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The SQALE Method (V1.0) for Managing Technical Debt

A 15 mn pres

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Jean-Louis Letouzey

The SQALE method: Context

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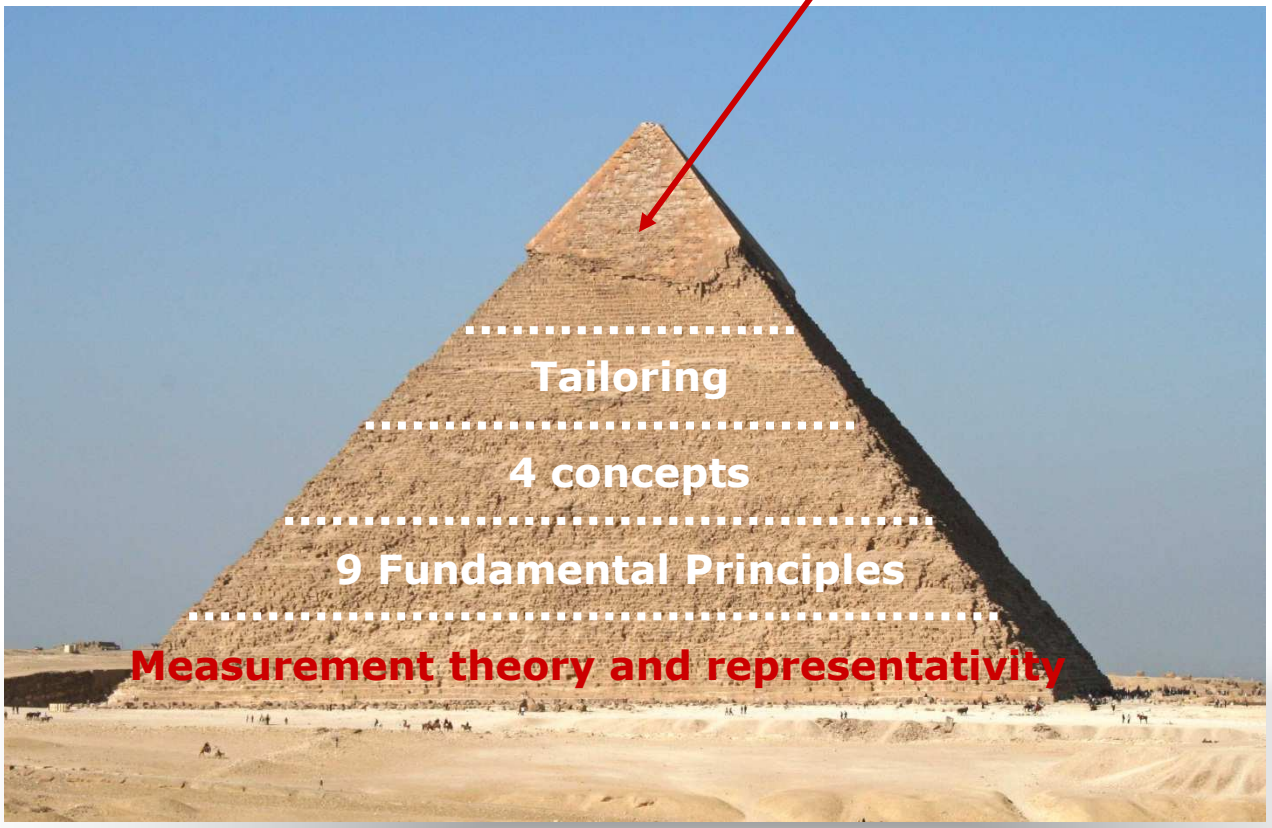
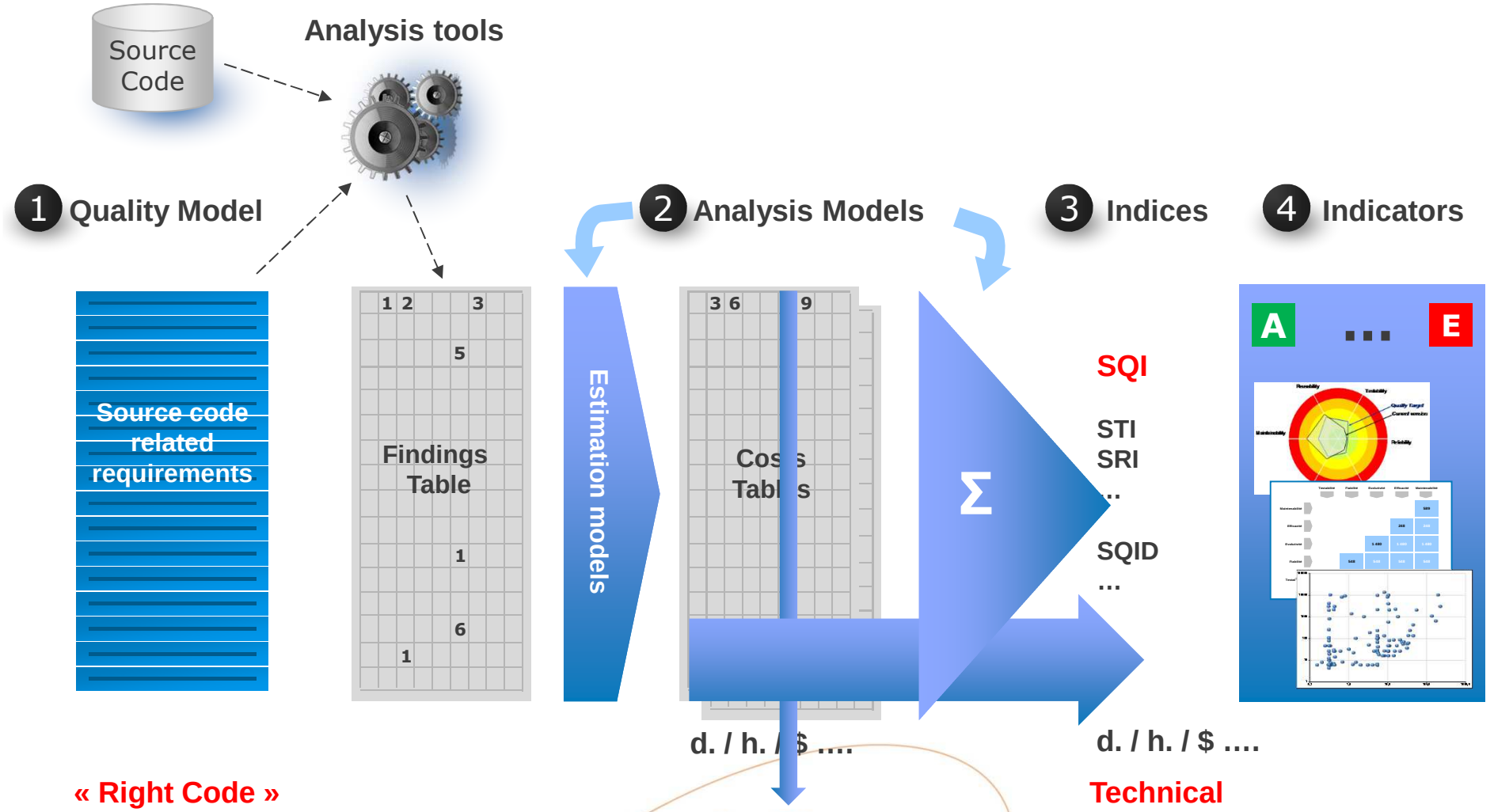
SQALE: Software Quality Assessment based on Lifecycle Expectations

- Based on TD
- Generic

SQALE



SQALE Structure



The SQALE Quality Model: Source Code Requirements

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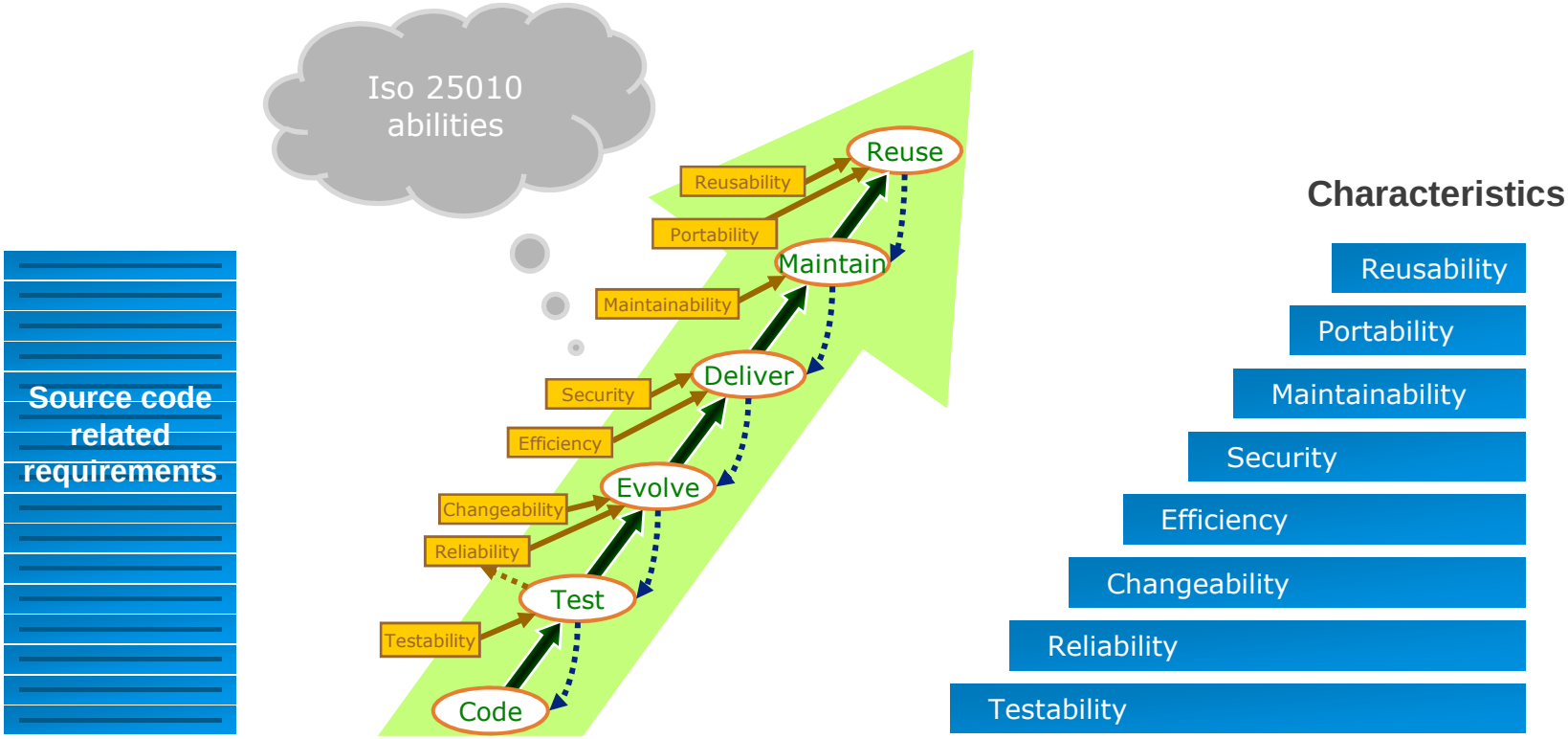
- SQALE ask you to organize your set of expectations (requirements) based on your lifecycle needs



« Right Code »

Requirements, appear only once within the Quality Model, when they are first needed. >>> orthogonal model

SQALE: 2 Estimation Models

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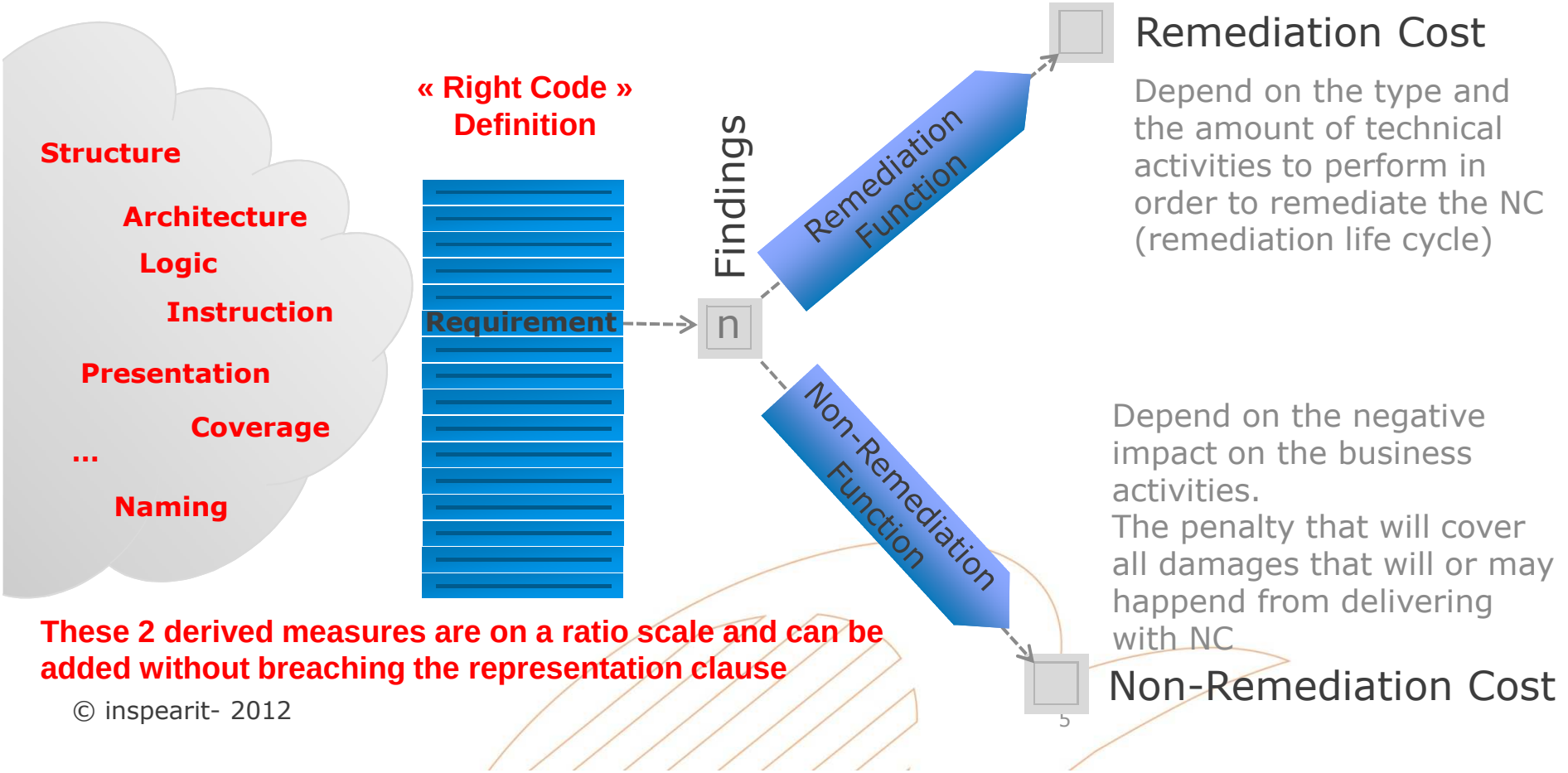
- Estimation models transform findings in costs
  - One for the Technical Perspective > Technical Debt
  - One for the Business Perspective > Business Impact



These 2 derived measures are on a ratio scale and can be added without breaching the representation clause

SQALE indicators: 1 – Info & Analysis

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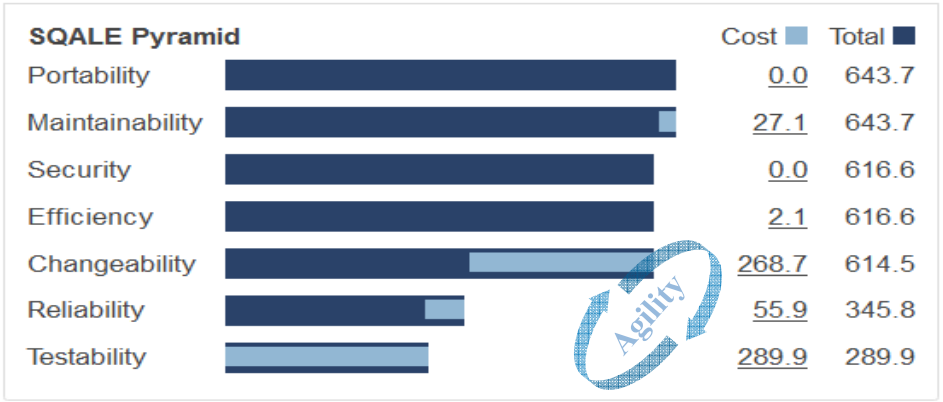
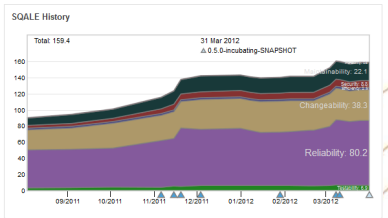
- **Rating:** Synthesis, reporting
  - Based on the ratio: Tech.Debt/Dev.Cost

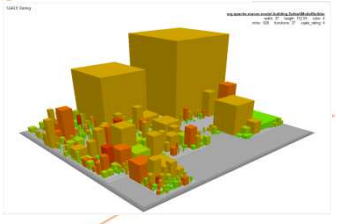
A … E

- **Pyramid:** Technical Perspective of your TD:



Tool Vendors may offer additional indicators (historical, by dev., by age….)





SQALE indicators: 2 - Priorities

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Enough time/budget

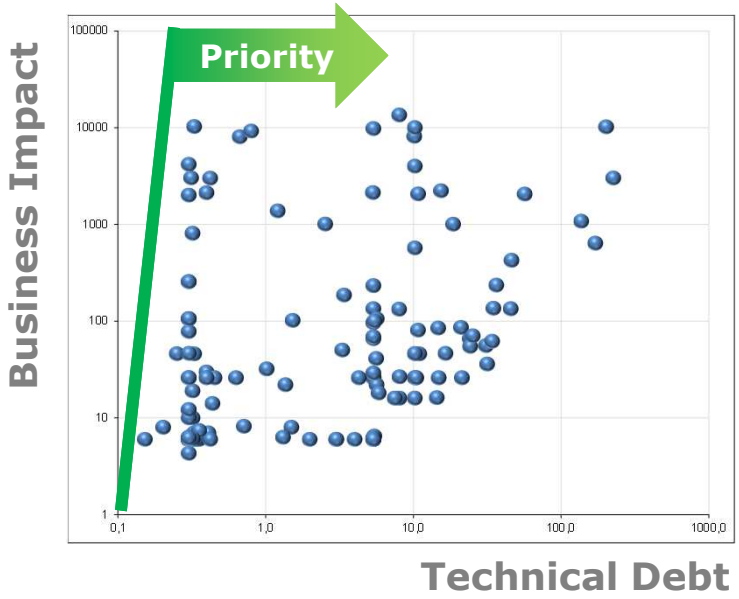
- Follow the logic from the **Pyramid**, start from the bottom

- Relevant strategy for projects starting from scratch or the new part of the debt on a maintenance project

The Technical perspective **The clean way**

Limited time/budget

- Look for the best Impact/Cost ratio. Use the SQALE **Debt Map**



- Relevant strategy for improving the quality of legacy apps

The Business perspective **The quick win way**

Managing Technical Debt with SQALE

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	SQALE Support
1. Define what create TD	• Quality Model
2. Define how you calculate TD	• Analysis Model
3. Set Goals	• Index density, Rating, Kiviat
4. Monitor the TD	• SQI index
5. Compare TD	• SQI Density
6. Analyse TD (origin, location, and impact)	• Pyramid, SQI, SBII
7. Set Pay down goals	• Indices density, Rating, Kiviat
8. Set Pay down plan/priorities	• The 2 Perspectives, Pyramid, Debt Map

SQALE Status

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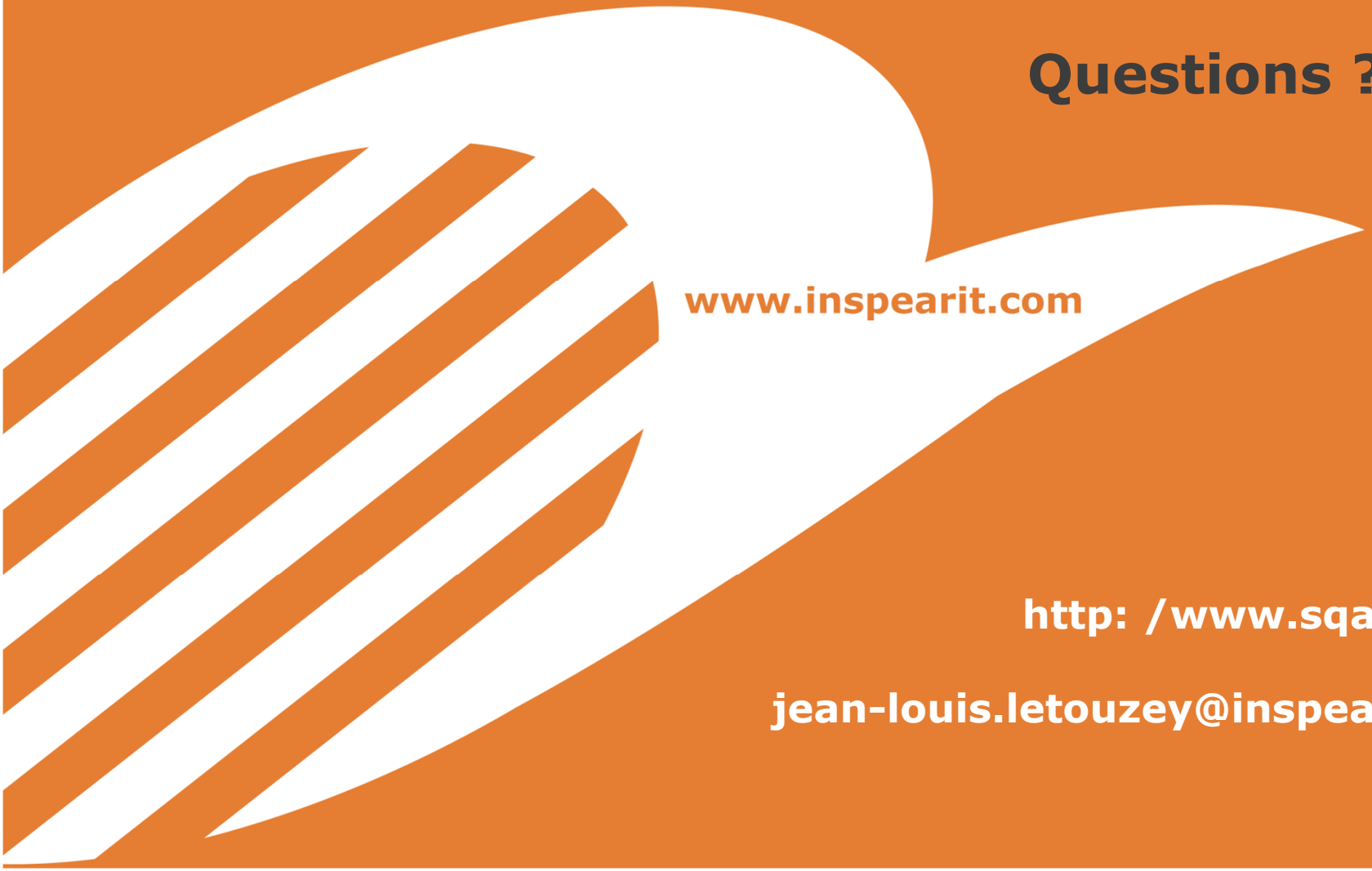
- Public, open source, royaltie free
- Language, Dev. process, Tool editor independant
- Largely deployed and used
- The SQALE website
  - Method Definition Document
  - Link to Thesis, Presentations, articles, tools
  - Blog

- Inspearit assets
  - 1 day Method Training
  - Inspearit calibrated Quality and Estimation Models
  - Evaluation process
  - Evaluation Framework
  - Measurement database

just sqale it

Thanks

Questions ?



http: /www.sqale.org

jean-louis.letouzey@inspearit.com

Addendum; Additional material

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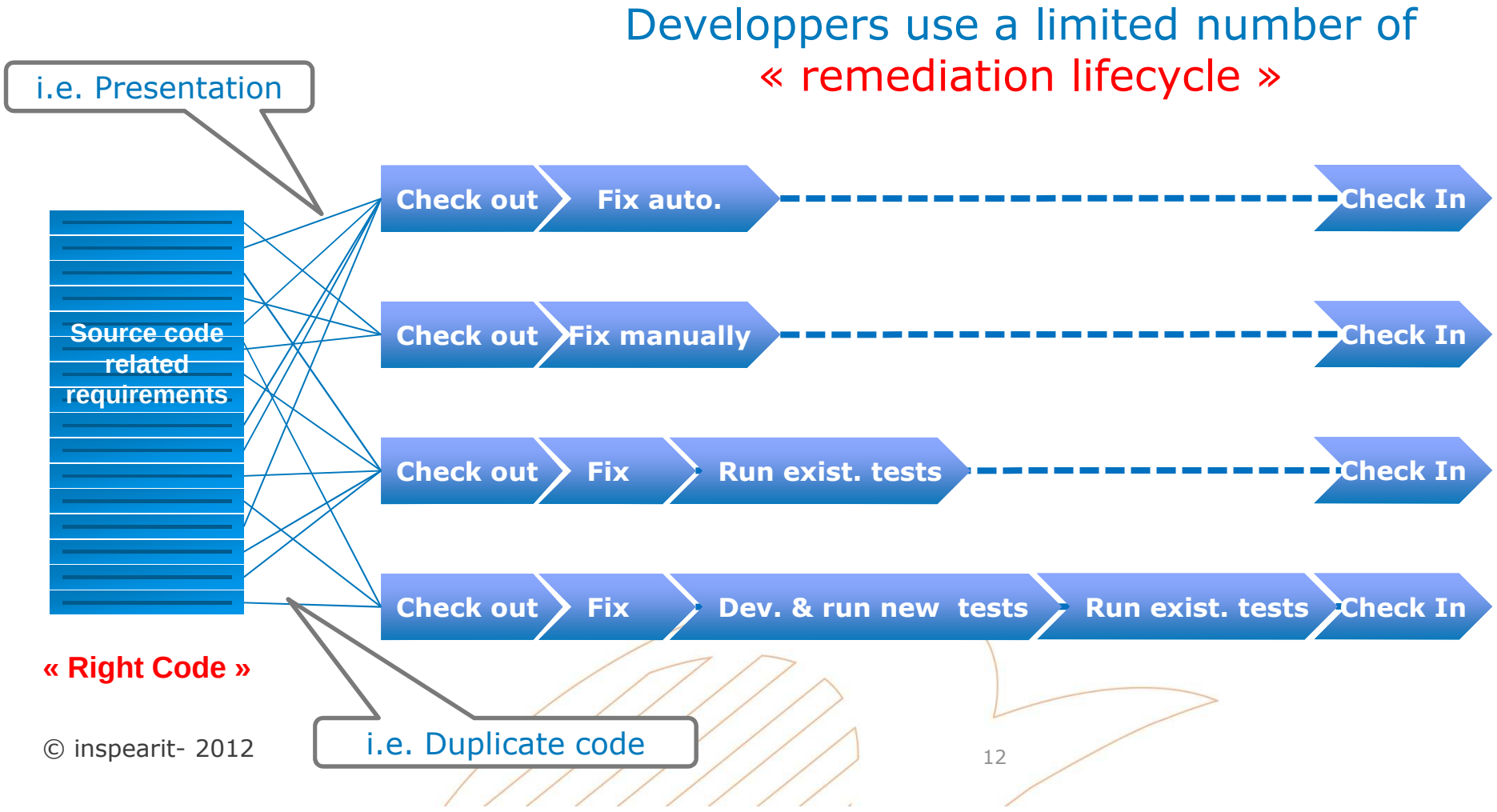
- Remediation functions
- « Right Code »
- Does it generates TD?
- Managing upon agile principles
- More details about the SQALE Quality Model
- More details about the SQALE indicators
- Some SQALE tool screenshots

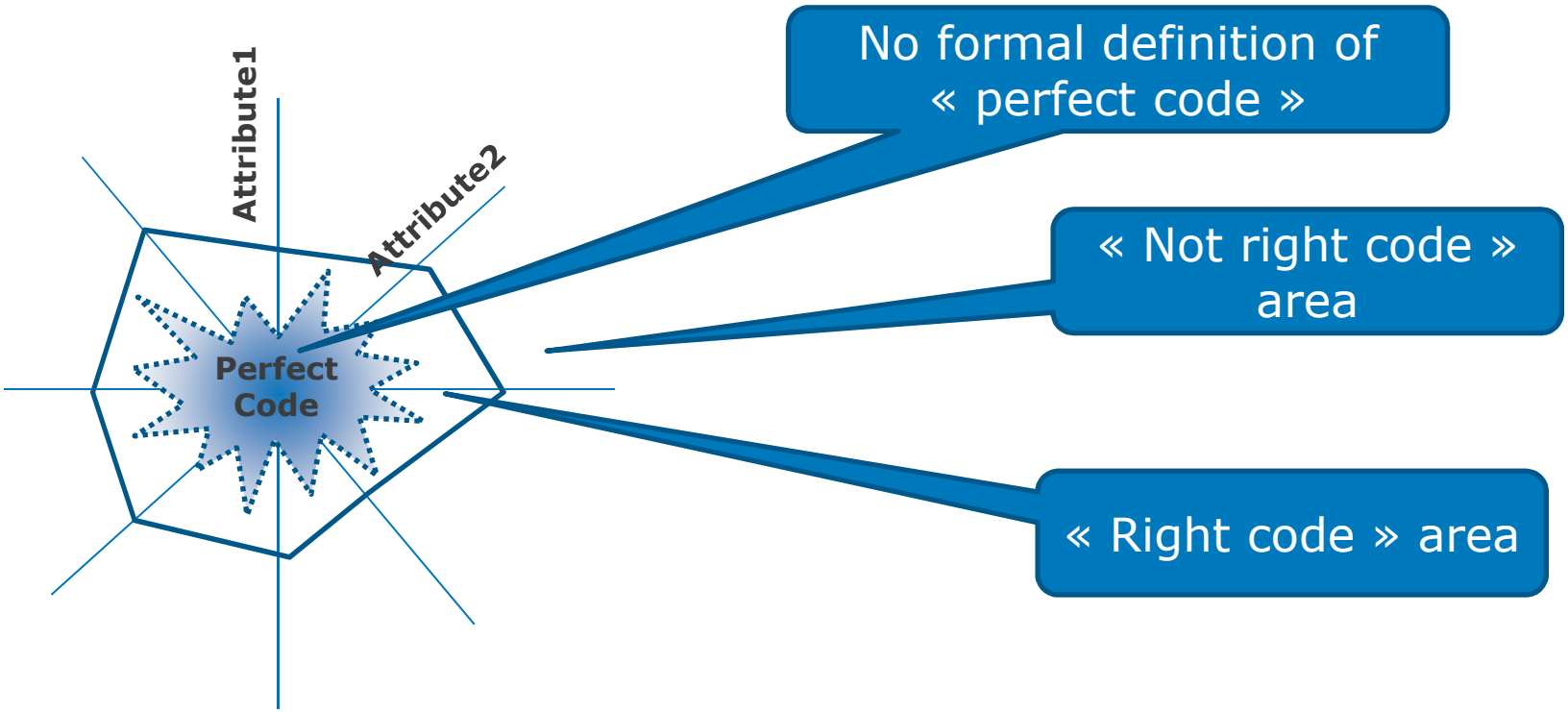
Remediation functions

- Remediation workload (and remediation functions) depend on the « remediation lifecycle »



What is « right code »

- « Right code » is not « perfect code »



- As soon as one attribute is in the unacceptable area, the code is « not right »

Does it generates technical debt?

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- Debt could come without a commitment or a promise ?
- My portfolio is made of 60% Java and 40% C# . This is not optimized compare to 100% in the same language. Is that TD? (*same question with 60% Oracle and 40% DB2*)
- My application has been developed some time ago with Oracle 9. Since that, Oracle moved to V11. That's due to technology obsolescence. Is that TD?
- My application works fine for our current 500 users. It won't support 5,000 users without a complete redesign. Is that TD?
- Some people in my team don't have the expected skills and should attend dedicated training on xyz. Is that TD?

Managing upon agile principles

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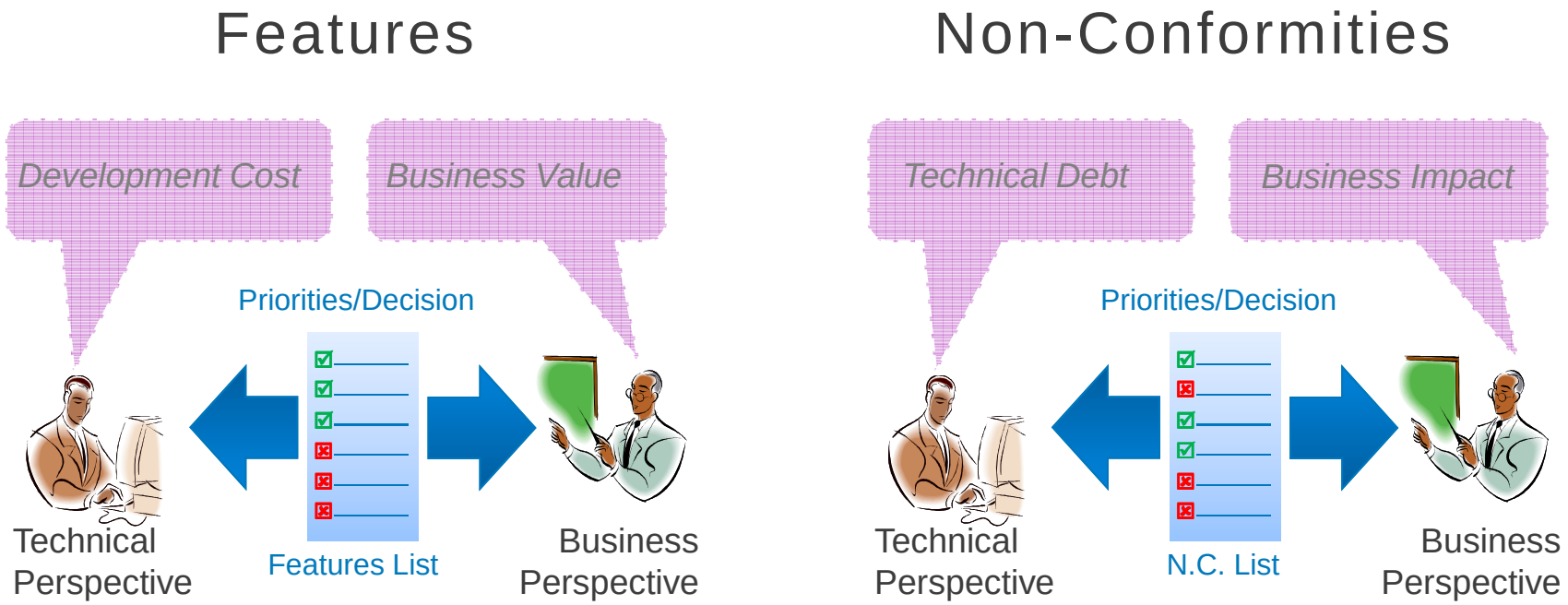
- Priorities are established upon the « Value/Price » ratio



SQALE is based on Lifecycle Expectations

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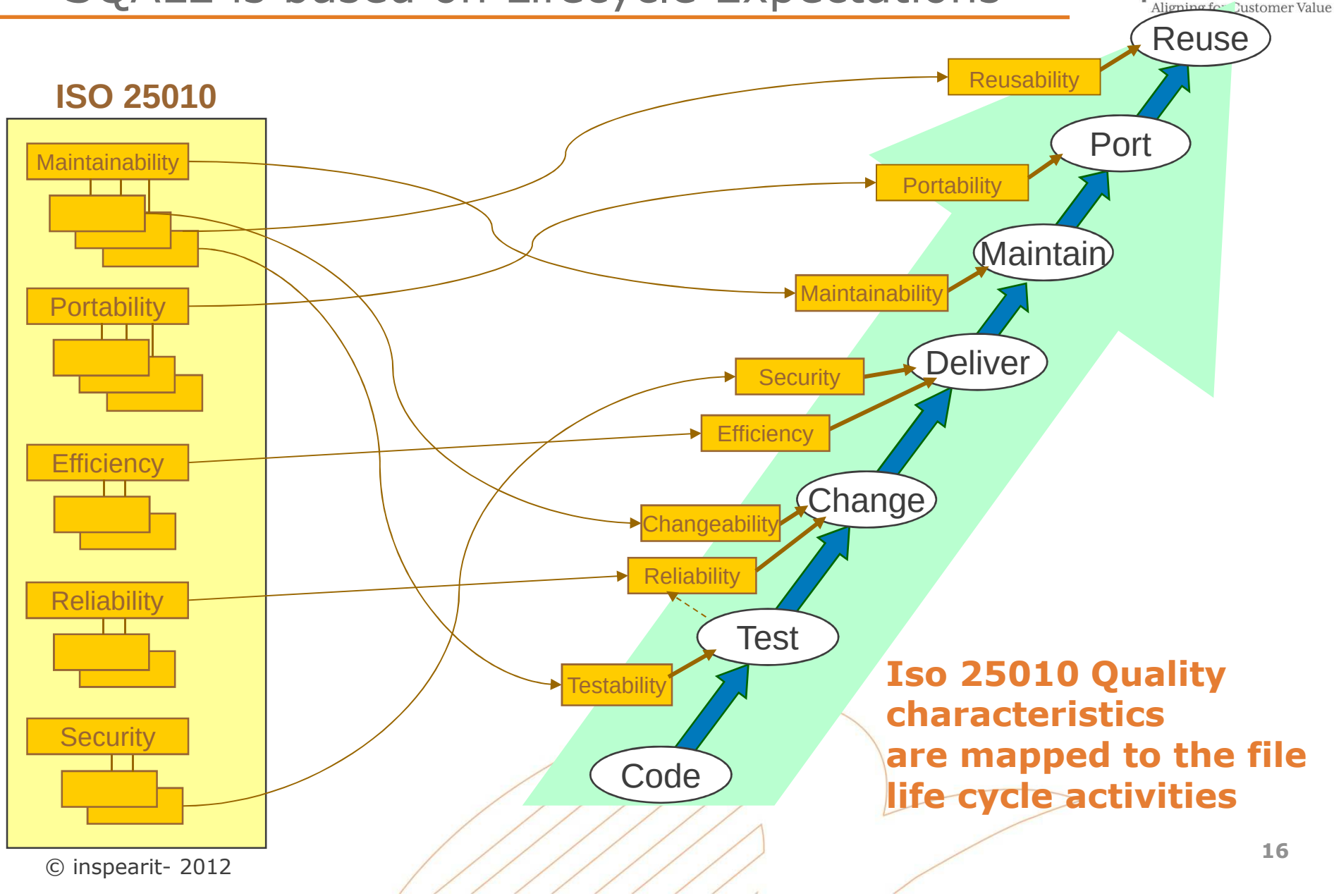

Iso 25010 Quality characteristics are mapped to the file life cycle activities

Any type of requirements

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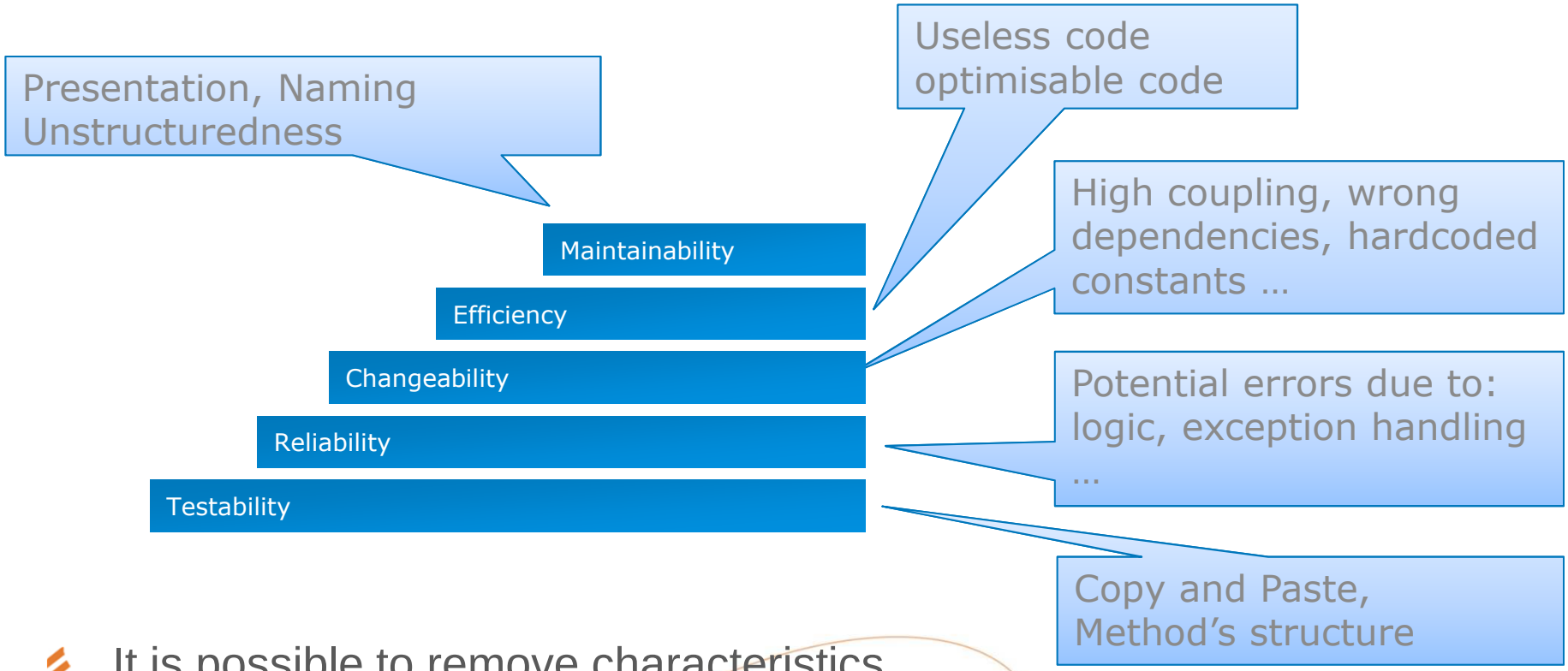
- Any type of code related requirements are accepted, provided they are justified and verifiable



- It is possible to remove characteristics
- **Generally, depending on project or organization's context, a SQALE Quality model contains between 40 and 100 requirements**

The SQALE rating

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- A synthetic indicator for management dashboards
- Depend directly on the TD/DEVCost ratio

The SQALE technical perspective

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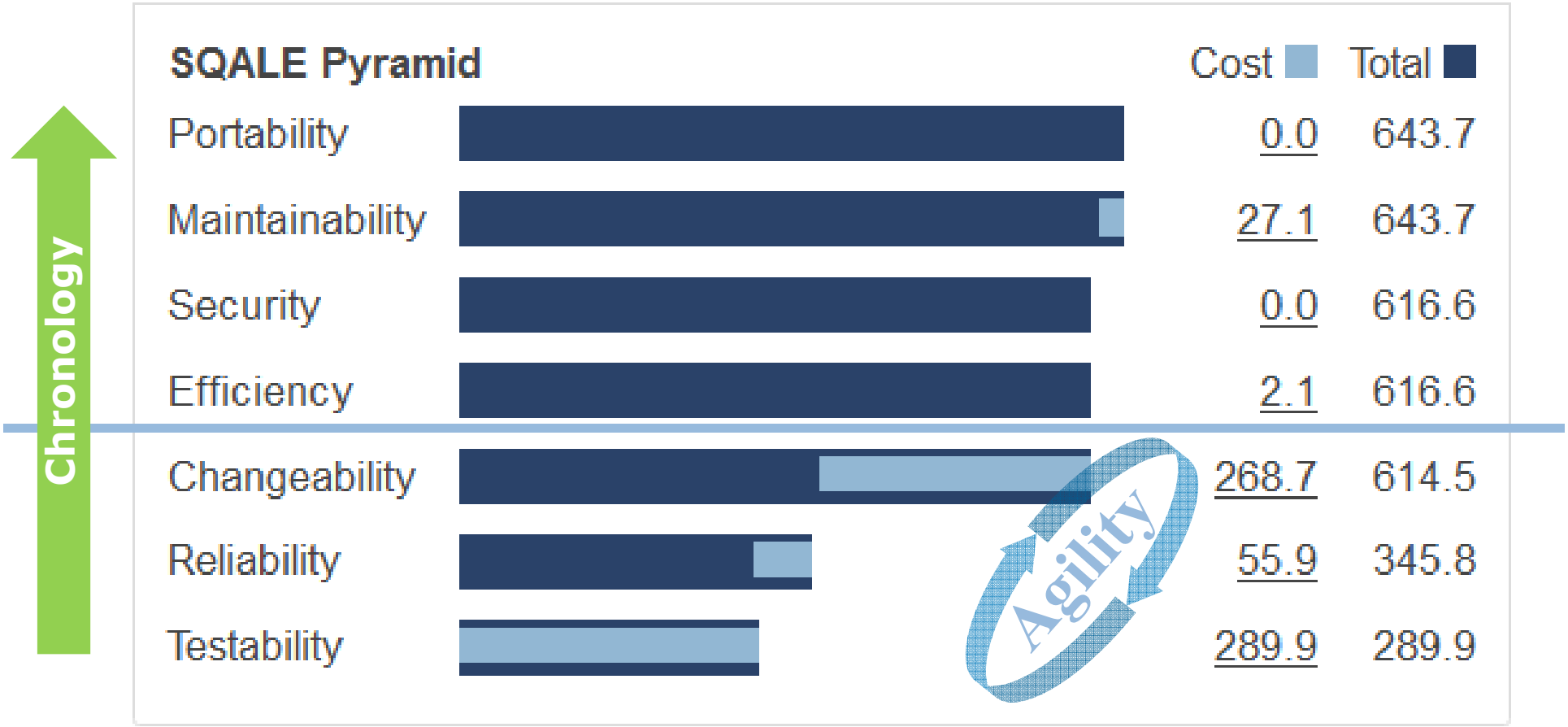
- Distribution of the debt upon links to characteristic/activity



The SQALE business perspective

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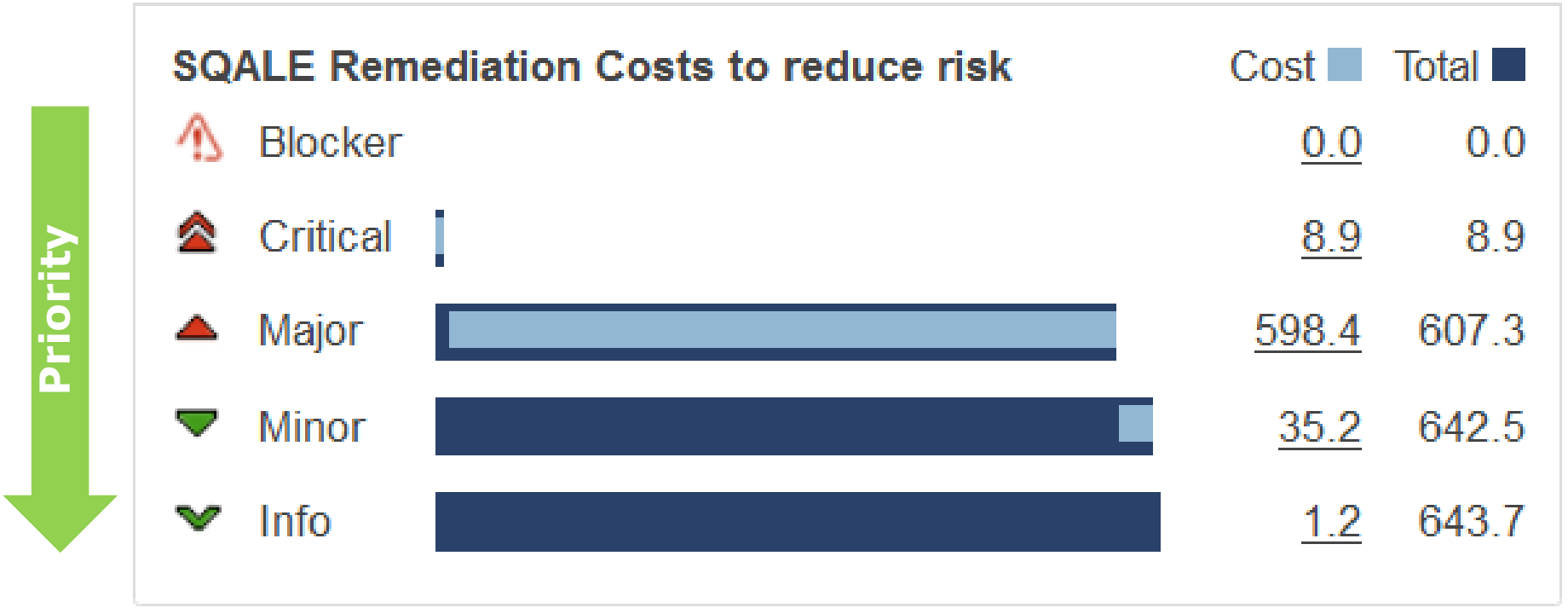
- Distribution of the Debt upon the criticity



The SQALE Debt Map

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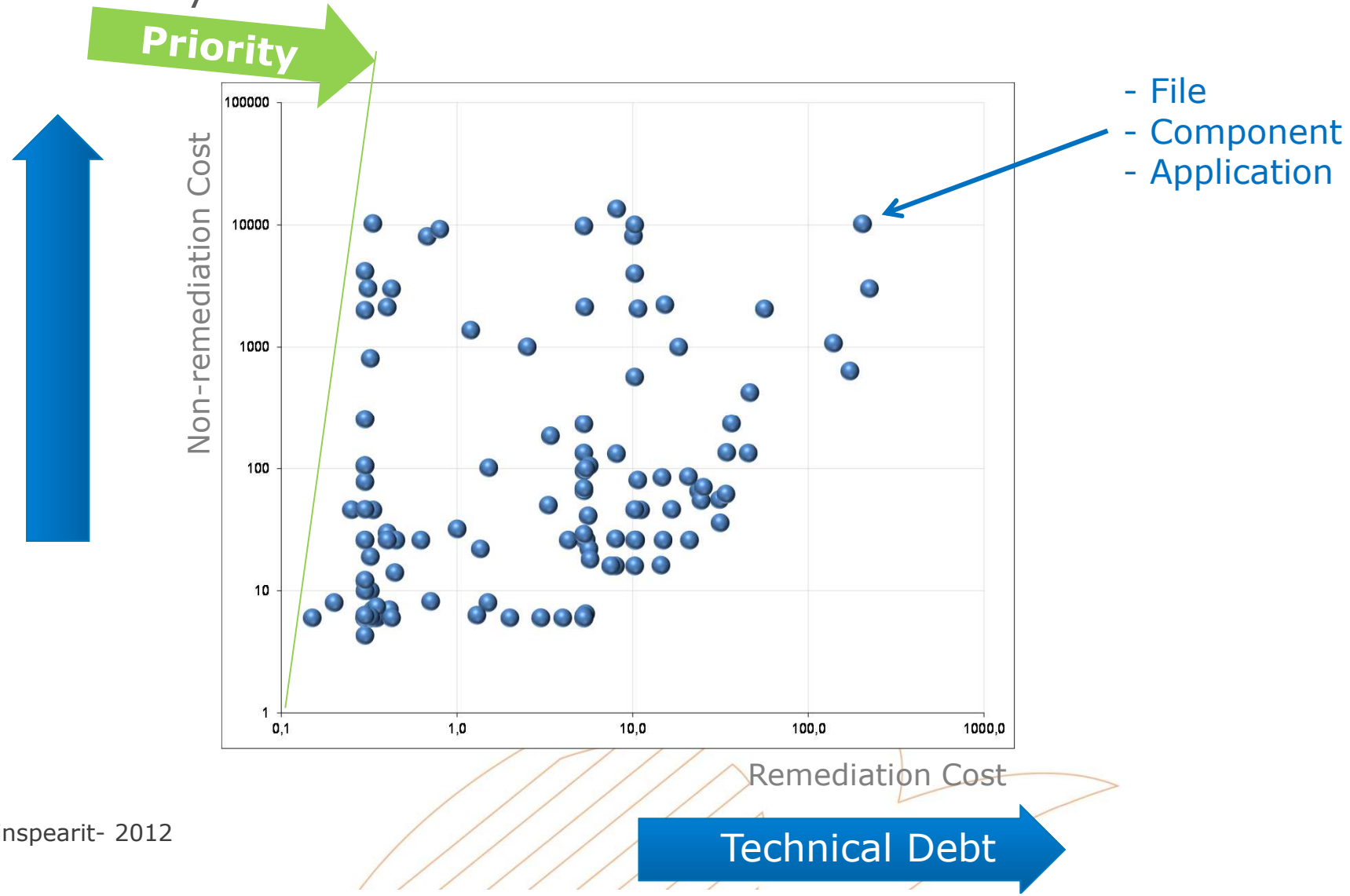
- An analysis indicator valid at all artefact level



SQALE Dashboard sample

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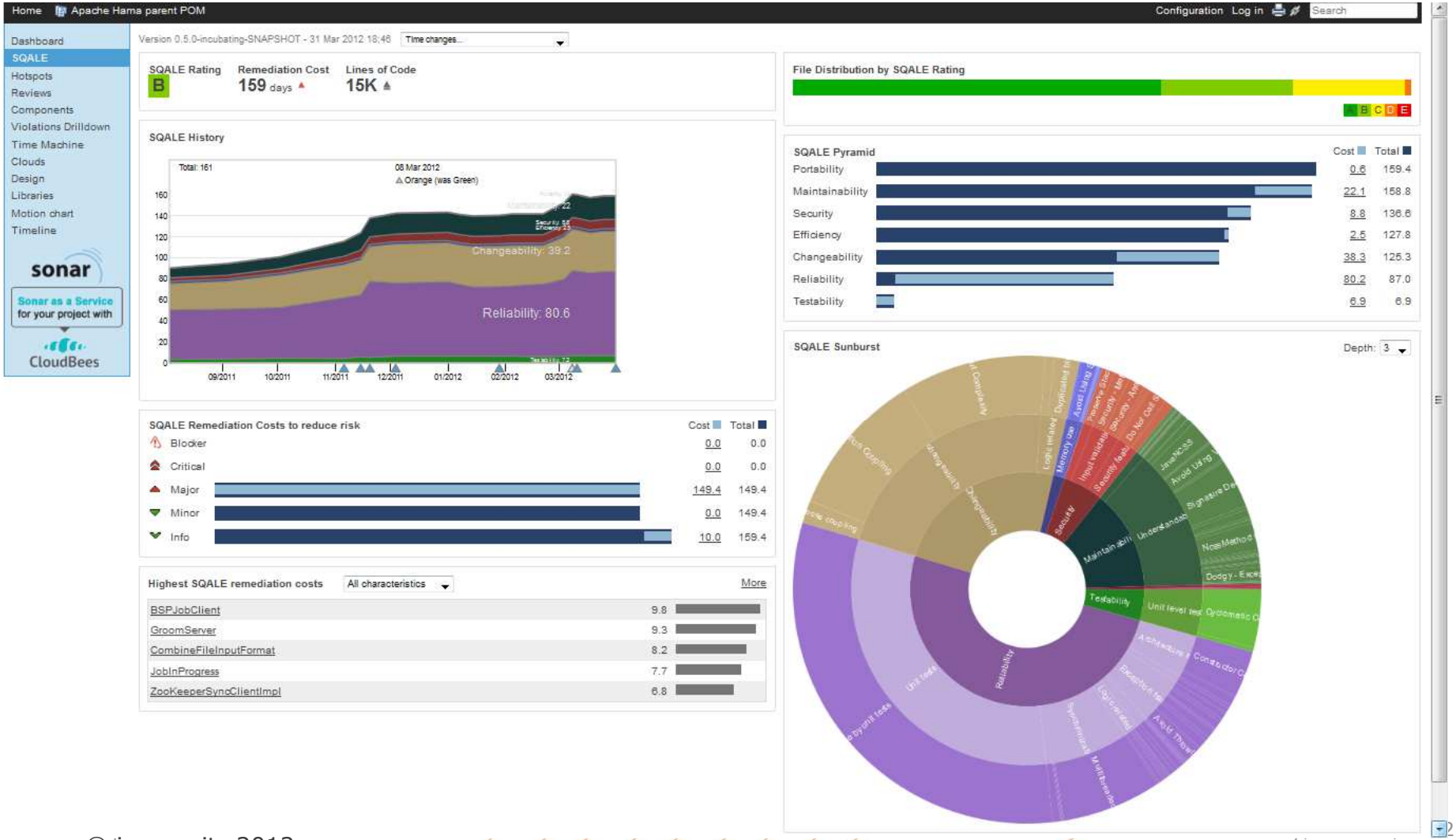
- Focus on techical debt and its distribution



SQALE Implementation: Tools

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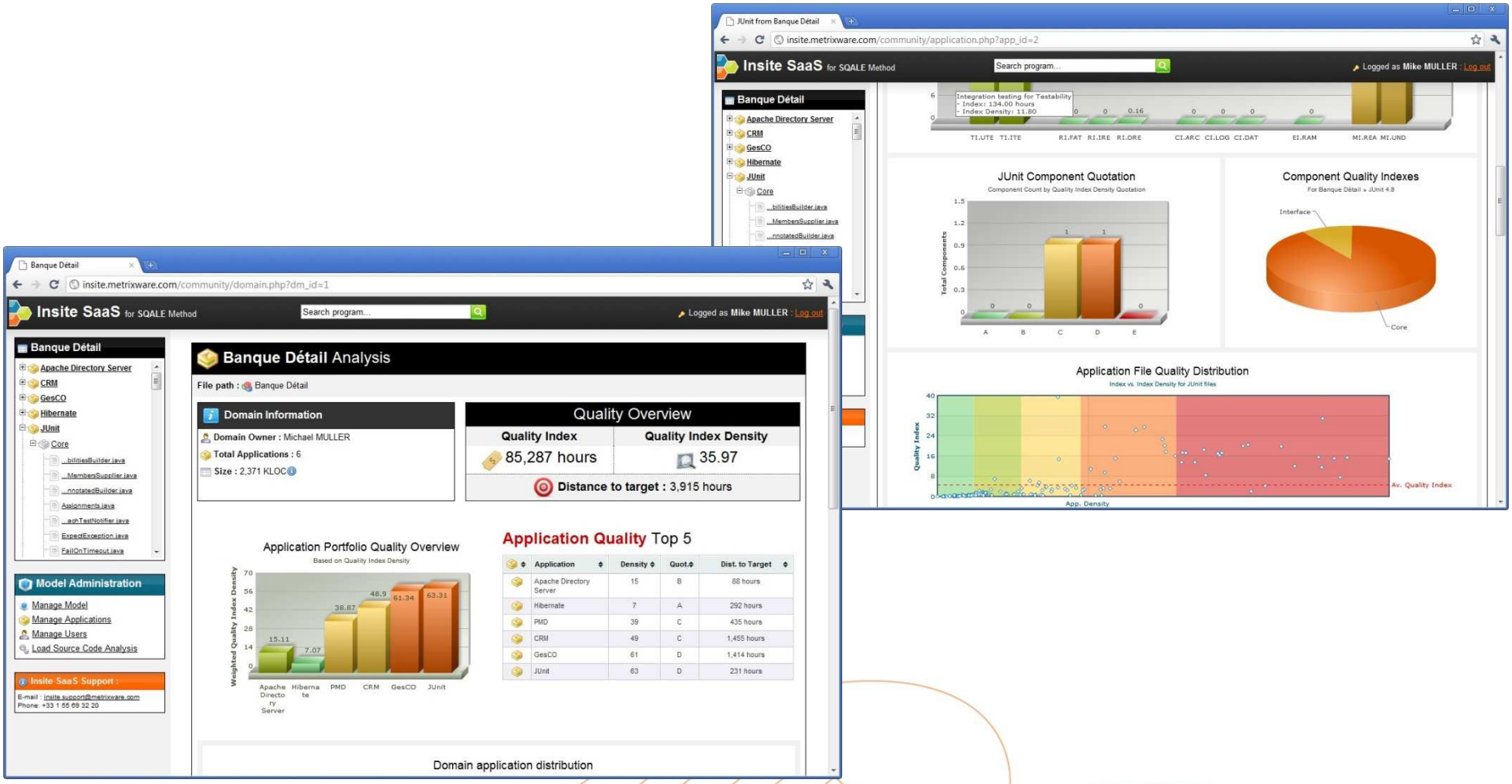
- Example: **Metrixware**



SQALE implementation: Tools

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- Example: **Squoring**