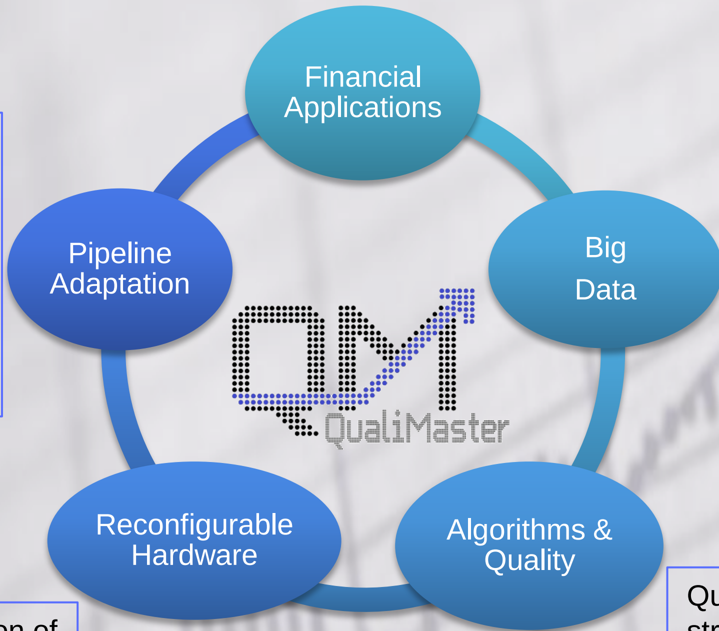
A configurable real-time data processing infrastructure mastering autonomous quality adaptation

Market-based real-time systemic risk monitoring based on in-depth co-dependence modeling and monitoring combined with use of social Web data for supporting and stabilizing the prediction of systemic risk

A data processing infrastructure mastering reactive, proactive, and reflective adaptation based on available computation sources, load, and needs



Analysis of financial data streams (hundreds of millions messages per second), social web sources (e.g. Twitter with about 5000 Tweets per second) and other sources relevant for financial risk analysis

Systematic exploitation of reconfigurable hardware for stream data processing

Quality modeling for data stream processing pipelines and exploitation of algorithmic families with different quality/ performance trade-offs

QualiMaster Vision: make high volume real-time data processing a **highly opportunistic process** that flexibly exploits **data sources**, **reconfigurable hardware** and **families of approximate algorithms** in a configurable, demand-driven and **adaptive** way**.**

The QualiMaster Team

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SEVENTH FRAMEWORK PROGRAMME

Start: January 2014 (3 years)

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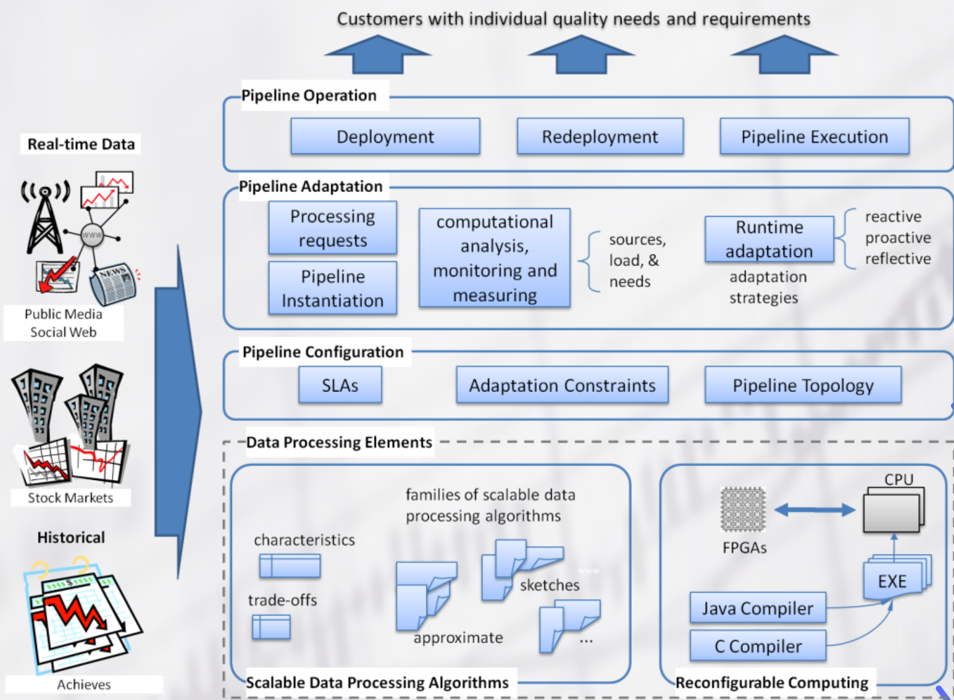
Expected Outcome

A configurable and adaptive data processing software infrastructure, which:

- provides a platform for executing and adapting data processing pipelines
- exploits general-purpose and reconfigurable hardware
- provides configured pipeline instances for financial risk assessment and systemic risk analysis



Novel methods for reactive, proactive and reflective adaptation of data processing pipelines (including cross-pipeline settings)

Models and tools for the definition and configuration of data processing pipelines and their adaptivity space

Families of scalable algorithms for real-time stream processing with well-defined quality parameters exhibiting different quality/efficiency tradeoffs

Techniques and tools for optimized translation of data stream processing algorithms into reconfigurable hardware.

Intermediate Results

- QualiMaster Basic Infrastructure (Dec. 2014)
- Core Building Blocks for the QualiMaster Infrastructure (Jul. 2015)
- Interim QualiMaster Technology & Infrastructure (Dec. 2015)
- Advanced Building Blocks for the QualiMaster Infrastructure (Jul. 2016)
- Final QualiMaster Technology & Infrastructure (Dec. 2016)

Target Groups

With its application for real-time financial and systemic risk monitoring QualiMaster targets regulatory bodies such as the ECB as well as institutional financial clients such as Hedge funds, Banks and asset managers.