

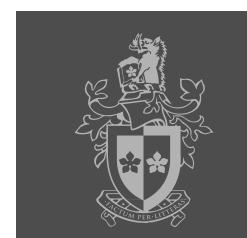
SWINBURNE
UNIVERSITY OF
TECHNOLOGY

SWE20001 Managing Software Projects

Extra Lecture

Why Project Fails?

Why Need Project Management?



Overview



- The need of Software Engineering
- The need of Software Project Management
- Why (software) project fails?
- Is Agile the answer?



Software Crisis (back in late 1960s)



- Projects running over-budget
- Project running over-time
- Software was very inefficient
- Software was of low quality
- Software often did not meet requirements
- Projects were unmanageable and code difficult to maintain
- Software was never delivered



Software Engineering



- The application of Engineering approach to **build** software
 - □ Process [SDLC] Waterfall, Incremental, Iterative, ...
 - □ Quality Reliability, Performance, Maintainability, ...
- AIM build quality software (on time and within budget)

Engineering (civil, mechanical, electrical, electronic, ...)

The application of scientific knowledge ... to the practical problems of design, construction, operation and maintenance of devices encountered in everyday life



Software Project Management



- The application of project management in building software
 - □ Need better techniques to plan, track, monitor and control the software development activities
- AIM Manage the development of software to be delivered on time and within budget

- Project Management
 - □ The planning and organization of certain resources to move a specific task, event or duty towards completion



Standish CHAOS Report (around 2000)



CHAOS stands for Comprehensive Human Appraisal for Originating Software

	1995	2001
Time overruns	222%	163%
Cost overruns	189%	145%
Requirements features	61%	67%
No. of successful projects (US) / total	28 000 / (~ 175 000)	78 000 / (~ 278 571)
% of project succeeded	16%	28%



Why Project fails? (Pfleeger, 2001)



- Incomplete requirements (13.1%)
- Lack of user involvement (12.4%)
- Lack of resources (10.6%)
- **Unrealistic expectations** (9.9%)
- Lack of executive support (9.3%)
- Changing requirements and specifications (8.7%)
- Lack of planning (8.1%)
- System no longer needed (7.5%)



Source: Pfleeger (2001) citing Standish Report (1995)

Agile Manifesto (2021)



Agile vs Traditional

Individuals and interactions vs Processes and tools

Working software vs Comprehensive documentation

Customer collaboration vs Contract negotiation

Responding to change vs Following a plan



Why Project fails? (Pfleeger, 2001)



- Incomplete requirements (13.1%)
- Lack of user involvement (12.4%)
- Lack of resources (10.6%)
- **Unrealistic expectations** (9.9%)
- Lack of executive support (9.3%)

Q1: Which of these can be solved by Agile Development Methodology such as Scrum?

Q2: Why?

- Changing requirements and specifications (8.7%)
- Lack of planning (8.1%)
- System no longer needed (7.5%)



Source: Pfleeger (2001) citing Standish Report (1995)

Standish CHAOS Report 2020 (2015)



Method	Successful	Challenged	Failed
Agile	42% (39%)	47% (52%)	11% (9%)
Waterfall	13% (11%)	59% (60%)	28% (29%)

Vitality Chicago (2021)



References



- Pfleeger, S.L. (2001) Software Engineering: Theory and Practices, 2nd ed., Prentice Hall.
- Vitality Chicago (2021) Why Agile is Better than Waterfall (Based on Standish Group Chaos Report 2020), https://vitalitychicago.com/blog/agile-projects-are-moresuccessful-traditional-projects/, reviewed 20 Feb 2022
- Wikipedia, Software Crisis, https://en.wikipedia.org/wiki/Software_crisis, reviewed 20 Feb 2022



Why (Software) PM matters in Cybersecurity



Sample Cybersecurity projects

- ☐ To roll out your new end-point security solution to thousands of nodes
- ☐ To upgrade your infrastructure across your enterprise
- ☐ To perform a large scale penetration test
 - ☐ Involve many pen testers to write programs / scripts to automate the tests

Benefits (to name a few)

- □ Better resources planning
- ☐ Better scoping and planning the schedules
- ☐ Mitigating and managing Cybersecurity project risks



References (PM in Cybersecurity)

- CompTIA (2019) Why Project Management is important to Cybersecurity, <u>https://www.comptia.org/blog/project-management-and-cybersecurity,</u> reviewed 25th Feb 2022
- Convergent Mission Solutions (2019) Benefit of Project Management for Cyber Security Initiatives, https://www.convergentmissions.com/benefit-of-project-management/, reviewed 25th Feb 2022
- LIFARS (2021) Effective Project Management for Successful Cybersecurity Projects, https://lifars.com/2021/03/effective-project-management-for-successful-cybersecurity-projects/, reviewed 25th Feb 2022

