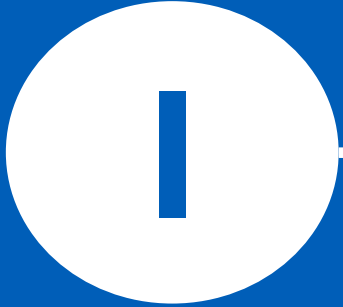
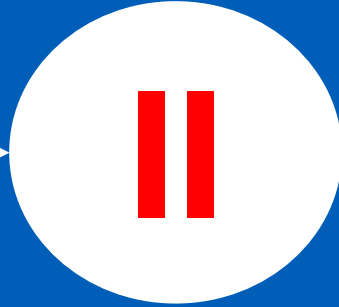


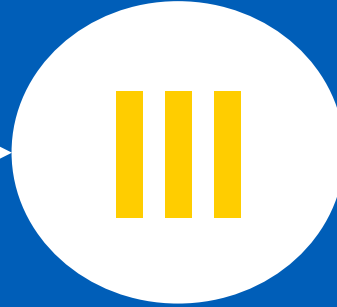
**Conceptual
Foundations
of AIS**



**Transaction
cycles**



AIS control



**AIS investments
and
outsourcing**



AIS Audit



Aalto University
School of Business

AIS (Internal Control) Audit

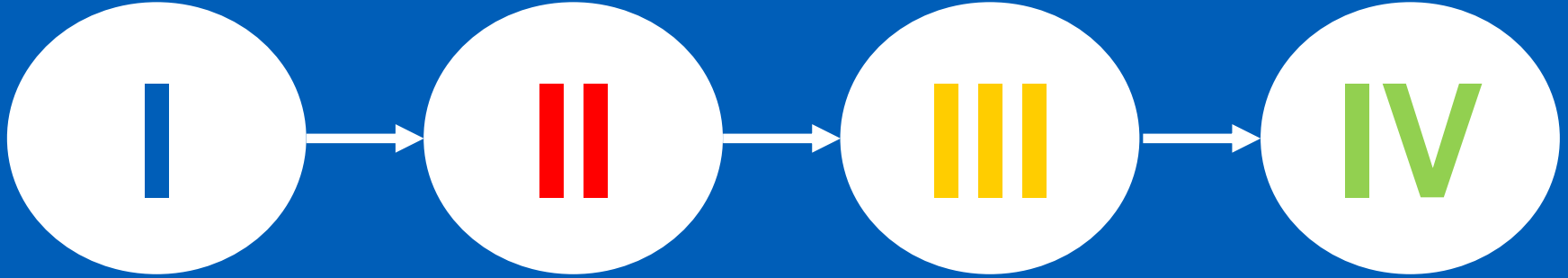
*by David Derichs ©
Lecture 5*

**More on
fraud**

Audit

AIS Audit

**Special
Issues**



I. More on fraud

The history of fraud

- **Lambroso** (17th century) and **Hooten** (1939) postulating **anthropomorphic indicator**
- 1939, **Sutherland** propagating **differential association** – Focus on crime of **‘respectable people’**
- 1953, **Cressey** introduced the theory of **‘trust violators’** and developed the **fraud triangle**
- 1986, **Cornish** and **Clarke** publish the reasoning criminal, introducing the **rational choice perspective**

Non-scientific, but still often circulated theories...

- **Bondsman's hypothesis** arguing that the 'sweet life' has a **greater allure** to some people **than honest work** can provide for
 - resonates with a recent KPGM study quoting **greed** as main reason
- **Auditor's assumption** claiming that '**the seeds of crime are in each of us**'
 - Resonates with the fraud triangle notion

Who is a fraudster?

Look for red flags to identify fraudsters

1. **Unwillingness** to take holidays or breaks
2. **Sudden changes** in previous behavior patterns
3. Increasingly **erratic behavior** including irritability and **shortness of temper**
4. Increasing levels of **complaints** about superiors or the organization
5. Increasing tendency to **blame others**
6. **Evasive behavior**, e.g. unwillingness to look people in the eye

Let's look at a brief case...

II. Audits

What is auditing?

The audit process involves four steps:





- **Why, how, when, and who**
- Establish **scope** and **objectives** of the audit
- Identify risk:
 - **Inherent risk**: risk of control problems in absence of internal controls
 - **Control risk**: risk of material misstatement that will get through the internal control structure
 - **Detection risk**: risk that auditors and procedures will not detect material misstatement or error



● Collection of evidence can be conducted in a several ways:

- **Observation**
- **Reviewing** documentation
- **Interviews**, discussions, and questionnaires
- **Physical examination** (e.g., inventory counts)
- Confirmation with **third parties**
- **Re-performing calculations** (e.g., estimates such as depreciation)
- Vouching supporting documents (e.g., **3 way matching**)
- **Analytical review** (examining trends and patterns)
- **Audit sampling**



- Evaluation of evidence involves the auditors conclusion that the evidence supports or does not support the assertion:
- Assess **quality** of internal controls
 - Assess **reliability** of information
 - Assess **operating performance**
 - Consider need for **additional evidence**
 - Consider **risk factors**
 - Consider **materiality factors**
 - Document **audit findings**



● **Communication** of results is in the form of a written report and often includes **recommendations** to management:

- Formulate audit **conclusions**
- Develop **recommendations** for management
- Prepare **audit report**
- **Present** audit results to management

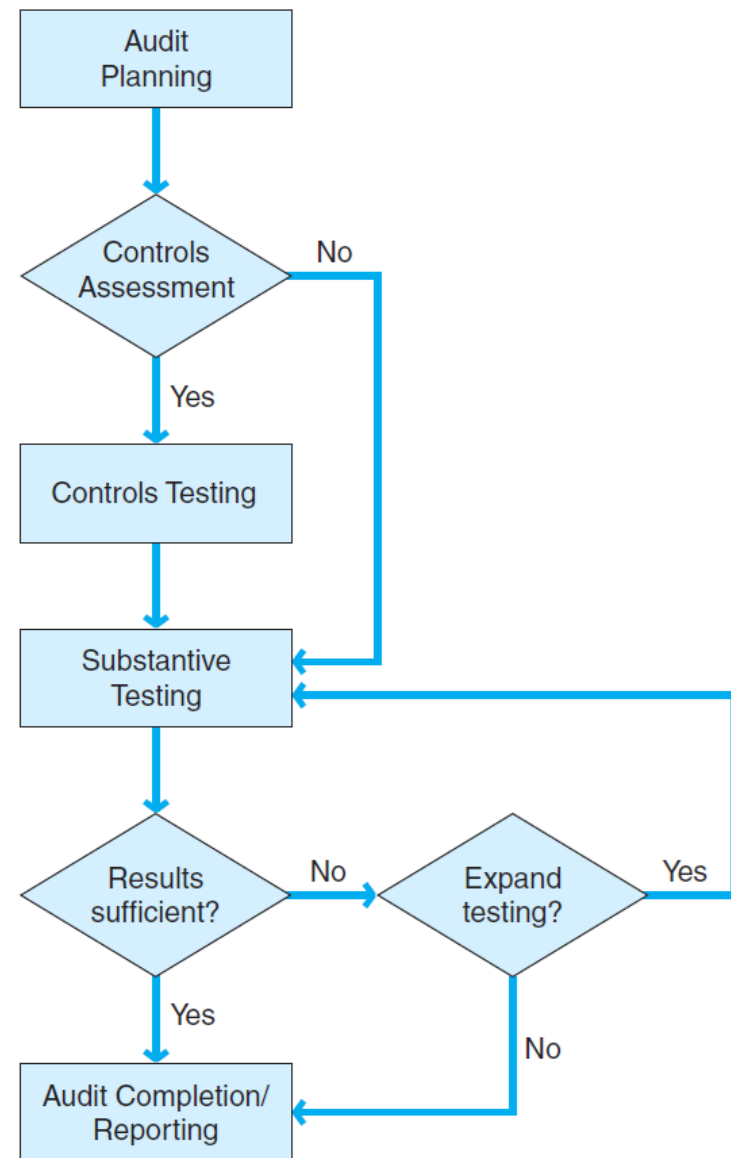
III. AIS audits

AIS audit flowchart

Are the company's internal controls reliable?

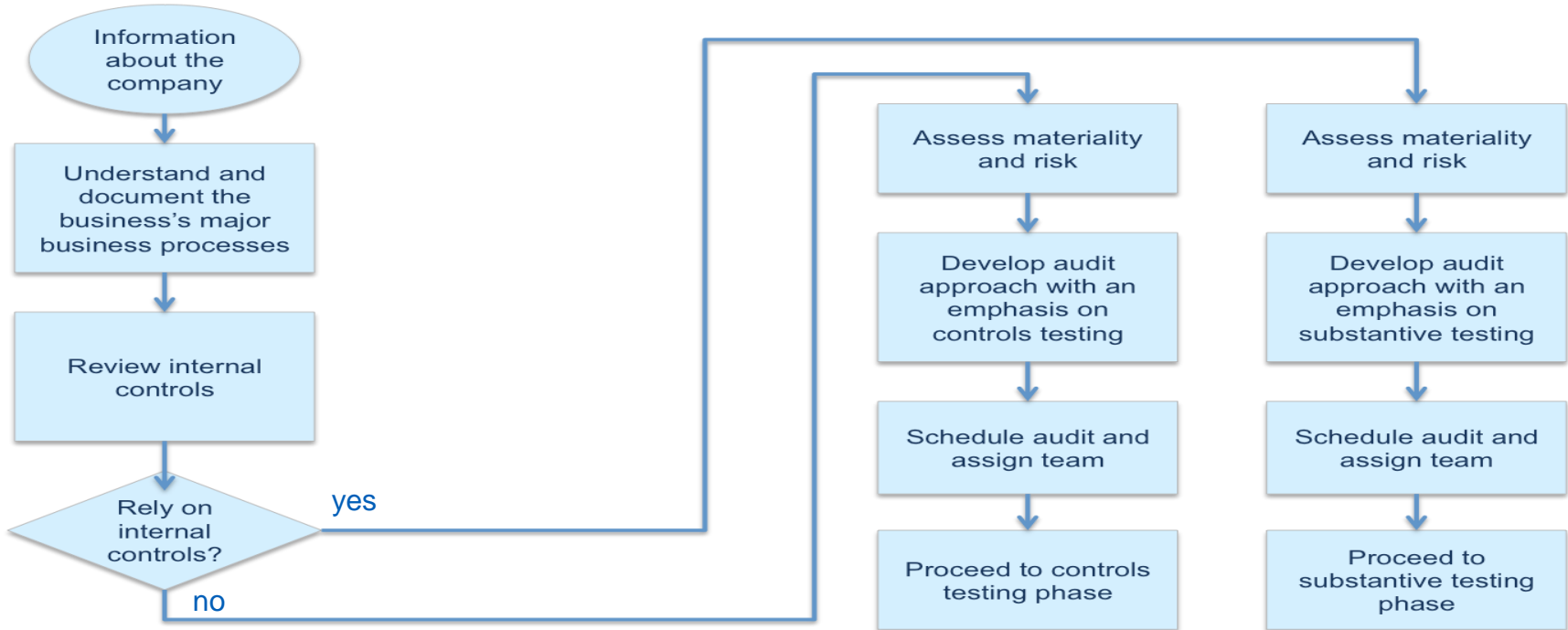
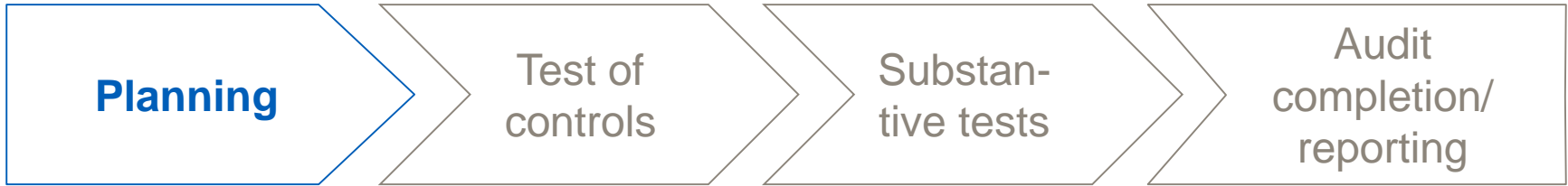
Extent of procedures depends upon results of planning phase

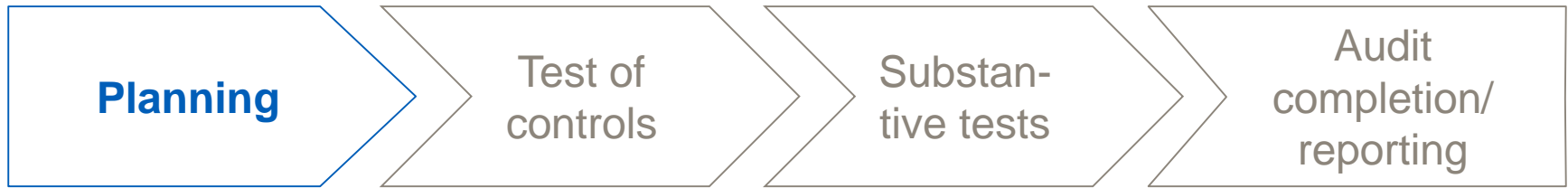
Nature and extent of procedures depends upon results of other audit phases



The AIS audit process involves four steps:

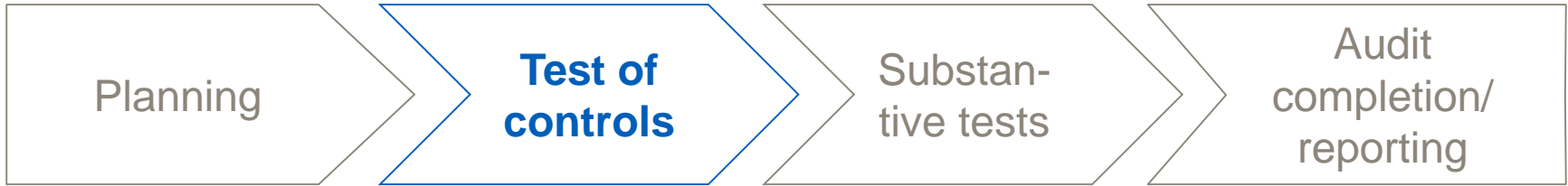




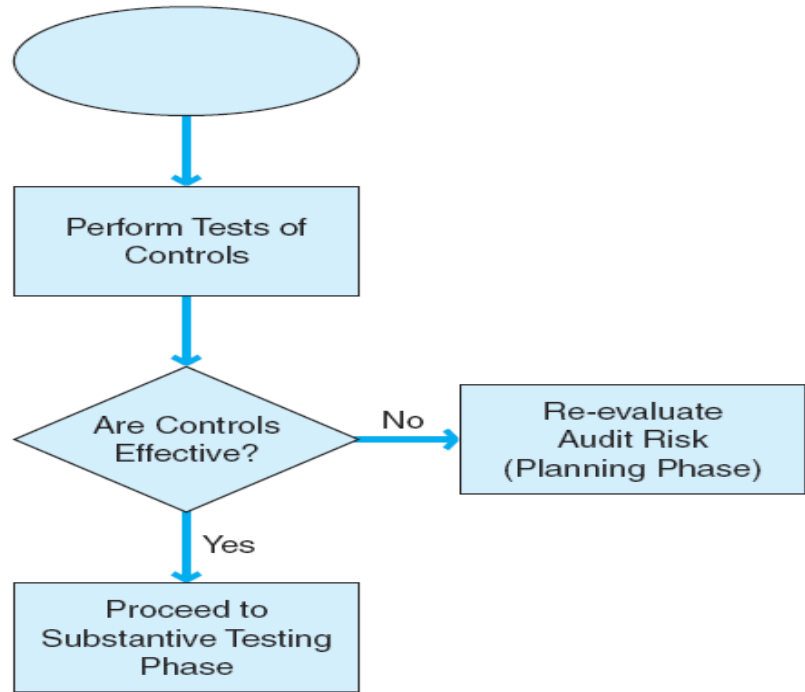


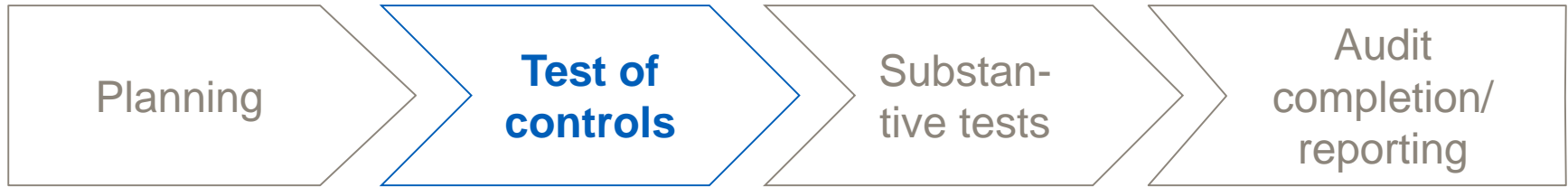
● The **support** through **computers** can be classified into three levels:

- **Auditing around the computer**
- **Auditing through the computer**
- **Auditing with the computer**
 - Computer-assisted audit techniques (**CAATs**)



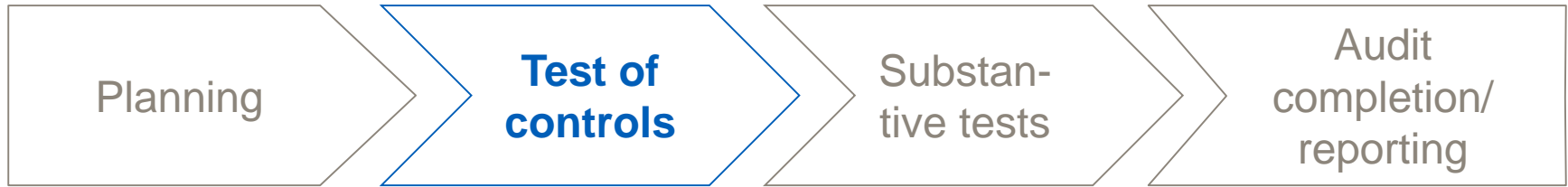
Evidence from the company's accounting systems



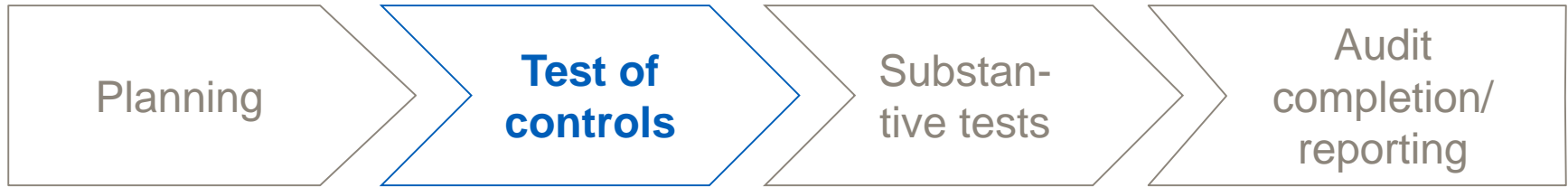


● **IT administration controls:** Audit tests include review for the existence and communication of company policies regarding:

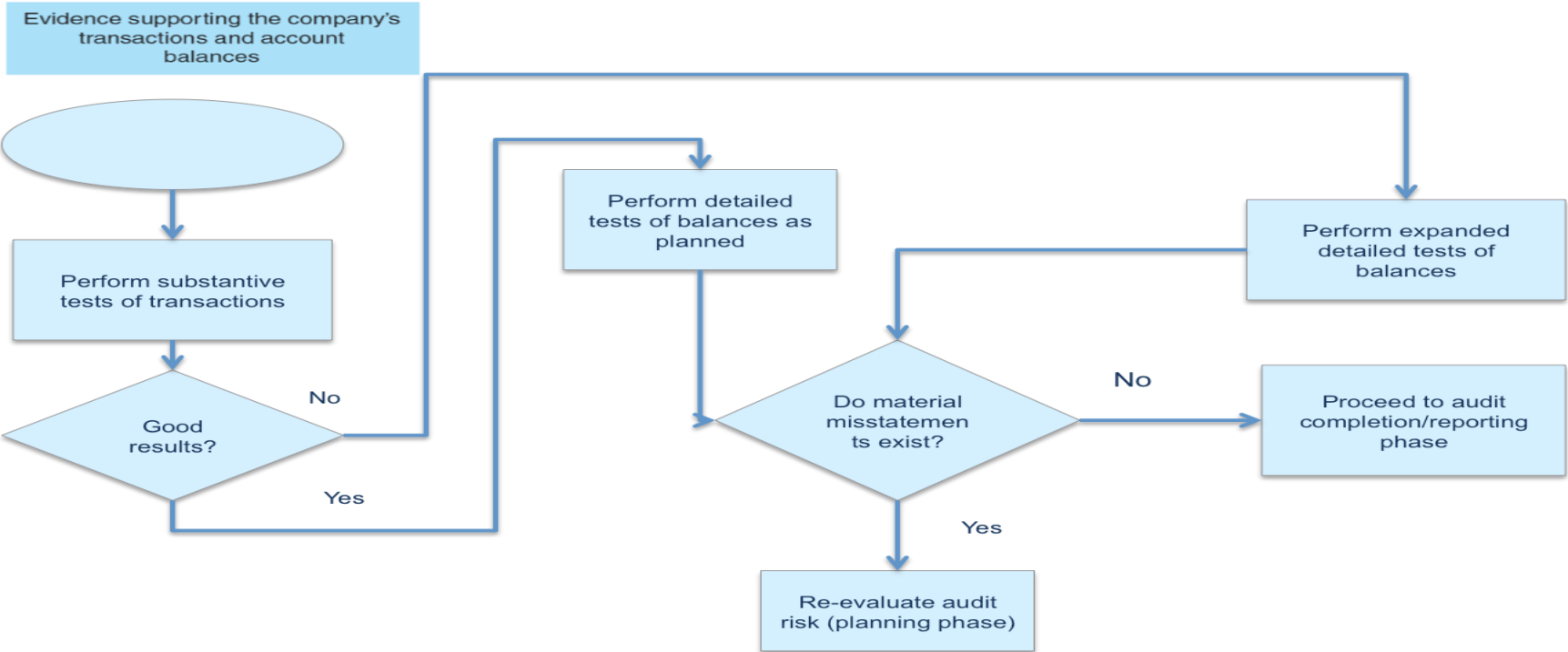
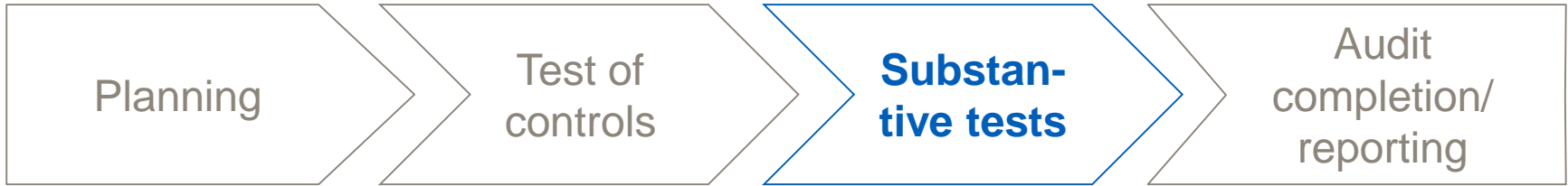
- **personal accountability** and segregation of incompatible responsibilities
- **job descriptions** and **clear lines of authority**
- **computer security** and **virus protection**
- **IT systems documentation**

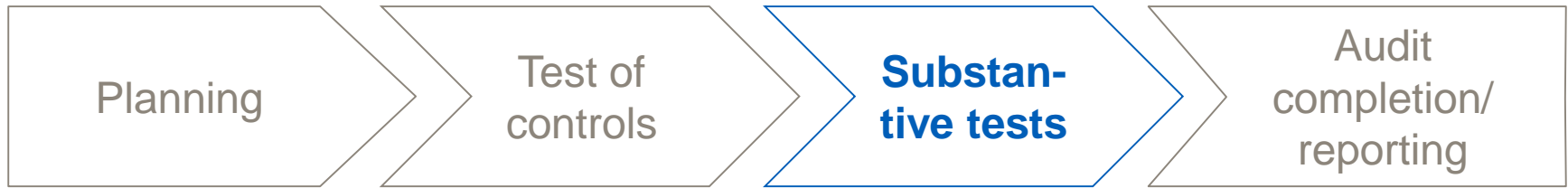


- **Security Controls:** To test external access controls, auditors may perform:
- **Authenticity** tests.
 - **Penetration** tests
 - **Vulnerability** assessments
 - **Review access logs** to identify unauthorized users or failed access attempts

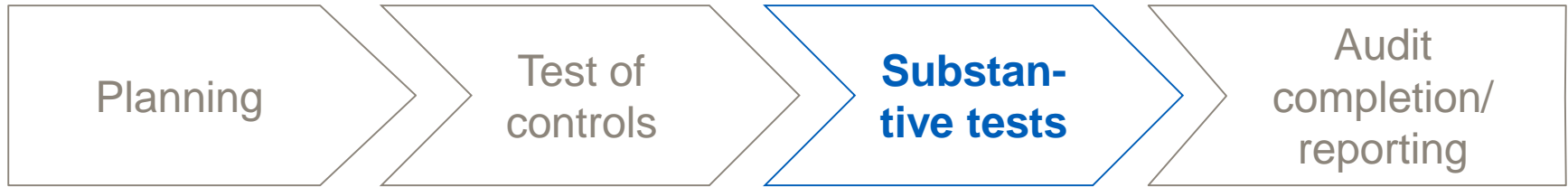


- **Application Controls:** Computerized application controls:
 - **Systems documentation**
 - **Main functions** of the computer applications
 - **Input controls** (e.g., Financial totals, Hash totals, Completeness or redundancy tests, Limit tests, Validation checks, Field checks)
 - **Processing controls** (e.g. Test data method, Program tracing, Integrated test facility, Parallel simulation, Embedded audit modules)
 - **Output controls** (e.g. reasonability tests, audit trail tests, rounding errors tests)





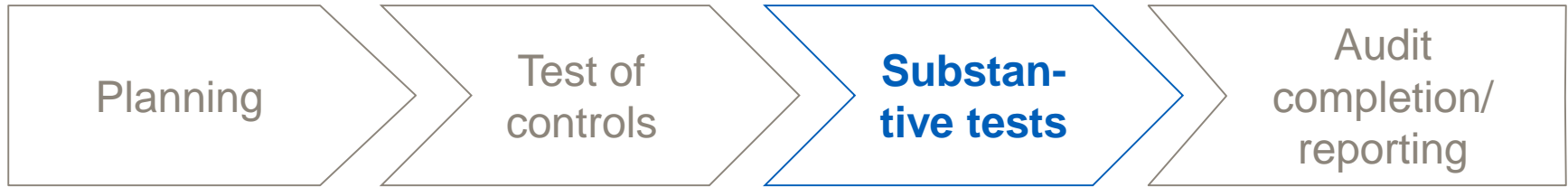
- **Substantive Testing** - tests of accuracy of monetary amounts of transactions and account balances
- **Computerized auditing tools** make it possible for more efficient audit tests such as:
 - mathematical and statistical calculations
 - data queries
 - identification of missing items in a sequence
 - stratification and comparison of data items
 - selection of items of interest from the data files
 - summarization of results into a useful format for decision making



● Statistical analysis

- **Descriptives** can target further investigation
- Investigate **transaction dates** for suspicious activities (e.g. weekends, holidays, early mornings or late evenings)
- Search **duplicates** (company names, addresses, transactions,...)
- Sorting/indexing to identify **clusters**

Who really are the champions of real-time fraud detection? How?

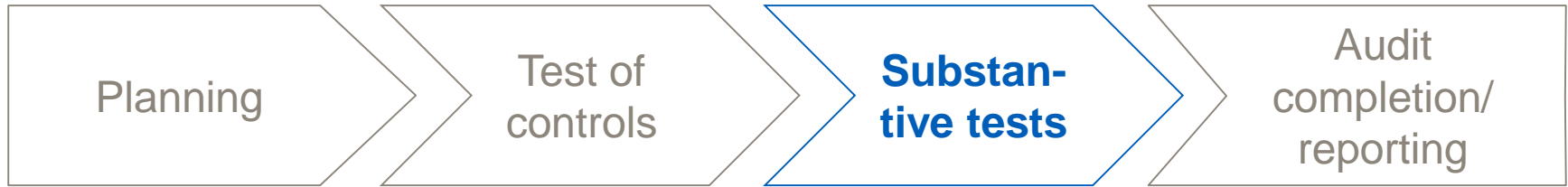


● **Data mining can take two forms:**

- Use of ‘intelligent’ software to continually monitor transactions for anomalous pattern recognition
- Software to interrogate large data sets

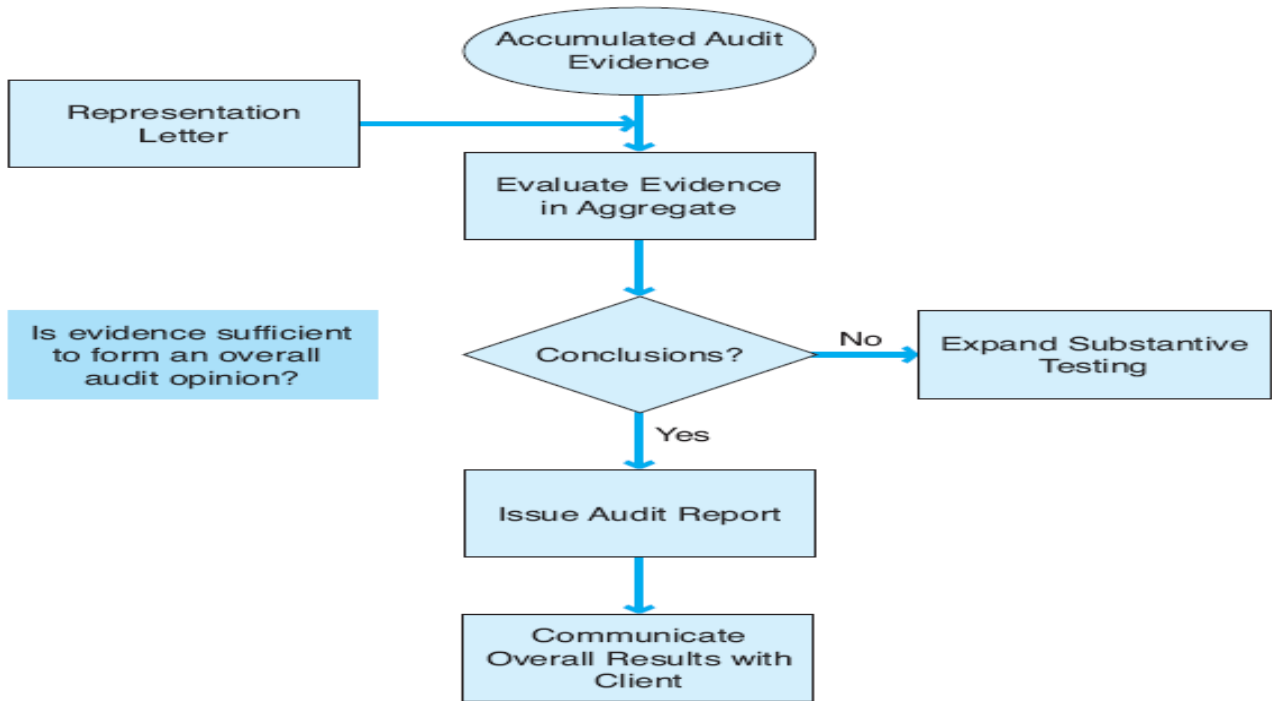
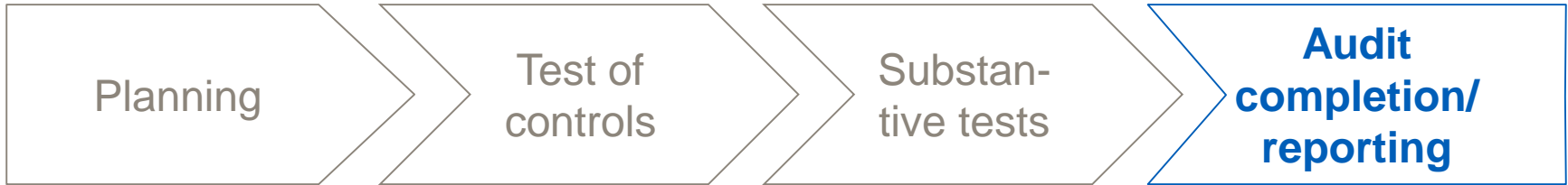
● **Methodologies include:**

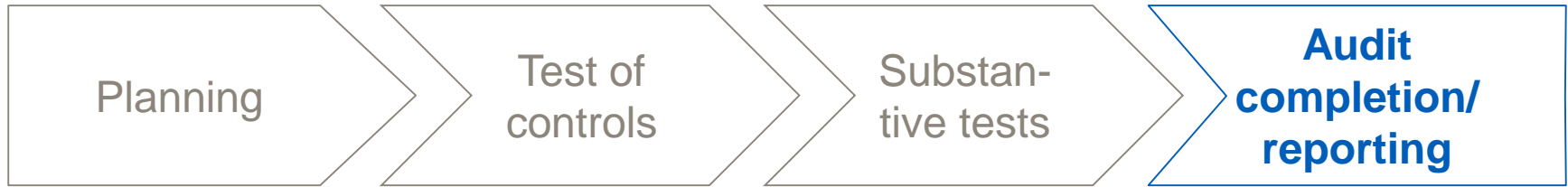
- **Probability-based tools** (Neural networks, decision trees)
- **Statistical tools** (link analysis, machine learning)



● Non financial approaches to fraud detection

- Mine text for suspicious content
- Unstructured data can be accessed with
 - Dictionaries
 - Ontologies
- Make sure server permissions do not allow final deletion of mails



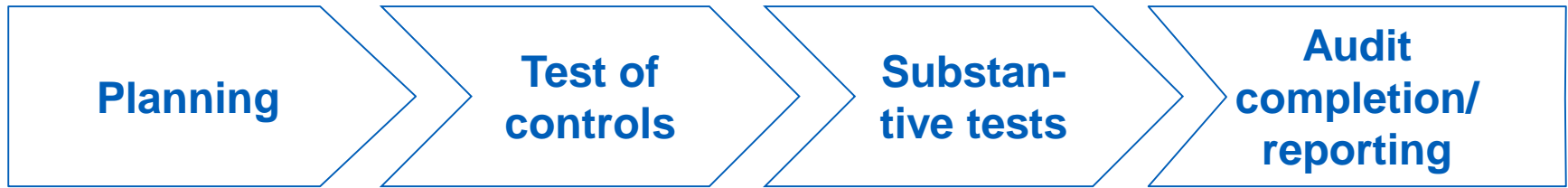


● Four basic types of reports:

- Unqualified opinion
- Qualified opinion
- Adverse opinion
- Disclaimer

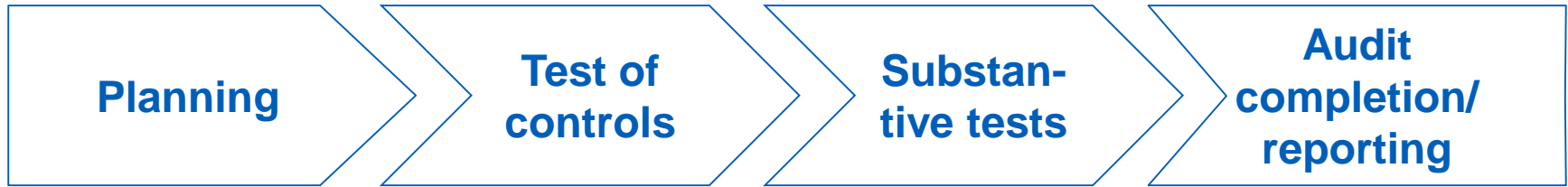
One more case...

IV. Special AIS Audit Issues



● Some **audit techniques** used to **test controls** specifically in the use of PCs:

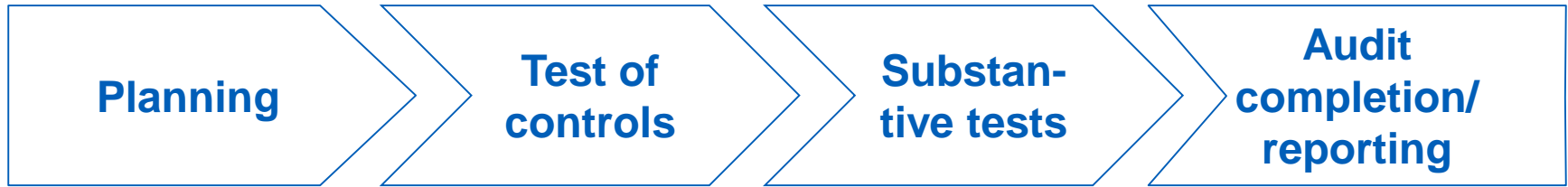
- Make sure that **PCs** and **removable hard drives** are **locked** in place to ensure physical security.
- Programs and data files should be **password protected**.
- Make sure **computer programmers** do **not** have **access** to systems operations.
- Software programs should **not permit** the users to make **program changes**.
- Ascertain that **computer-generated reports** are **regularly reviewed** by management.
- Determine the frequency of **backup procedures**.
- **Verify** the use of **antivirus software** and the frequency of virus scans.



● Using PCs, companies may use **IT environments** that involve:

- networks,
- database management systems,
- e-commerce systems,
- cloud computing, and/or
- other forms of IT outsourcing.

What auditing issues might arise when a cloud is part of the audited system?



● **Changes in a Client's IT Environment** - Auditors must consider whether additional audit testing is needed. Specific audit tests include verification of:

- Assessment of user needs
- Authorization for new projects and program changes
- Adequate feasibility study and cost–benefit analysis
- Proper design documentation
- Proper user instructions
- Adequate testing before system is put into use

Thank you! Questions?