STARKES STUDIUM.
PRIMA ZUKUNFT.

HOCHSCHULE HEILBRONN

TECHNIK WIRTSCHAFT INFORMATIK

Unternehmensübergreifendes und nachhaltiges Datenmanagement als strategischer Wettbewerbsvorteil für Unternehmen: Ergebnisse einer empirischen Studie

Campus Schwäbisch Hall

HENDRICKS, ROST & CIE.

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Business Analytics Day 2019

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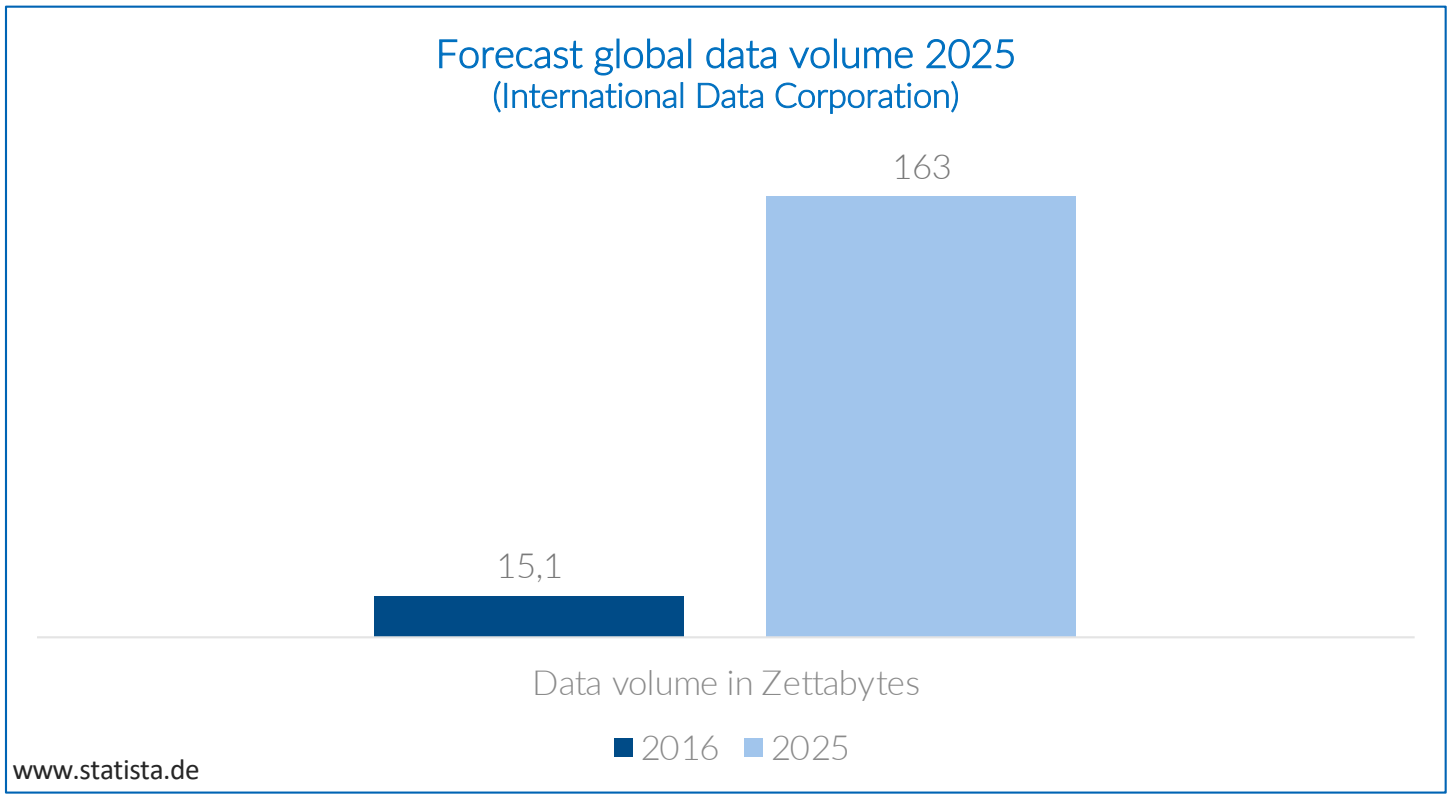
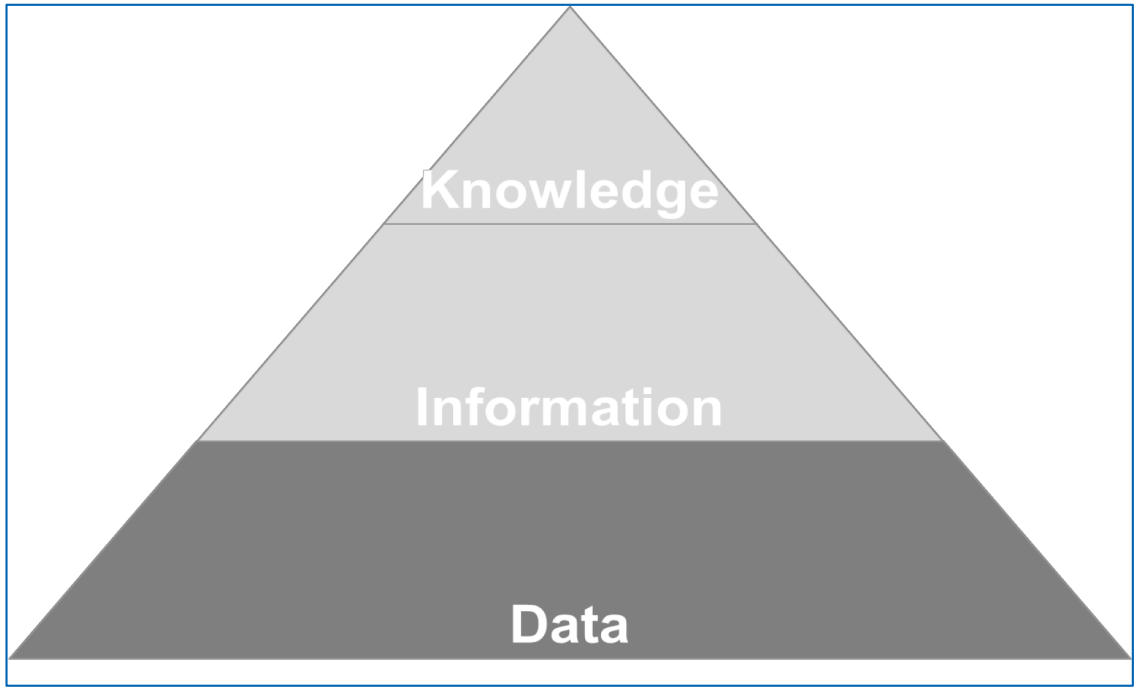
Exponential increase of global data volume ...



- 1 Zettabyte = 1 billion Terrabyte
- Internet of things has a high impact on the increasing data volume

...without a clear relation to information



- “We drown in data and thirst for information” (John Naisbitt)
- The goal of an organization is the knowledge advantage
- Do we really need all this data?

→ **Implementation of a targeted pro-active data management**

In economic terms, information gathering can be described as a manufacturing industry

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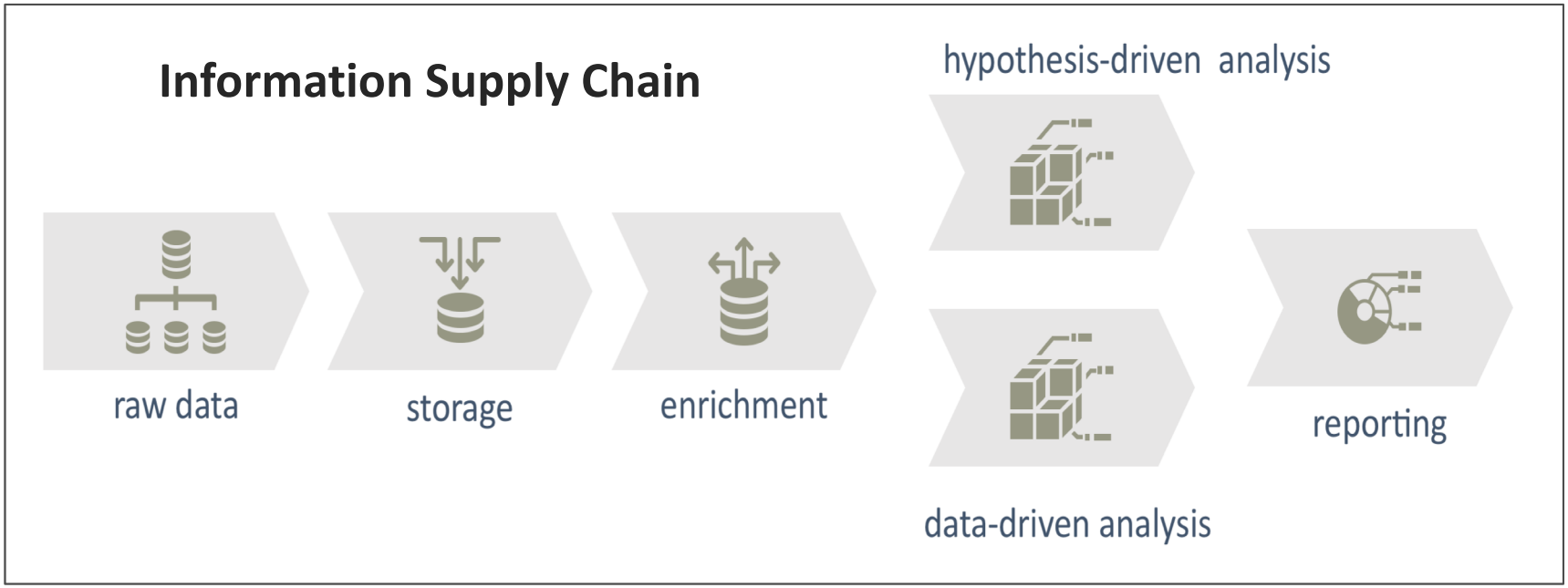
- Information gathering is not a primary sector, but a **manufacturing industry**
- The benefit lies in the **systematic** collection of data, the **transformation into information** and the **delivery to end-users**
- Gaining information from existing data is a **creative process** that creates something new from existing resources



Status quo of data management in German companies I

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- The empirical survey covers **228 German companies** from 13 different industries

Importance of data management *(n=228; scale: 1 (very low) to 5 (very high))*	Descriptive statistics		Significance	
	Average	σ	Test value 3	Test value 4
Present operative importance	3.74	1.02	>***	<***
Present strategic importance	3.74	1.04	>***	<***
Future operative importance	4.40	0.77	>***	>***
Future strategic importance	4.47	0.71	>***	>***

- German companies rate especially the future importance of data management very high

Status quo of data management in German companies II

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Status quo of data-driven decision-making *(n=228)*	Descriptive statistics		Significance		
	Absolute frequency	Relative frequency	$p_0 = 0.25$	$p_0 = 0.50$	$p_0 = 0.75$
Basically, decisions are not made on the basis of data	8	0.04	<***	<***	<***
Data-driven decision-making only takes place unstructured	28	0.12	<***	<***	<***
Data is used for structured decision-making on operative level	66	0.29	>*	<***	<***
Data is used for structured decision-making on strategic level	126	0.55	>***	>*	<***
Data is used for automatic decision-making on operative level	12	0.05	<***	<***	<***
Data is used for automatic decision-making on strategic level	11	0.05	<***	<***	<***

- Only 55% of the companies use data for strategic decision making
- On the operative level, the percentage is even lower
- An automatic decision-making based on data is even completely absent

Status quo of data management in German companies III

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Organizational structure of data management *(n=228)*	Descriptive statistics		Significance		
	Absolute frequency	Relative frequency	$p_0 = 0.25$	$p_0 = 0.50$	$p_0 = 0.75$
Informal and uncoordinated	31	0.14	<***	<***	<***
Decentralized within single business departments	71	0.31	>**	<***	<***
Central by the the IT department	70	0.31	>**	<***	<***
Central by a specialized rod department	45	0.20	<**	<***	<***

- Only in 20% of all companies, a **specialized department** is responsible for data management within the organization
- For each 31% data management is connected to the **central IT-Department** or handled **decentralized** within single business departments
- **The results show that some of the companies use data for strategic decisions, but the organizational structure is not implemented to achieve meaningful results**
- **Most of them are still a long way from becoming a real "data-driven company”**

Increasing importance of supplier data within the information supply chain I

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- **Holistic data management** increases the importance of supplier data; **interfaces with value-adding partners** are one of the most important competitive factors

Range of data management *(n=228)*	Descriptive statistics		Significance		
	Absolute frequency	Relative frequency	$p_0 = 0.25$	$p_0 = 0.50$	$p_0 = 0.75$
Data management includes only company-internal data	103	0.45	>***	n.s.	<***
Vertical integration of customer data	116	0.51	>***	n.s.	<***
Vertical integration of supplier data	62	0.27	n.s.	<***	<***
Horizontal integration of competitor data (same industry)	54	0.24	n.s.	<***	<***
Horizontal integration of competitor data (different industry)	12	0.05	<***	<***	<***

- Almost half of the companies (45%) **still focus only on their own data**
- The **integration of supplier data** is less common than customer data

Increasing importance of supplier data within the information supply chain II

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Implementation level of a data management strategy *(n=228; scale: 1 (very low) to 5 (very high))*	Descriptive statistics		Significance	
	Average	Σ	Test value 3	Test value 4
We have a clear strategy for collection and storage of company internal data	3.22	1.15	>***	<***
We have a clear strategy for analysis company internal data	3.28	1.13	>***	<***
We have a clear strategy for collection and storage of company internal and external data	2.89	1.16	<*	<***
We have a clear strategy for analyzing company internal and external data	2.85	1.19	<**	<***

- Looking at the **data strategy**, the implementation level **for external data** is also still significant lower than for internal data

→ **Overall, the potential of an intensive IT-related link with suppliers has not yet been sufficiently exploited**

Key Findings Survey

- High importance of data management in the future
- The use of data for strategic decisions is uncommon
- The organizational structure is not implemented to achieve meaningful results
- Almost half of the companies (45%) still focus only on their own data

→ **Derivation of Multi Level Phase Model for Data Management Maturity**

Multilevel Phase Model I

- Company conduct no formal data management process.
- Data Management occurs unstructured and department-wise.

Multilevel Phase Model II

- The importance of an interdisciplinary data management process is evident.
- Formal steps are undertaken to ensure a structured data flow within the company.

Multilevel Phase Model III

- Not only internal data sources are used. Supplier and customer data is included into the data management process.
- The whole process is still reactive and not proactive. Data is used based on availability.

Multilevel Phase Model IV

- There is no differentiation between internal and external data. The unified data management process includes all available data.
- Data is not only included based on availability but new data sources are proactivly created and explored.

Continental becomes part of the navigation system „Here“

Continental
The Future in Motion

- Especially when providing industry-wide data, suppliers become an important role
- The example of self-driving cars shows that OEMs can only collect data from their own products, while suppliers can perform cross-brand analyzes
- In the case of the navigation system “Here”, suppliers shall control storage and processing and real time provision of sensor data to all OEMs with an adequate cross-brand information base
- The provided data from all cars is used to keep the maps of “Here” current, so that, for example, information on construction sites or accidents are immediately available to other motorists

Thank you very much for your attention!

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