Ministry of Higher Education
Herat University Computer Science Faculty Department (Software Engineering)

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Contents:

Introduction:

- Software development methodology has changed.
- Agile and waterfall became more popular than other methodologies.
- This study compares these two by using AMS as a case study.
- It will provide evidence-based recommendations

Problem Statement:

- ✓ Developing software projects ,should be efficient, meet stakeholder requirements and powerful risk management.
- ✓ Project managers and developers often struggle to chose appropriate methodology between agile and waterfall.
- ✓ This gap in knowledge and indecision can result in delays, increased costs, and compromised project quality

Research objective:

Main Objective:
Comparing agile and waterfall in the archive management system of Herat computer science.

Sub Objective:
1- Evaluating the development process in both methodologies.

2- Comparing risk identification and mitigation strategies in both methodologies.

Research question:

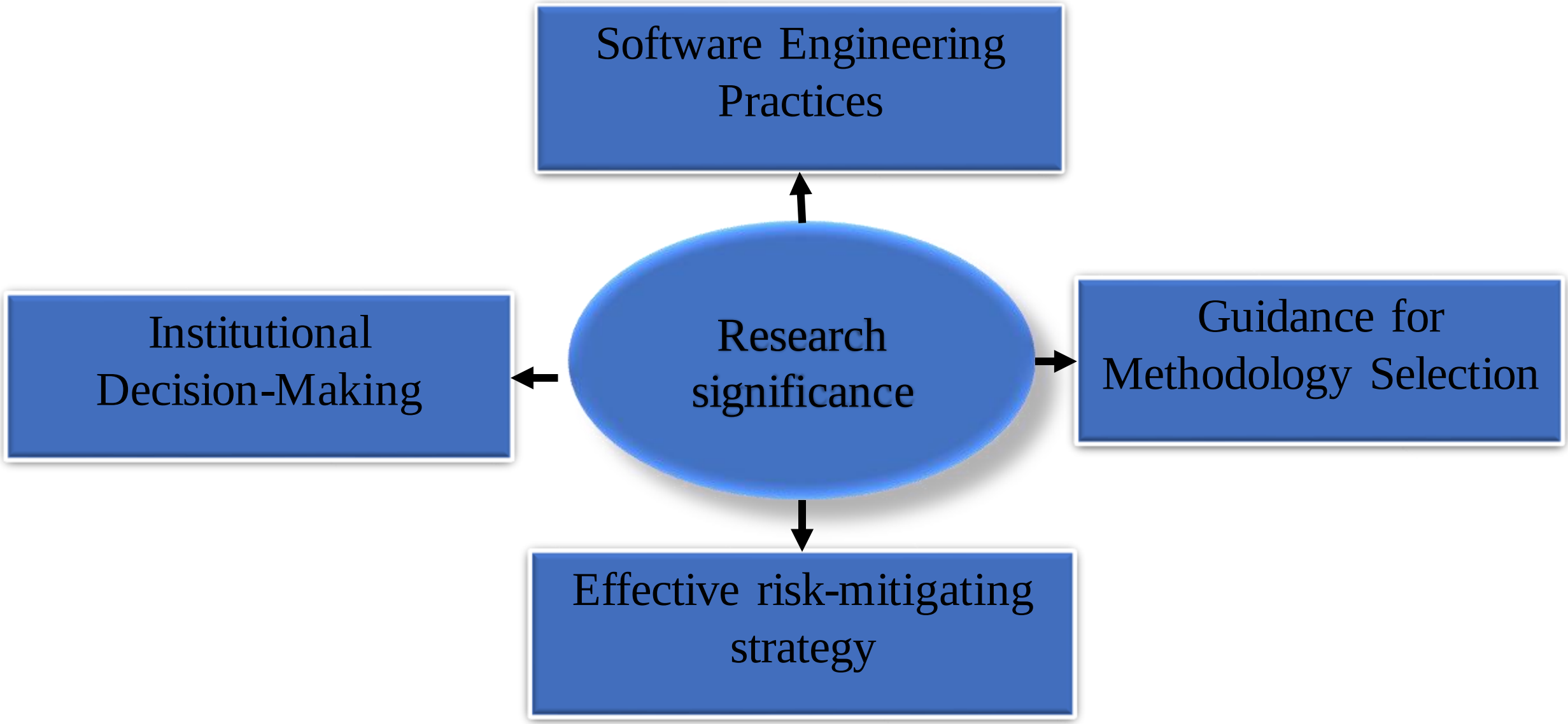
Main Question:

How to compare waterfall and agile in the Herat computer science faculty archive management system?

Sub Question:

1- How to Evaluate the development process in both methodologies?

2- How to compare risk identification and mitigation strategies in both methodologies?


Software Engineering Practices
Institutional Decision-Making
Research significance
Guidance for Methodology Selection
Effective risk-mitigating strategy

Literature review:

(Thesing T. F., 2021) have done research (based on 15 expert interviews) and an experiential survey...

(Awad M. , 2005)compared the two methodologies in terms of customer satisfaction and project success rates.

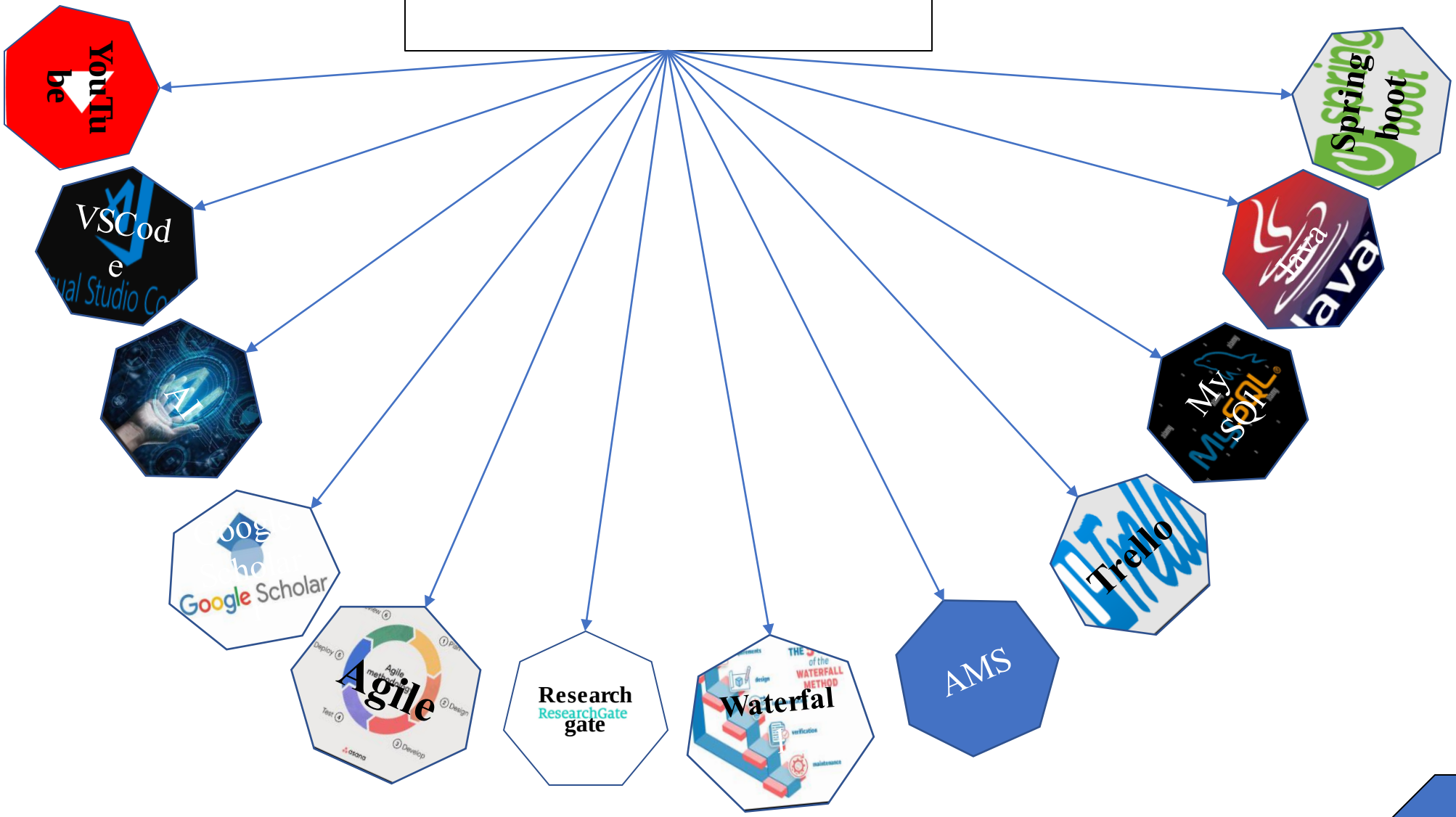
Research methodology:

Instrumental Case Study:

- ✓ Is a qualitative research method used to gain a deeper understanding of a particular issue through investigating a specific case.
- ✓ The key benefit case study is that the researcher examines a case not just for its own sake, but to gain insights that can be applied to other cases.
- ✓ provides the opportunity to deeply examine the development and comparison of Agile and Waterfall.

Process of conducting the research methodology

Research material



Result

Metric	Agile(kanban)	Waterfall(gant chart)
Total tasks	18	33
Total task completed	15	29
Total task planed	19	33
Task completion rate	83.3%	87%
Average time per task	5 h	2.7 h
Total risk identified	6	5
Total risk mitigate	4	4
High impact risks	3	2
Risk frequency	3	3

Discussion

Development process:

- Agile completed 15 out of 18 and Waterfall 29 out of 33 tasks.
- task completion rate of Waterfall 87% vs. Agile's 83.3%.
- Agile proved to be more efficient in responding to stakeholder feedback.

Risk Management:

- Agile encountered 6 risks and mitigated 4 of them.
- Waterfall encountered 5 risks and mitigated 4 of them.
- Agile showed more active in mitigating risks than waterfall

Conclusion:

- The waterfall is better than agile in the development process.
- Agile mitigates more risks than waterfall.
- In this project agile worked better because new requirements arose in the middle of the project.

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