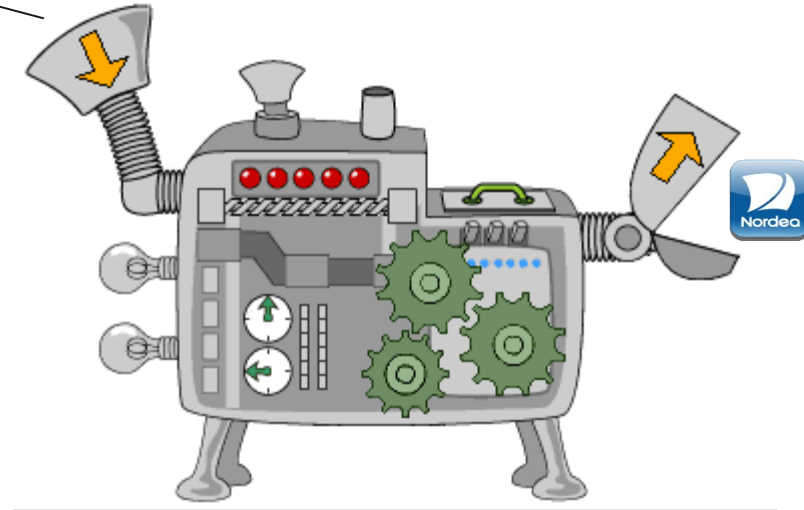# Practical approach to ensuring quality in complex IT systems

Stanisław Matczak
Nordea Bank Poland, IT division

What kind of quality are we talking about?
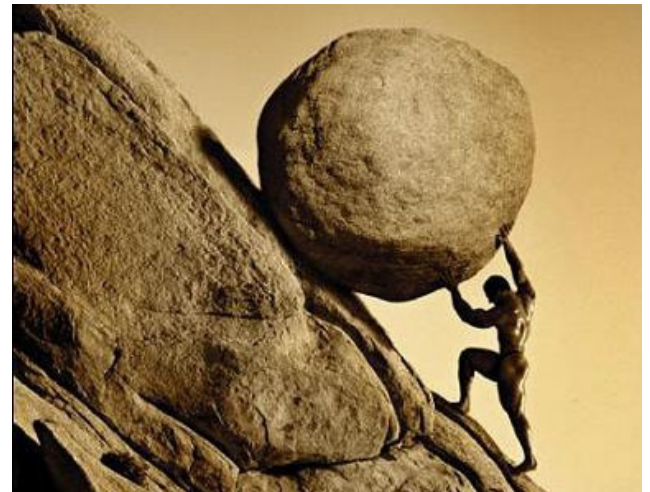
User requirements

Change in IT system

Quality metrics:

- System availability
- Number of incidents / failures
- Security assured
- Velocity of development
- System performance

Why ensuring quality in complex systems is difficult?

- Many IT systems

- Different technologies, frameworks, services, interfaces…

- Large and complex systems

- Legacy systems

- Outsourcing

- Time pressure

- Growing volume of transactions

- Growing team

Let's look inside the machine…
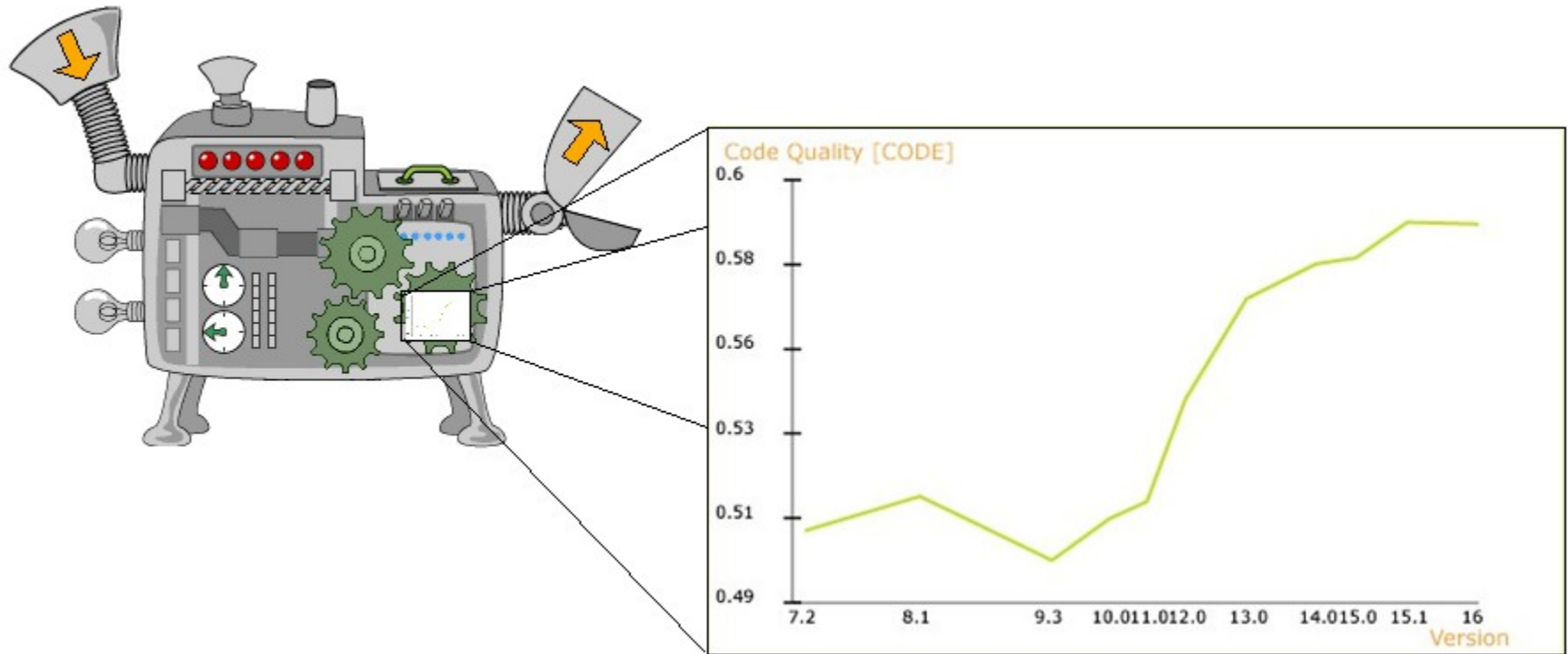
Cooperation with the Product Owner

Is the Product Owner in your project able to:

- Describe the business strategy?

- Aggregate requirements from different stakeholders?

- Decide upon assigning priorities to tasks?

From pile of documents to knowledge base

Fragmented documentation

Missing links between the documents

Lack of „big picture"

Are all documents up to date?

Wiki-based documentation

Documentation structure – from big picture to details

Role of Content Manager

Coding standards

Code reviews

Automatic regression tests

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Handover process

Deployment on production server

To release or not to release?

A   B   C   D

testing…   B   A   TEST

PRODUCTION

A   B   C

testing…   A + B +C   TEST

PRODUCTION
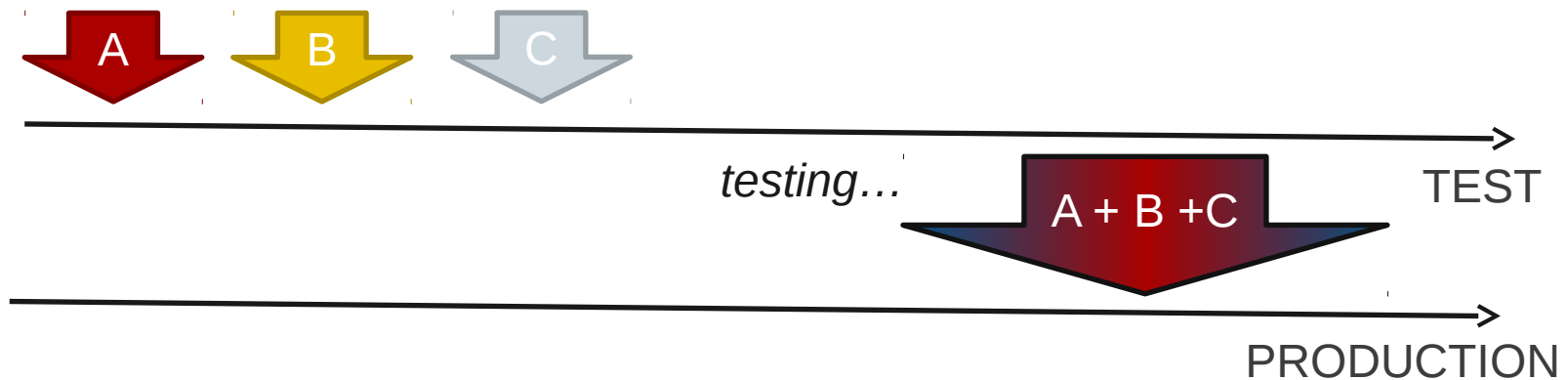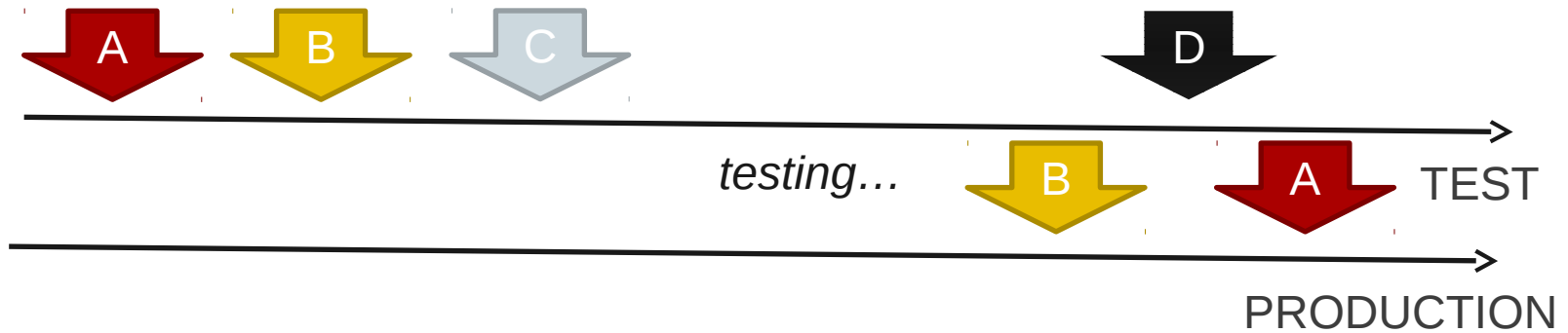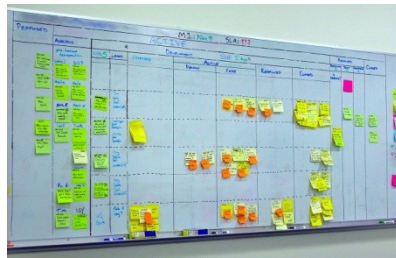
Release in practice
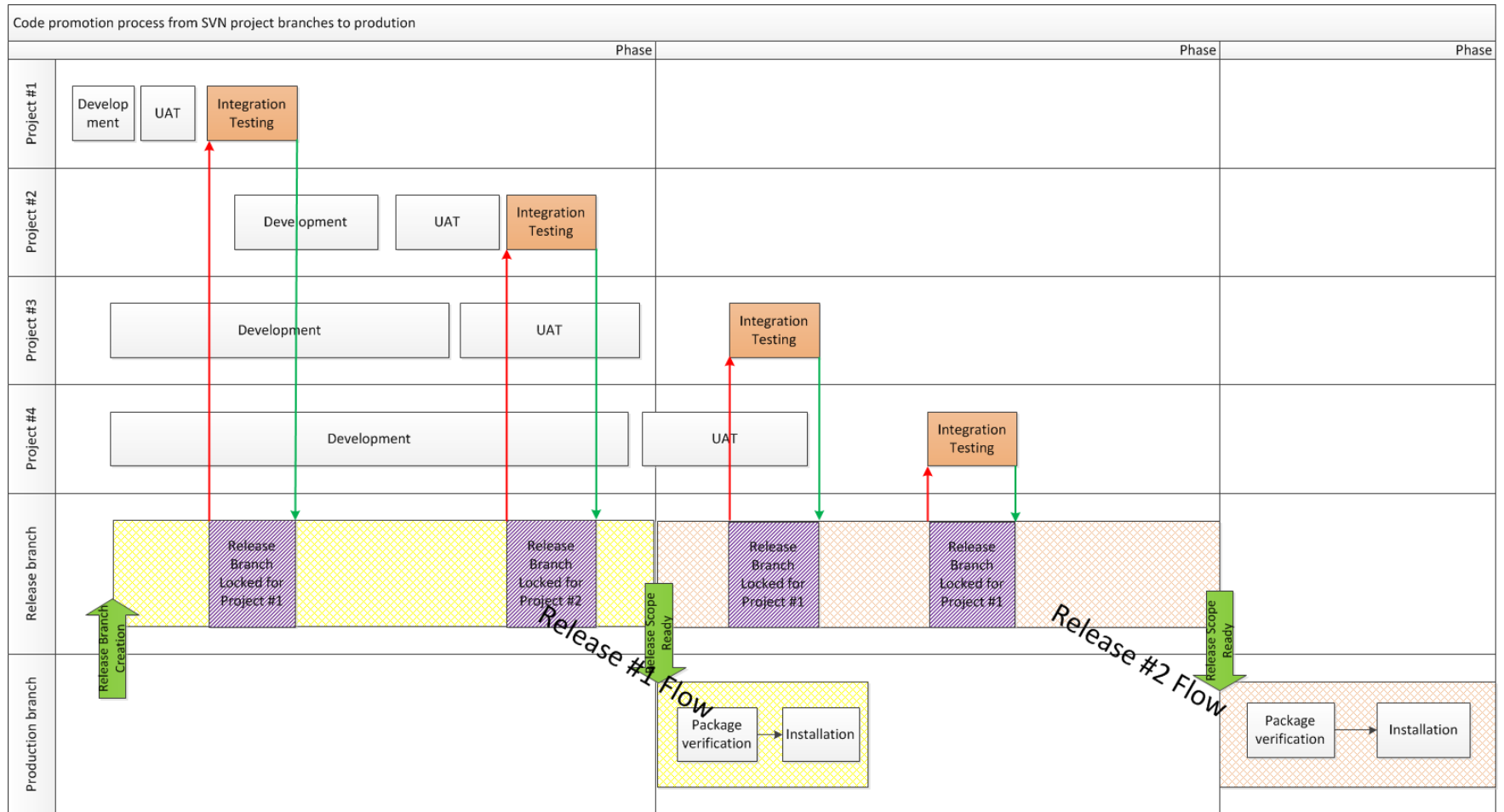
Incidents and problems

Two backlogs, one team…

Optimizations, fixes and corrections for root causes of problems

New features

Two backlogs, one team…

Optimizations, fixes and corrections for
root causes of problems

New features
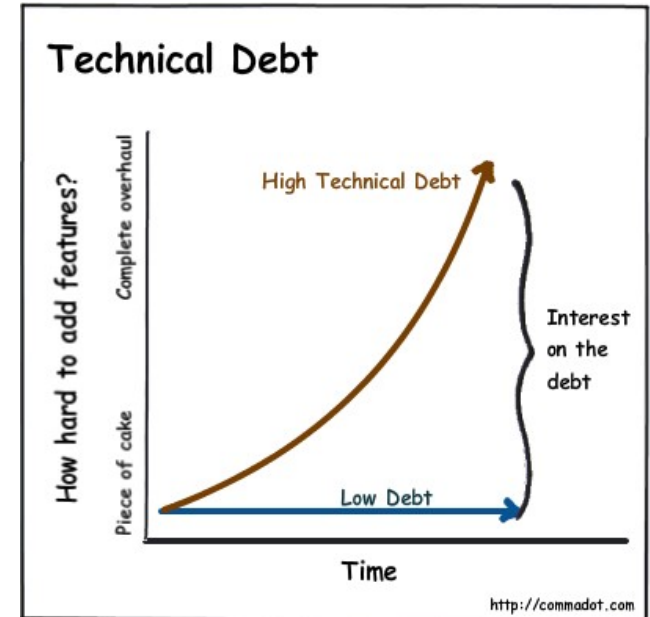

Quality team   *Functional team*

Reducing technical debt

> *"As an evolving program is continually changed, its complexity, reflecting deteriorating structure, increases unless work is done to maintain or reduce it"*
>
> (Meir Manny Lehman, 1980)

- Separate projects for system re-engineering
- Daily work of the team responsible for optimizations core systems of the bank

Issues not covered by this presentation

- Quality of requirements

- Quality of system architecture

- Tests quality

- Organization of test environment

- Organization of teams/projects matrix

- Unit tests

- …

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From a different perspective

- We removed 20.000 lines of unused code

- We prepared a good system documentation

- We created automatic regression tests

- We designed the Handover process for all projects

- We removed 4 root causes for past incidents
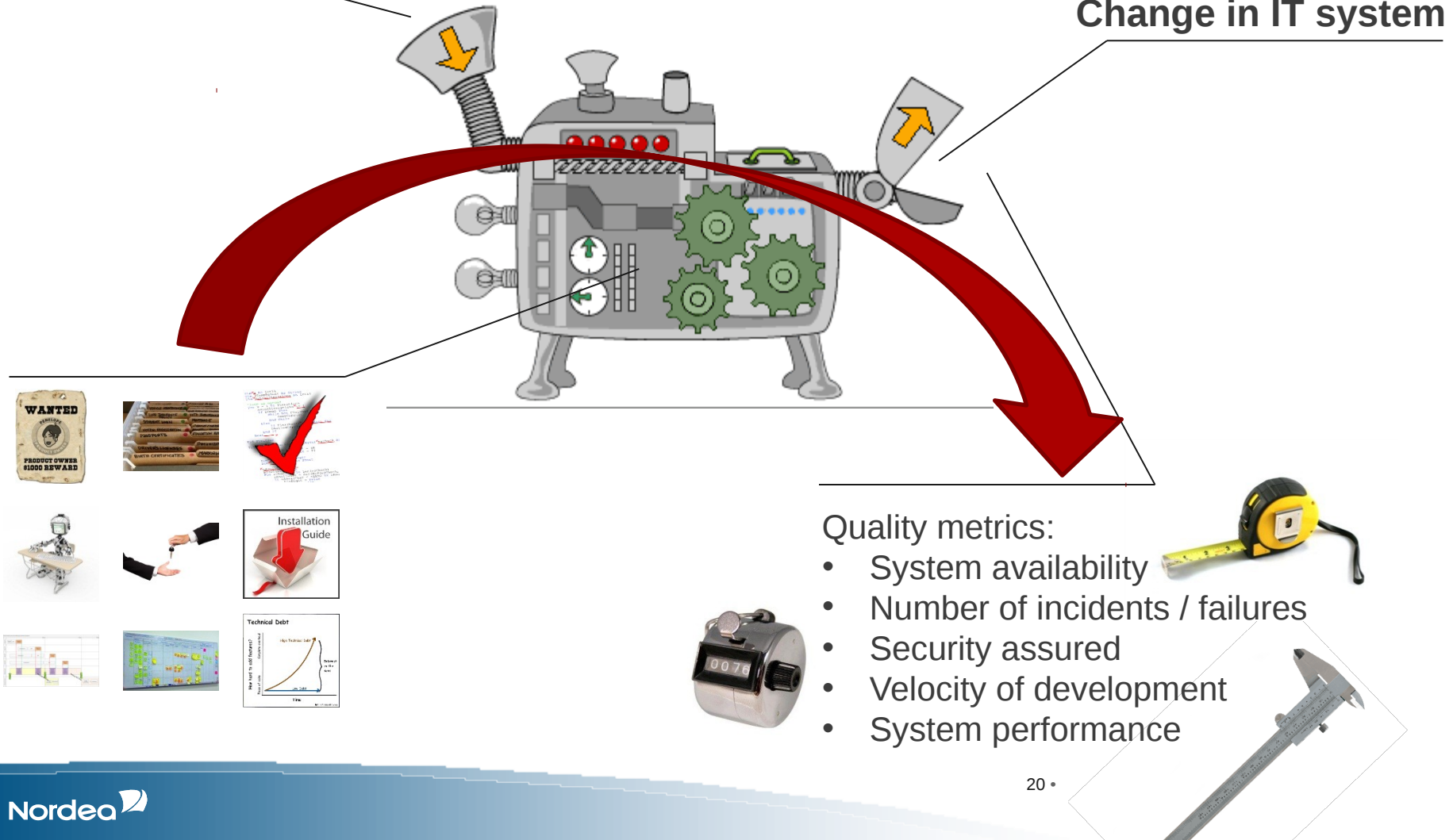
SO WHAT?

How to measure quality increase?

User requirements

Change in IT system

Quality metrics:
- System availability
- Number of incidents / failures
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- System performance

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To sum up

- Quality of IT systems is crucial for the bank
  - **Without good IT system the bank is not able to work properly!**

- The larger the system is, the harder it is to ensure its quality
  - **There are many dependencies, legacy parts, different frameworks, technical debt, …**

- Ensuring quality consists of various activities
  - **Relationship with the Product Owner, documentation, quality of the requirements provided, code audits, automatic and manual tests, handover process, deployment procedure, release policy, registry of incidents…**

- We can determine what impact our activities will have on quality
  - **But it's very hard to measure this impact**

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And finally…

- Thank you for your attention!

- Contact / additional info
  - stanislaw.matczak@nordea.com
  - dostasia@gmail.com

- Some thoughts on IT development universe…
  - www.trzeciakawa.pl

- Any questions or comments?

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