QA Vector Analytics:
Proving the value of quality
to support investment and demonstrate progress

How do you show the value of QA?

We all know examples of the hard cost of quality failures.

And all firms measure many components – defects escaping to production, tests passed and failed, money spent on testing software and advisors.

But how do we show the return on spend on QA?

How do we know how we are improving in QA?

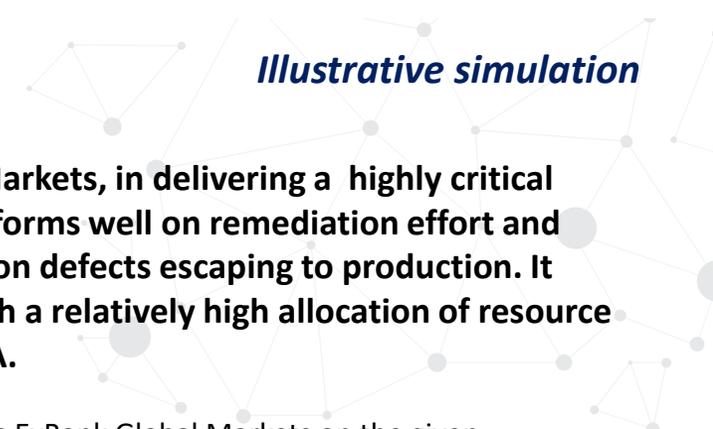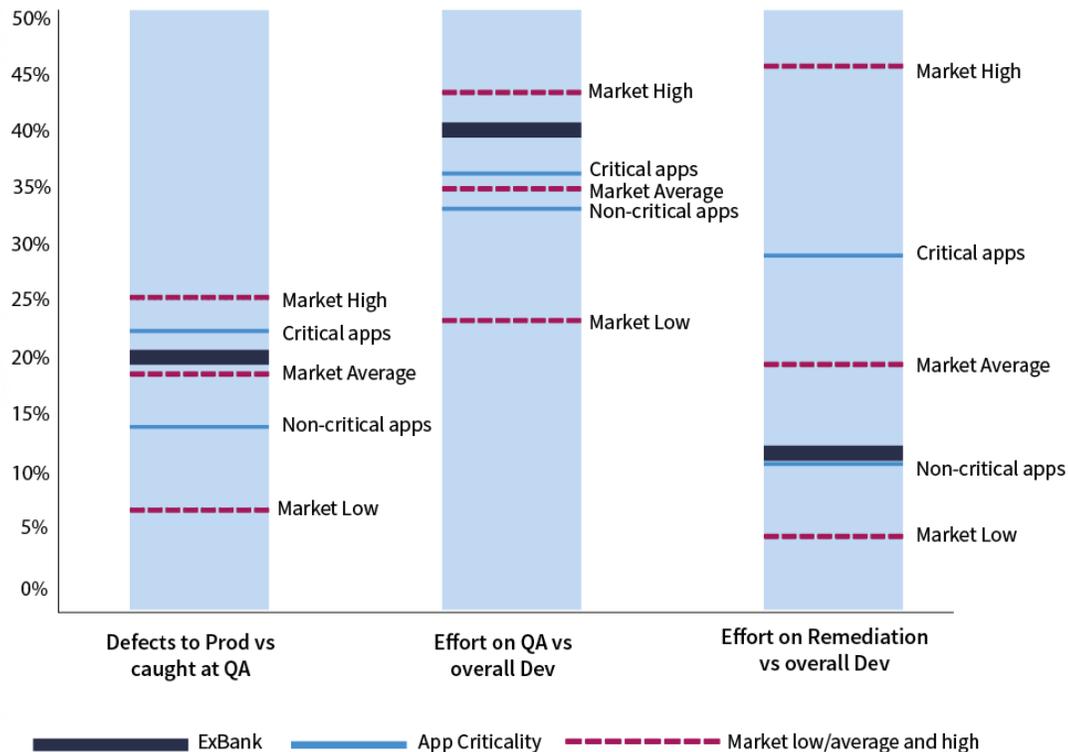**How do we compare to peers in similar firms or across businesses and applications?**

How do demonstrate QA compliance to our regulator?

QA Vector Analytics, designed to measure the whole-of-quality-journey and investment, solves for these challenges.

This document provides two mock-up examples as the basis of developing a working real-world prototype model, that we will grow in partnership with domain experts.

How do you perform for your critical trading application against the market?

Illustrative simulation

Lower scores are better

Defects to Prod vs caught at QA

Effort on QA vs overall Dev

Effort on Remediation vs overall Dev

ExBank | App Criticality | Market low/average and high

ExBank Global Markets, in delivering a highly critical application, performs well on remediation effort and reasonably well on defects escaping to production. It achieves this with a relatively high allocation of resource specifically to QA.
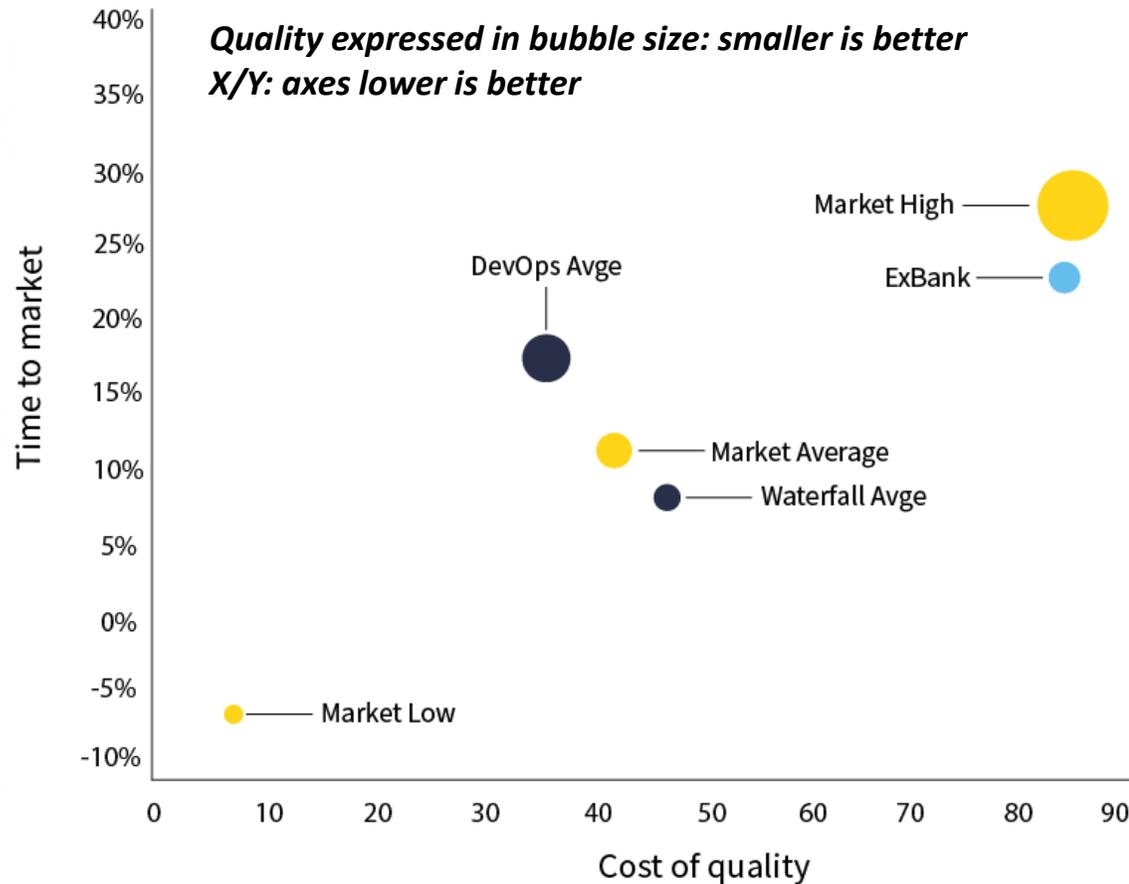
This chart compares ExBank Global Markets on the given benchmarks to the low, average and high performers across the market overall and to market averages for critical and non-critical applications .

The benchmark measures are ratios designed to track:
- *Defects* in production vs those caught in QA
- *Effort on QA:* effort in working days on QA
- *Effort on Remediation:* effort for remediating defects (in working days), whether discovered in QA or in production
- *Overall Dev:* total effort allocated to all aspects of development, whether building applications, testing or remediation defects

The quality vs cost vs speed challenge – which levers to pull?

How do firms trade quality vs cost vs timeliness of delivery?

Illustrative simulation

Quality expressed in bubble size: smaller is better
X/Y: axes lower is better

This chart compares time-to-market performance with cost-of-quality and overall quality.

ExBank scores well on quality (the smaller bubble size) but pays a high price in timeliness of delivery and cost of quality.

In general, DevOps projects across the market perform better on cost-of-quality than waterfall projects but worse on timeliness and overall quality. Although this data is invented, this might be what we would expect in an immature phase – when the system is changing and the efficiency gains have yet to be realized.

The benchmarks used are designed to track:
- *Time-to-market*: elapsed time on delivery in the application versus planned time
- *Cost-of-quality*: total spend on QA and remediation as a proportion of total spend on development (including QA and remediation)
- *Overall quality*: effort (measured in staff days) spending on remediation of defects as a proportion of total development effort

Prototype project proposal

QA Vector Research will undertake research among an initial group of financial institutions, aiming to grow the base with each iteration, and separate out different types of institution, in order to create and publish QA Vector Analytics, comparisons and trend analysis. Our focus will be on:

- Timeliness of application deliveries

- Defects in development reaching QA

- Defects in production

- Cost / effort dedicated to QA specifically

- Cost / effort dedicated to remediation of defects

- Ratios of above to overall costs/efforts

- Qualitative comments on experiences relative to these issues

We will combine this with analysis by application/business area, organization type, development style, criticality of application and any other criteria that we may discuss. As we gather sufficient data, we may use appropriate AI analytics tools to discover new insights. Over time, we will produce quarterly reporting and private reports for individual firms (marking their performance to the market as a whole) as well as published outputs.

The goal will be to create a unique stream of output to permit reliable measurement of the value added by the quality stream.

Participation in this prototype project will not be chargeable, and development partners will be asked to participate in determining fair value for the ongoing service, receiving a discount on their first year's participation.

Input data

Initial items to measure	
Defects	In development
	In production
Delivery overrun versus originally planned	Delivery time planned days
	Delivery time actual
	Overrun
Effort for overall development	Elapsed time
	Staff days
	Cost
Effort for QA	Elapsed time
	Staff days
	Cost
Effort for remediation	Elapsed time
	Staff days
	Cost

Classification criteria	
Organisation type	Bank
	Interdealer broker
	Insurance
	Fund manager
	Infrastructure/central bank etc
Application business activity	Global markets
	Payments
	Retail services
	Human resources
Development approach	Waterfall
	Agile
	A combination of both
Criticality of system (revenue/reputation dependency)	Severe
	Moderate
	Low

Future measures	
Increase sensitivity of measures (eg severity of bugs, types of org)	
Performance shortfall (load time vs required, throughput capacity versus required)	
Specification/BRD based defects (built the wrong thing)	
Recurrent defects	
Severity of escaping bugs - weighting of criteria	

Confidentiality undertaking

Data you provide to us will be treated as strictly confidential

We will execute a mutual non-disclosure agreement with you (either ours or yours)

We will show you your data positioned against the anonymised market

We will use your data to create the market reference positioning for others but never reveal your data in disaggregated format

QA Vector®Research

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