

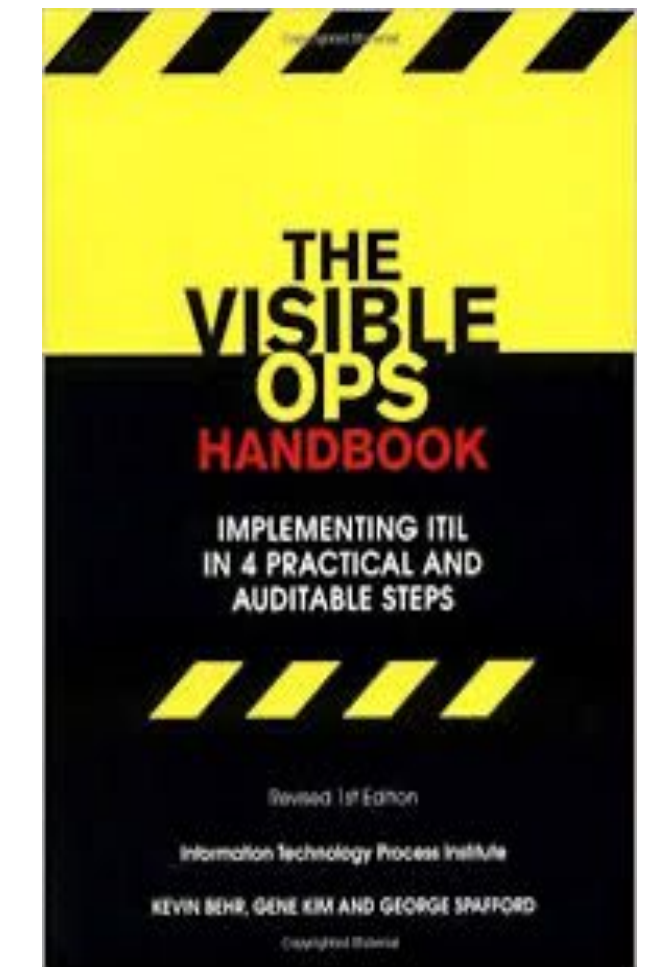
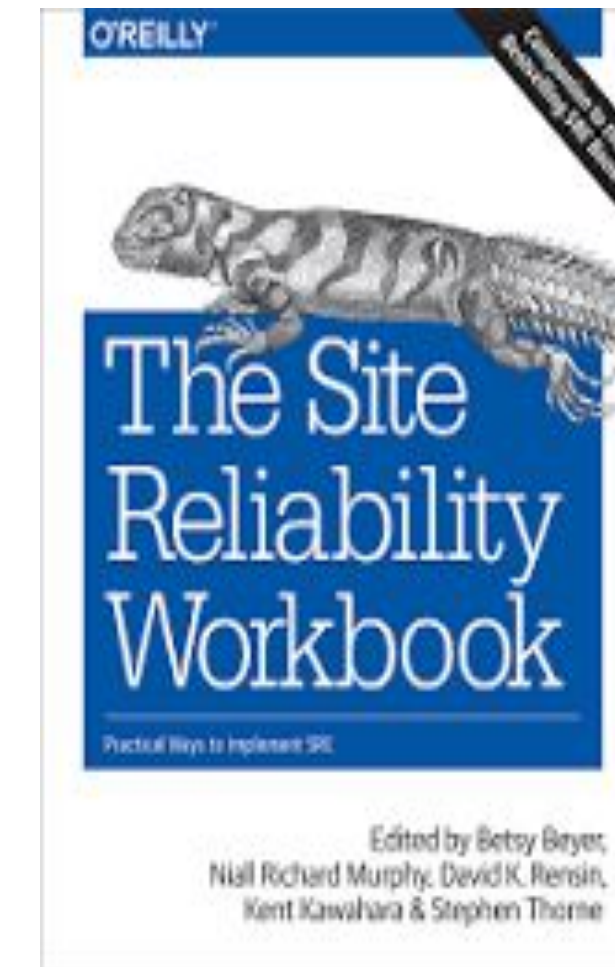
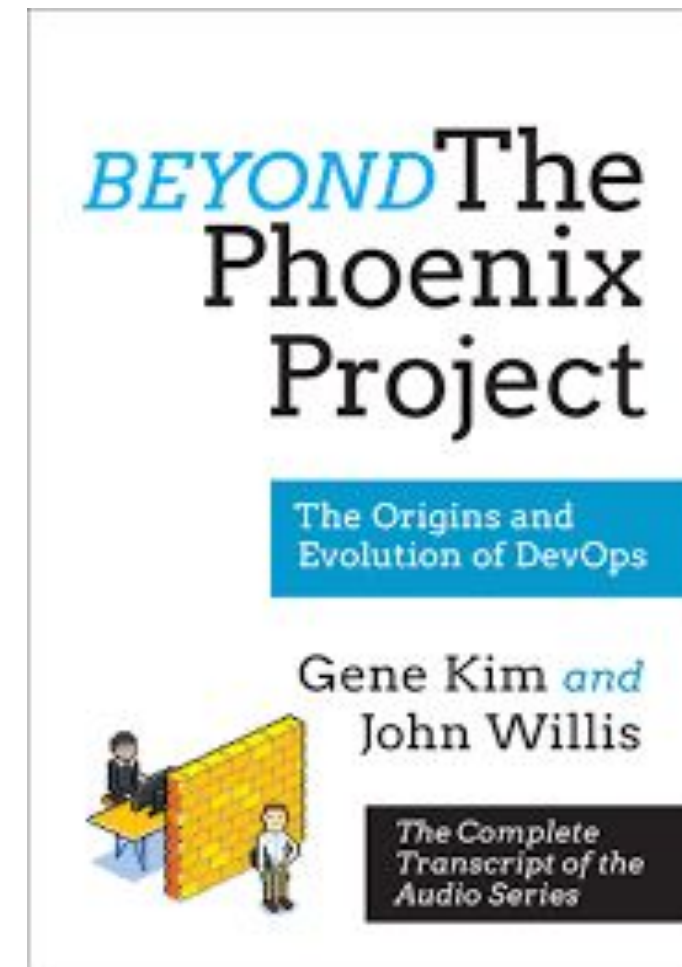
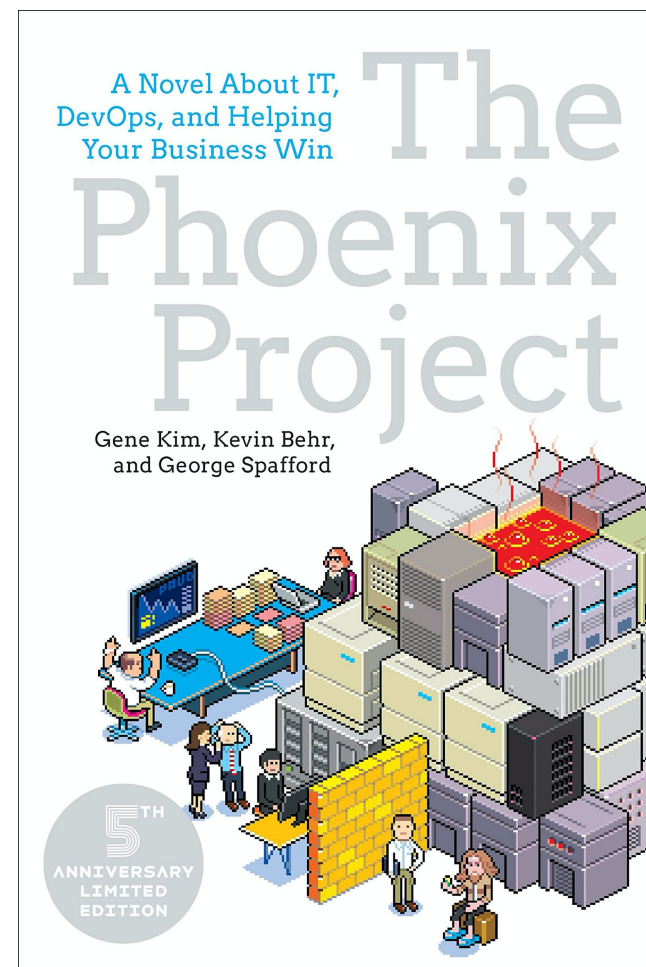
Qualitative Data Analysis for Digital Transformation

John Willis
@botchagalupe
jwillis@redhat.com

Global Transformation Office



Global Transformation Office



Kevin Behr
Co-Author 'The Phoenix Project',
'Visible Ops',
CTO/CIO



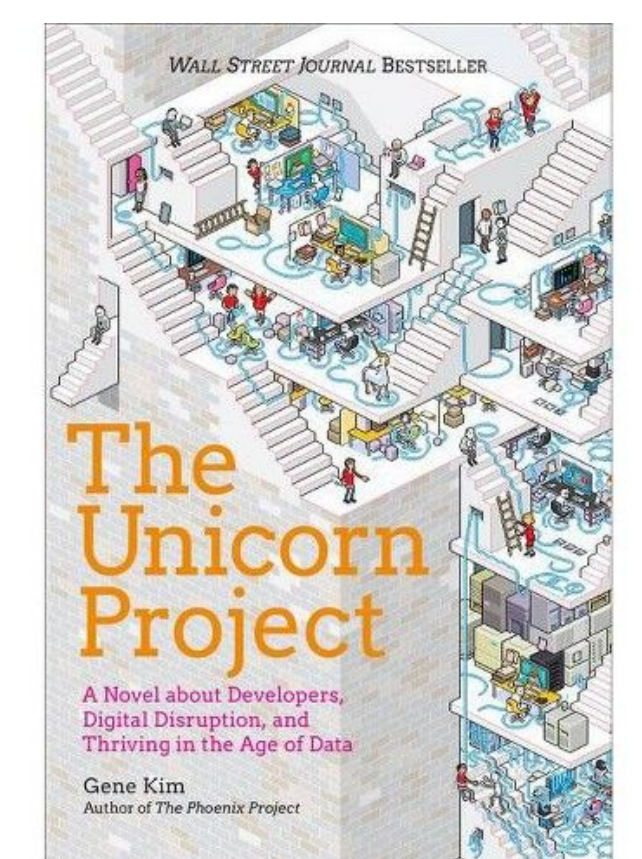
John Willis
Author 'The DevOps Handbook', 'Beyond The Phoenix Project',
Serial Entrepreneur
(sold to Docker)



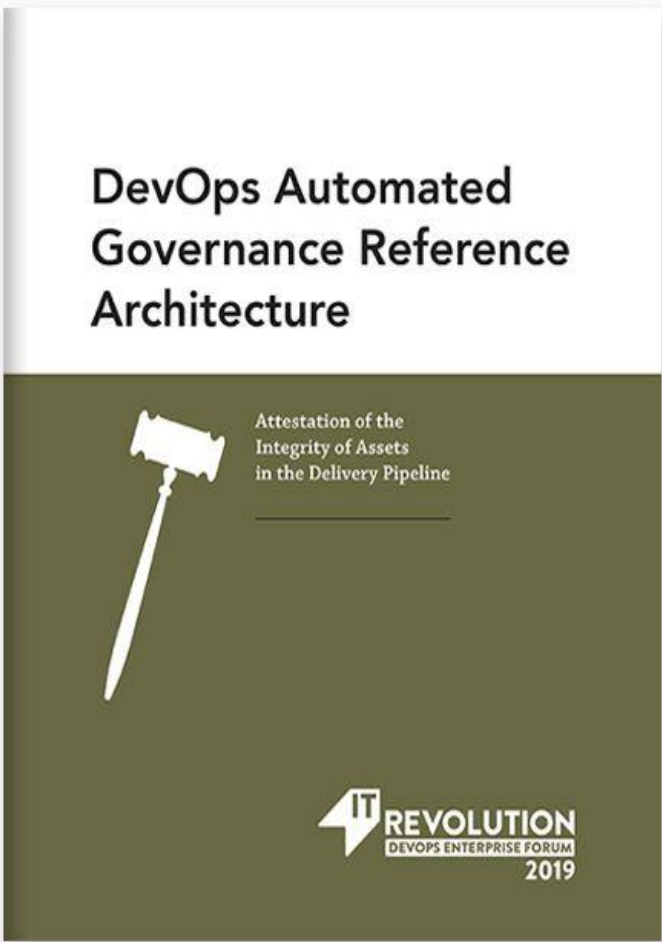
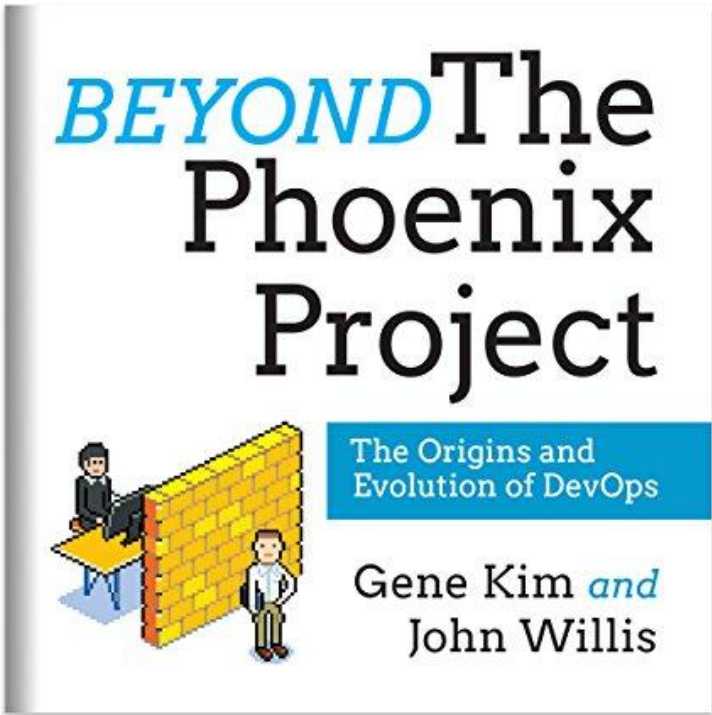
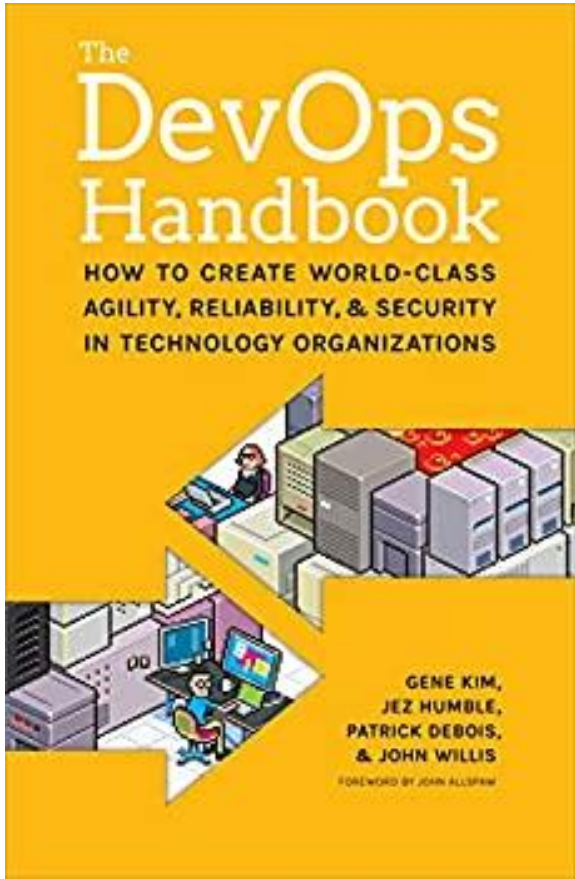
Andrew Clay Shafer
Co-Founder Puppet,
Pivotal Leadership,
Authored foreword for
'SRE Handbook'



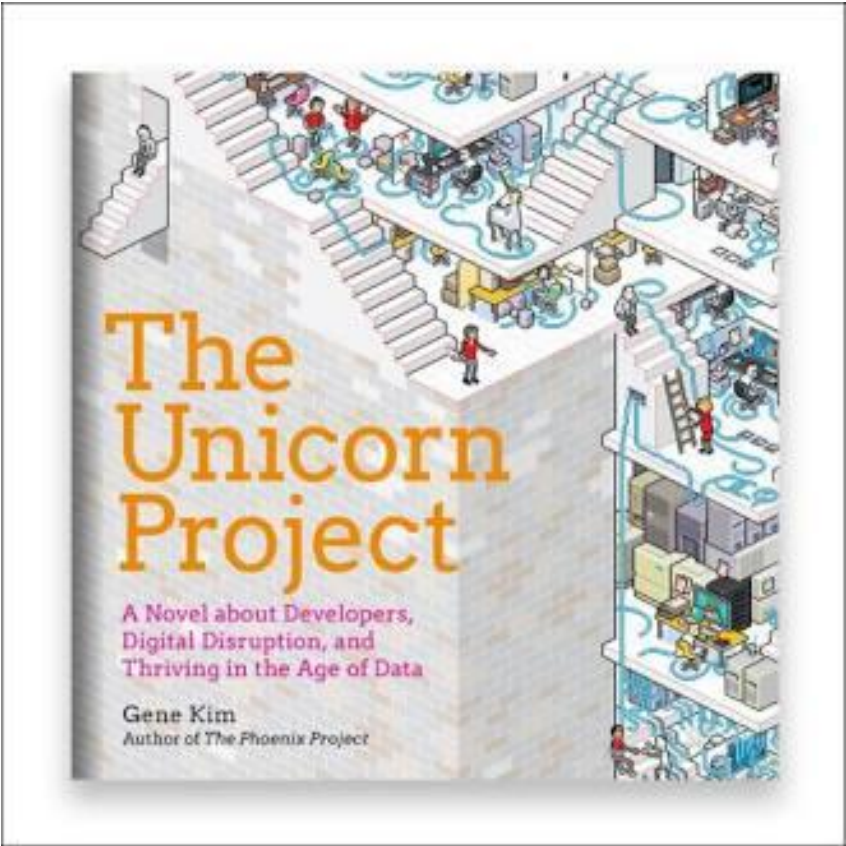
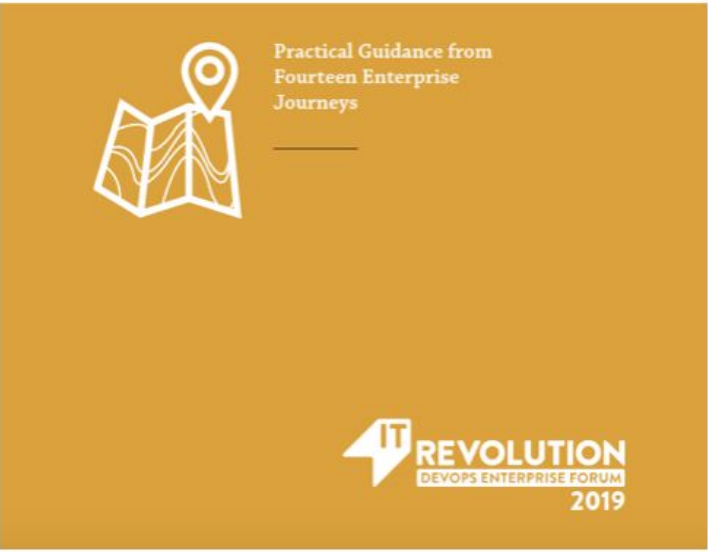
Jabe Bloom
Co-Founder
PraxisFlow, PhD
Carnegie Mellon
Transition Design



@botchagalupe



Four Frameworks for Portfolio Management



Three Transformation Killers

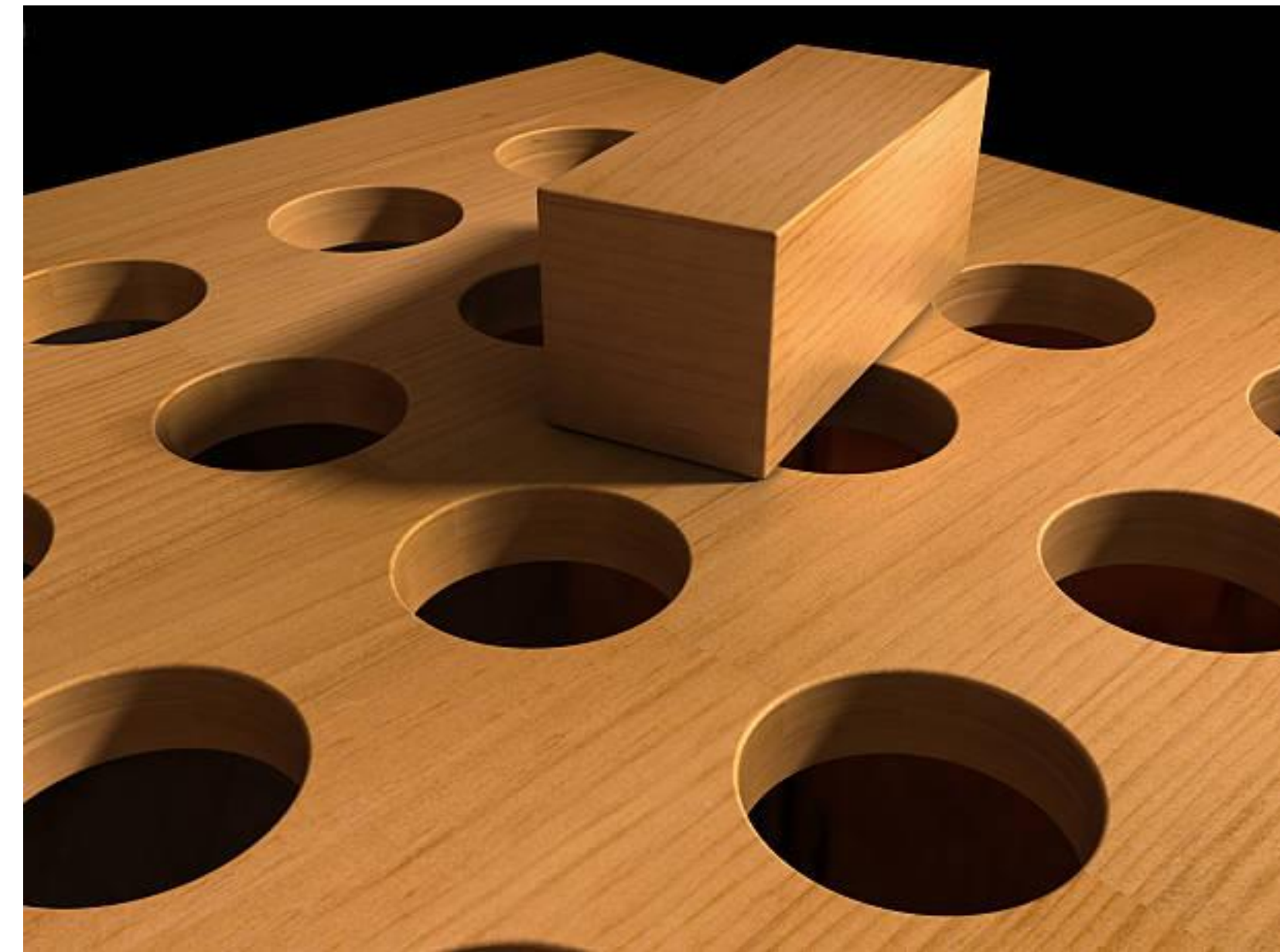
- **Frameworks**
- **Impersonal**
- **Mental Models**

Frameworks

You can't Lean, Agile, SAFE or Devops your way around a bad organizational culture.

Impersonal

Whenever we're talking about any kind of **change or **improvement** you are counting on a bunch of **human beings** to change and make this happen. If they haven't been part of figuring out how to do it, the change efforts will be **dead-on-arrival**.**



Mental Models

**What are Mental Models
made of?**



“Mental models are deeply held internal images of how the world works, images that limit us to familiar ways of thinking and acting. Very often, we are not consciously aware of our mental models or the effects they have on our behavior.”

- Peter Senge

Approaches



Quantitative

Starts with a generalized theory and uses correlation to draw specific conclusions

Deductive

Draws specific conclusions from general principles or premises.

Impersonal

Non human interaction. Typically done by survey.

Numerical

Analyzed through math and statistical analysis

Closed-ended

Questions that are answered from a limited number of options

Industry Doctrine (Quantitative)

- **Lead Time**
- **Deployment Frequency**
- **Change Fail Rate**
- **Time to Restore**

How often do you deploy code?

- ☐ More than six months
- ☐ Between one per month and every six months
- ☐ Between once per week and once per month
- ☐ Between once per day and once per week
- ☐ Between once per hour and once per day
- ☐ On demand

Industry Doctrine (Quantitative)

- **Pro's**

- **Easier to Administer**
- **More Data**
- **Objective**
- **Scientific Method**

- **Con's**

- **Impersonal**
- **Closed-ended**
- **Theoretical**
- **Context**

Qualitative

Moves away from the theory driving the data to an approach where the data drives the theory.

Abductive

Draws general principles from specific instances.

Interpersonal

Human interaction. Typically by interviews.

Categorical

Analyzed by interpreting, summarizing and categorizing

Open-ended

Questions that require elaboration and aren't single answered.



Industry Doctrine (Qualitative)

- **Visibility**
- **Consistency**
- **Capacity**
- **Toil**

What is the audit process like in your organization?

Person1: They are terrible because they waste a lot of time.

Person2: They waste around 30 days a year.

Person 3: We don't tell auditors things they don't already know because it will open up a number of new questions.

Industry Doctrine (Quantitative)

- **Pro's**

- **Empirical**
- **Open Ended**
- **Combinatorial**

- **Con's**

- **Harder to Administer**
- **Less Data**
- **Subjective**

HomeImportCodesMemosVariablesAnalysisMixed MethodsVisual ToolsReportsStatsMAXDictio

Reset Activations

Lexical Search

Complex Coding Query

Reset Coding Query

Compare Cases & Groups

Summary Grid

Summary Tables

Summary Explorer

Intercooder Agreement

Categorize Survey Data

Paraphrase

Twitter

XOX Code Configurations

123 Code Frequencies

% Code Coverage

Documents25

Sets0

Code System25

Code in Vivo0

jenkins2

Automated Testing2

microservices1

pipeline2

Automation2

Risk1

Consistency5

Visibility1

Document Browser: Ally Bank Interviews (29 Paragraphs)

Code in Vivo\Automated Testing

Arial10B/U/A

5678910111213

Toil

..Automated Testing

Toil

Visibility

Consistency

..pipeline

..microservices

Toil

Toil

Toil

doing that it should be doing?

Person1 integrated test automation. Have good tech but want to get rid of manual processes in the testing side of things. Notify testing team, takes 1-2 weeks before deployment to production.

Is it historical, or skill or what is the bottleneck?

Not had it in place traditionally. Have testers for manual testing. Team in place that does API level testing. But need some push towards automation

Person 2 Have had leadership transition, not a lack of skill issue. Need focus on strategic roadmap and seeing it till the end. Automation has been there but not been the focus over transition to new technologies, Microservices, etc.. Microservice transition was before DevOps was in place. Now that Microservices are done and DevOps pipeline is in place, now automation is slowly becoming the focus. Need test data.

BOTTOM LINE -> It isn't inertia, its just prescriptive approach to modernization. Microservices is a lot of work and setting DevOps to be around it is as well, automation is next in line. However need a test data bed (create data so we can test) and automate. Need data virtualization infra in place and need focus on teams with automation focus so this can be implemented.

What else at micro/macro level that Ally could be doing?

Person 2 | Pos. 9) CR process. Rigid controlled env in the past with a monolithic approach. Right now we have a hand-off (due to possibly bank operation mannerisms). Could automate approval chain of streamline test -> dev deployment.

They create blueprints

Set standards

Alignment

POC's

Security and Performance

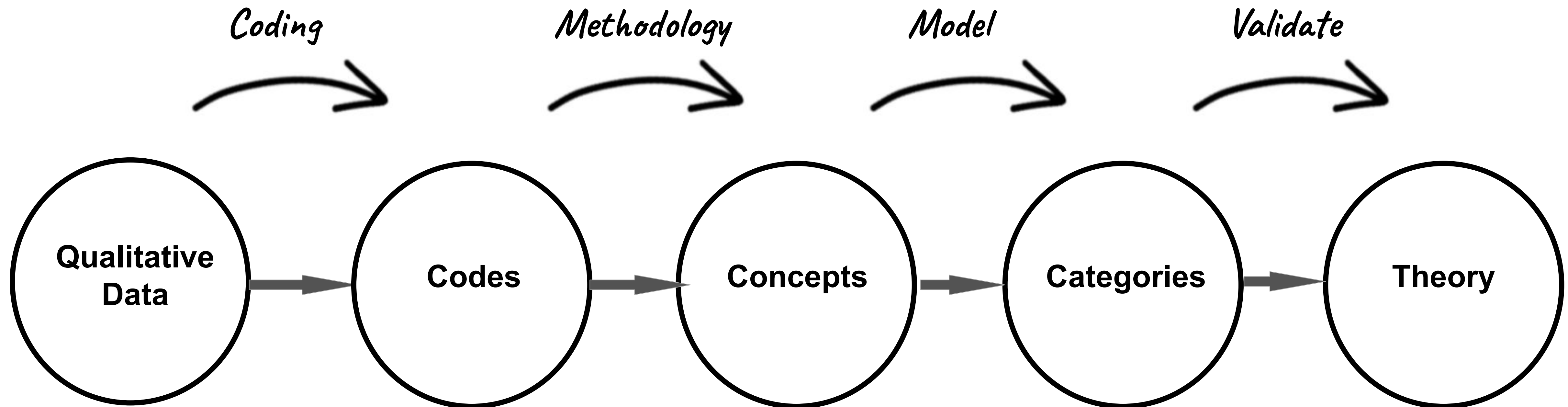
Qualitative Data Analysis Process

Grounded theory

A systematic methodology involving the construction of theories through methodical gathering and analysis of data.

This research methodology uses inductive reasoning, in contrast to the deductive model of the scientific method.

Grounded Theory



Qualitative Data Analysis Process

Approach

- **Codes** - Key observations of the data to be gathered
- **Concepts** - A grouping of similar codes with field notes
- **Categories** - Concepts that make up the basis of a theory
- **Theory** - Collection of categories that make up a theory.

Grounded Theory Example

- **Code**

- Audits typically take about 30 days a year and they consume a lot of wasted time.

- **Concept**

- Audits are Inefficient

- **Category**

- Risk

- **Theory**

- Automated Governance

Industry Doctrine (7 Deadly Sins)

1. Visible Work
2. Management System Toil
3. Misaligned Incentives
4. Knowledge Alignment
5. Organizational Design
6. Complex Systems
7. Security and Compliance

Assessment

Logistics (Assets)

- 10 to 30 Meetings
- 100 to 300 Attendees
- 1000 to 3000 Minutes
- 20 to 50 Documents



Analysis

Analyze Phase 1 - Artifacts

Home

Import

Codes

Memos

Variables

Analysis

Mixed Methods

Visual Tools

Reports

Stats

MAXDictio

New Project

Open Project

Document System

Code System

Document Browser

Retrieved Segments

Logbook

Teamwork

Merge Projects

Save Project As

Save Anonymized Project As

Project from Activated Documents

External Files

Archive Data

Co...

Document Browser: Session #1 Notes (70 Paragraphs)

Code System

Consistency

automate

architects

automate

infrastructure

mainframe

delivery

approved

deliver

pipelines

production

quality

release

sprint

testing

outcomes

happy

impotent

issue

journey

outcome

problems

value

priority

tools

containers

kubernetes

platform

tools

6646

..focus

..decisions

..faster

..compliance

..impact

..cost

..project

..decision

..banking

..decision

..legacy

..ability

..fast

..banks

..project

..architects

..managers

..project

..projects

..project

..agile

..requirements

..applications

..monitoring

..projects

..teams

..support

..projects

..model

..enterprise

..bnz

..focus

4

5

6

7

8

9

10

11

12

13

14

15

16

MAXQDA 2020

Document System

Documents

Interviews (Meeting Notes)

Session #1 Notes

Session #2 Notes

Session #3 Notes

Session #4 Notes

Session #5 Notes

Interviews (recordings)

Session5

Session4

Session3

Session 2

Session 1'

Participants

Pre Assessment Notes

Session #1 Participants

Session #2 Participants

Session #3 Participants

Session #4 Participants

Session #5 Participants

CIO Message

CIO Vlog (Transcript)

CIO Vlog (Video)

CIO Message

6646

1631

235

377

368

286

365

3758

865

789

828

813

463

767

0

54

114

187

134

278

46

4

0

42

of NAB, that's a rough journey and is still incom

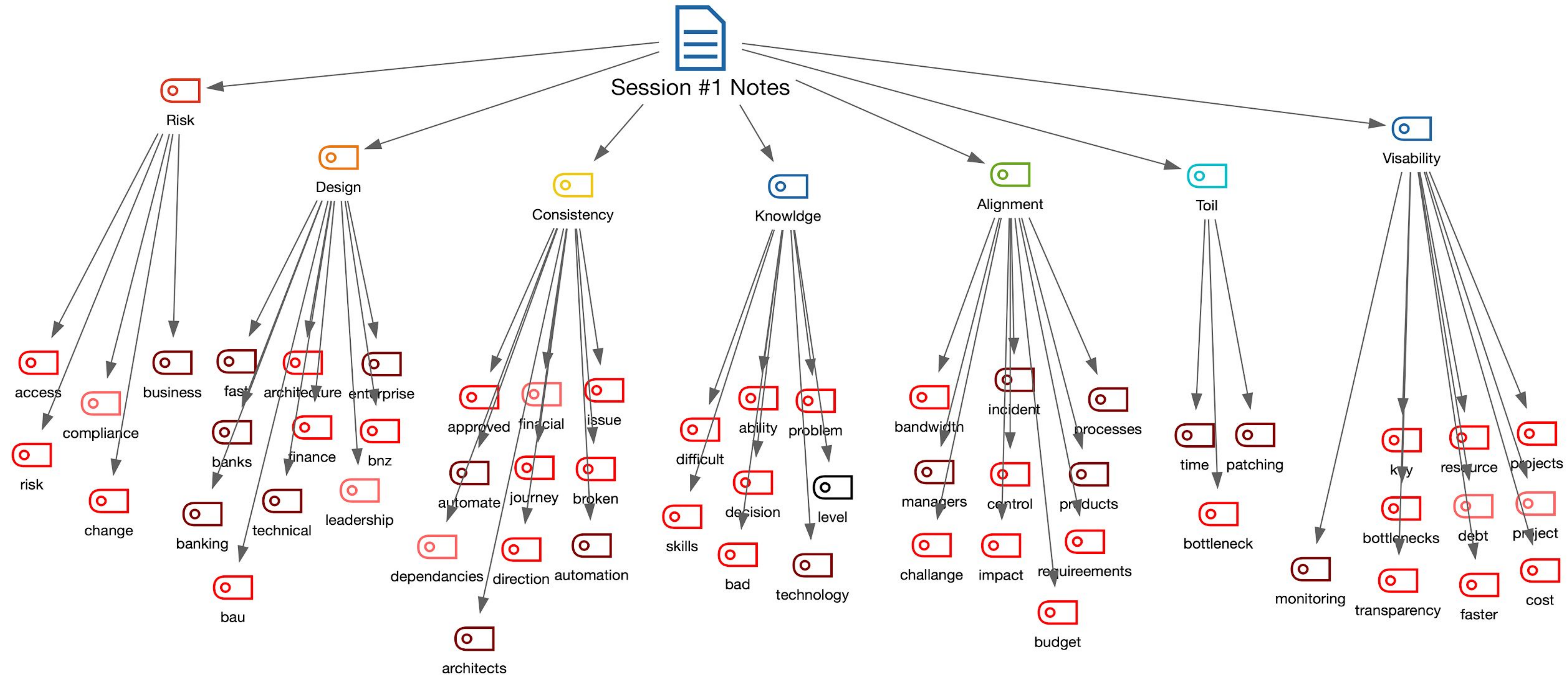
Analyze Phase 1 - Coding

The screenshot displays the MAXDICTIO software interface, which is used for document analysis and coding. The interface is divided into several sections:

- Top Menu Bar:** Includes tabs for Home, Import, Codes, Memos, Variables, Analysis, Mixed Methods, Visual Tools, Reports, Stats, and MAXDICTIO.
- Toolbar:** Contains icons for various functions such as New Project, Open Project, Document System, Code System, Document Browser, Retrieved Segments, Logbook, Teamwork, Merge Projects, Save Project As, Save Anonymized Project As, Project from Activated Documents, External Files, and Archive Data.
- Document System Panel (Left):** A tree view showing the hierarchy of documents. The 'Documents' folder contains 6772 items. Subfolders include 'Interviews (Meeting Notes)' (1666 items), 'Interviews (recordings)' (3834 items), 'Participants' (775 items), and 'CIO Message' (46 items). The 'Session #1 Notes' document is selected, showing 247 paragraphs.
- Code System Panel (Bottom Left):** A tree view showing the hierarchy of codes. The 'Code System' folder contains 6772 items. Subfolders include 'RED' (1 item), 'Risk' (633 items), 'Design' (1852 items), and 'Consistency' (1502 items). The 'Risk' code is selected.
- Document Browser: Session #1 Notes (70 Paragraphs):** A panel showing the content of the selected document. It includes a 'Risk' section with a list of paragraphs. The first paragraph is 'Day 1'. The second paragraph is '1. 1. John self-intro docker, chef etc'. The third paragraph is 'a. a. Walks through approach'. The fourth paragraph is 'b. b. Not trying to sell anything'. The fifth paragraph is 'c. c. Focus on XYZ talking to John instead of John talking'. The sixth paragraph is '2. 2. JW: What are the things you believe could be working better?'. The seventh paragraph is 'a. a. Kim: we could be braver, make decisions faster, we often relegate decisions across the entire lifecycle, but it also has an impact on opportunity cost'. The eighth paragraph is 'i. i. Examples: compliance, a job to print money, always there, our regulators don't understand, we got project here procure to pay, we made decision to make with a stand-alone system 3.5 years, we reconfirmed 3.5 later'. The ninth paragraph is 'ii. ii. Core banking system in assembler, Temenos decision has taken 3.5 years, a lot of legacy system are hindering our ability fast and flexible upfront'. The tenth paragraph is 'b. b. What's the iteration cycle P2P - build it once and deploy it once; our version makes our project look good, other banks have gone down a path our Solution'.
- Visual Tools Panel (Right):** A panel showing a visual representation of the document structure. It includes a 'Risk' section with a list of paragraphs. The first paragraph is 'Day 1'. The second paragraph is '1. 1. John self-intro docker, chef etc'. The third paragraph is 'a. a. Walks through approach'. The fourth paragraph is 'b. b. Not trying to sell anything'. The fifth paragraph is 'c. c. Focus on XYZ talking to John instead of John talking'. The sixth paragraph is '2. 2. JW: What are the things you believe could be working better?'. The seventh paragraph is 'a. a. Kim: we could be braver, make decisions faster, we often relegate decisions across the entire lifecycle, but it also has an impact on opportunity cost'. The eighth paragraph is 'i. i. Examples: compliance, a job to print money, always there, our regulators don't understand, we got project here procure to pay, we made decision to make with a stand-alone system 3.5 years, we reconfirmed 3.5 later'. The ninth paragraph is 'ii. ii. Core banking system in assembler, Temenos decision has taken 3.5 years, a lot of legacy system are hindering our ability fast and flexible upfront'. The tenth paragraph is 'b. b. What's the iteration cycle P2P - build it once and deploy it once; our version makes our project look good, other banks have gone down a path our Solution'.

Qualitative Data Analysis

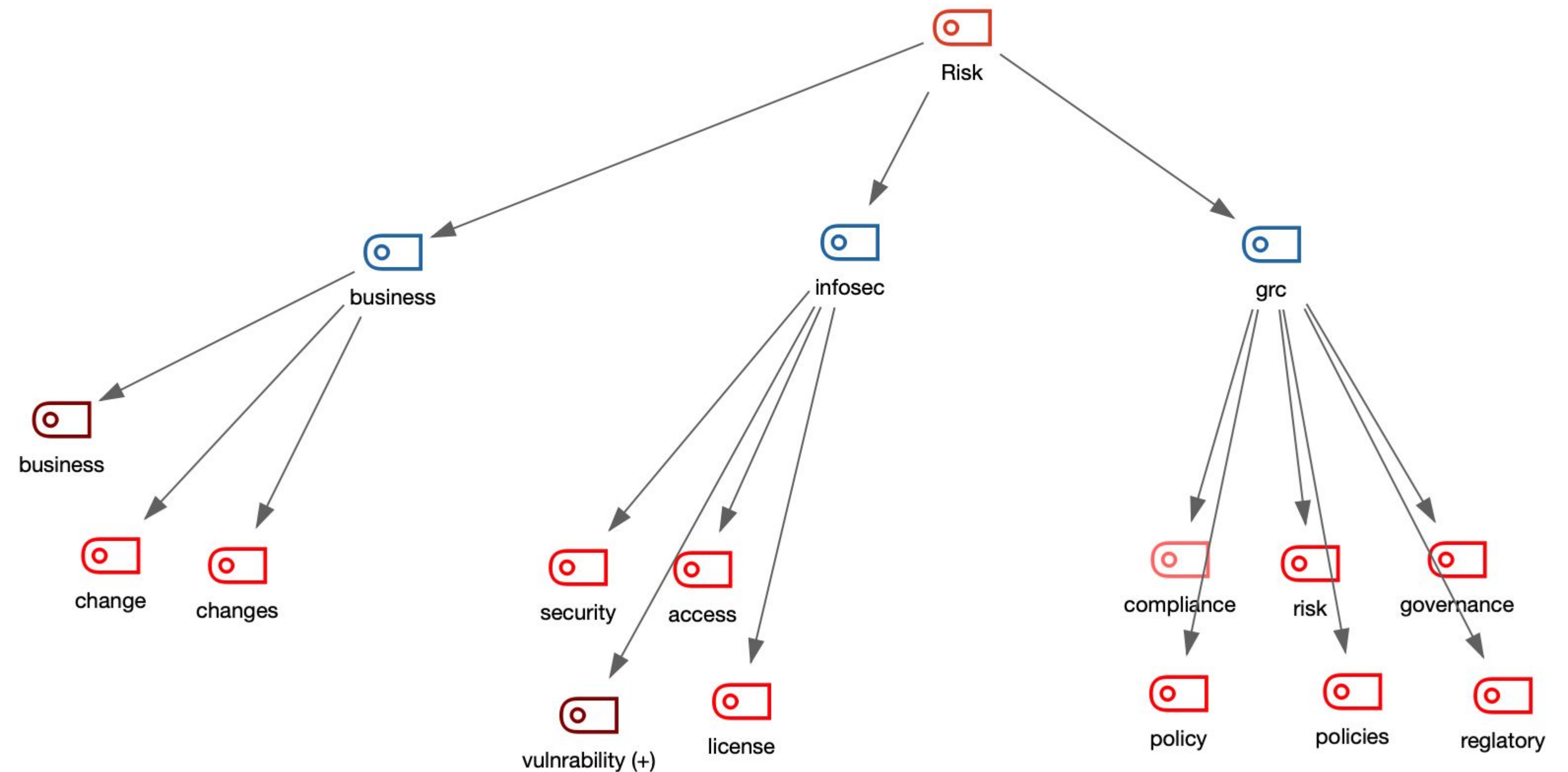
Single-Case Model (Code Hierarchy)



Analysis Phase 2 - Creative Coding

Creative Coding

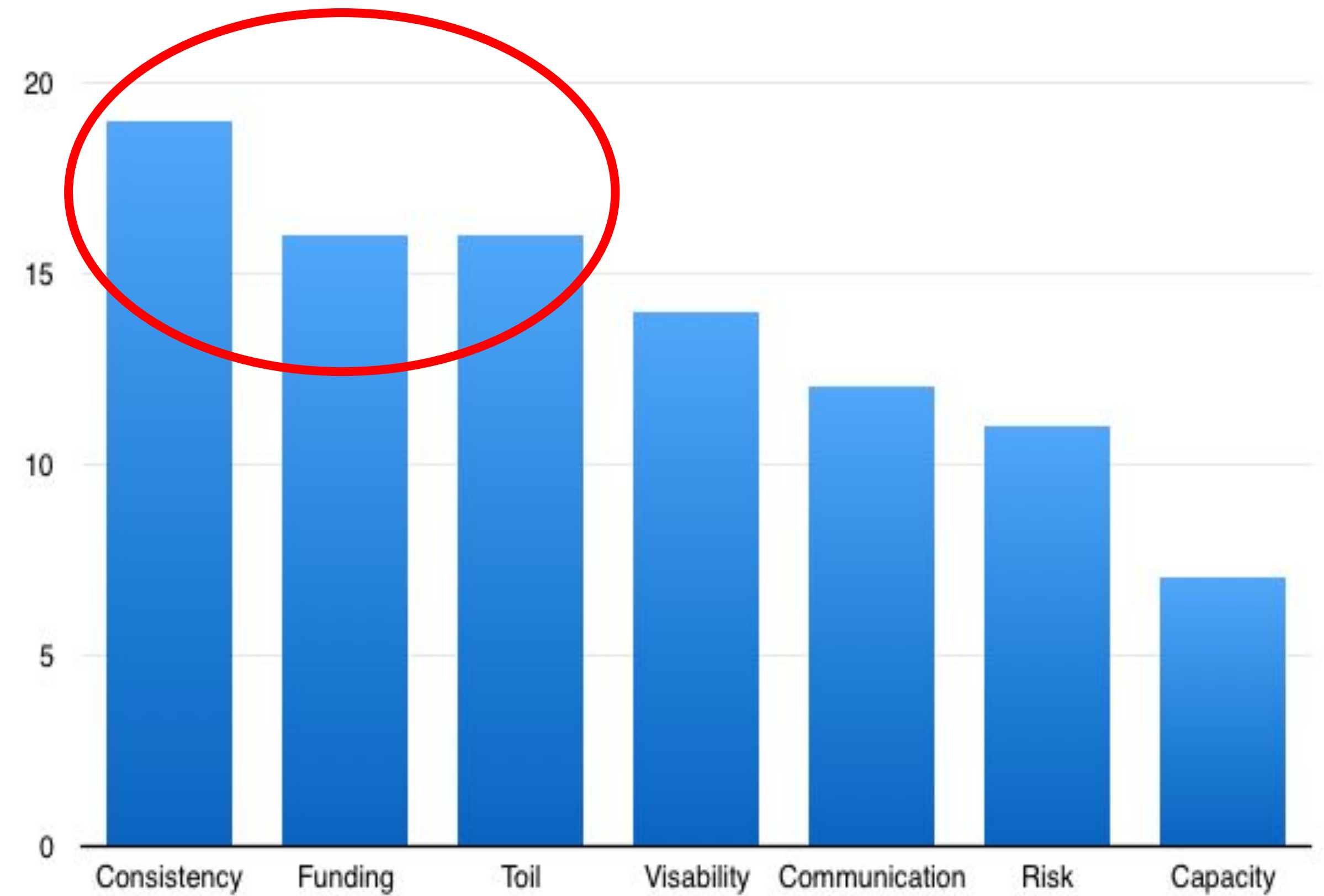
Code System	
Code System	6772
Risk	0
business	0
business	120
change	93
changes	29
grc	0
compliance	86
governance	43
policies	15
policy	20
regulatory	10
risk	61
infosec	0
access	28
license	12
security	90
vulnerability (+)	26



Report

Theory - Top Three Areas of Concern

- **Consistency**
- **Funding**
- **Toil**



Thematic Observations

1. Trust

2. Lead Time

3. Active Projects

4. Clarity

5. Funding

Economic Impact

Waste:

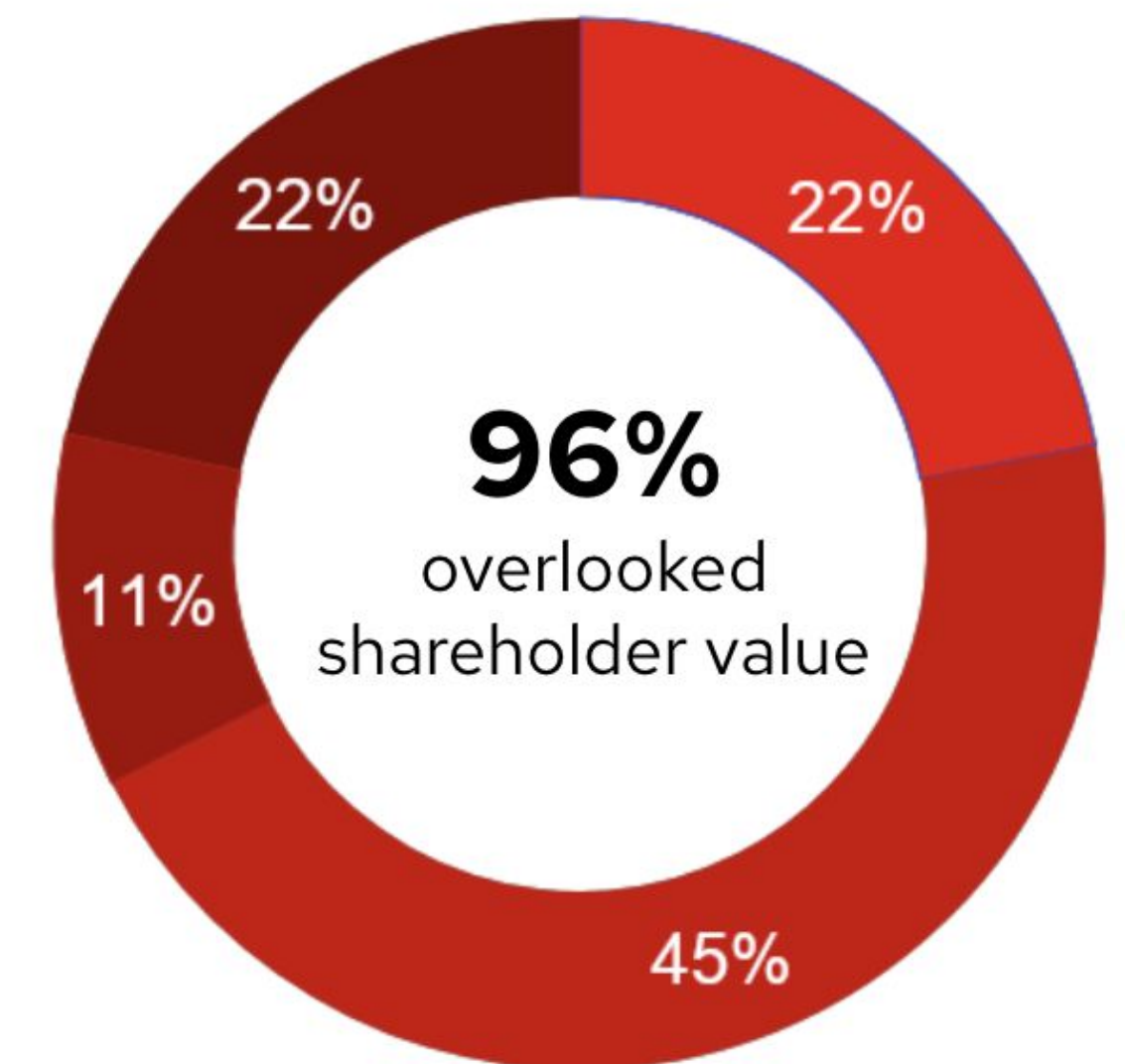
Possibly >30% (on a 500m budget) \$150M wasted on general processing.

Consistency:

Another 10% to 15% on lost opportunity cost (low or no automation) \$50m to \$75M

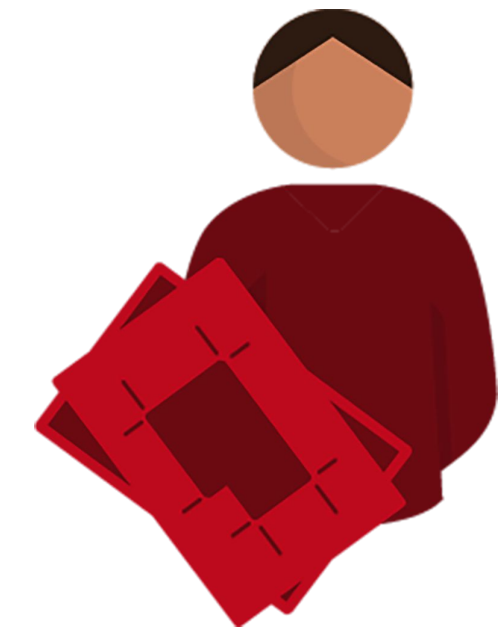
Risk:

Negative Risk ROI.



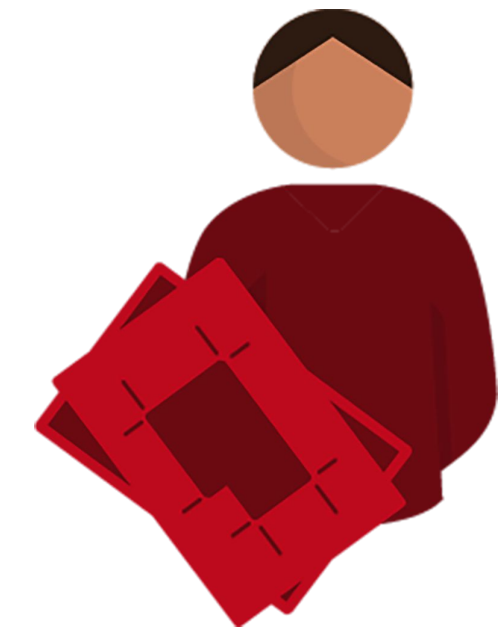
Modern Operations

- SRE
- Dojo
- Automation
- Platform Engineering
- Chaos Engineering
- Skills Liquidity



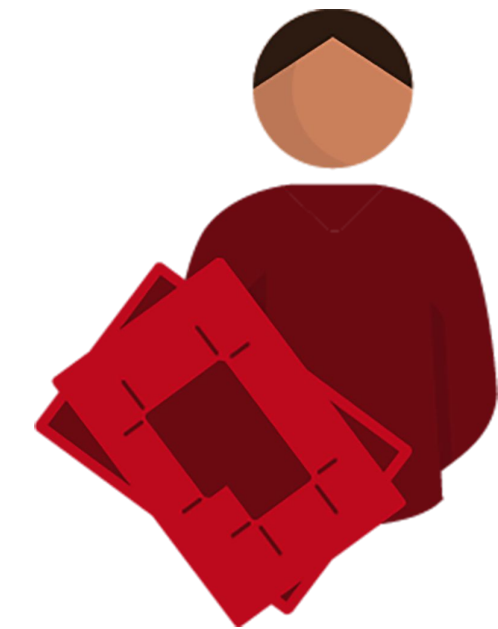
DevSecOps

- Trusted Software Supply Chain
- Automated Governance
- Automated Cloud Governance

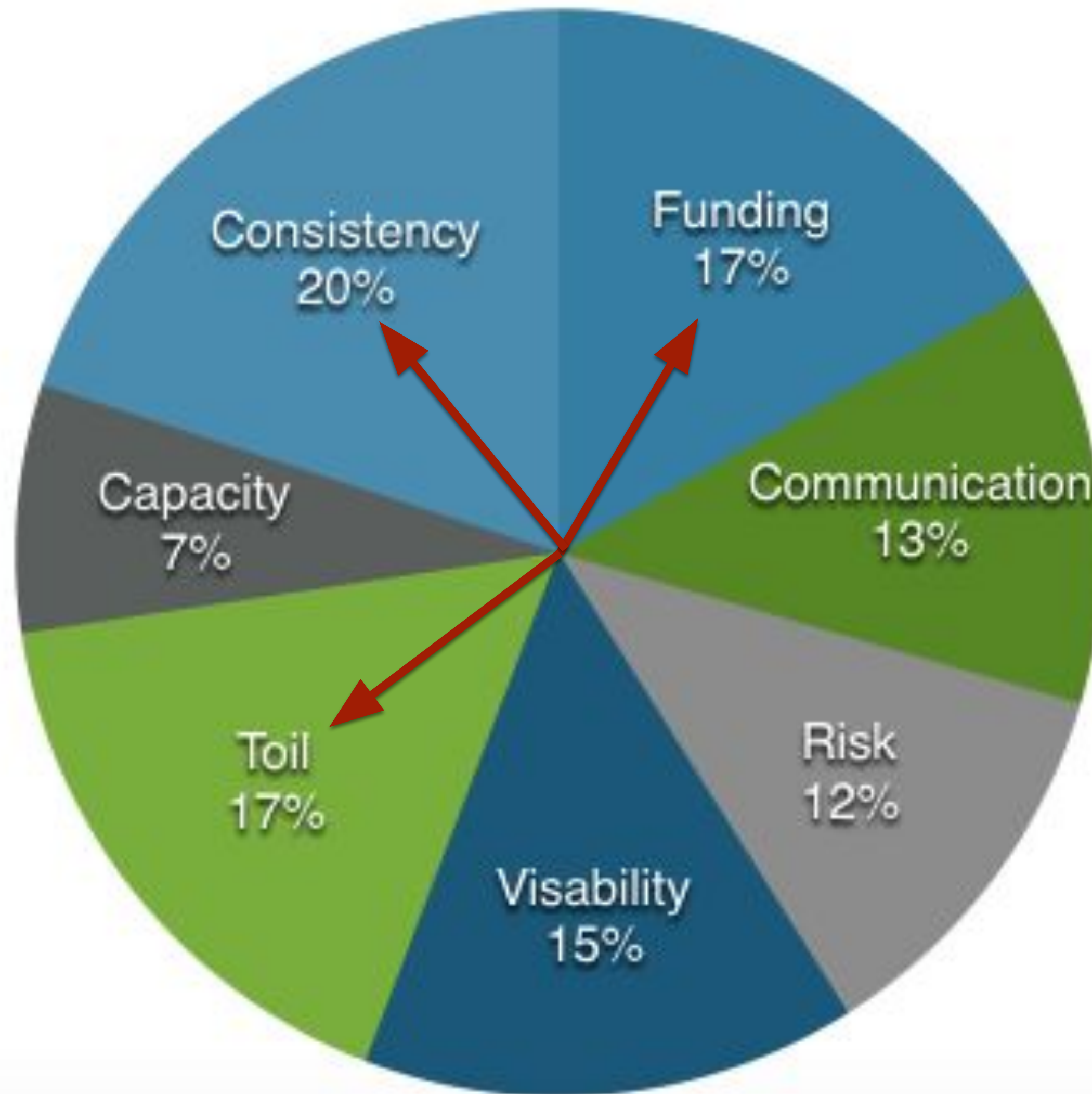


Design Leadership

- Five Elements Assessment
- Value Stream Mapping
- Value Chain Mapping
- Three Economies
- Team Topologies
- Safe to Fail



Areas of Concern (Categories)



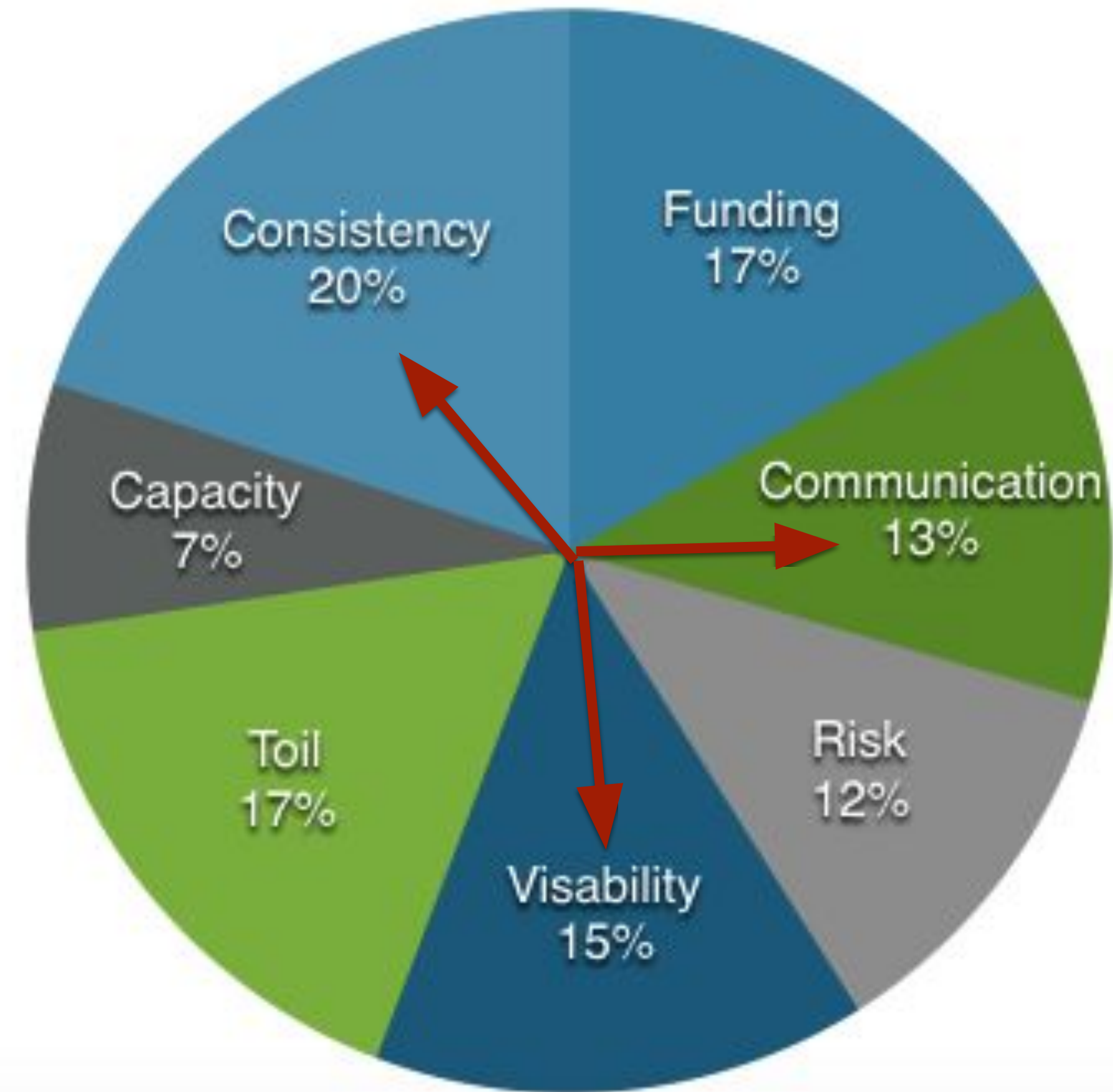
Transformation

Transformation Opportunities

- 1. Taxonomy and Models**
- 2. Roles and Responsibilities**
- 3. Platform Transition**
- 4. Metrics**
- 5. Automation**
- 6. Skills Liquidity**
- 7. Safe to Fail**

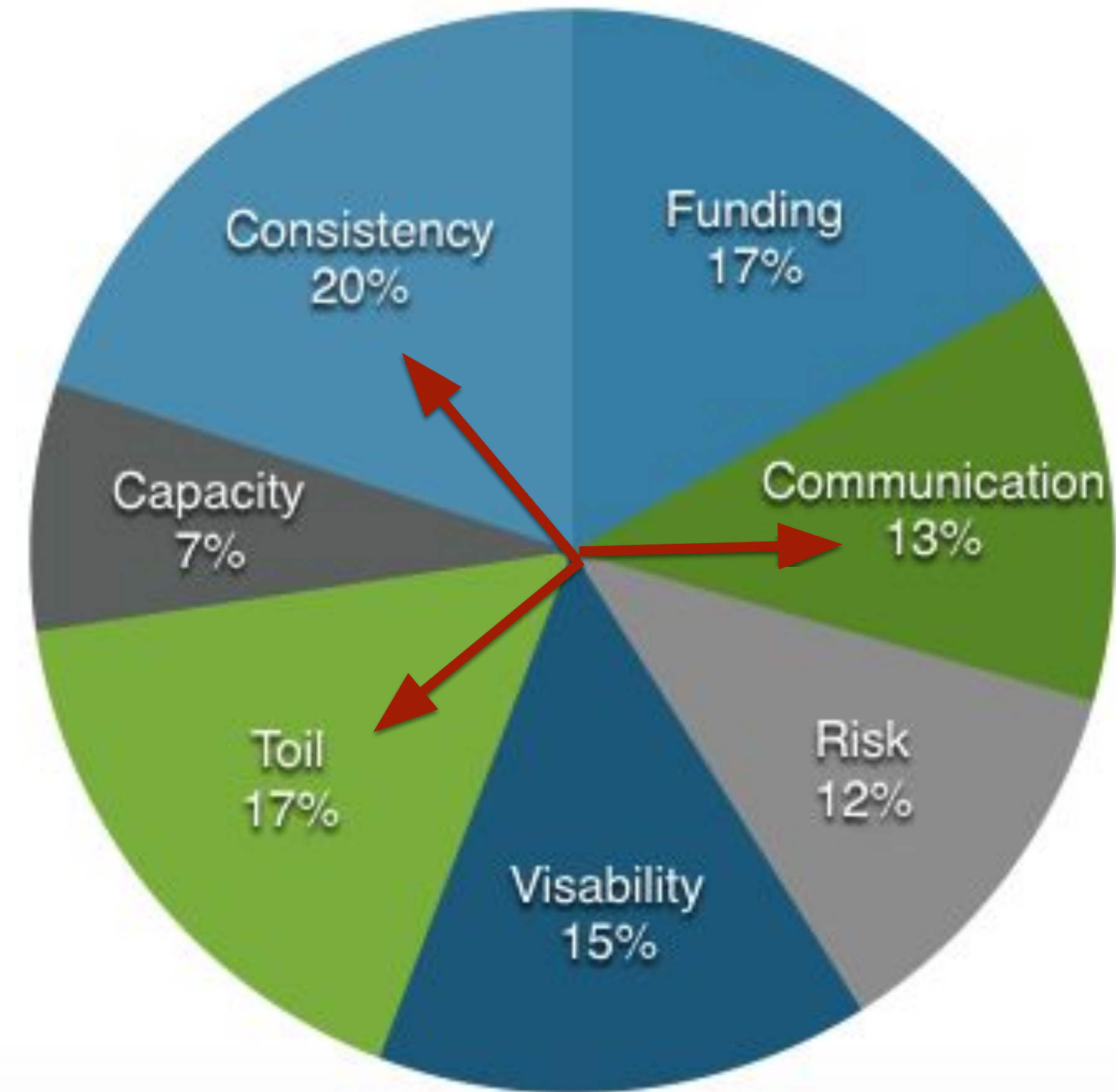
1 - Taxonomy and Models

- **DevOps Taxonomy**
- **DevOps Models**
- **SRE Taxonomy**
- **SRE Models**

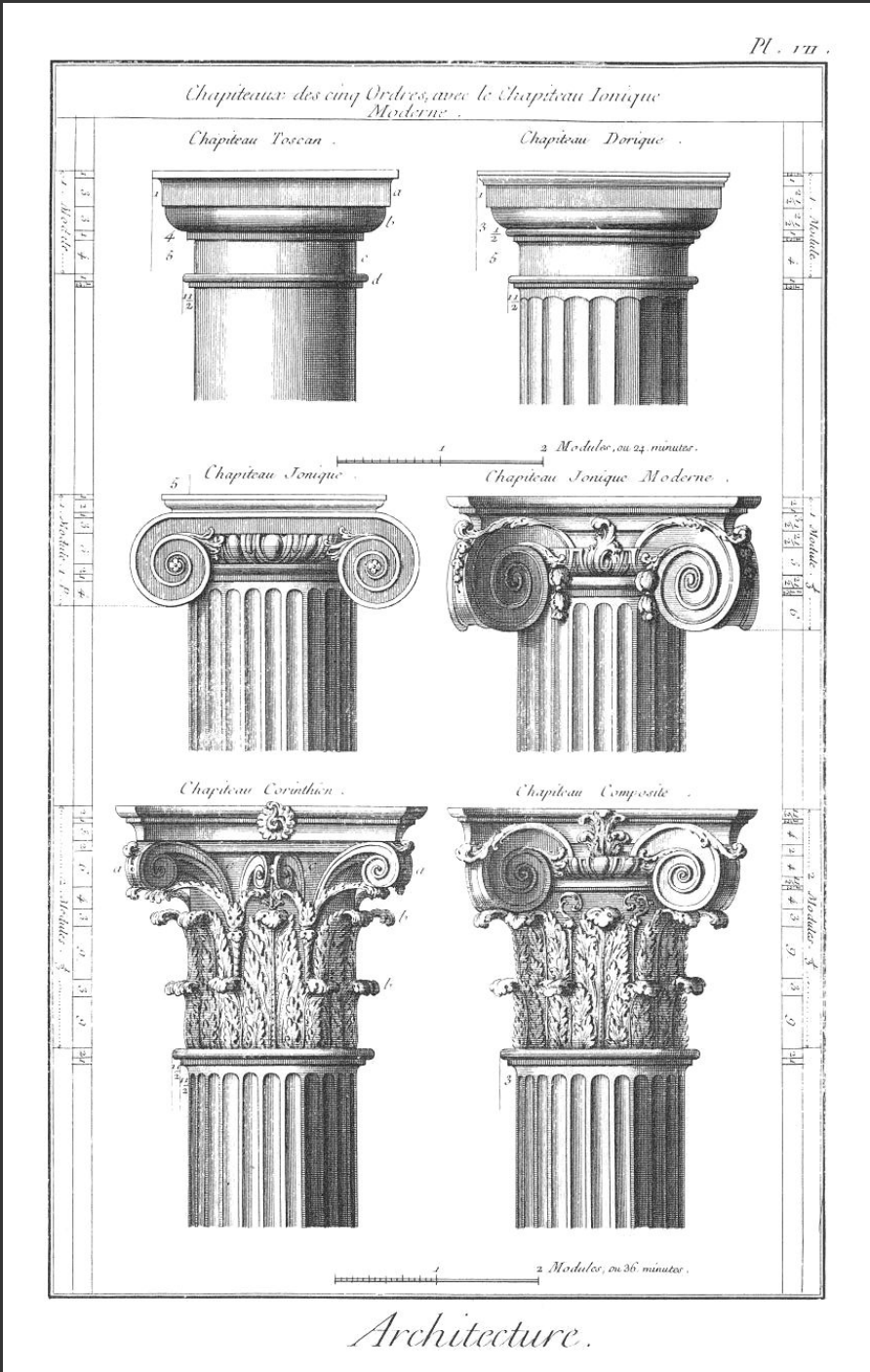
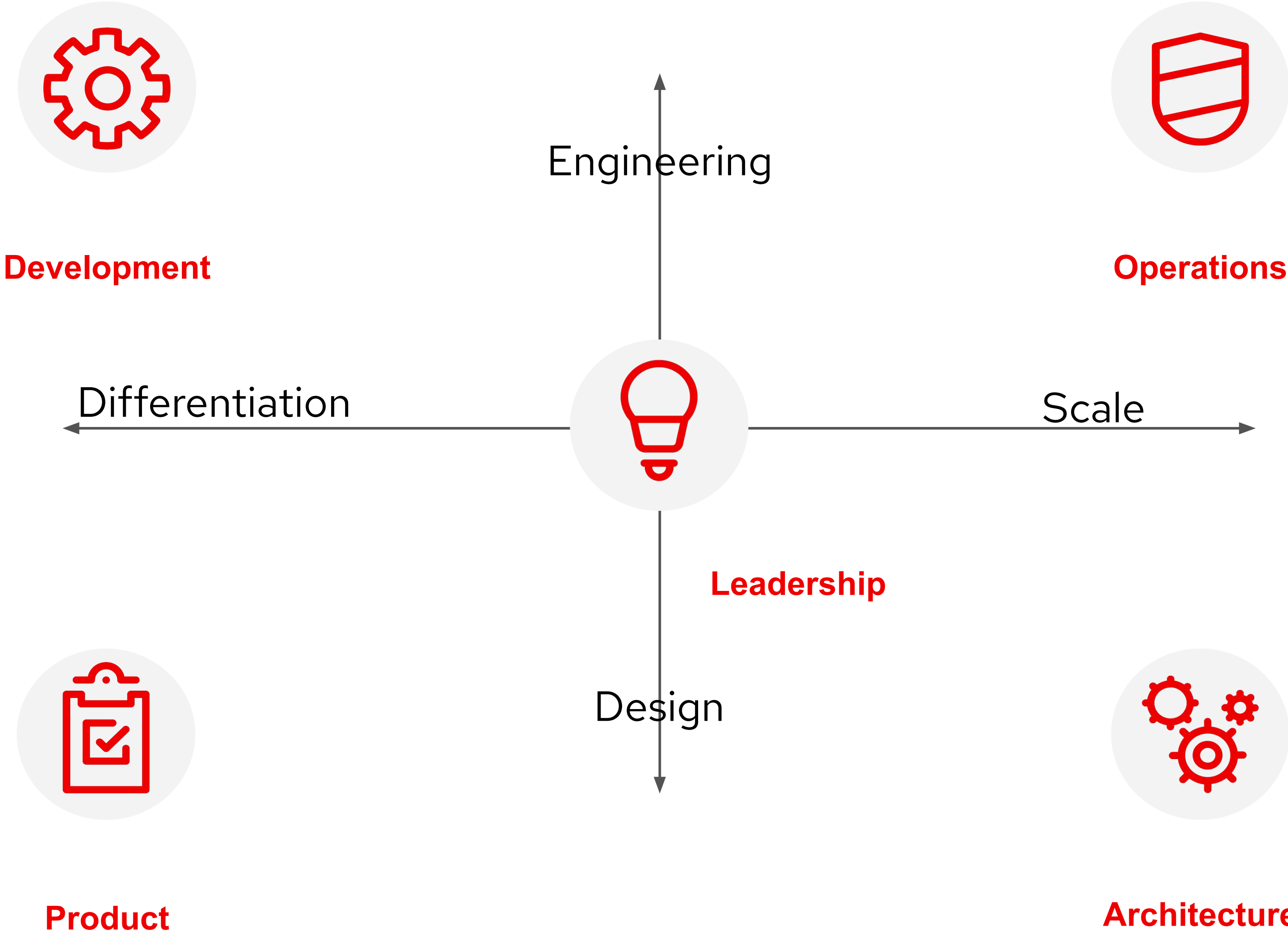


2 - Roles and Responsibilities

- **Development**
- **Product**
- **Operations**
- **Architecture**
- **Leadership**

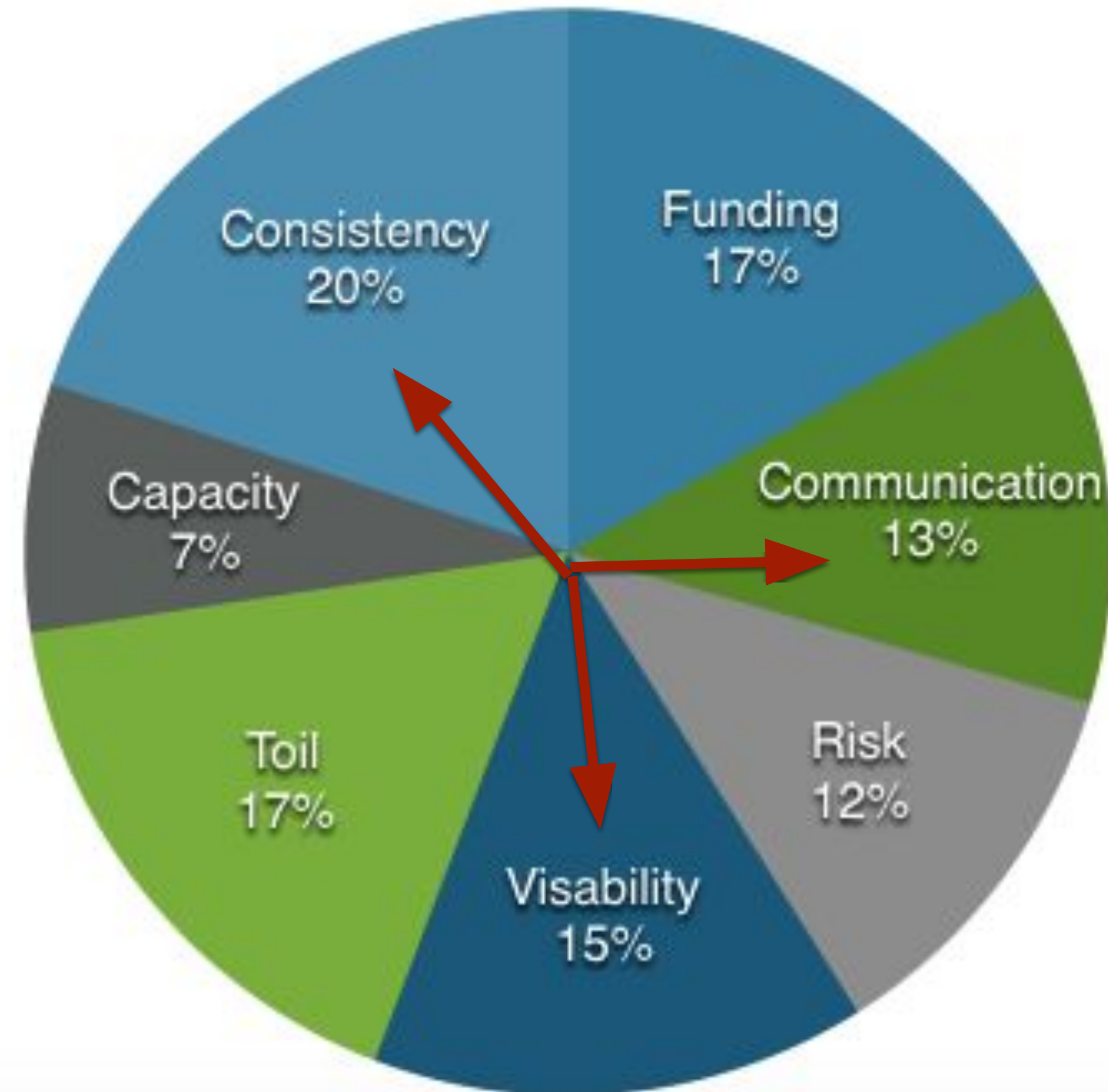


Five Elements

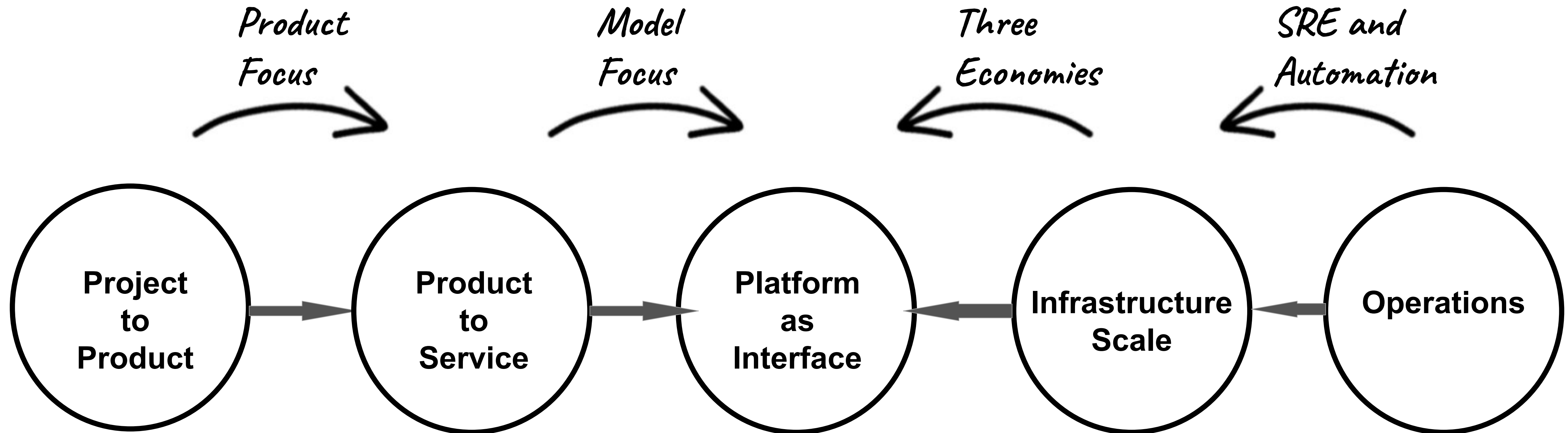


3 - Platform Transition

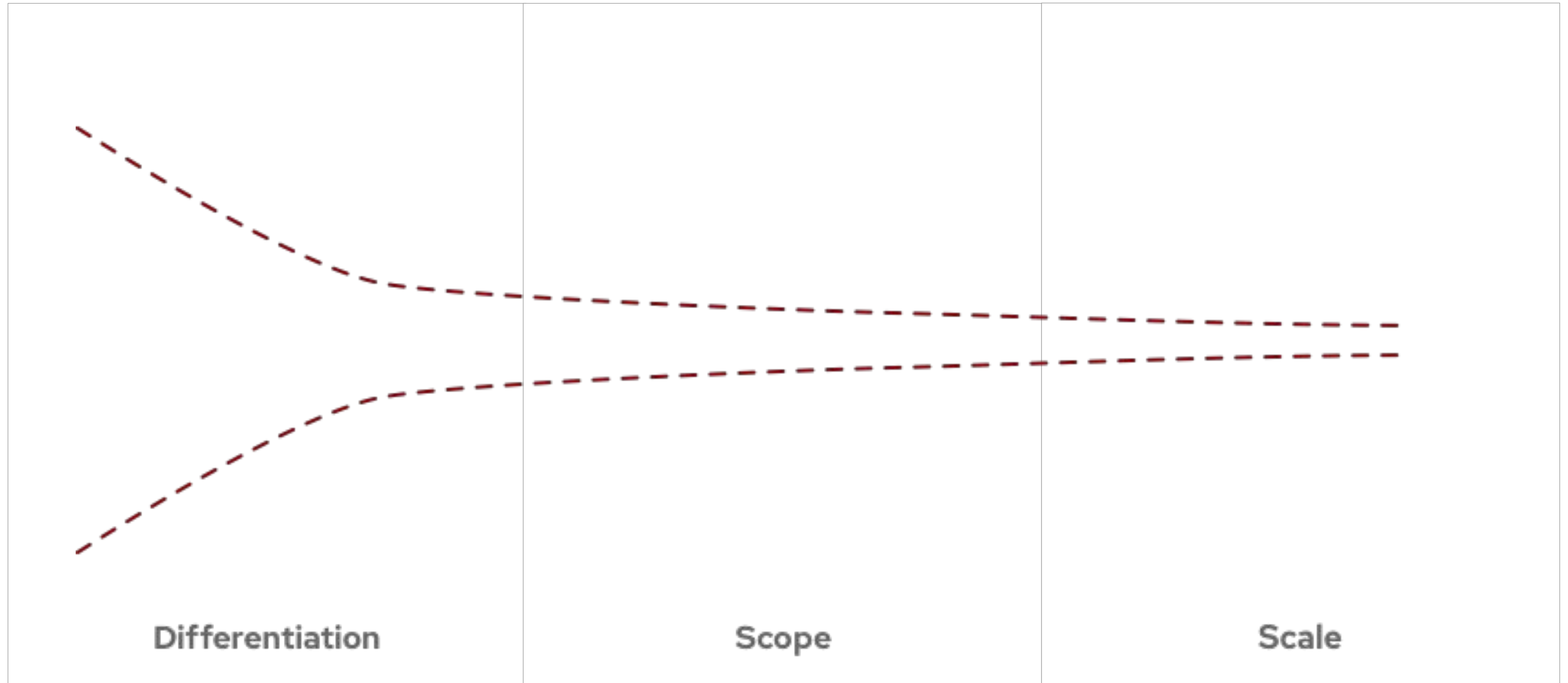
- **Project to Product**
- **Product to Service**
- **Service to Platform**
- **Change Management**



Platform Transformation



The Three Economies

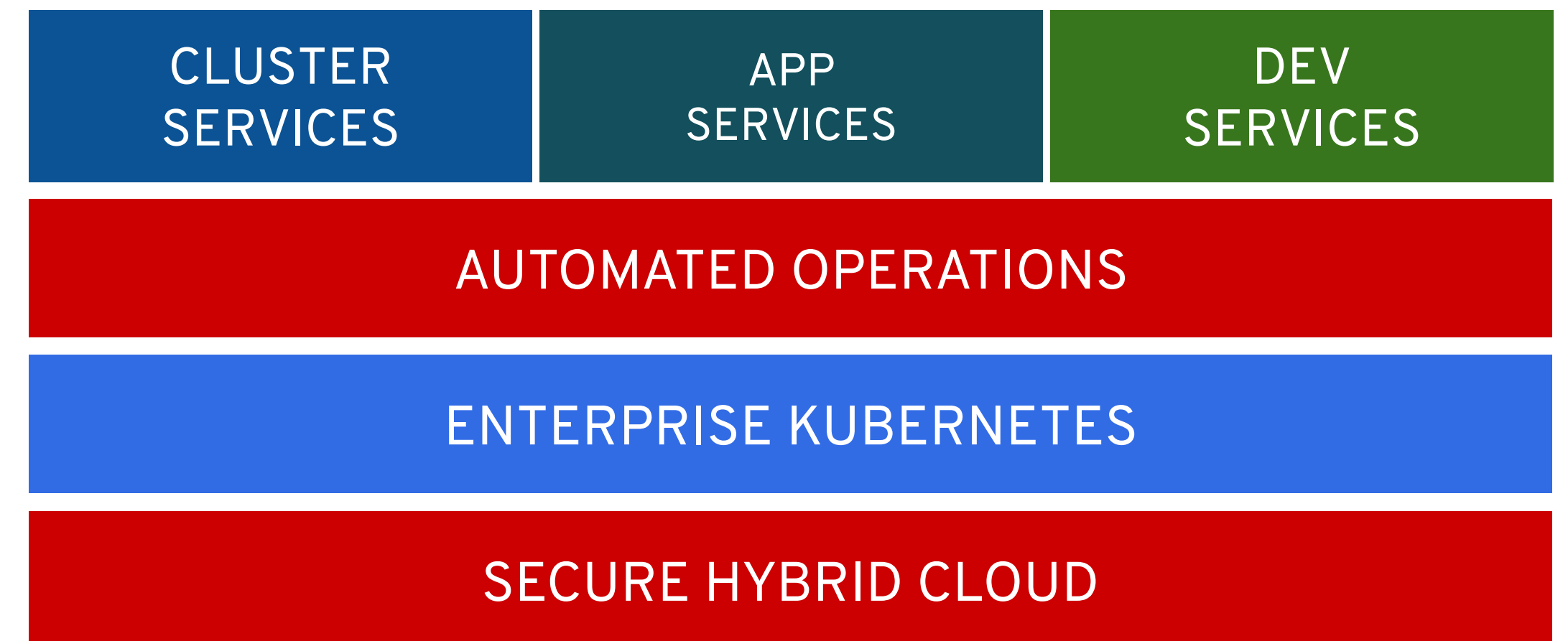
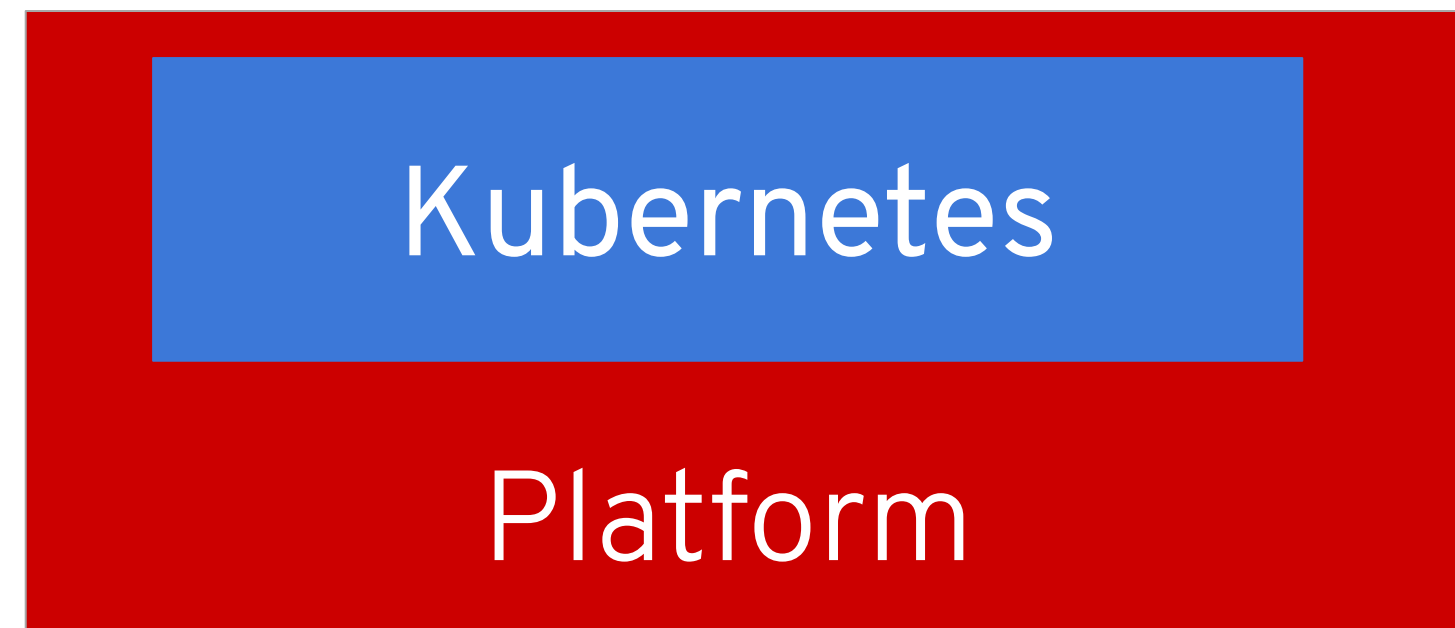


Platform by Design

Differentiation Economy
(Container Experience)
Platform as a Service



Scope Economy
(Service Experience)
Platform as an Interface



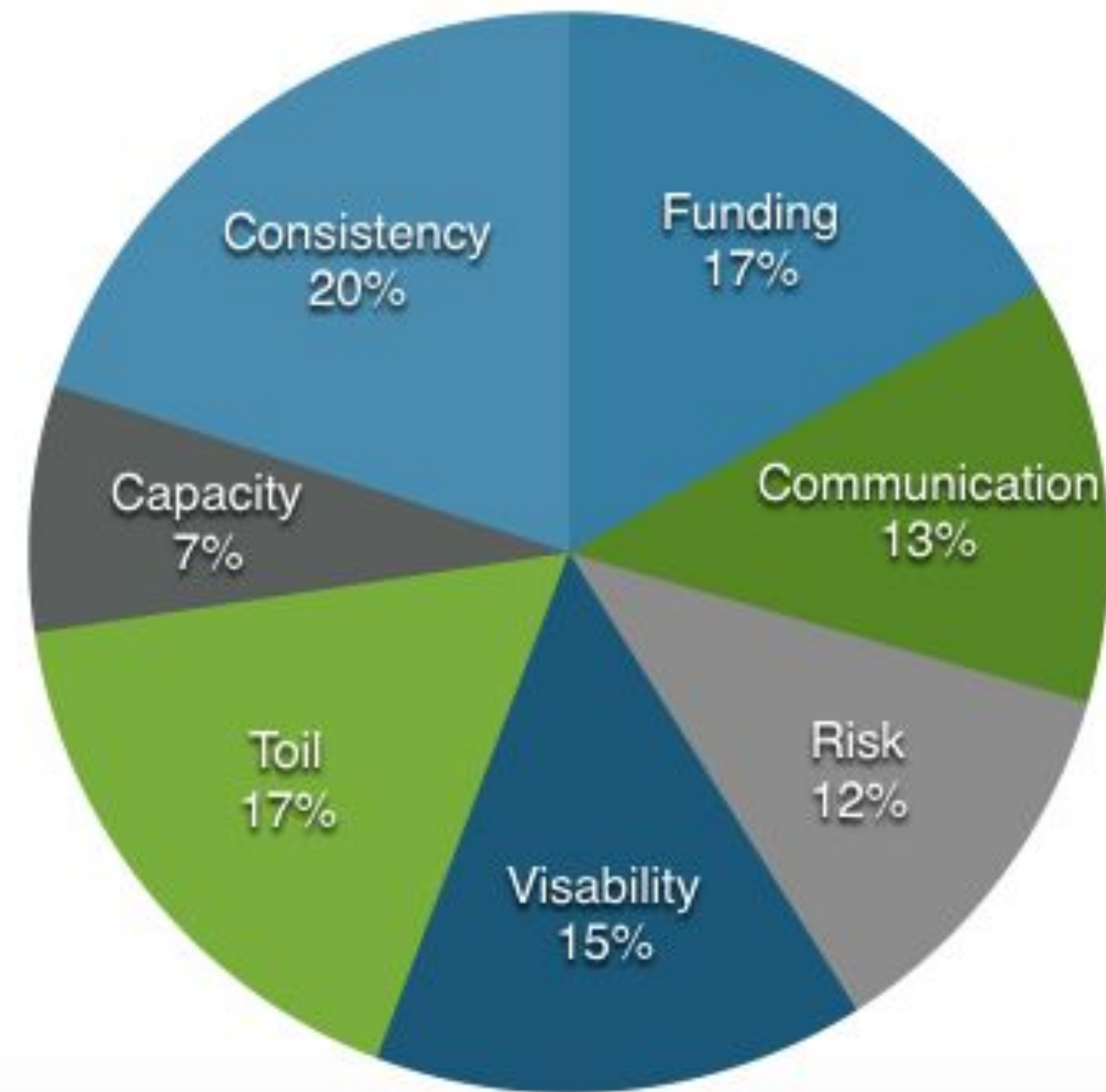
4 - Metrics

- **Common Devops Metrics**

- **Lead Time**
- **Deploys**
- **MTTR**
- **Change Success**

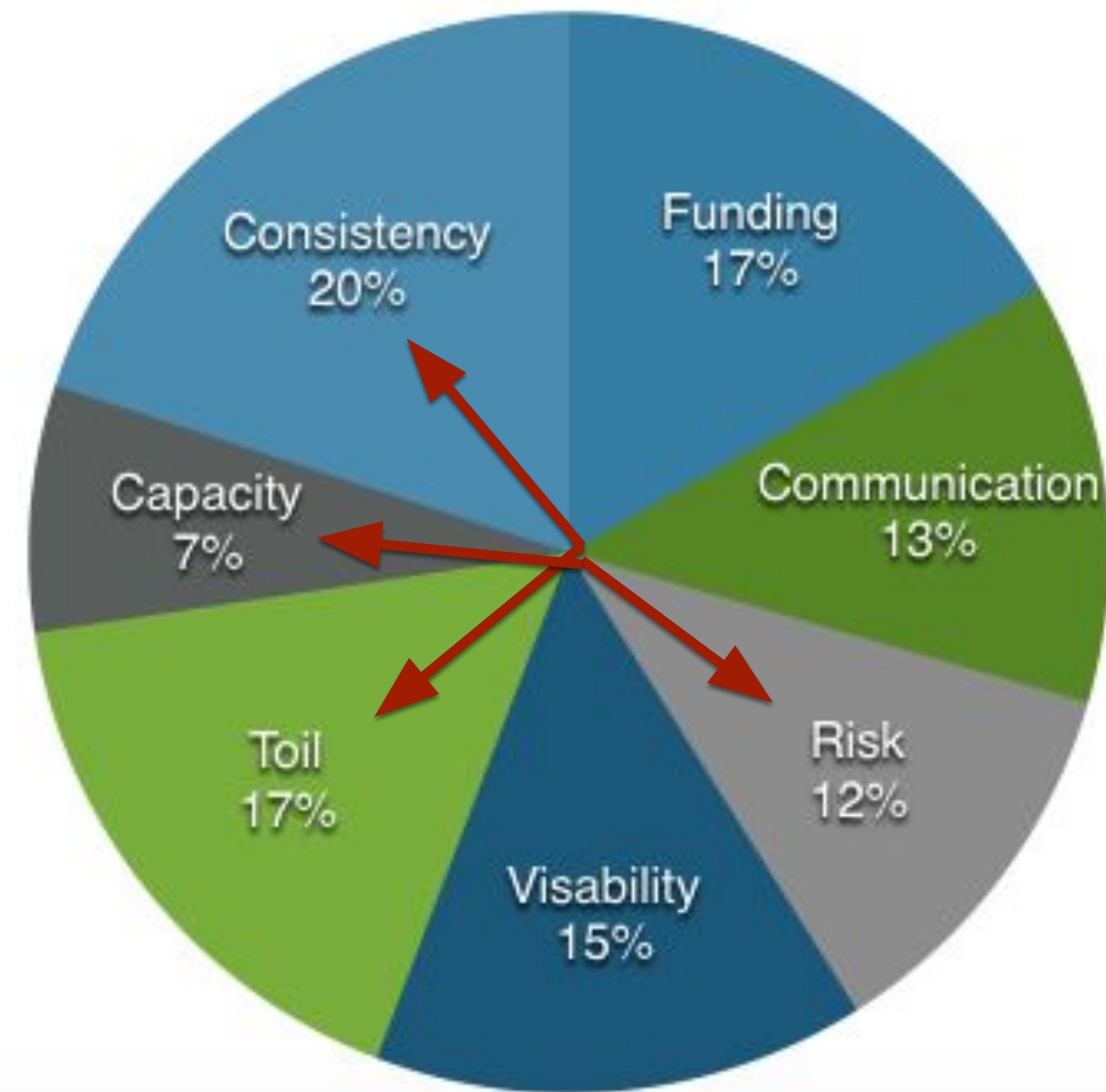
- **Advanced Devops Metrics**

- **Flow Metrics**
- **Change failure rate by team**
- **Change failure rate by work type (standard, normal, templated)**

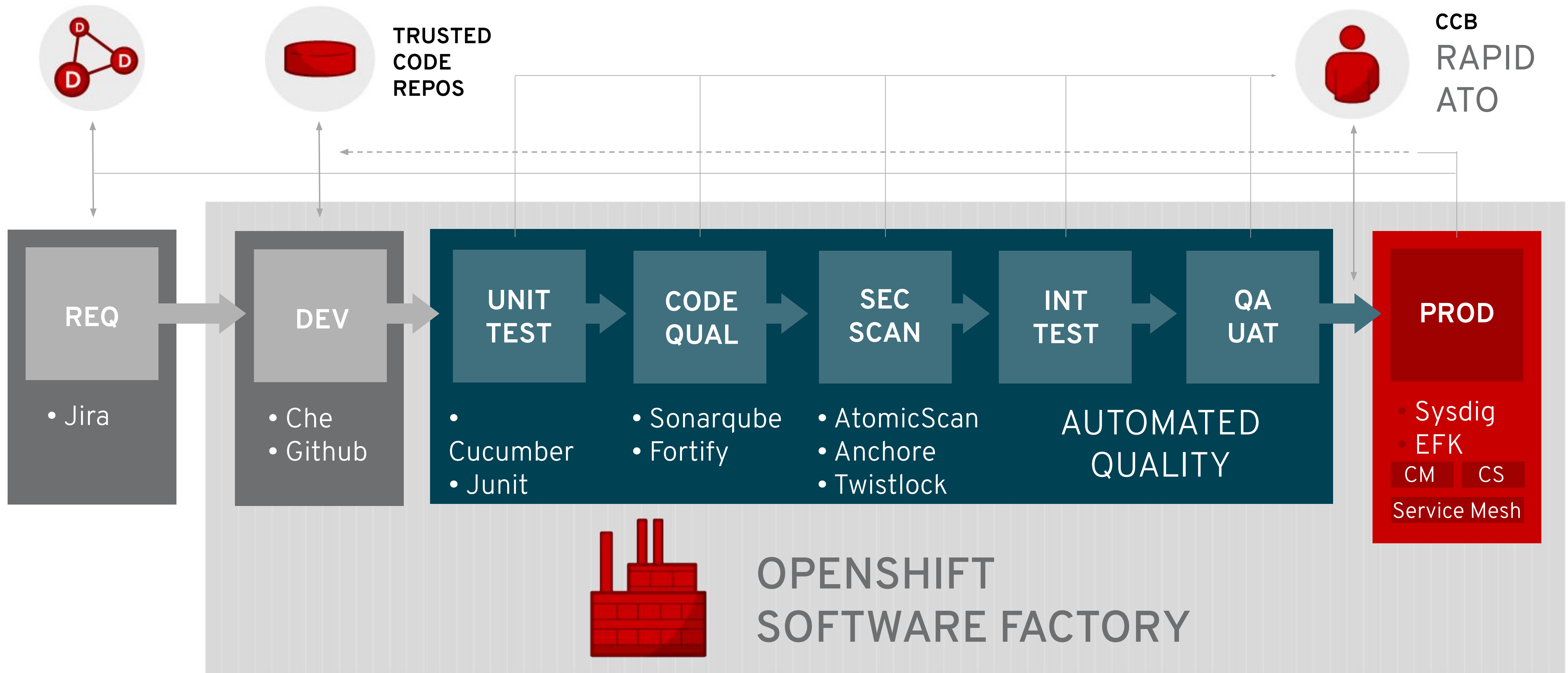


5 - Automation

- Infrastructure
- Deployment
- Containers
- Orchestration
- Security
- Test Automation
- Deployment Strategies

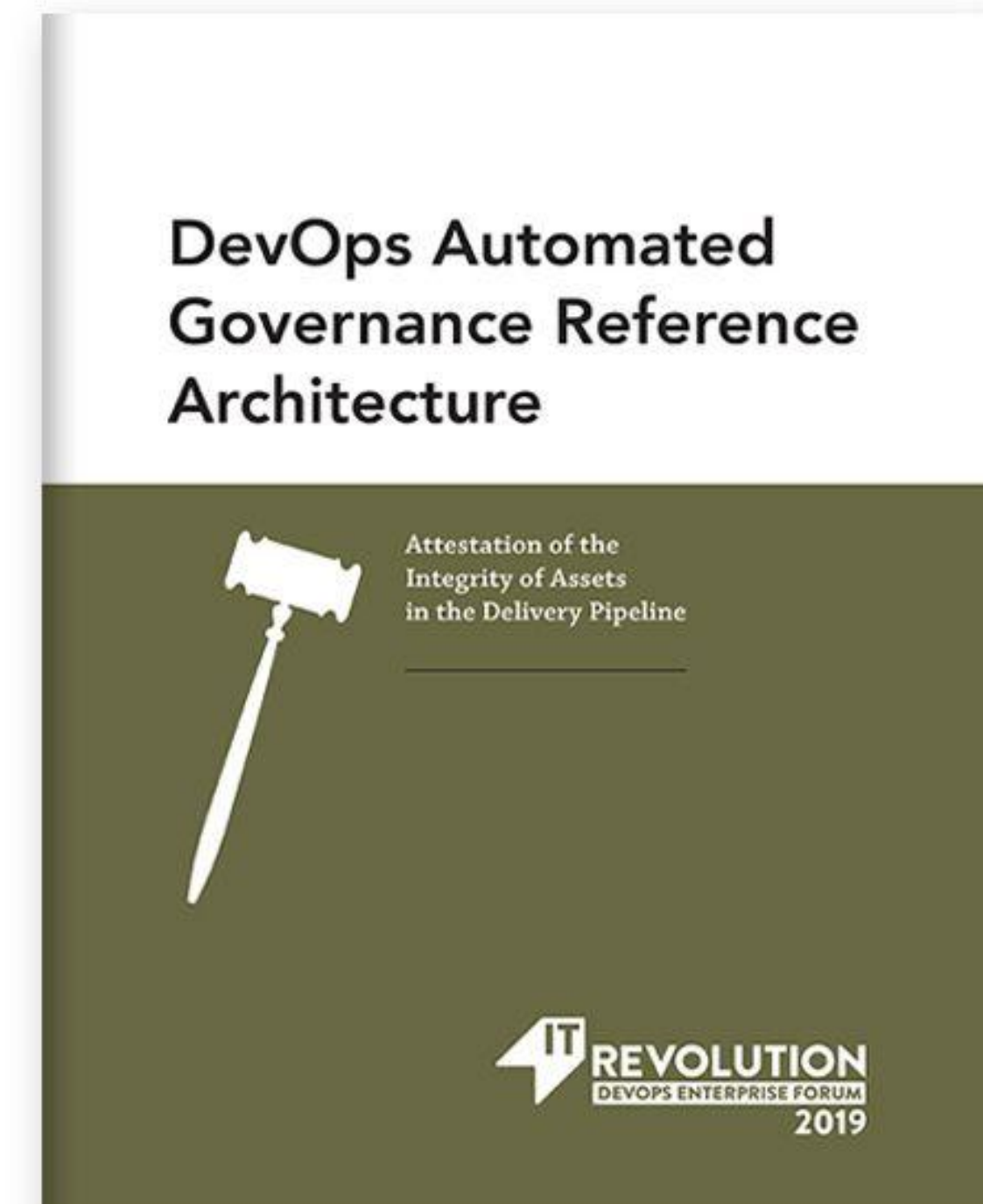


The Trusted Software Supply Chain



Devops Automated Governance

- **Objectives**
- **Shorten Audit Time**
- **Increase Audit Efficacy**
- **Reduce CAB Activity**



DevOps Automated Governance

Reduce Audit Time

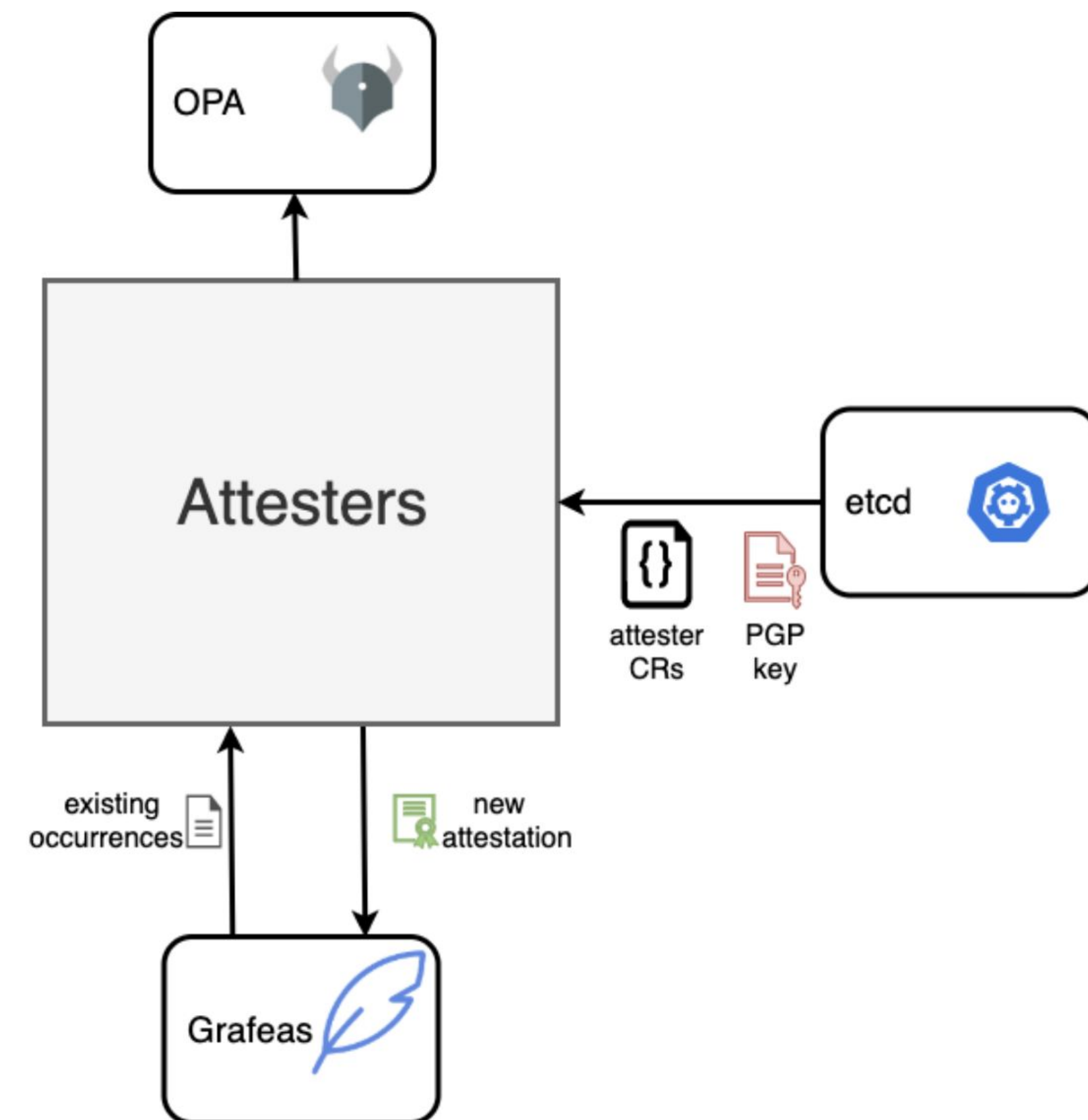
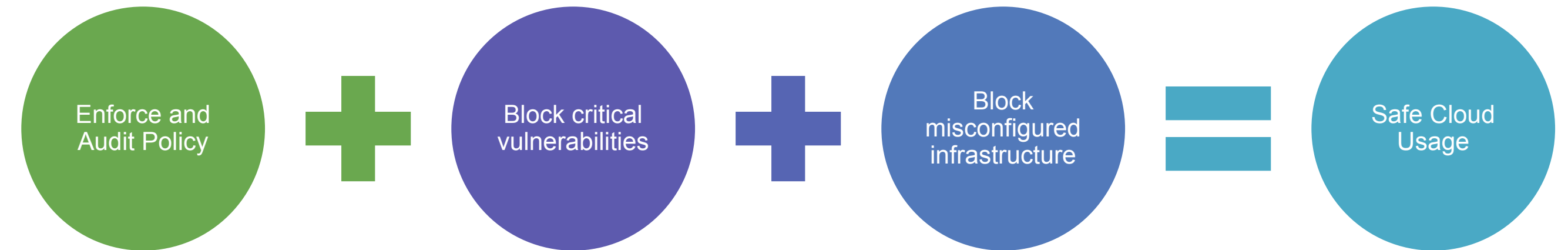
Increase Audit Efficacy

Shorten Feedback Loops

Local Authority

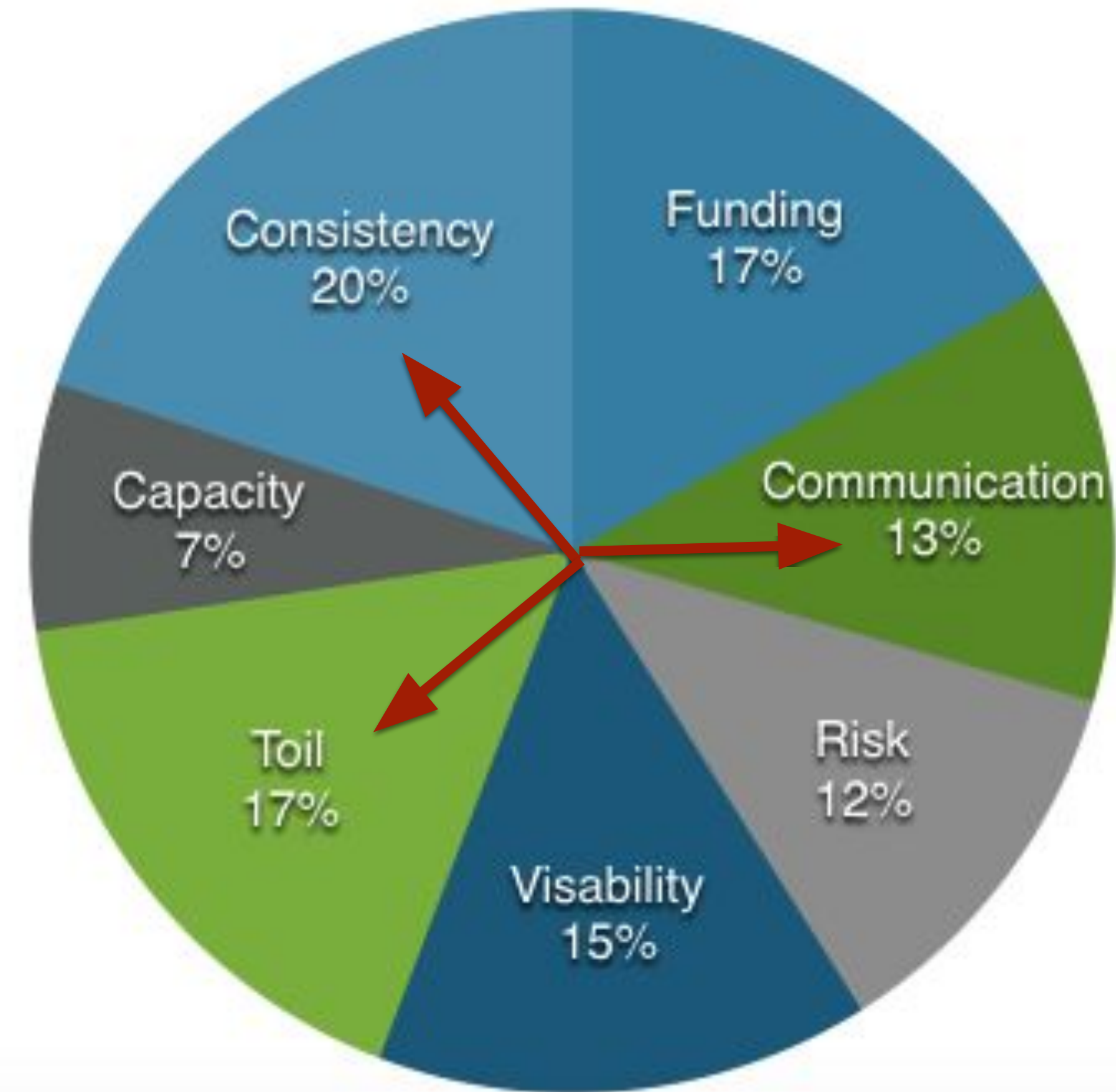
Minimize Handoffs

Enable Trust



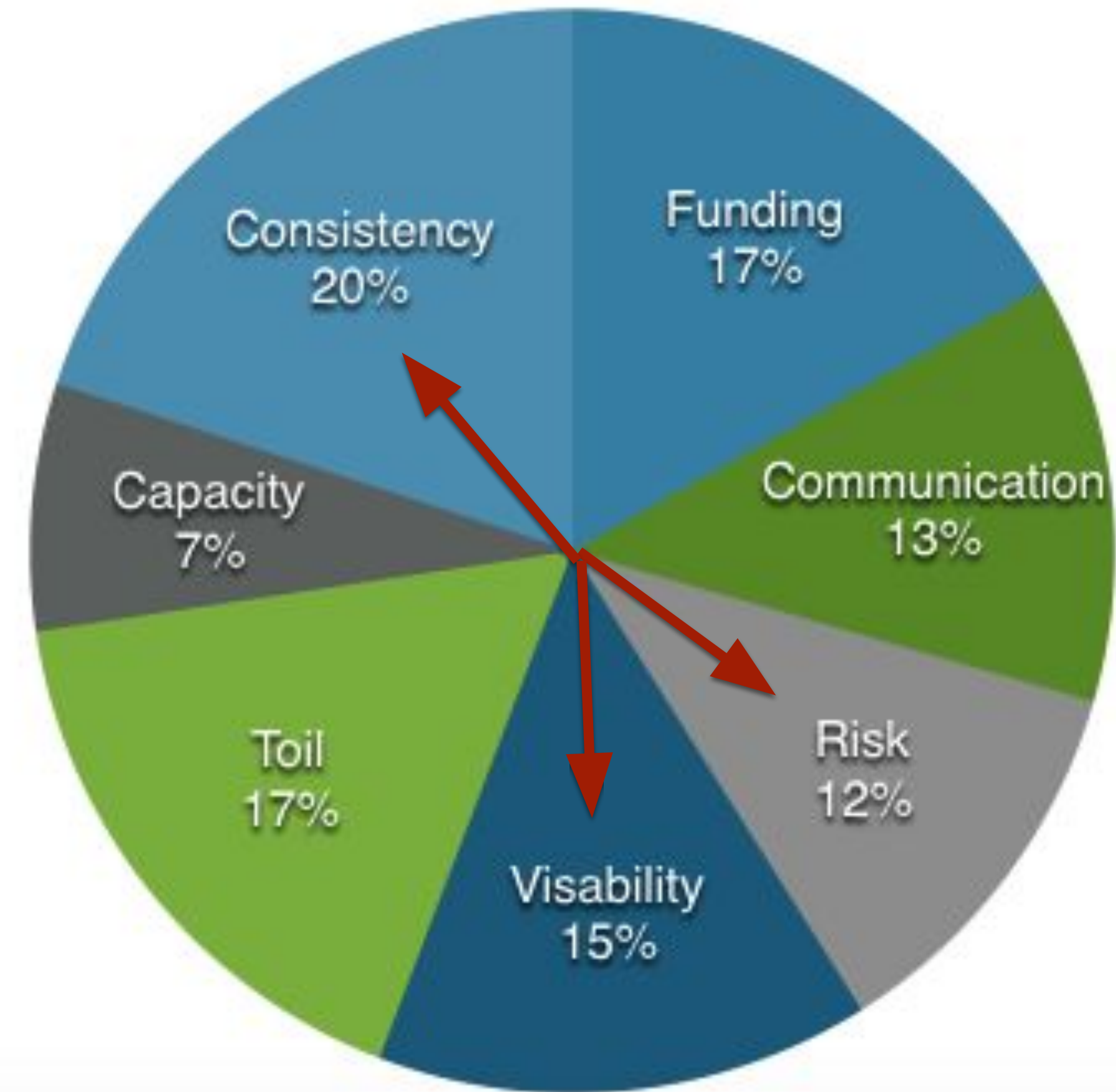
6 - Skills Liquidity

- Induction
- Mentoring
- Badging
- UpSkilling Teams
- Dojo
- Hackathons
- Internal Devopsdays



7 - Safe to Fail

- Incident Analysis
- Psychological Safety
- Resilience Engineering
- Blameless Postmortems
- Continuous Verification



The background of the slide is a vibrant red color. A diagonal stripe, slightly darker than the main red, runs from the top-left corner towards the bottom-right. Behind the red overlay, there is a grayscale image of a cloudy sky. The clouds are scattered and vary in density, with some appearing as soft wisps and others as more defined, puffy shapes. The overall composition is modern and professional, typical of a corporate presentation slide.

Thank You!

jwillis@redhat.com