Agile software development and benefits management: A perfect match

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Based on:

- Jørgensen, M. (2016). A survey on the characteristics of projects with success in delivering client benefits. *Information and Software Technology, 78*, 83-94.

- Jørgensen, M., Mohagheghi, P., & Grimstad, S. (2017). Direct and indirect connections between type of contract and software project outcome. *International Journal of Project Management, 35*(8), 1573-1586.

- Jørgensen, M. (2017, May). Software development contracts: the impact of the provider's risk of financial loss on project success. In *Proceedings of the 10th International Workshop on Cooperative and Human Aspects of Software Engineering* (pp. 30-35). IEEE Press.

- Do Agile Methods Work for Large Software Projects? (2018, April) To be presented at *XP 2018*, Porto, Portugal.

- Huge investments in digitalization. What does it give us in return? Keynote Software 2018 (DnD's annual conference, Oslo, Norway).

# What are key characteristics of software projects (digitalization projects)?

- Exposed to a **fast-changing world** (technology, needs, opportunities)
- Producing **innovations** (never constructing the same twice)
- **Transformation** projects (change of work processes)
- Enables **agility** (such as scope flexibility, less upfront planning and specification work, frequent deliveries, late changes)
- **Continuous development** (the organization of software development work as a project is by more and more software professionals believed to problematic.)

What is benefits management in software development?

- A set of processes, optimally including:
    - Identify and estimate benefits (and costs)
    - Develop a plan for when and how to realize benefits
    - Allocate responsible for the realization of the benefits
    - Continuous delivery, prioritization and management of benefits during the project execution
    - Evaluation of realized benefits
- Large variation in how (and if) these steps are implemented

What does it mean to succeed and to fail with software development?

Software project success
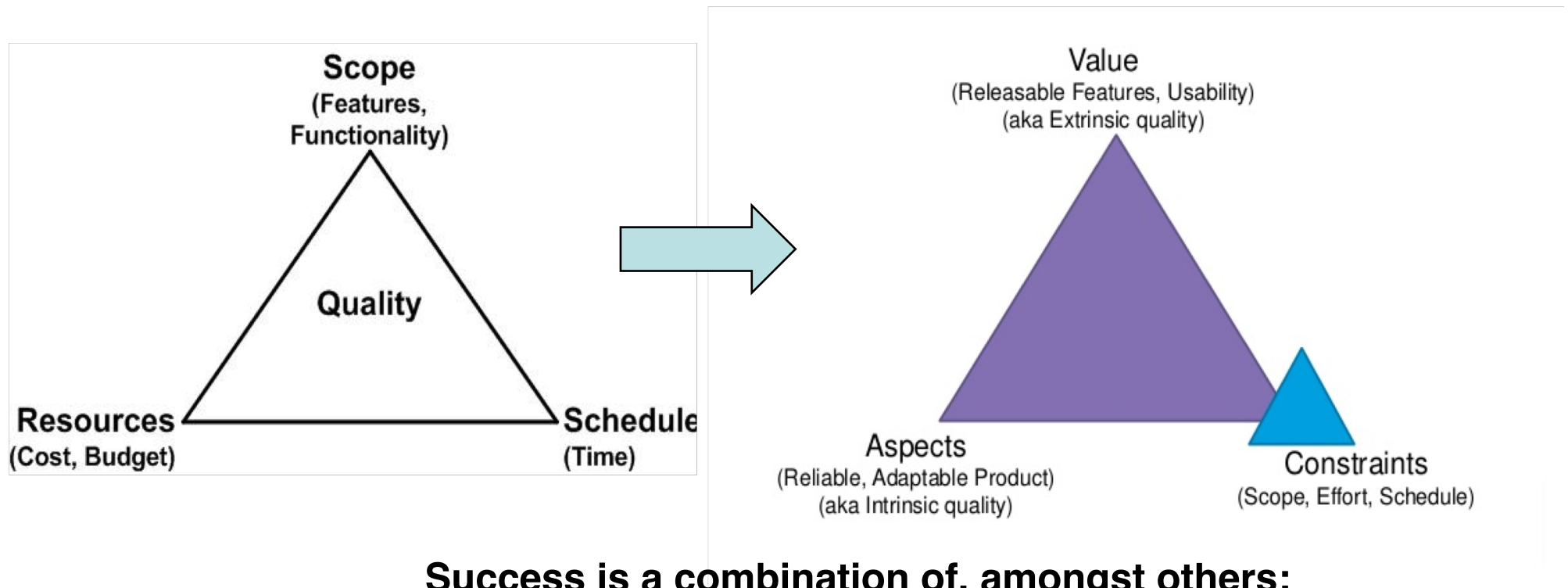
Success is a combination of, amongst others:

- Client benefits delivered
- Cost control
- Time control
- Development efficiency
- Software properties (technical quality)
- Learning

Our studies on benefits management:

• Nine surveys, with 50-200 participants each, representing around 1000 Norwegian software projects in the public and the private sector.

• In-depth, interview-based examination (case studies) of 35 software projects in the public sector of Norway

• Ongoing studies in two large organization on benefits management in large scale agile

Success and failure rates found in our studies

All studies give similar results:
• Around 50-60% successful projects
• Around 30-40% problematic (but not failed) projects
• Around 10% failed projects

How is agile and benefits management connected?

It helps to work agile, but …

	Agile	Frequent delivery to production	Flexible scope
Client benefits	16%	22%	29%
Technical quality	21%	6%	32%
Budget control	2%	22%	29%
Time control	8%	11%	24%
Efficiency	11%	5%	24%

… only when including frequent delivery to production and flexible scope.
Agile projects not including these two practices were LESS successful than non-agile projects! These two practices are strongly connected to benefits management.

Similar results in our follow-up surveys and studies

Benefits management helps, especially during the project execution …

Survey 1:

Benefit management practices	Proportion	Increase in success rate (wrt benefits)
Cost-benefit analysis (up front)	47%	6%
Benefit responsible appointed	57%	22%
Plan for benefit management	33%	31%
Benefit management during proj. execution	53%	34%
Evaluation of benefit during/after proj. exec.	31%	19%

Survey 2 (in-depth study):

Benefit management practices	Present	Not present/don't know
Cost-benefit analysis (up front)	31% with problems	22% with problems
Benefit responsible appointed	28% with problemer	29% with problems
Plan for benefit management	29% with problems	28% with problems
Benefit management during proj. execution	20% with problems	35% with problems

Successful benefits management in a changing world requires agile development

Requirement volatility, frequency of delivery and success for agile projects
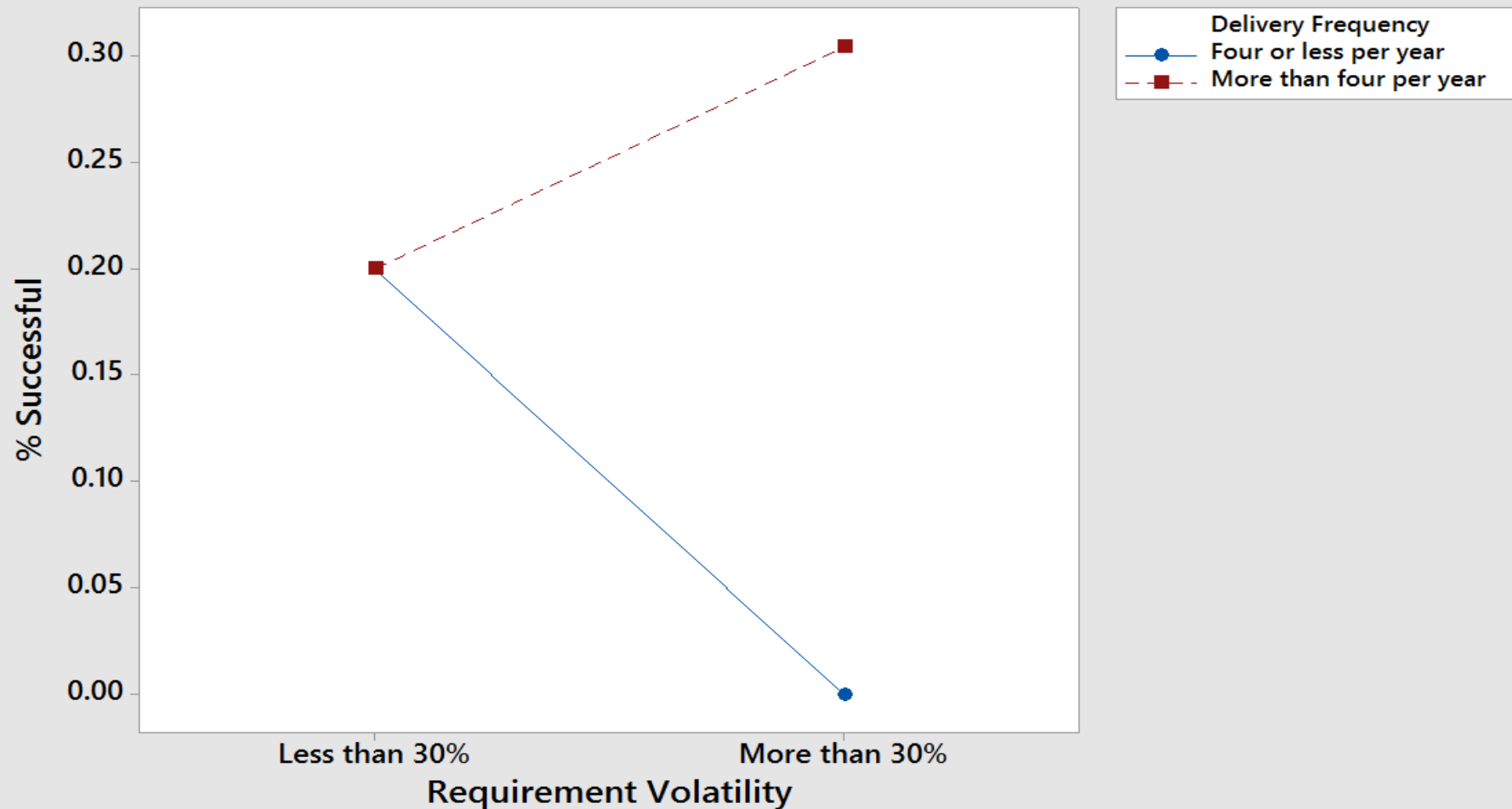
Agile software projects with benefits management practices during project execution seem to be less affected by large project size

Interaction Plot for Client benefits
Data Means

Development method
- Agile
- Partly agile
- Non-agile

Mean

3.50
3.25
3.00
2.75
2.50

Small   Medium   Large
Budget Size Category
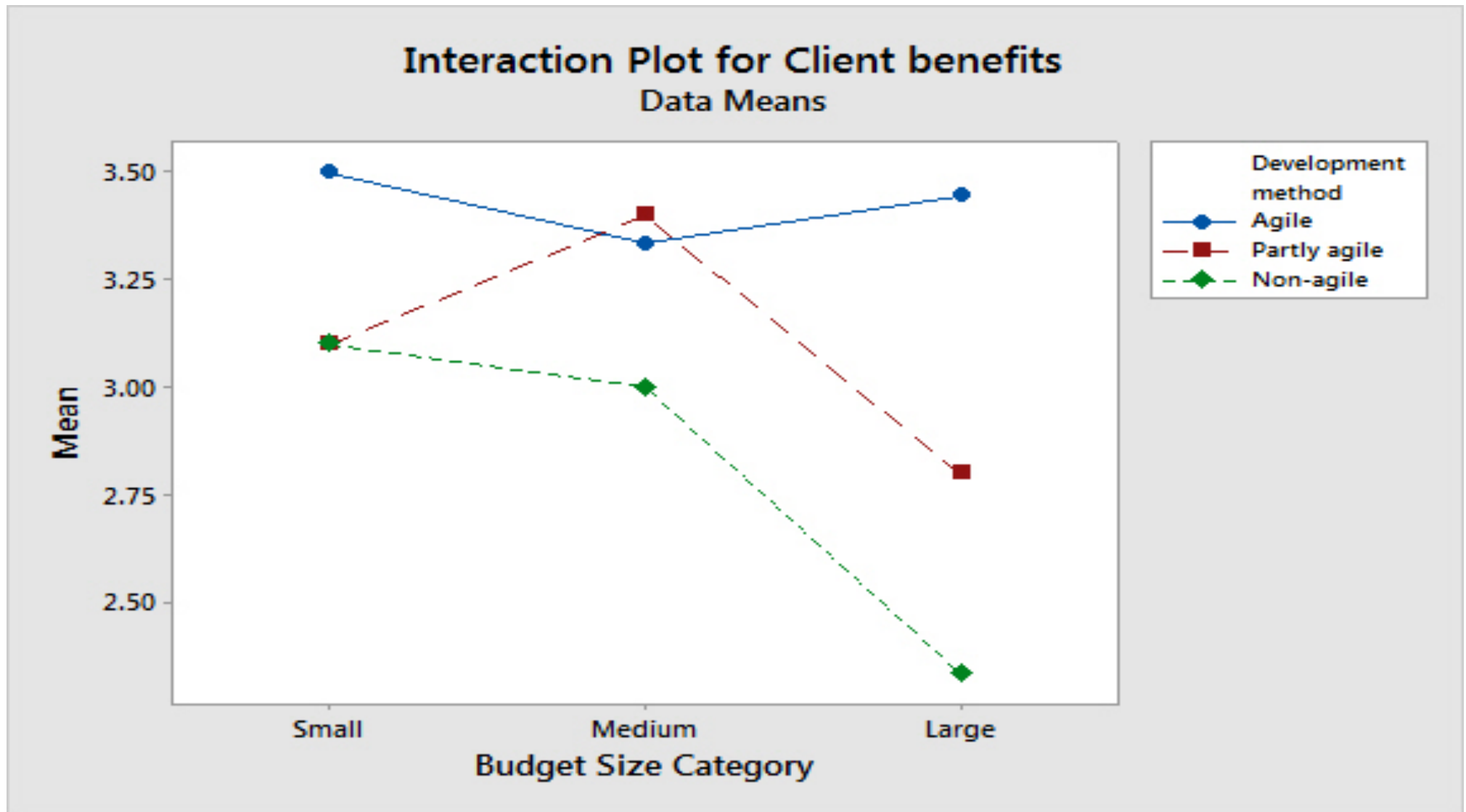
Time & material type of contracts much better for both the client and the provider. Why is that?

First study: Extremely negative results for Fixed price contracts.

	Fixed price	Time & Material
Client benefits	**0% (success rate)**	**59%**
Technical quality	22%	24%
Budget control	33%	31%
Time control	11%	29%
Efficiency	0%	19%

Failure pattern: Interaction between contract, agile and benefits management
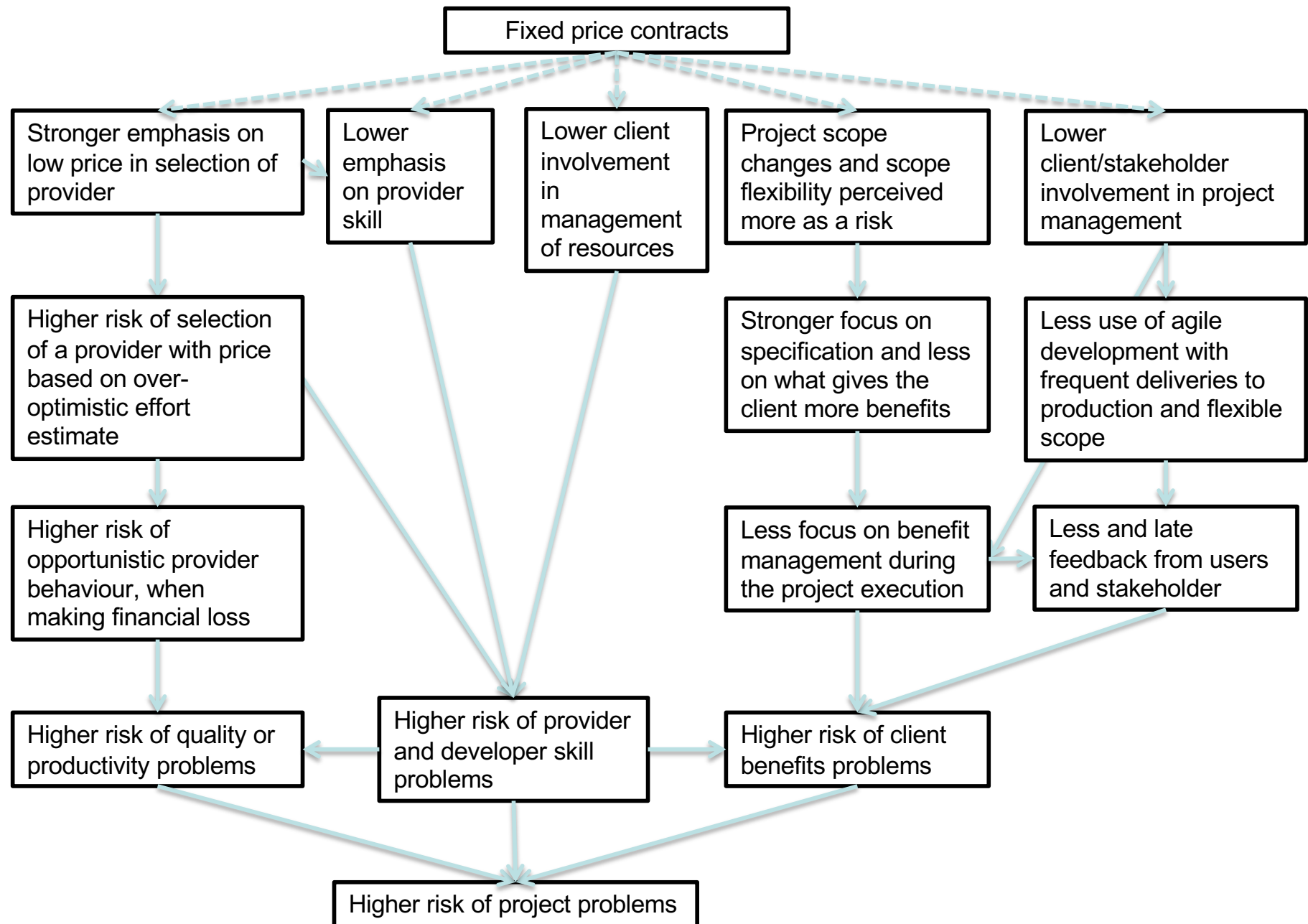
Success pattern: Interaction between contract, agile and benefits management …

Time & material contracts

Stronger emphasis on evaluation of skill, less emphasis on low price, in selection of provider

Stronger client involvement in management (monitoring, selection) of resources

Project scope changes and scope flexibility perceived as a an opportunity

Stronger client and stakeholder involvement in project management

More use of agile development with frequent deliveries to production and flexible scope

Less risk of opportunistic behaviour of provider

More focus on benefit management during the project execution

More, earlier and better feedback from users and other stakeholder

Higher likelihood of good quality and productivity

Higher likelihood of competent provider and skilled developers

Higher likelihood of delivering the expected client benefits

Higher likelihood of project success

Conclusions

- There are success and failure patterns, not isolated success and failure factors
- Agile development, with its frequent deliveries and flexibility in scope, enables good benefits management during project execution
- Other factors, especially choice of contract, supports or limits the ability to implement good benefits management practices in agile development.
- It is essential that the client is strongly involved in the planning and execution of benefits management