers.
  - Result: System delivered on time with customer's expectations and better business value.

# Agile Requirement Engineering - Methodologies

- Extreme Programming (XP)
- Agile Modelling
- Scrum
- Feature Driven Development (FDD)
- Dynamic Systems Development Method (DSDM)
- Adaptive Software Development (ASD)



# Agile Requirement Engineering

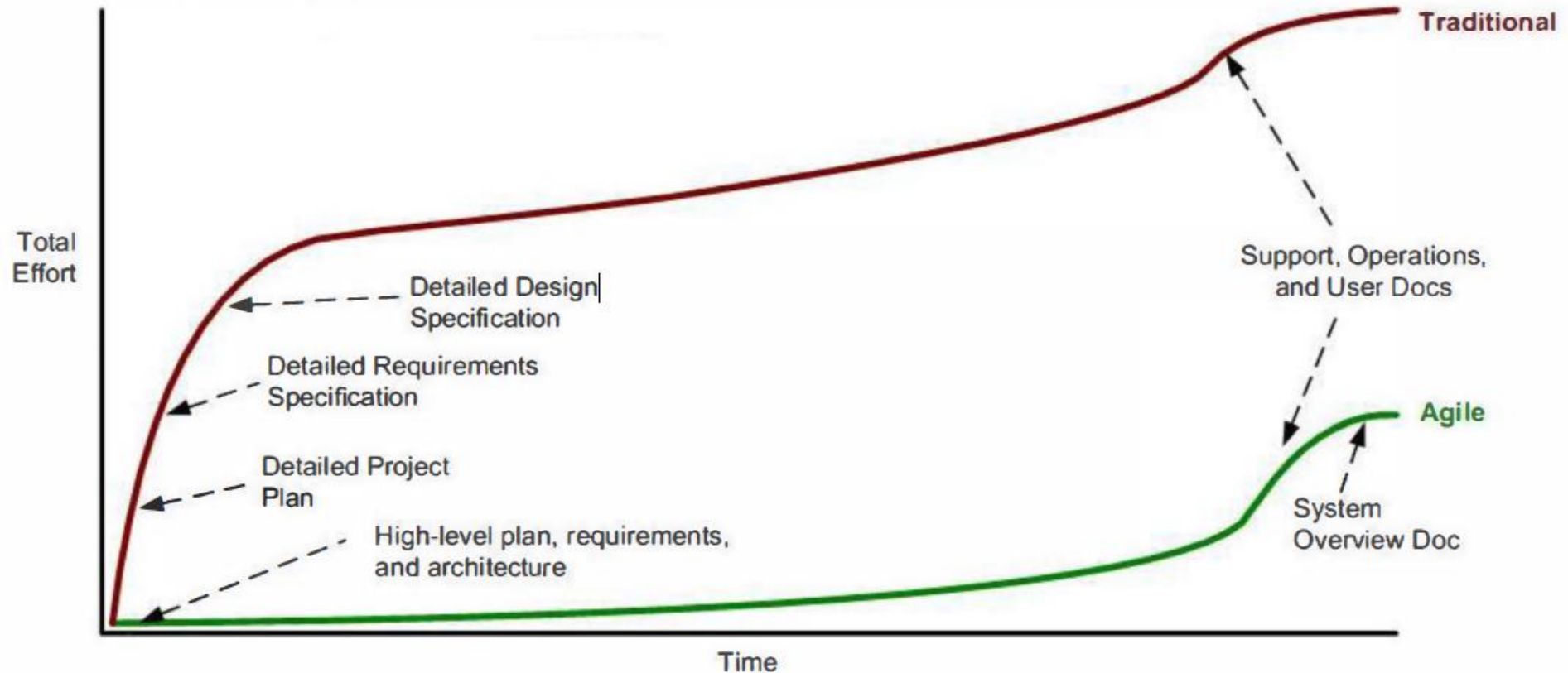


An agile collaborative and innovative framework (Batool et al. [1])

# TRE vs ARE

Traditional RE	Agile RE
Relies on Documentation	Face to Face interaction
Predictive	Adaptive
Process Oriented	People oriented
Include Use-Cases	Includes User Stories (business centric)
Realistic view of customer	Assumes customer knows everything
Customer involved only in the start	Customer is involved throughout the SDLC
Properly defined techniques	Techniques defined vaguely

# Shift From TRE to ARE



A view of documentation within traditional and agile software developments (Batool et al. [1])

# Why this shifting would help?

Traditional RE	Agile RE
Blunt Planning	Flexibility/ Adoptability as per user needs and expectations
Highly technical/ unproductive(complex documentation)	Simpler
Lack of capability/ ability to respond to evolving requirements/learning	Easy to grasp evolving requirements, welcomes new requirements (which are consistent with old ones) at any stage in SDLC
Difficult to Re-organize documentation (wastage of time)	No time waste in building huge and complex documentation

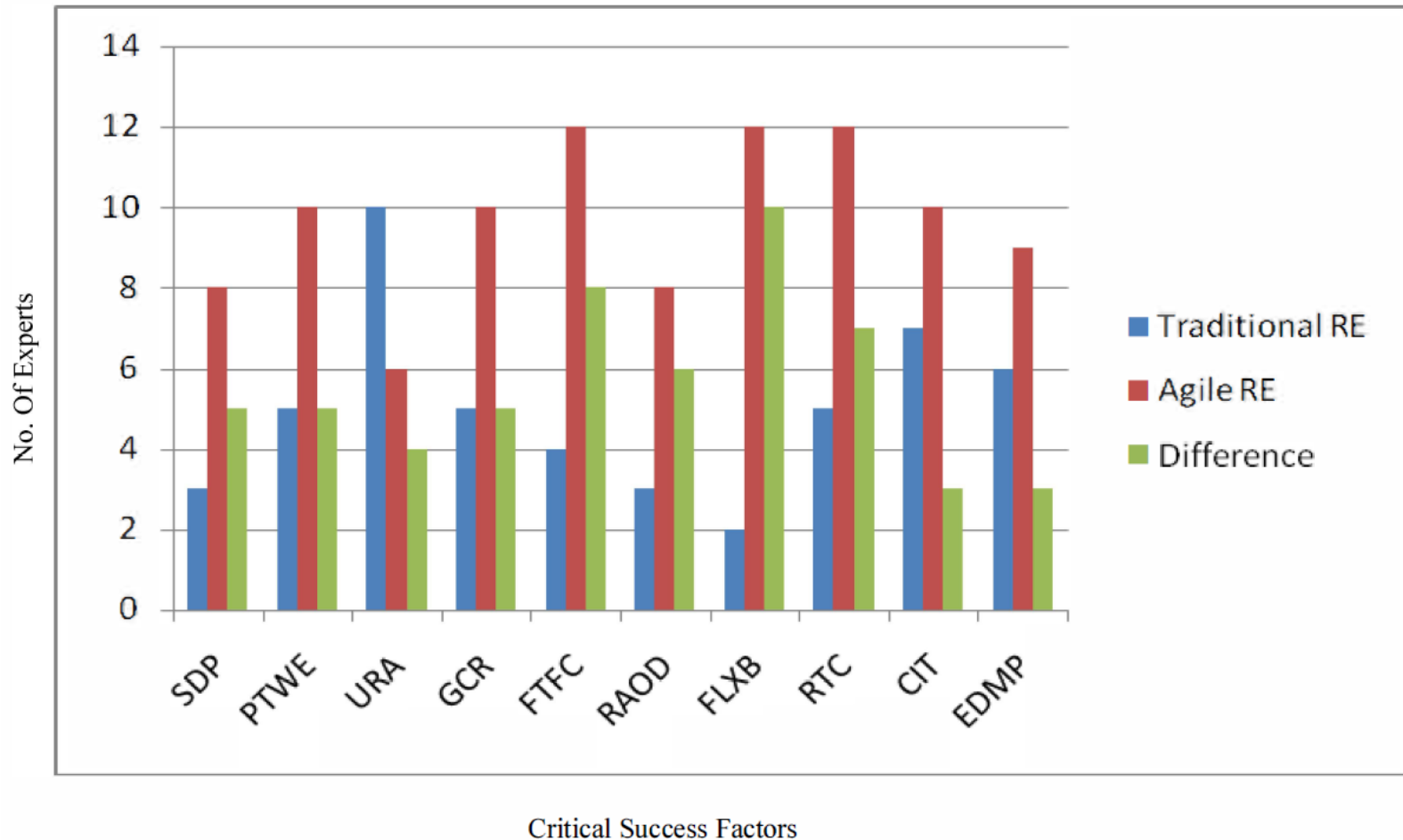
# Case Study

- A project of Hospital Management Information System (HMIS) has been developed by software team at some company.
- Applied:
  - Traditional Requirement Engineering
  - Agile Requirement Engineering
- 2 Data base administrators, 2 Managers, 3 Developers, 3 Technical Writers and 2 QA experts.
- Evaluation of the results on the basis of their expert opinions/responses.

# Case Study: Critical Factors (For Evaluation)

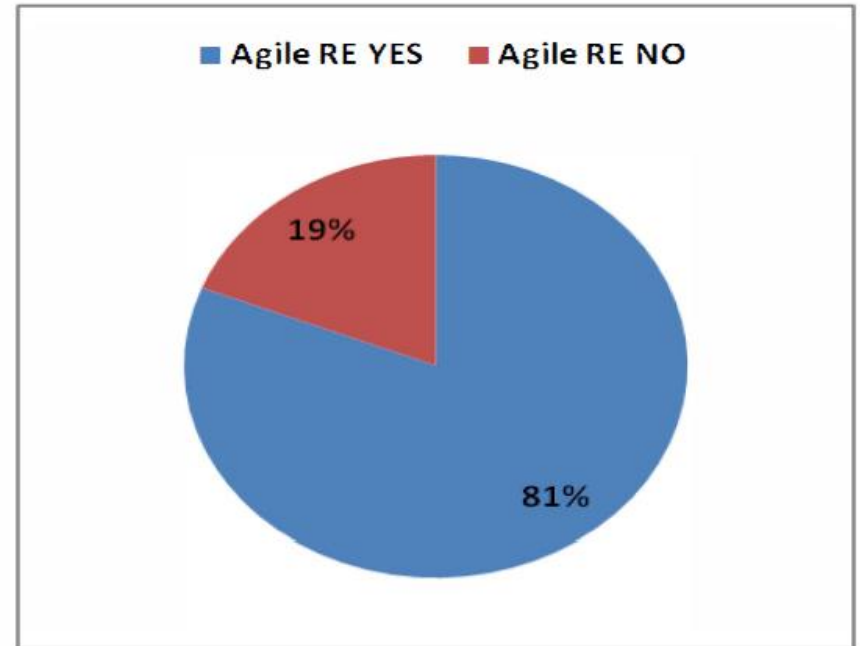
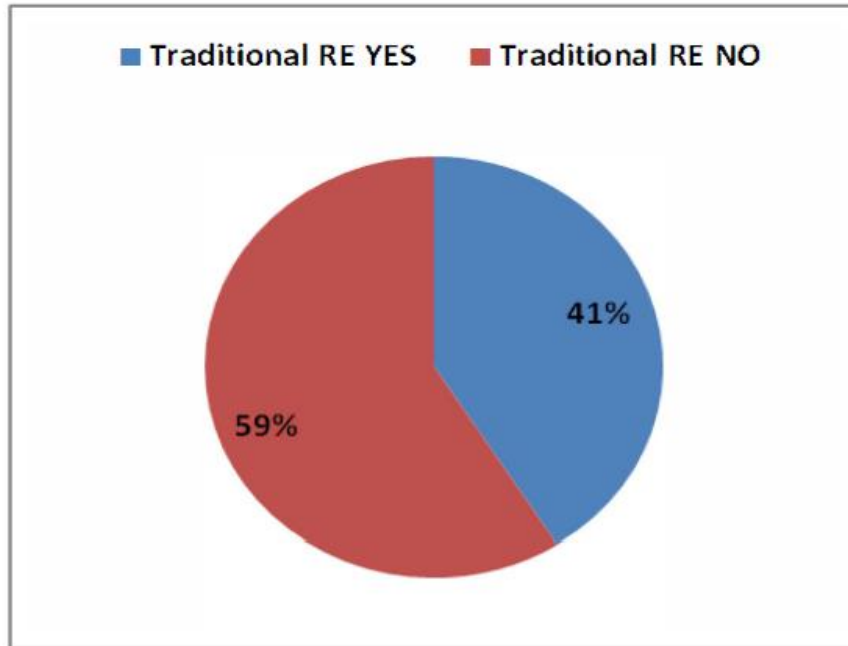
- Interviews with the experts that why they moved to agile development:
  1. Small Duration Project (SDP)
  2. Project Team With Expertise (PTWE)
  3. Up front Risk Analysis (URA)
  4. Good Customer Relationship (GCR)
  5. Face-To-Face Communication (FTFC)
  6. Right Amount Of Documentation (RAOD)
  7. Flexibility (FLXB)
  8. Responsive To Change (RTC)
  9. Correct Integration Testing (CIT)
  10. Effective Delivery Management Process (EDMP)

# Case Study: Results



Snapshot of Comparison for Critical Success Factor  
(Batool et al. [1])

# Case Study: Results



Graphical Representation of Positive and Negative Responses in Traditional RE and Agile RE (Batool et al. [1])



# Summary

- Growing shift from Traditional RE to Agile RE.
- Agile RE is likely to perform better than Traditional RE in large organizations where changes evolve throughout the development phase of software life cycle. (Batool et al. [1])

# References

- [1] Batool, Asma, et al. "Comparative study of traditional requirement engineering and agile requirement engineering." *2013 15th International Conference on Advanced Communications Technology (ICACT)*. IEEE, 2013.
- [2] Paetsch, Frauke, Armin Eberlein, and Frank Maurer. "Requirements engineering and agile software development." *WET ICE 2003. Proceedings. Twelfth IEEE International Workshops on Enabling Technologies: Infrastructure for Collaborative Enterprises, 2003..* IEEE, 2003.

