

Quality assessment principles for digital financial services

Brief Introduction

Dr. Wolfgang Balzer, Focus Infocom GmbH, May 2022

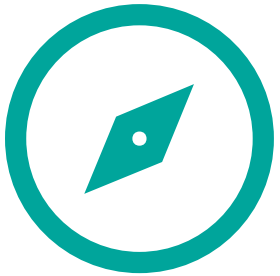
Overview: Leading Questions

- How to recognize, **in the customer's perspective**, a well-working Digital Financial Service?
- How can respective properties be measured in a controlled, reproducible way?
- Directly testing DFS may require some effort – can we define properties and methodologies allowing us to predict QoS of DFS with simpler means?

What is meant by quality of service key performance indicators for digital finance?

- KPIs are indicators that provide a simple way to describe how well a service works.
- Their purpose is to help in making such services better.
- The process of standardization means to share knowledge and experience from situations where such know-how has been successfully used. This also helps to avoid re-inventing the wheel.
- Secondly, standardization makes performance comparable, between providers or countries. Also, this gives a realistic picture of what can be achieved.

How will the work on measurement of quality of service key performance indicators for digital finance help telecom regulators and DFS providers?



- KPIs act like a compass, guiding regulators and service providers to improvement of those services.



- Also, the methodologies that come with them, contain best practice on how to measure those KPIs. This helps to make the process of measuring those KPIs efficient, i.e. cost and time saving.

Customer Perspective

- What is the 'job' of a Digital Financial Service?
 - Transferring money from one entity to another; in this case, from person A to person B (P2P Money Transfer)
- What defines 'quality'?
 - Correct, reliable function
 - Convenience of usage

Slides 6, 8 and 9 shall be used like a „thumb cinema“

What makes DFS „special“?

- As compared to other mobile network based services:
- Users will not tolerate degradations as compared to ideal functioning.
 - A web site may load slower or faster, or there may be some artefacts in video playback or telephone audio quality.
 - **In DFS, it is about real money. Everything else than 100% accuracy is not acceptable.**

Customer Perspective (in the real world)

- What is the 'job' of a Digital Financial Service?
 - Transferring money from one entity to another; in this case, from person A to person B (P2P Money Transfer)
- What defines 'quality'?
 - 100% Reliability
 - Ideally, the transfer works perfect all the time; clear and correct indication of success
 - In case of problems, there should be mechanisms to fix them (complaint resolution)
 - Convenience of usage
 - No long waiting times

Customer Perspective (in the real world)

- What is the 'job' of a Digital Financial Service?
 - Transferring money from one entity to another; in this case, from person A to person B (P2P Money Transfer)
- What defines 'quality'?
 - 100% Reliability
 - Ideally, the transfer works perfect all the time; **clear and correct indication of success**
 - In case of problems, there should be mechanisms to fix them (complaint resolution)
 - Convenience of usage
 - No long waiting times

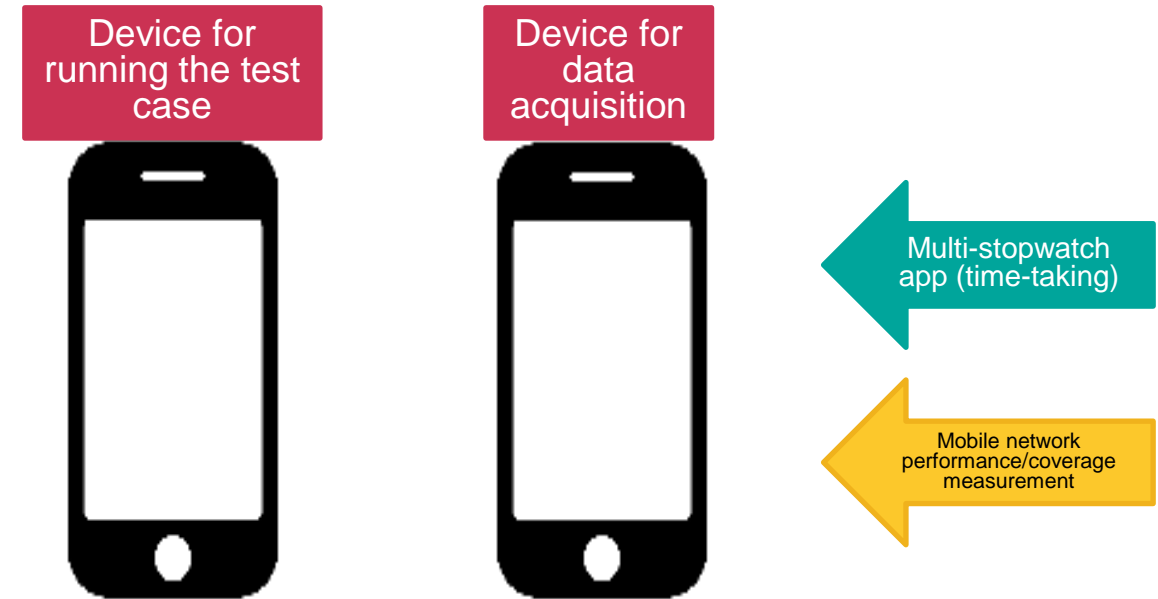
Overall DFS performance is the result of two subsystems: Mobile network and DFS infrastructure

	Poor DFS specific infrastructure performance	Good DFS specific infrastructure performance
Poor mobile network performance	Poor DFS QoS	Poor DFS QoS
Good mobile network performance	Poor DFS QoS	Good DFS QoS

- Both subsystems need to have good performance for overall good results
- Poor performance in one system may be hard to detect if the other system does also not perform well (risk of “evasive finger pointing”)
- Overall good quality can be achieved easier when respective regulators/stakeholders co-operate

Divide testing into „channels“

- Mobile network performance
 - Highly automated testing
 - Selected test cases of network features relevant for DFS, parameterized for the purpose
 - Standardized KPI where possible, define additional ones where necessary
- DFS performance
 - Run on „real user devices“
 - Tool support (e.g. time-taking by multi-stopwatch)



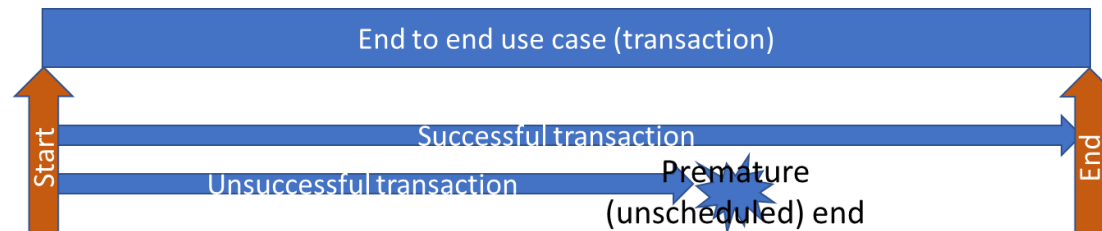
Mobile network KPI

- **Data rate** (from download or upload test cases)
 - Transfer a fixed amount of data (typically a specially prepared file)
 - Measure the time for transfer
 - Data rate = $\frac{\text{File size}}{\text{Required time}}$ Unit: kbit/s or Mbit/s
- **Session time** (for web browsing test cases)
 - Access a web site (live web site, or specially prepared reference web site)
 - Measure the time it takes until the content is fully downloaded



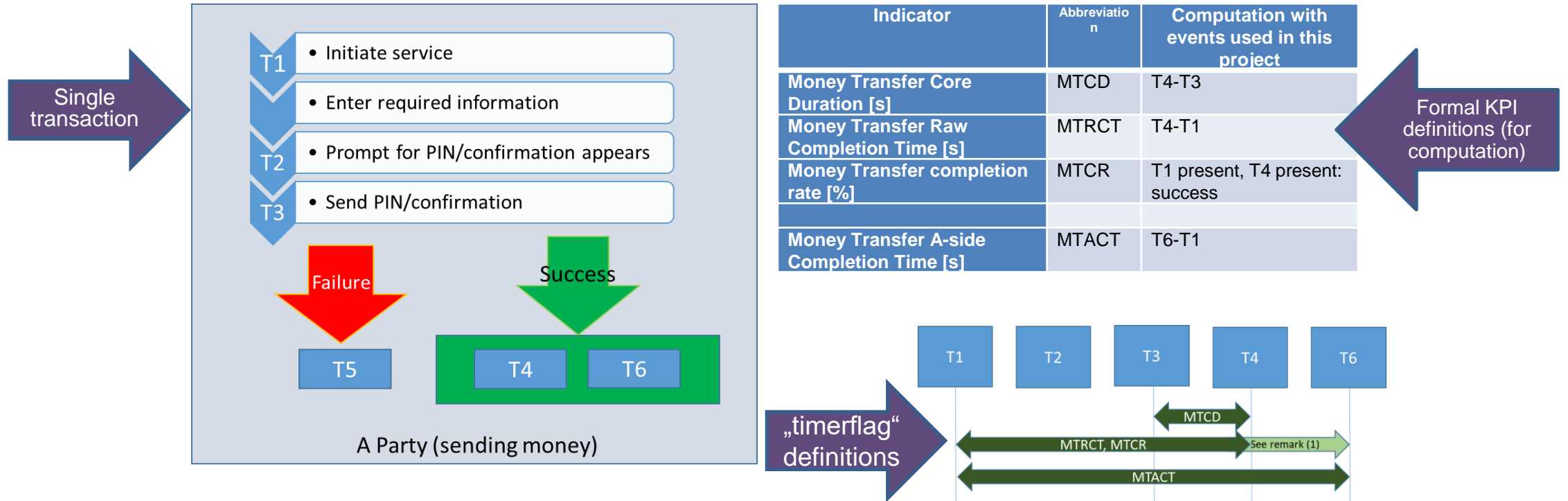
Generating input for DFS KPI

- Select observable events to „feed“ KPI
 - Using the formal concept of „transaction“ established in QoS standardization



- Top-level „end to end“ view
- Events are meaningful, observable entities (points in time). Dual use:
 - Progress markers. Success = „End“ event observed
 - Timers. Execution time = time of „End“ minus time of „Start“

Use case and core KPI for DFS, basic



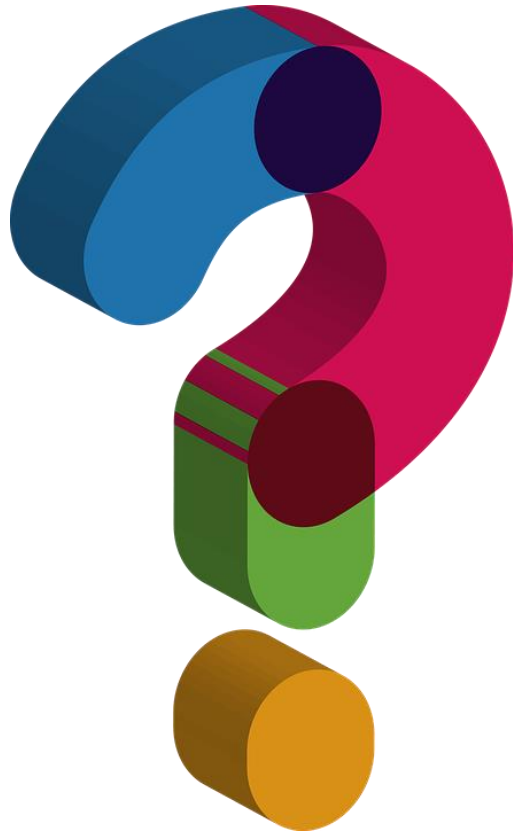
- Depending on goals, a simplified set of KPI can be used

Methodology: Ensure high quality of results

- Reproducibility: Clear and repeatable processes
- High yield of useful data
 - Help testing teams to be productive
 - Provide tool support, check lists
 - Minimize the risk that data is lost
 - Backup strategies, robust data transfer processes
 - Minimize risk of errors in data
 - Cross-checking and plausibility tests
 - Minimize number of „media transfers“ (eye to paper, paper to table etc.)



Thank you for your attention. Questions?



Contact:

Kwame Baah-Acheamfuor
kwame.baah-acheamfuor@moc.gov.gh

Dr. Wolfgang Balzer
Wolfgang.balzer@focus-infocom.de

Fiona M Kamikazi Beyaraaza
fkamikazi@ucc.co.ug