

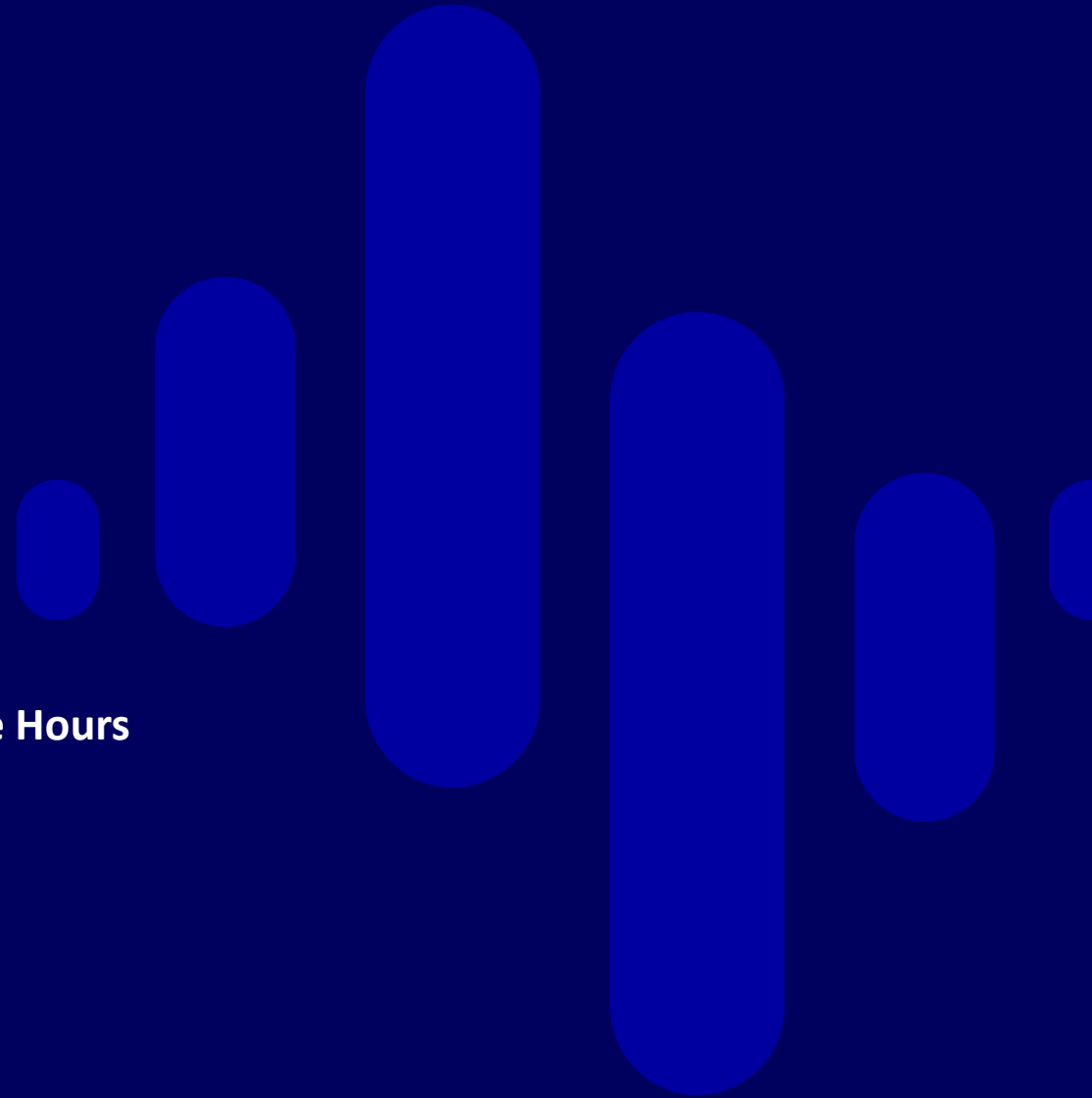
Nordea

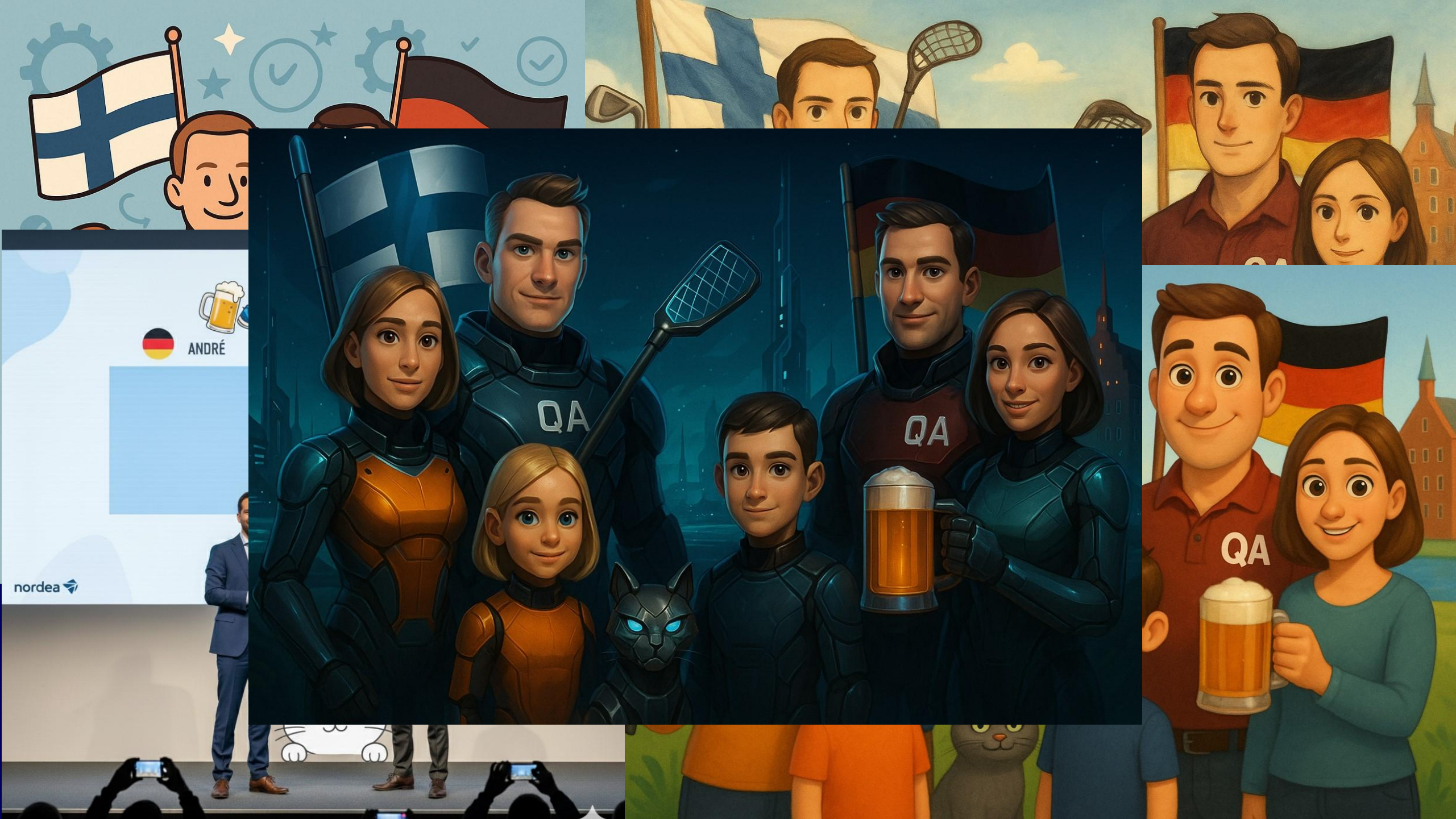
Modernizing QA in the Nordic's Largest Bank

Reducing Payment Systems Test Cycles from Three Weeks to Three Hours

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20.11.2025





Disclaimer

“In this presentation we want to walk you through our journey and share what we did so you can draw your own conclusions what works for you – and what not”

Nordea

In numbers



Dividend for 2023:
EUR 0.92 per share –
more than EUR 3bn in
total



Nationalities working
together:
100
Languages spoken:
60



Reduction in financed
emissions in our lending
portfolio:
36% since 2019.



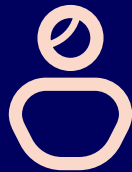
Logins to our digital channels:
1.5 billion in 2024
Mobile bank: 4 out of 5 stars
in app stores in the Nordics



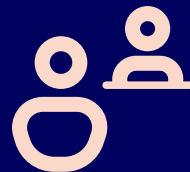
Sustainable financing
facilitated:
EUR 185bn since 2022



Countries with Nordea
offices:
20



No. of employees in 2024:
30,000



Volunteering hours in 2024:
10,600

#1

Global Finance 2024
digital bank award winner
for best user experience
in Denmark, Finland and
Sweden



Advisory meetings with
customers in 2024:
over 1 million

Our 4600 professionals in the Nordea technology units are our enablers!



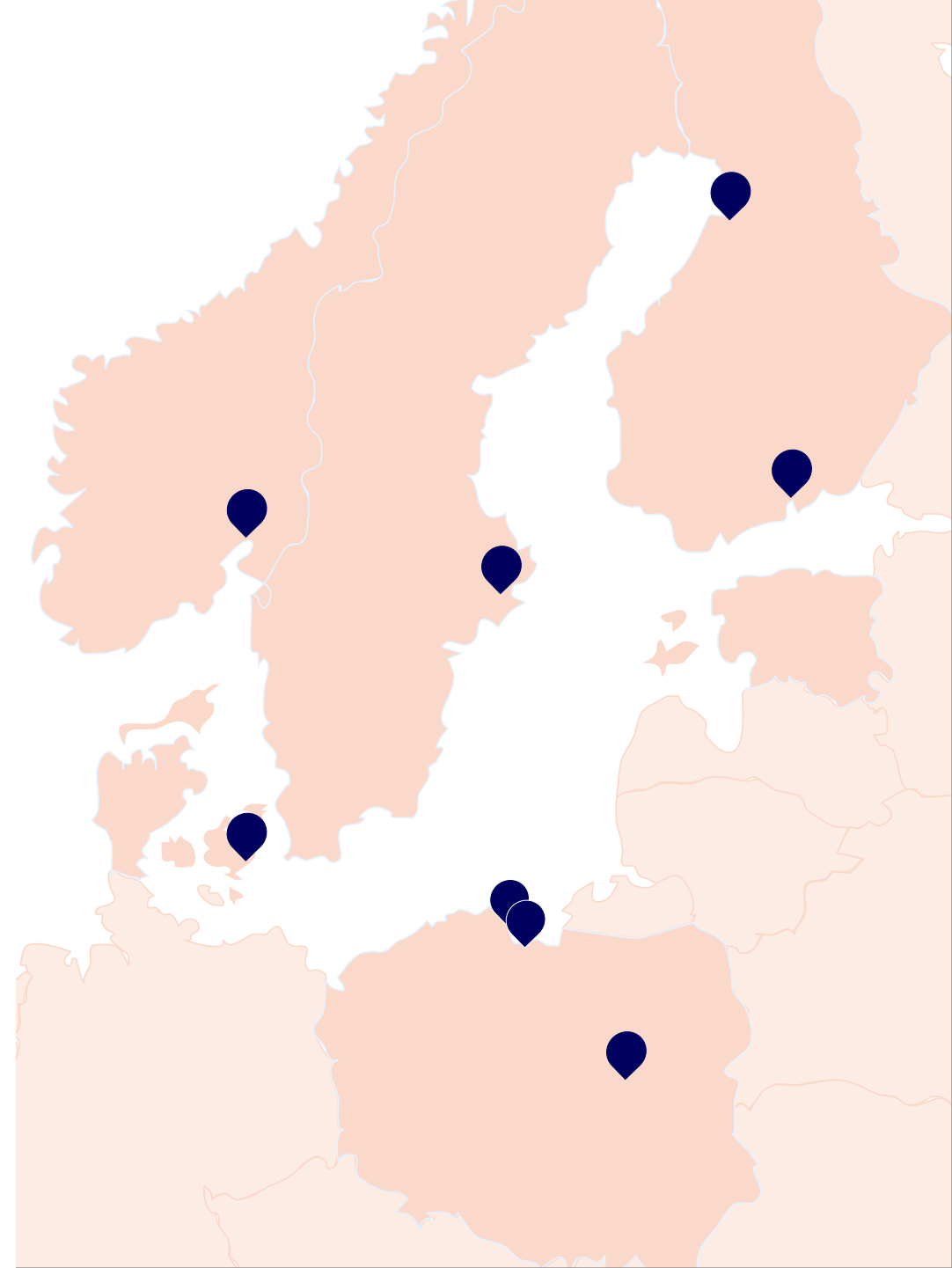
First bank in the Nordics to launch the Open Banking developer portal



We were one of the first movers on Apache Kafka in 2015 and now handle more than 750 million messages per day

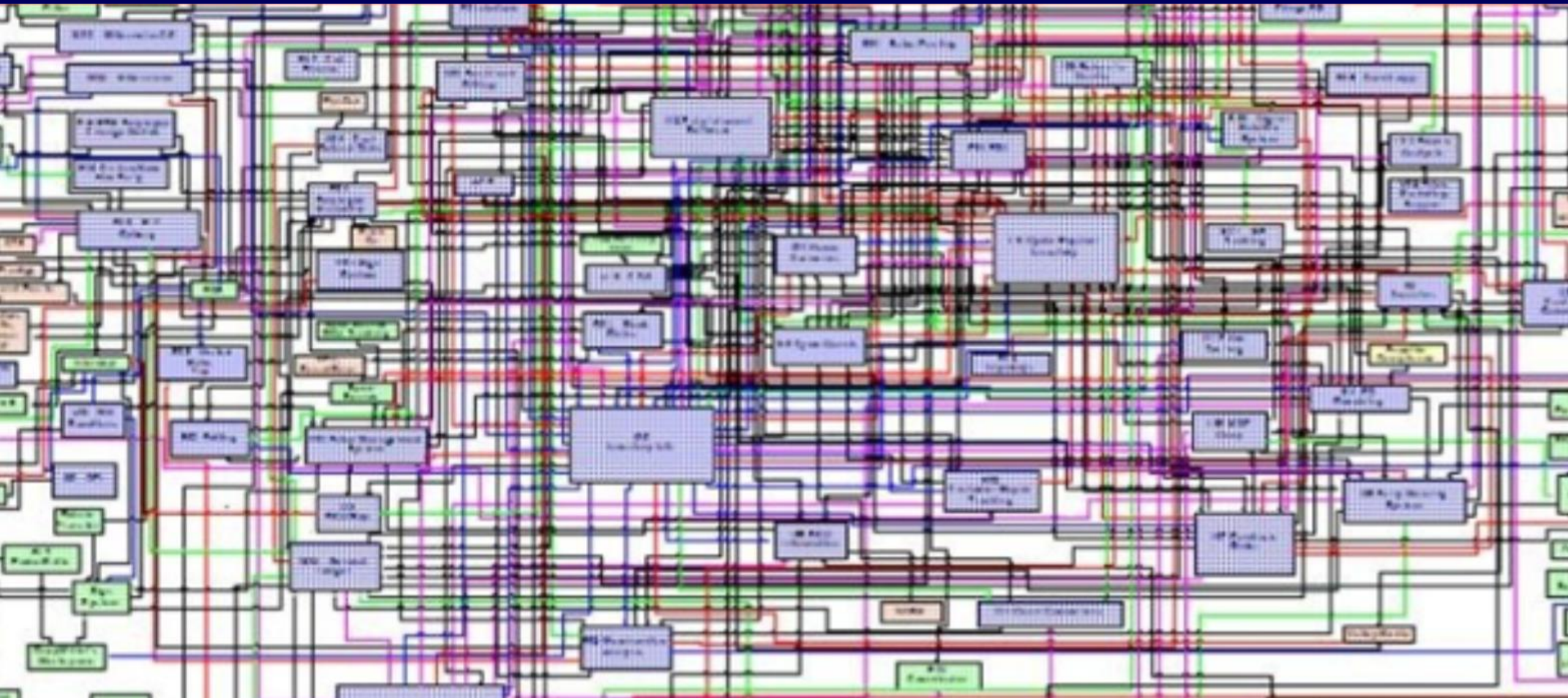


One of the largest Technology employers in the Nordics & Poland



Payments complexity

What makes payments so challenging



The starting point

Original challenge

Our traditional QA setup was heavily relying on **manual** testing, it was not **scalable** to deliver on the regulatory deadlines that are not moveable. QA was being viewed as a **bottleneck** due to our regression test cycles taking 3 weeks.

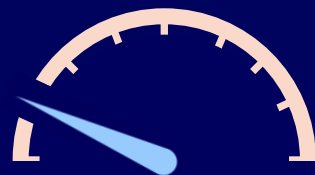
The main goal was to significantly reduce **cycle times**, while **improving** quality



Finding key people

Our journey starts

On our journey to modernize QA it became clear that two **key roles** were missing in our setup; a strong QA **manager** to lead the QA **strategy** and a technically skilled Test automation **architect** to implement automation improvements. Finally, we had the missing **mindset** and **expertise** In the **QA** team.



Initial assessment

Facing reality

Tools

Tech

Process

Resourcing

People

CI / CD

Metrics

Bamboo

Version control

Release scoping

Adding more people

1 man dependencies

Lack of TAEs

Automation ratio

UI automation

Code repo

Defect mgmt

Off-shore balance

Vendor switch

QA leadership

Not scalable

Jenkins

Local laptop executions

Java wrapper

Env. model

Manual mindset

Forecasting

Expertise

Autonomy



Initial assessment

Facing reality



Creation of TA CoE

Start of transformation

To **accelerate** the test automation journey we established a new near-shore team to take care of the **framework** and build technical **enablers**. The team will guide and mentor delivery teams. The **CoE** setup ensures that the team stays **focused** and isn't pulled into delivery work.



The business case

To be able to scale

Results from the CoE proved that we are on the right track with our approach. In order to **scale** up we needed buy-in from management. The **transformation** needed to be gradual, team by team with near-shoring. Business case **benefits** go beyond **ROI** numbers giving increased coverage, “repeatable **quality**” and “agility & **speed**”.



Reshaping QA teams

Unleashing enablers

Our experts from the CoE were **federated** into the scrum teams to accelerate test automation **implementation** during the TA engineer ramp up phase. We also assigned senior TA engineers as **QA leads** in the teams to give them more **influence**. This freed up our test managers and manual testers to focus on E2E testing. To **Speed up** automation adoption, we introduced our **“Automation First”** strategy.



E2E Testing

Last line of defence

E2E testing is extensive and complex due to Nordea's system **landscape** which is why we introduced a new **E2E** Testing team. The sole purpose of this team is to have expertise in E2E payment **flows** across our surrounding systems and to support initiatives with **coordinating** and **executing** E2E tests. This is our **last line of defence** ensuring critical flows are working from front end user interface to core **banking** systems.

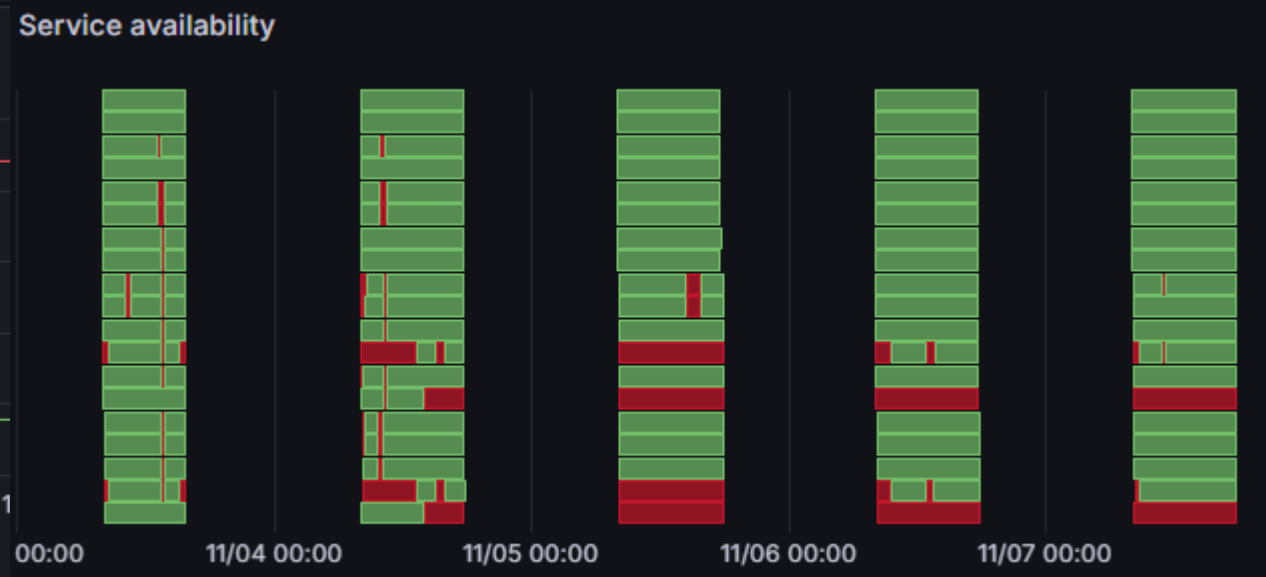
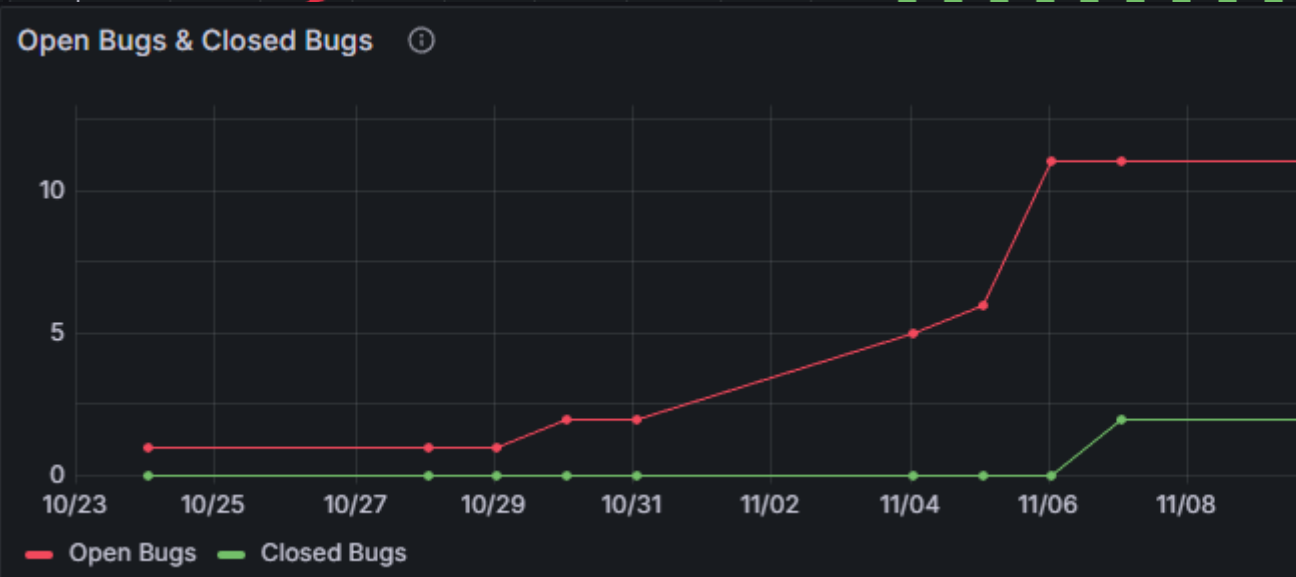
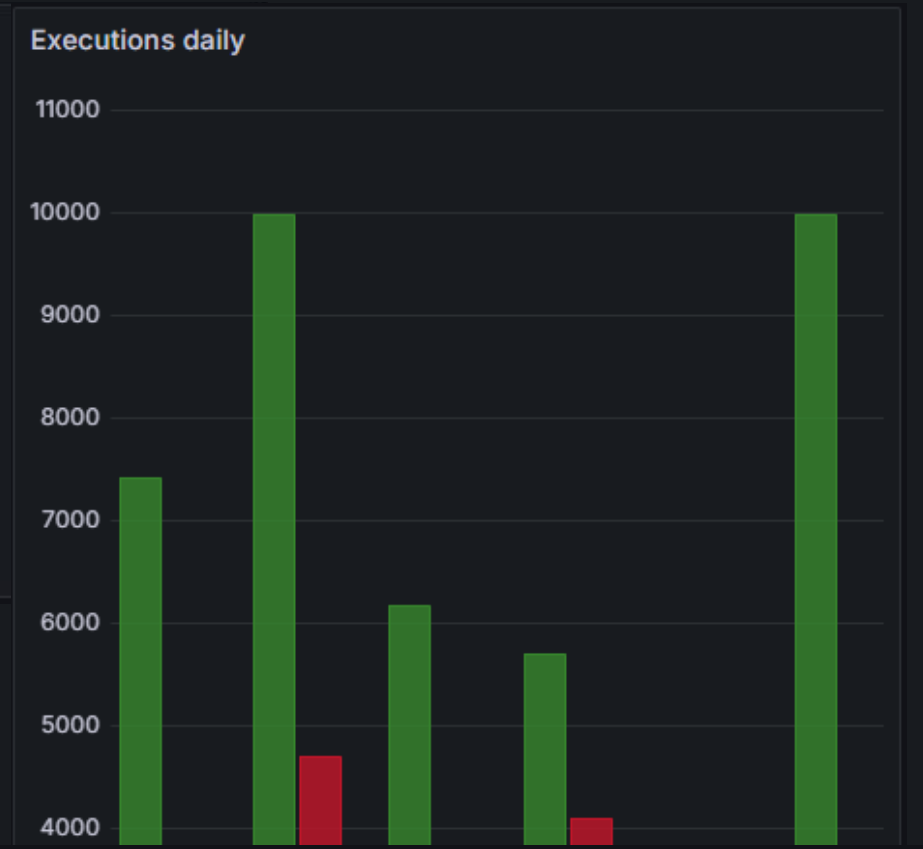
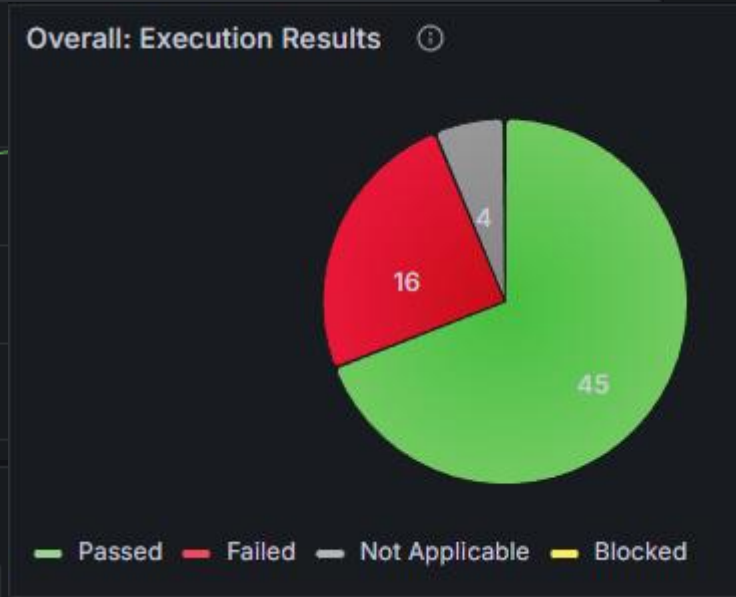
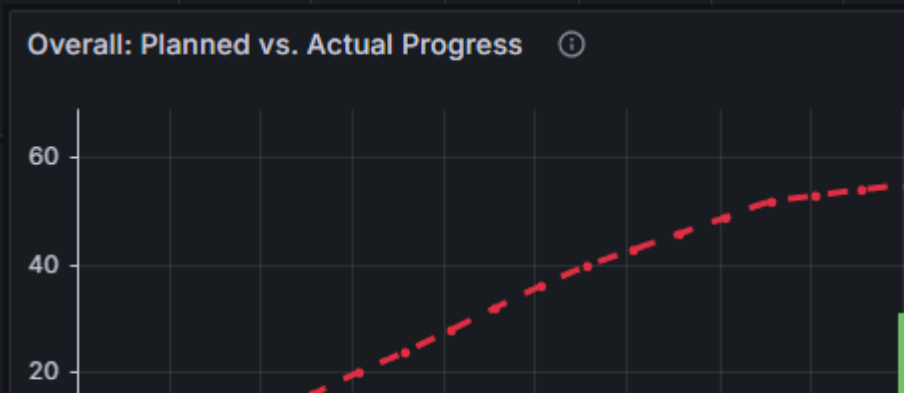
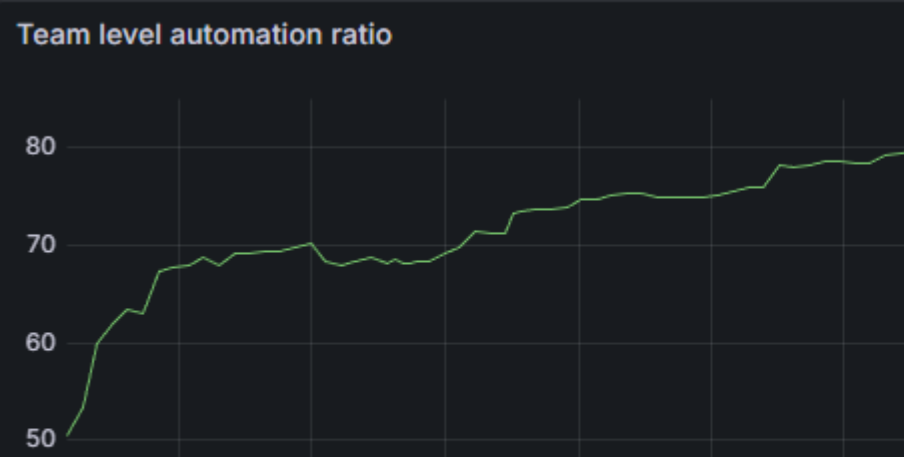


Technical breakthroughs

Framework & tools

A breakthrough was to **replace** the old Java based TA framework with a new central high performing and scalable one based on **Python** and Robot Framework. This includes tools like data **generators**, mocks and automated quality **checks**. We also created dedicated automation environments and set up **Grafana** dashboards for tracking our metrics such as team-based automation **ratio**, release **tracking** and environment availability.

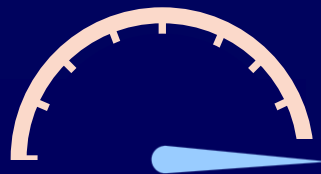




Test Automation Approach

Maintainability & Coverage

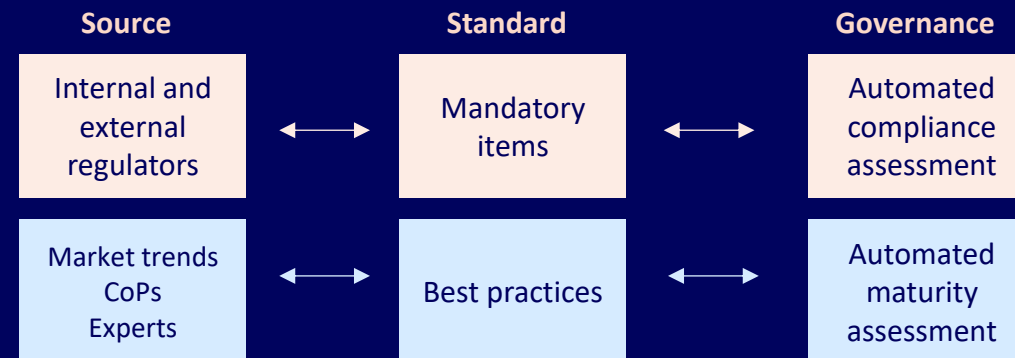
We realized we have to **change** from a traditional feature based test automation approach to a **flow** based one. This means that we defined flows which are **covered** by tests and when there is a new feature, we modify the existing flow test cases. In this way we have a test **suite** that is **maintainable** and doesn't grow out of control at some point . Another optimization is to **randomize** key attributes and field values between test runs to **increase** coverage.



Nordea Quality Standard

The tale of one standard

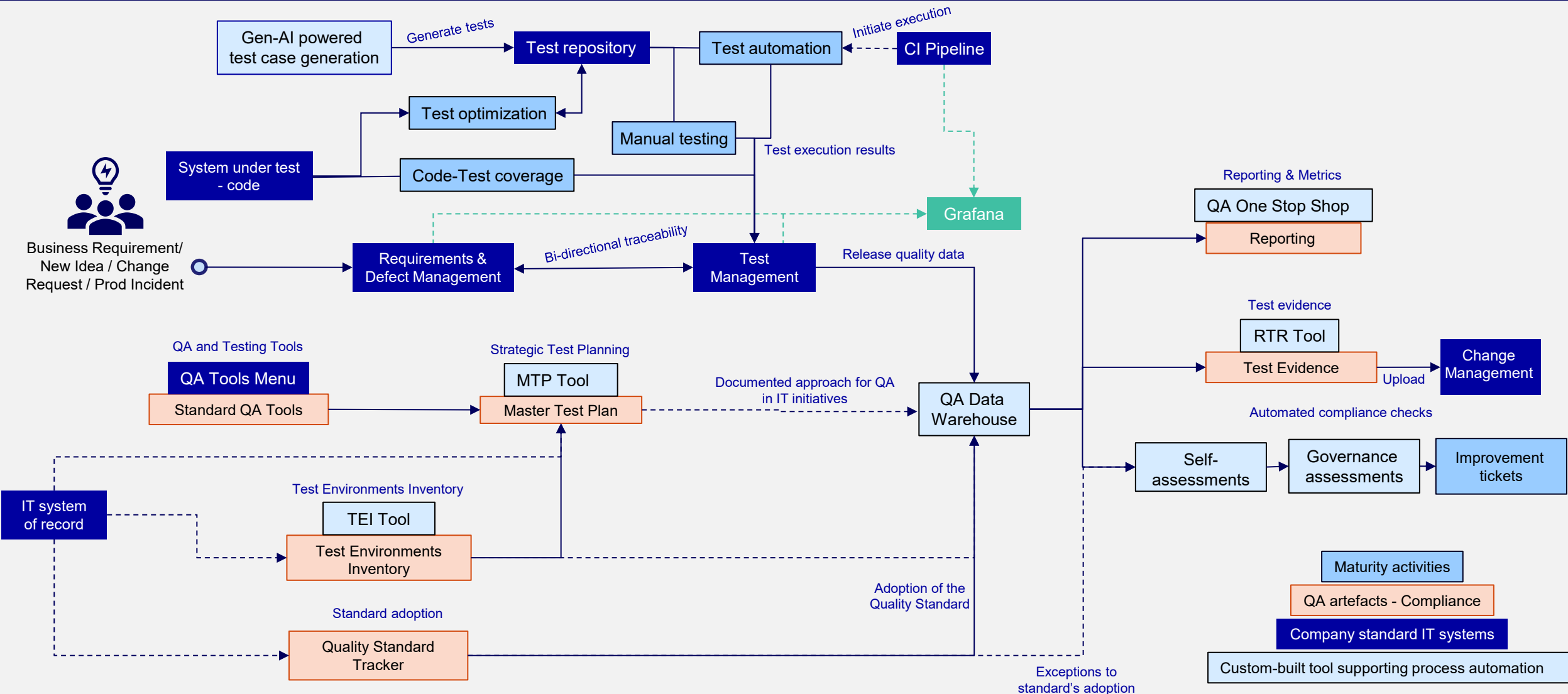
A standard way of executing QA is required by regulations. We created NQS after many iterations and investments during the years. It's extensively based on recognised industry standards and best practices. NQS has received appreciations from external reviewers.



Yet, still struggling; Mainly manual effort, adoption plateau, continued tension between standard owners and delivery teams and risk of transforming into a box checking exercise.

NQS Process flow

The tale of one standard



NQS Adoption

How do we know that it worked?

With our internal custom QA tools

- Standardization approach
- In-built automated compliance
- Compliance metrics dashboard

66.67%	100.00%	82.14%	80.00%	73.91%	68.52%	100.00%	100.00%	97.22%	85.38%
83.33%	100.00%	92.86%	88.00%	70.43%	26.85%	100.00%	75.00%	92.22%	82.47%
81.11%	92.86%	92.06%	90.00%	75.66%	53.42%	100.00%	59.38%	86.07%	81.14%
60.37%	66.77%	86.61%	70.71%	69.02%	22.84%	75.00%	35.00%	76.02%	65.04%
75.93%	67.46%	87.76%	86.67%	80.54%	52.95%	97.62%	75.00%	85.13%	79.49%
65.87%	84.64%	86.73%	90.00%	64.60%	20.38%	85.71%	57.14%	61.05%	69.02%
81.79%	88.21%	91.67%	90.56%	72.95%	34.29%	83.33%	77.94%	77.21%	79.22%
90.97%	97.86%	91.07%	90.00%	63.04%	56.08%	81.25%	75.00%	84.86%	81.79%
81.25%	100.00%	100.00%	91.25%	80.98%	56.54%	100.00%	90.63%	96.83%	81.25%
83.33%	100.00%	94.64%	87.50%	54.35%	18.06%	87.50%	62.50%	87.50%	74.33%
100.00%	NA	100.00%	100.00%	100.00%	100.00%	100.00%	0.00%	100.00%	87.50%
55.56%	100.00%	100.00%	0.00%	47.83%	7.41%	0.00%	NA	0.00%	38.85%
82.22%	93.00%	100.00%	92.00%	66.67%	54.90%	NA	NA	95.38%	87.94%
91.67%	87.50%	100.00%	95.00%	73.91%	43.52%	100.00%	62.50%	62.50%	79.62%
84.67%	98.15%	94.76%	90.00%	65.22%	53.95%	96.43%	67.31%	87.79%	82.99%

8 months later

An integrated ecosystem ensures compliance is delivered as a natural outcome – while strengthening reliability and minimizing manual intervention.

With our internal custom QA tools

- Significant improvements in compliance statistics
- Increased visibility and confidence on those statistics
- Causation relation corroborated by tool adoption

100.00%	100.00%	100.00%	85.51%	73.91%	95.65%	50.00%	25.54%	78.83%
99.60%	100.00%	100.00%	97.82%	78.50%	78.70%	34.48%	13.77%	75.36%
98.73%	100.00%	100.00%	96.49%	85.44%	93.67%	90.63%	35.68%	87.58%
91.70%	89.29%	100.00%	91.56%	45.33%	76.19%	100.00%	27.83%	77.74%
99.30%	100.00%	100.00%	92.55%	81.05%	83.16%	24.44%	30.24%	76.34%
73.77%	100.00%	98.21%	70.83%	42.73%	78.95%	42.86%	21.55%	66.11%
97.98%	100.00%	96.88%	97.92%	87.88%	96.97%	60.00%	10.17%	80.97%
100.00%	96.77%	100.00%	91.11%	91.94%	93.55%	100.00%	46.26%	89.95%
89.27%	100.00%	100.00%	97.53%	96.43%	100.00%	100.00%	54.38%	92.20%
100.00%	100.00%	100.00%	89.15%	93.62%	95.83%	100.00%	57.39%	92.00%
89.28%	100.00%	100.00%	83.33%	25.00%	100.00%		16.07%	73.38%
100.00%	100.00%	100.00%	100.00%	75.00%	50.00%	100.00%	25.00%	81.25%
95.99%	94.74%	100.00%	100.00%	50.00%	94.74%	100.00%	85.96%	90.18%
100.00%	100.00%			0.00%	100.00%		0.00%	60.00%

Requirements have changed

Besides the hard metrics, interactions and collaboration improved dramatically

Achievements & impacts

Doing more with less



We were here



We are here now

QA was seen as a bottleneck with slow and manual processes

Test processes

Leaner QA teams delivering more with less

Testing cycle times were 3 weeks, limiting agility and responsiveness

Cycle times

Testing cycle time reduced to just 3 hours

Test coverage was low and mostly executed manually

Test coverage

Test coverage expanded 10x by automated test cases

Use of custom tools were non-existing

Tooling

Customized tools significantly boost productivity

Management lacked visibility into QA progress and metrics

Visibility

Grafana dashboards now provide real-time QA visibility

From Vision to Reality

Real-World success

Where are we really **today**? Our investments and hard efforts have paid off well. 2025 was a **historic** year in the payments industry when it comes to the amount of new regulatory features that bring real **customer** value in multiple initiatives. This is also the year when we finally had our **setup** in place as we envisioned it and we can see the payout in the Deliveries: **Zero** incidents in our major releases 2025. This was **celebrated** as company wide **success**.

Last words

Lessons learned

Key people are critical to drive transformation

Start small, show successes and use that to get buy-in to scale up

Continuous improvement is essential — you're never truly done

Success lies in fixing many small issues rather than building one big solution

Slogans like "Fixing Basics", "Repeatable Quality", "Agility and Speed" and "Automation First" engage people



Nordea



Sami Kaltala



Thank you!

Questions?



André Mazouch

