Case Study
Big Data and Audit

Introduction

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Financial Statements and Auditing

The company's **management is responsible** to prepare the financial statements.

However the **auditor has to provide an opinion** whether the financial statements are stated **in accordance** with the relevant accounting standards or not.

The financial statements' audit has to be conducted in a way that allows the auditor to build an opinion with reasonable assurance if the audited financial statement includes material misstatements.

- The term "**reasonable assurance**" indicates that the assurance is not absolute and that – even if the auditor has done a 'good job' – the financial statement could still include misstatements (but this is unlikely).

- The term "**material misstatements**" refers to those misstatements that might affect the decisions of the users of financial statements. Immaterial – very small! – misstatements are still acceptable, because they wouldn't change anything.

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Gathering Evidence in Auditing

There are several ways how the auditor may gather evidence whether the Financial Statements are in line with the rules or not:

Tests of details

A first idea might be to look at all detailed entries that lead to the sums show in B/S, P/L etc. But this would be too time consuming and expensive. A solution is to **examine just a sample** of e.g. 5% of all entries. But the remaining entries?

Test of controls

However, the risk of errors is much lower if the company already has **implemented useful internal controls**. E.g. that a specific processing step ("pay an invoice") by person A has always be checked and confirmed by a person B (segregation of duties). But how can we be sure that these required controls took place in real life?

Analytical procedures

There are other ways to gain evidence. For example, for less important parts of the Financial Statements it might be sufficient that they are in line with expectations, expressed by specific ratios or comparisons.

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Digital twins and ERP-Data

Nowadays, in companies (almost) **all real-life transactions are mirrored in digital form**. They are processed in ERP systems and stored in databases. The databases also contain documents and bookkeeping journal entries.

The ERP system **records all activities (events)** and so-called **event logs** can be retrieved.
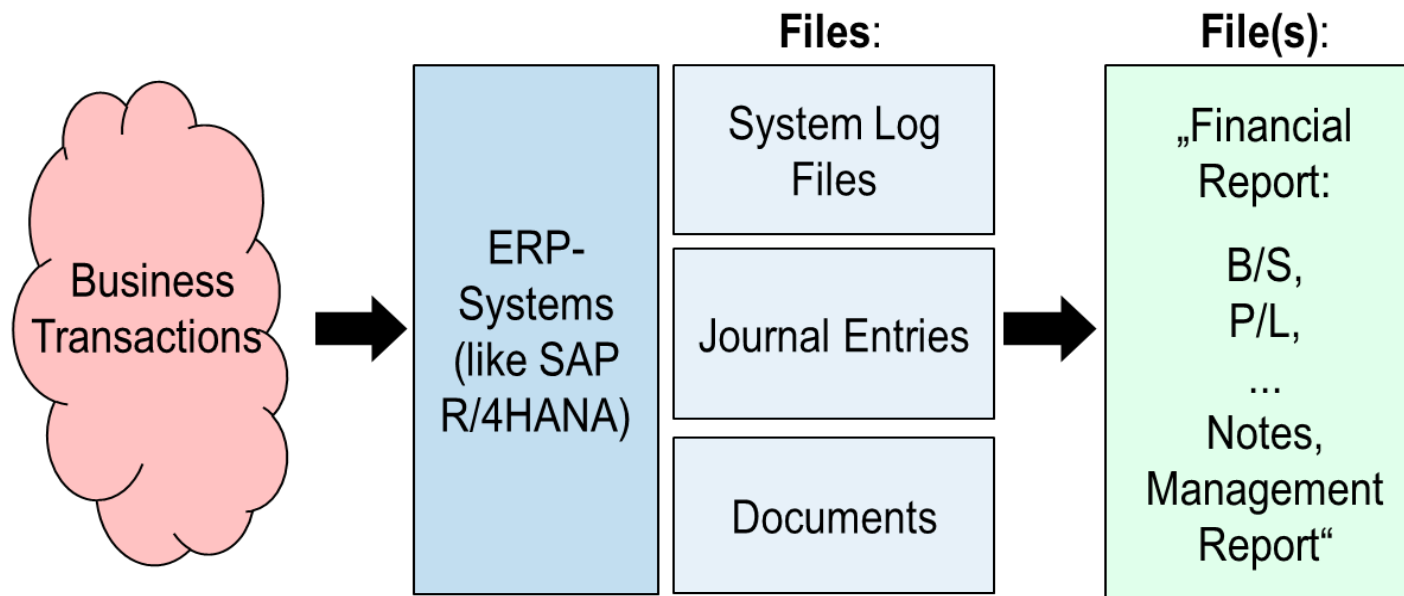
ERP-Data and a new Audit Approach

ERP-Systems generate large amounts of data about (more or less) every work process that took place in the company. With **automated analysis of event data**, auditors can create **new audit procedures**:

- The audit procedure of **sample testing** can be replaced by **full-population testing**.

- The strict **observance of internal controls** needs not to rely on interviews or limited samples, but can be **checked empirically for all processes** in the financial year.

Therefore, software can make the audit more reliable, faster and/or cheaper.

The auditor of the future
will have to acquire some skills of data scientists!

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Process mining

The idea of process mining is to **discover, monitor and improve real processes** by extracting knowledge from event logs in ERP-systems.

Process mining includes

- process discovery (process "as it is"),
- conformance checking (compare to "how it should be"),
- process enhancement (make changes to the "process in the future").

The company **Celonis**, founded 2011 in Munich, is one of the market leaders in process mining software.

The **Celonis Academy** offers free access to its software for students and teachers.

1. Signup

Please sign up for the academic version of Celonis using the following link:

https://signup.celonis.com/ui/sign-up/get-started

Confirm the email address in the mail you received from Celonis.

You will receive access to your own Celonis workspace, yet, in order to gain access to the data for our case study, <u>it is necessary for you to join our workspace/team</u>.

2. Join STAMP-Online team

In order to join the team and the STAMP- Online   group,   we kindly ask you to use the following link after you have registered your account with Celonis EMS.

https://academic-maico-schoene-fau-de.eu-2.celonis.cloud/ui/login/join-team?osc=a64f245d-9349-4f06-9e71-e686e8e93f60

Please choose the team "academic-maico-schoene-fau-de" upon login.
You are automatically added to the "STAMP-Online Innsbruck" group and will receive access to the data we are working with as soon as the case study begins.