



TRIBUNAL DE CONTAS DA UNIÃO

Data Analysis Strategy of TCU

8th Performance Auditing Seminar on IT Audit

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Some numbers beyond 7 x 1.....

7th Economy ~

US\$ 2,3 tri GDP



79th Human Development Index

Federal Government
Budget for 2015
US\$ 500 bi!!!

Federal Court of Accounts (TCU)

To improve public administration in order to deliver better services ...

... through External Control

**Audit
Engagements**

Planning

Executing

New World...

Complex problems

+

Abundance of
information

+

Technology available

Same Goals!

↑ **Effectiveness**

↑ **Efficiency**

Risks classification model of money transferring from Federal Government to States and Municipalities (Grants and Contributions)

Voluntary Money Transfers

- Definition: **financial assistance from Federal Government** via money transfer to **States and Municipalities**
- The main goal is to **descentralize public policies execution**

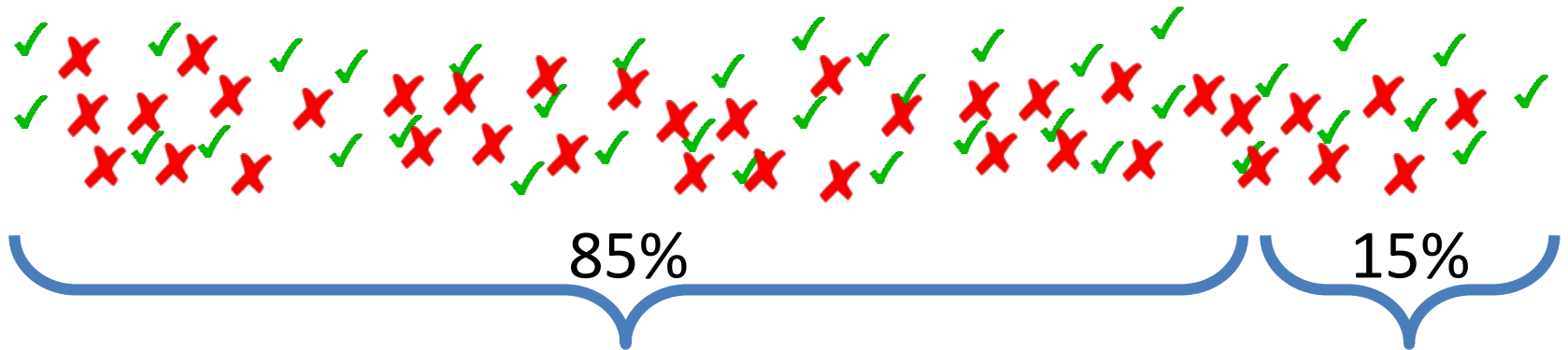
Challenge

- To calculate **likelihood of failure index** in voluntary money transferring contracts between Federal Government and States and Municipalities
- **90,000 contracts** signed since 2008
- **There is a large learning base available**
 - 9,000 contracts which have already been checked or audited

Classification Model

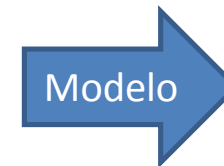
- **Success**: when submitted to any kind of control and no relevant failure had been found. In this case, there is no need to return the money.
- **Failure**: when any control instance found some important failure which implies in returning the Money back to the grantor.

Classification Model – Learning



Training

Decision Trees Forest C5.0 (Quinlan, 1993)



Test

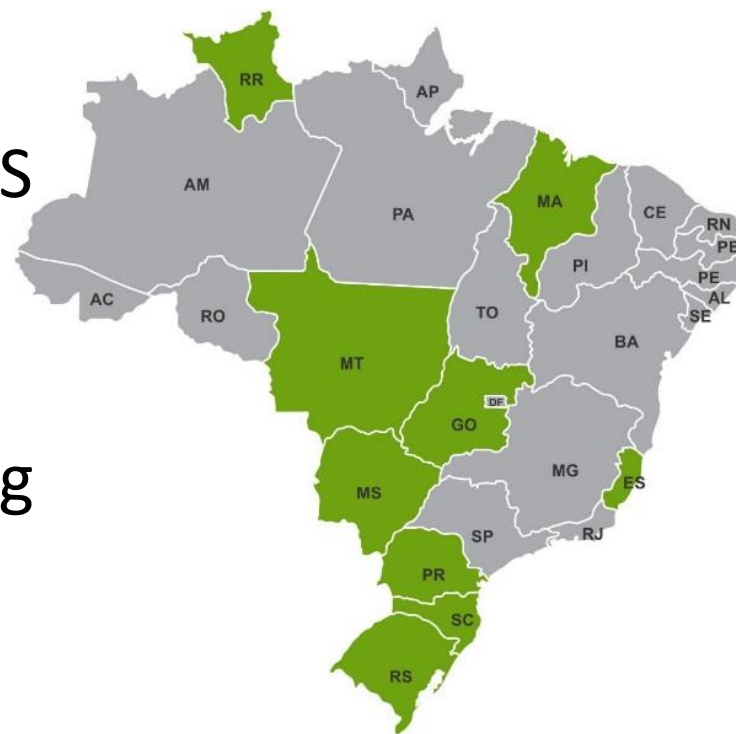
Accuracy: 90%

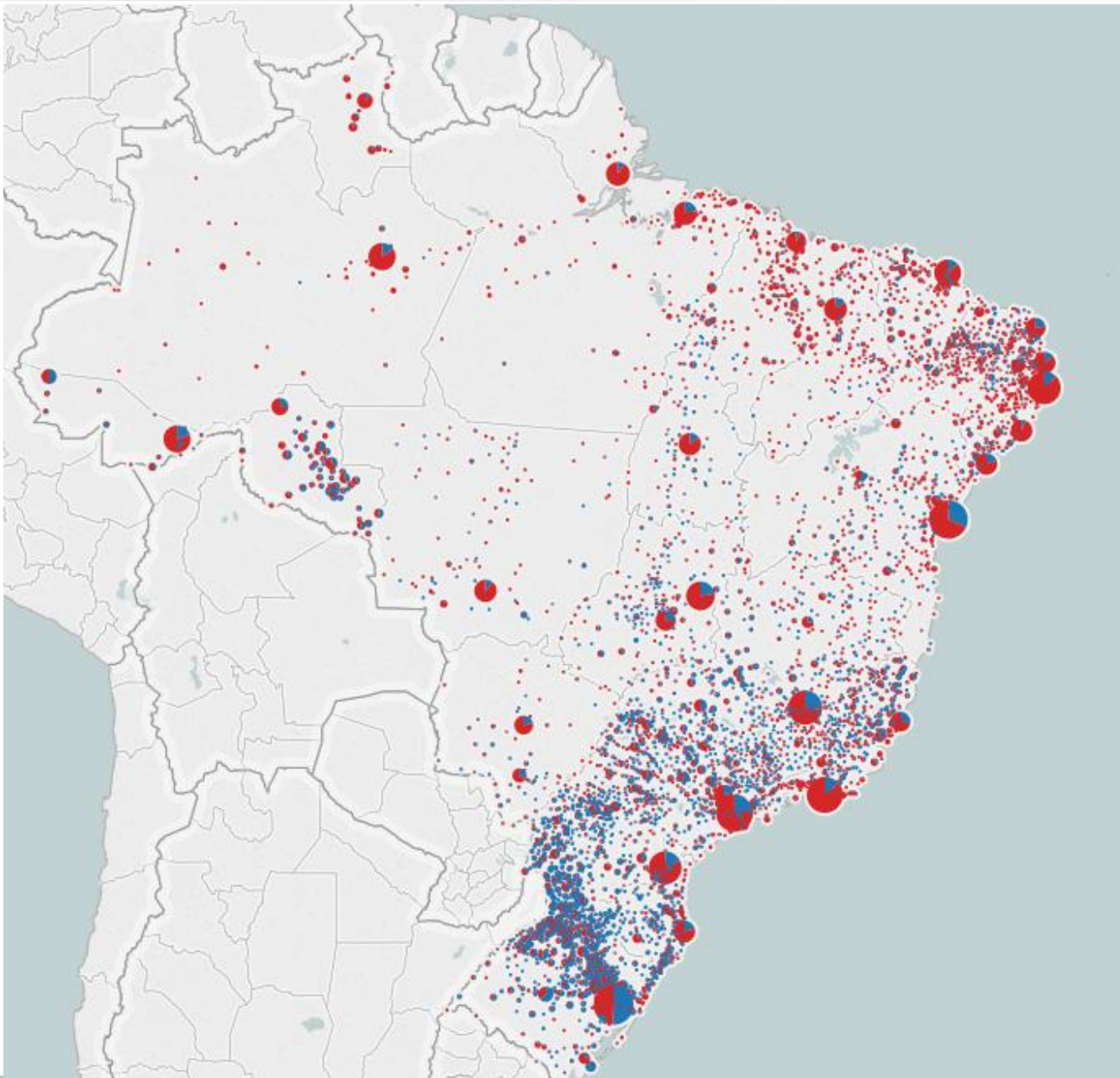
False : 4,5%

False : 5,5%

Classification Model - Validation

- **Integrated audit work**
 - 10 states
 - 51 contracts
 - ES, GO, MA, MS, MT, PR, RR, RS e SC
 - Model accuracy: 81%
 - Second round is just happening right now on 15 States





How to scale up the use of similar cases?

How to go further using data analysis to be more effective and efficient?

Mission

"Improve public administration for the benefit of society through external control"

Vision

"Be a reference in the promotion of an effective, ethical, timely and responsible Public Administration"



National Congress



Society



Body Under TCU's Jurisdiction

Results

Improve governance and management in public policies and organizations

Curb the mismanagement of public funds

Promote transparent public administration

Internal Proceedings

External Control

Intensify performance based on risk analysis

Perform systemic diagnoses in relevant areas

Induce the availability and reliability of Public Administration information

Induce improvement of risk management and internal controls of public administration

Encourage monitoring and evaluation of performance by the Public Administration

Induce improvement of the management of decentralized public policies

Effective and timely conviction of those responsible for irregularities and embezzlement

Institutional Relationship

Enhance domestic and international exchange for sharing of best practices for control

Enhance partnerships with other regulatory agencies

Strengthen the relationship with the National Congress

Improve communication of the TCU with stakeholders

Management and Innovation

Improve performance management, recognition and professional development

Improve knowledge management

Promote integration and synergy in the Court

Encourage improvement in governance and management of TCU strategy

Develop broad organizational capacity to work with technological resources

Improve the use of IT as an innovation tool for control

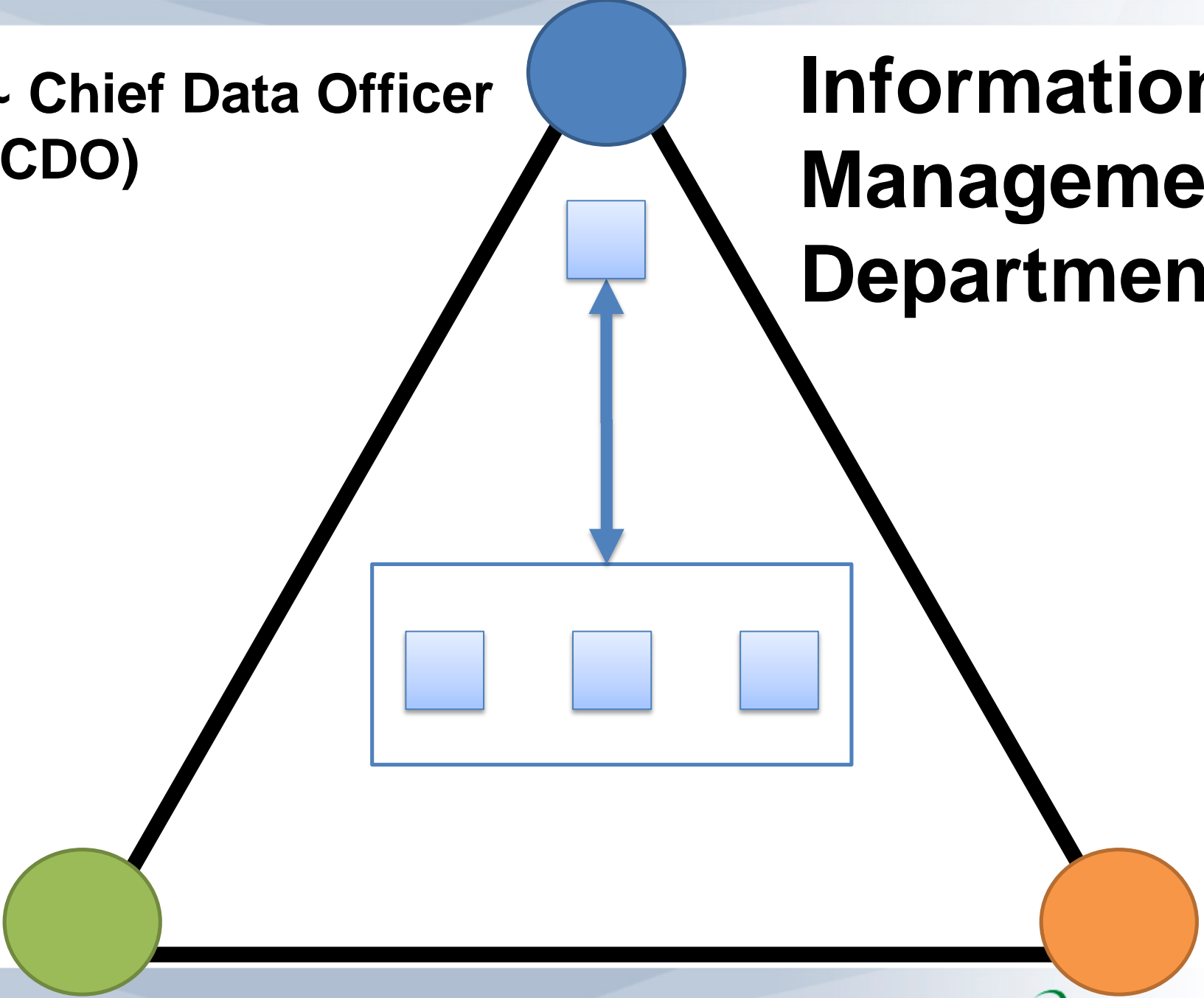
Ensure appropriate support of goods and services for TCU needs

Three main pillars

1. Organizational Structures
2. Skills, techniques and technology
3. Data as a platform

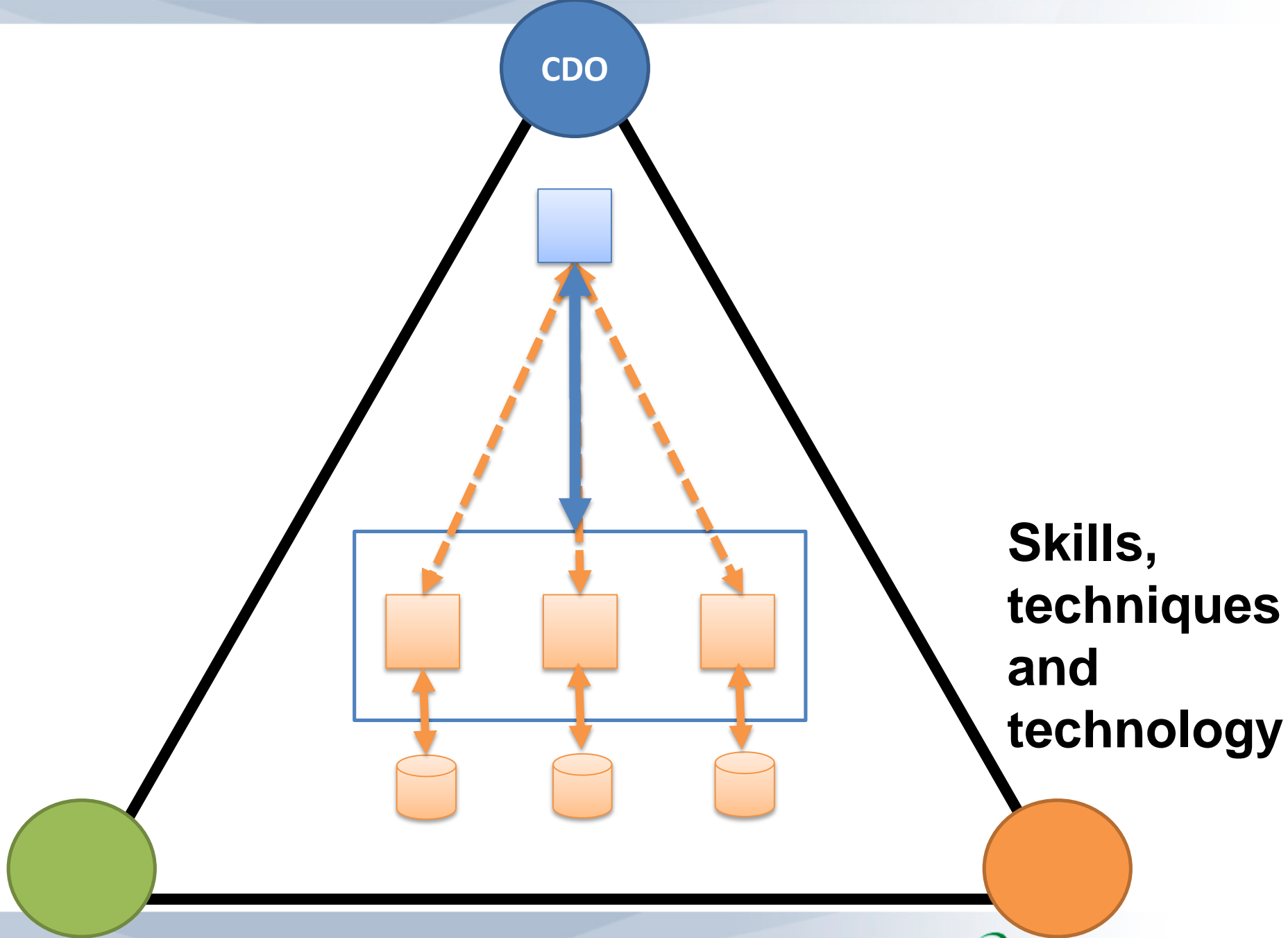
~ Chief Data Officer
(CDO)

Information Management Department



Information Management Department

- **Organize and manage** an organization's use of data to fulfill its mission and be the driver for change
- Ensure that data is **available for organizational needs** and strategic decisions
- **Drive the organizational culture** around data and data management.



**Skills,
techniques
and
technology**

Analytics internal capabilities survey

40 skills considered

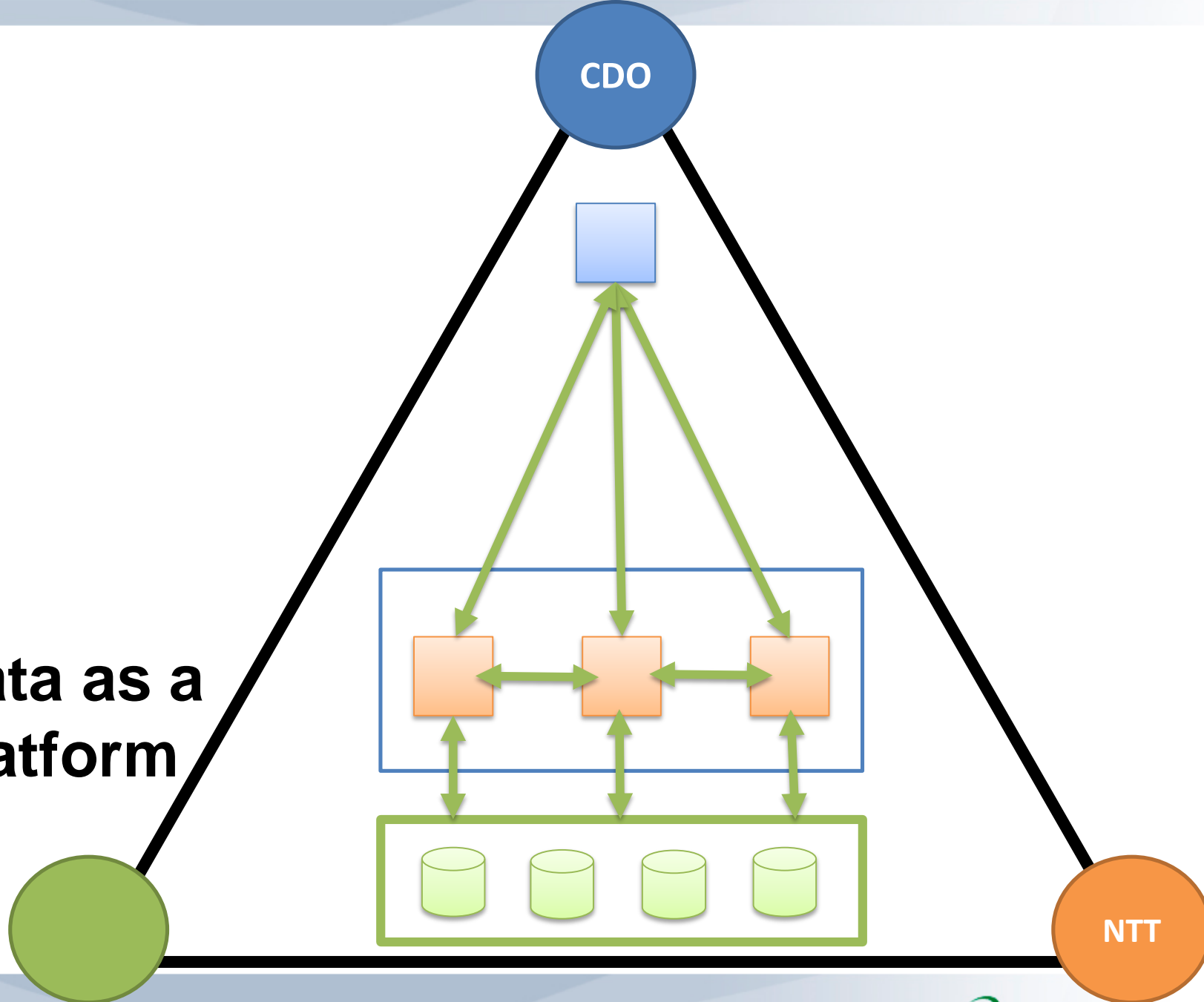
434 auditors answers

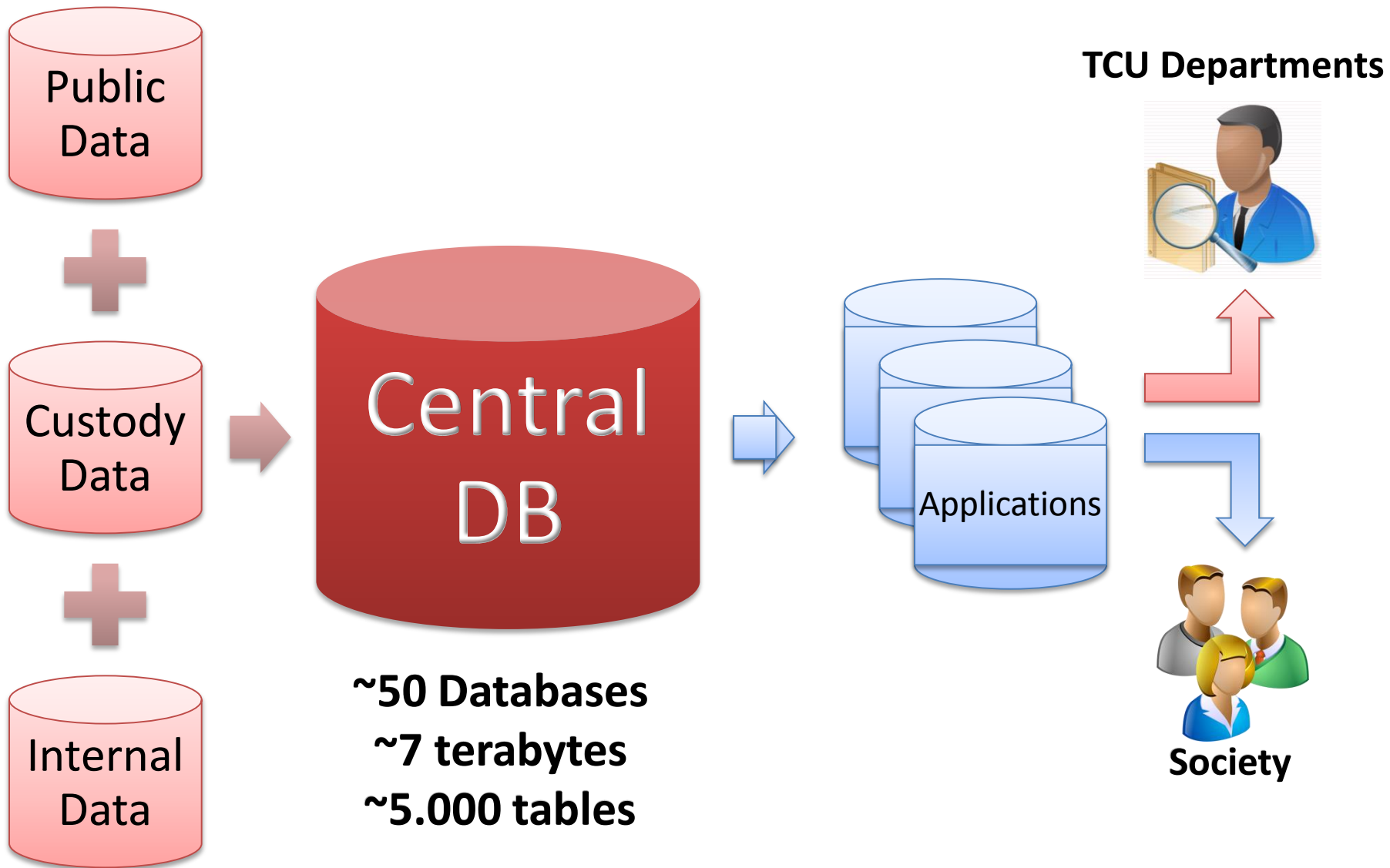
217 auditors have declared their **interest**
in being part of any audit engagement
using analytics

Training program

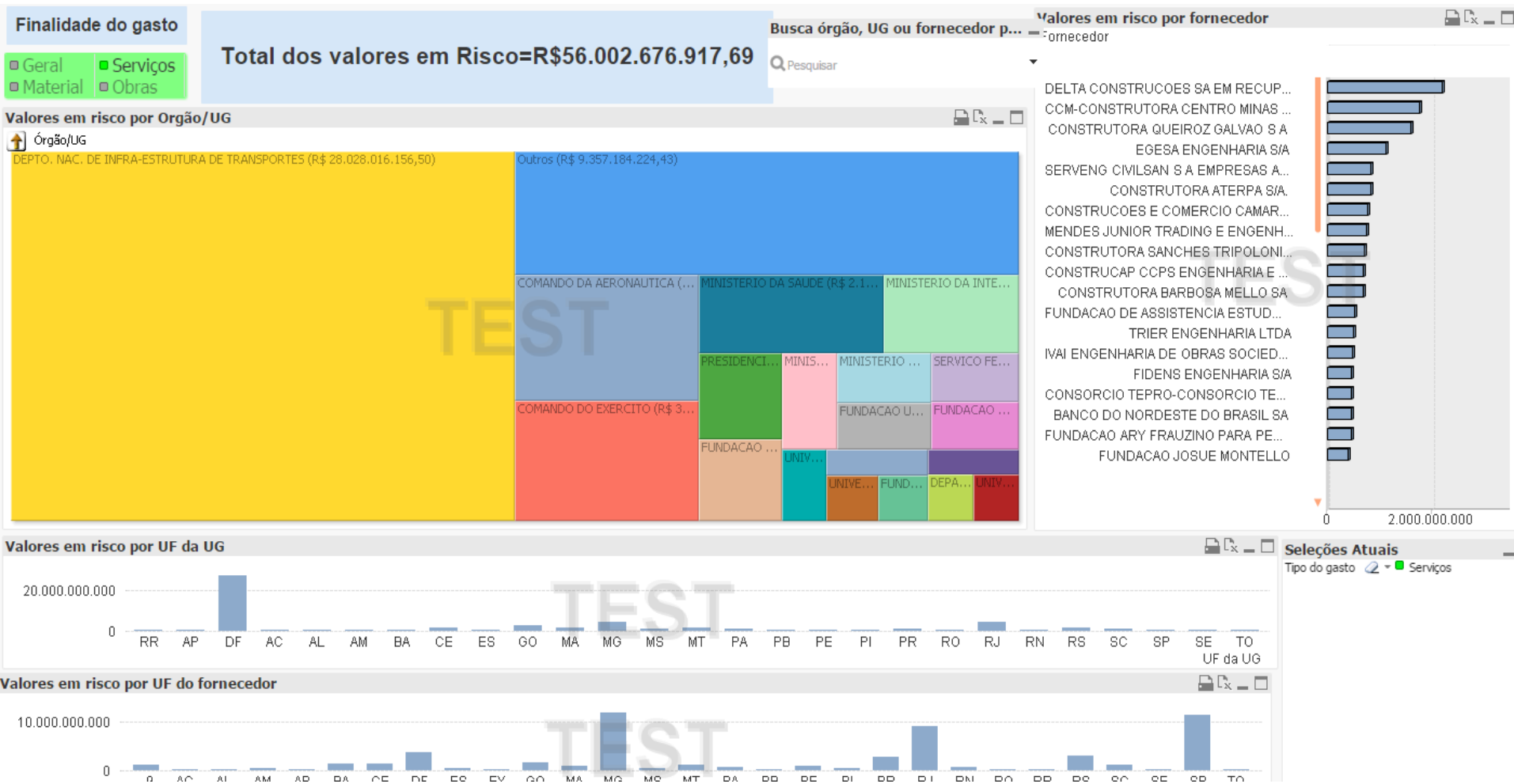
- Provide short courses about **data analysis**, mostly based on **distance learning**
- Mainly **focused on practical aspects** instead of excessively theoretical content
- Basic, intermediate and advanced levels (Excel, ACL, SQL Server, Oracle, R)

Data as a platform

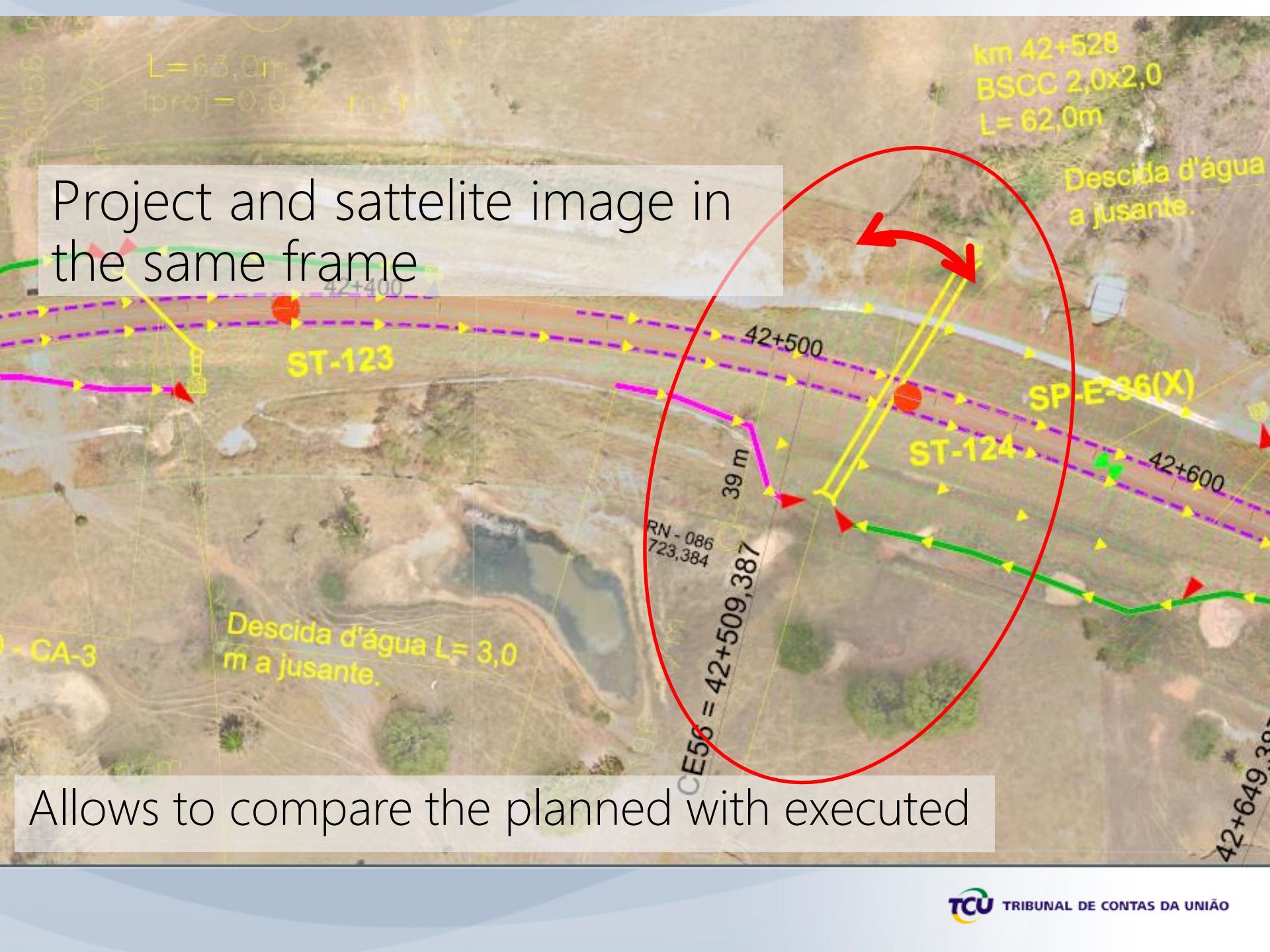




Risk of irregularities among agencies and suppliers



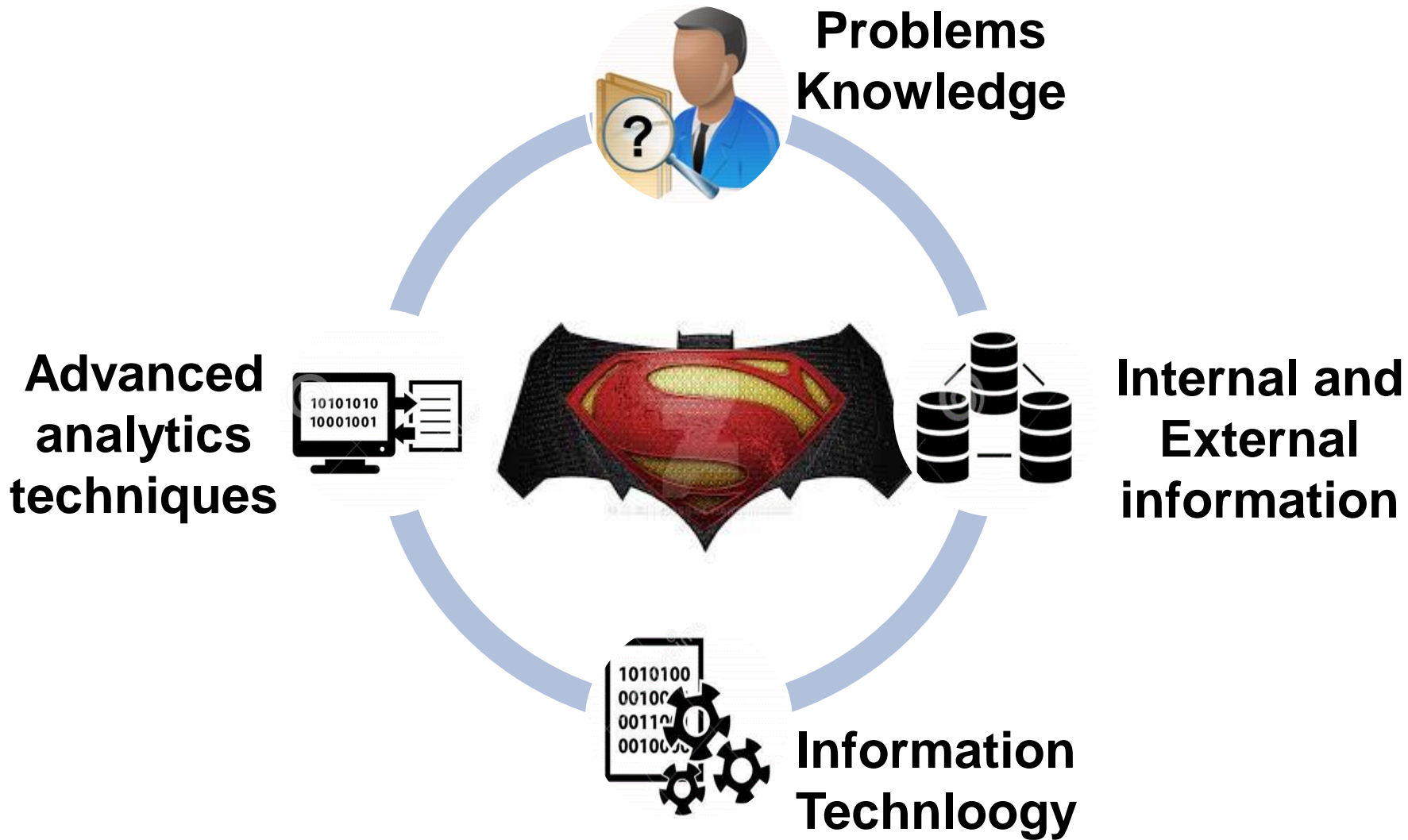
Project and satellite image in the same frame

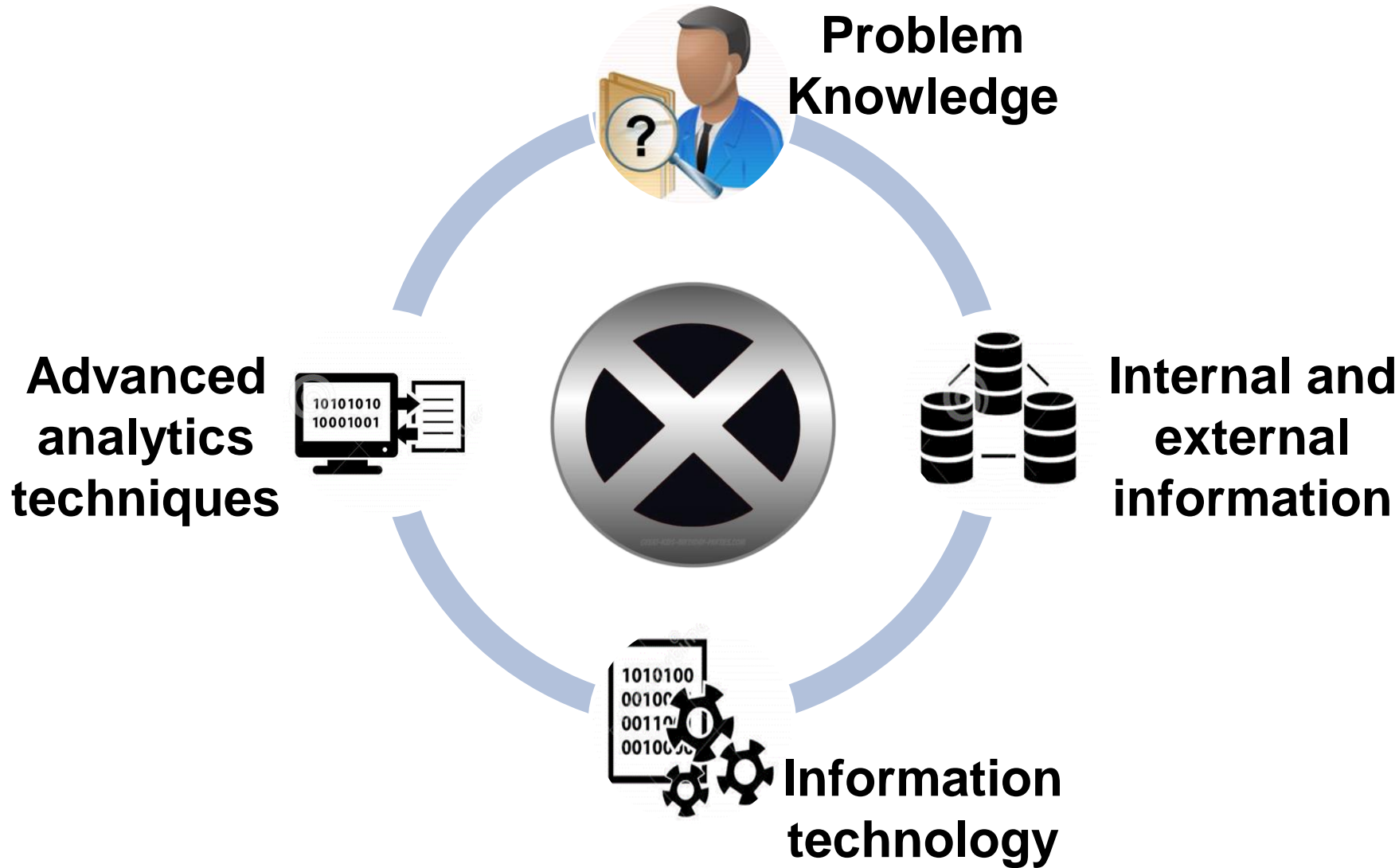


Allows to compare the planned with executed

This is not about using data in the same way as always!

It is about trying to figure out how to **use analytics to identify new opportunities to plan and perform an audit engagement** in a more effective and efficient manner.





Thank you!

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