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Changes and challenges of technical debt and its management during ongoing digital transformation

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TÖRAKANPÖLTIÖ KIILLETTY
TOBAKRÖKNING FÖRBUDEN

Digital Transformation



Digital transformation

- Digitalization is integration of digital technologies by the digitization of everything that can be digitized.
- Digitalization is *a sociotechnical **process of applying digitizing techniques to broader social and institutional contexts that render digital technologies infrastructural***
- Digital technologies provide opportunities to change business models and add new revenue stream



Digital infrastructures and platforms



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Digital infrastructures and platforms

- Basic information technologies and organizational structures, along with the related services and facilities necessary for an enterprise or industry to function
- Digital infrastructures are often large, global and remote, which cannot be controlled by the people who are utilizing them.
- Infrastructures seem to grow bigger and global and their users have consequently less power to influence on the services and their offerings.
- Various examples such as *Google services, Facebook, cloud platforms, e-health, IoT platforms, Alibaba, smart grid, and blockchain* etc.

Non-focal actors in digital ecosystems

- *Non-focal actors* are an ecosystem participant in the periphery of the digital ecosystem.
- Most businesses will be non-focal from the viewpoint of digital infrastructures.
- Non-focal actors are the companies that will use the services of the infrastructure as they are, usually without power to make changes to infrastructure.



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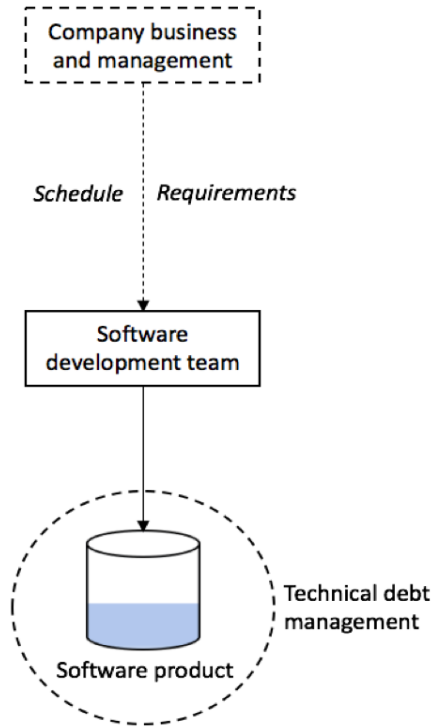
So, what does digital transformation and technical debt have to do with each other?



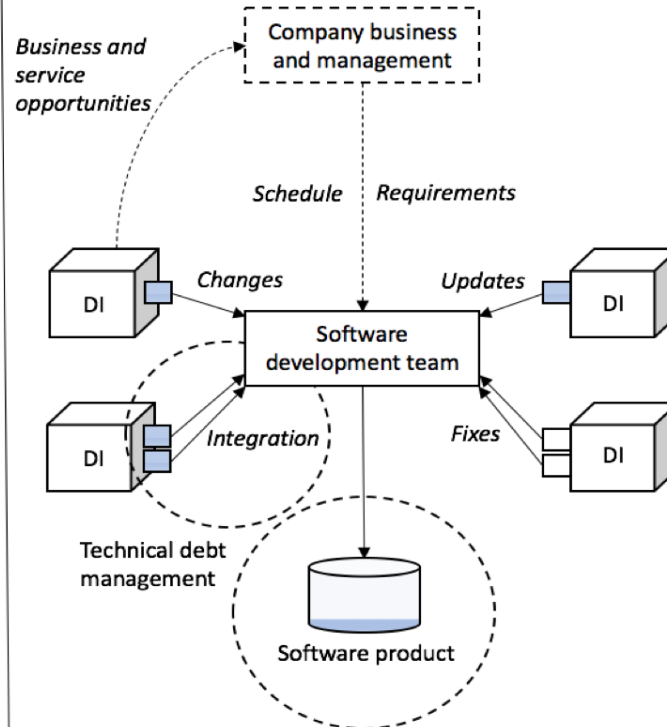
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“a badly structured technical solution or architectural design in the system, incurred by either an intentional decision or an unintentional side effect, causes omitted quality and productivity”

Conventional view on technical debt



View on technical debt during digital transformation



Possible scenarios

- **Scenario I.** Technical debt moves partly to digital infrastructures
- **Scenario II.** Digital infrastructure owners will become responsible for technical debt
- **Scenario III.** Non-focal companies utilizing digital infrastructures are powerless to control technical debt and its management in infrastructures
- **Scenario IV.** Technical debt management becomes more integration focused

Open questions for future research

- How visible is technical debt in digital ecosystem and infrastructures, especially from the viewpoint of a nonfocal company?
- Do non-focal companies need new practices and methods when they extend the use of external digital infrastructures?
- What is the power of a non-focal company when deciding about technical debt and its management in digital infrastructures?
- Should digital infrastructures be more open regarding their development and technical debt?
- Do digital infrastructures need to be open-source that non-focal companies have more knowledge regarding the infrastructure?
- How much business and development should non-focal companies rely on digital infrastructures?
- Will technical debt management disappear in non-focal companies in future?
- How do non-focal companies understand technical debt in their infrastructure integrations?