

# A!

Aalto University  
School of Business

# Business Intelligence

*Lecturer: Assoc. Prof. Yong Liu ([yong.liu@aalto.fi](mailto:yong.liu@aalto.fi));  
37E00500*

# Agenda

- 1. Side Effects of Being Extremely Data-driven  
(Continuance of Class 1)**
- 2. BI Software**
- 3. BI-Related Jobs**
- 4. BI-Job Success Factor**
- 5. BI Data Strategy**
- 6. Core BI Elements and CDO Responsibilities**



Aalto University  
School of Business

# Section 1. Side Effects of Being Extremely Data-driven



# Connecting worker performance with KPIs

<https://www.snopes.com/fact-check/amazon-paramedics/>

On 15 August 2015, the *New York Times* published an in-depth, widely discussed piece about online retailing giant Amazon.com titled "Inside Amazon: Wrestling Big Ideas in a Bruising Workplace" (subtitled "The company is conducting an experiment in how far it can push white-collar workers to get them to achieve its ever-expanding ambitions").



At an **Amazon warehouse in PA**, during hot summers the company would station paramedics outside to carry away fainting employees, instead of paying for A/C.

How can a company like Amazon be so insensitive? #ShameAmazon — with Not Jeff Bezos.

13,215 Likes 761 Comments

Join Facebook's Biggest Facts Library with 10 Million Fans - [www.facebook.com/omgfactsonline](http://www.facebook.com/omgfactsonline)

<https://www.thehealthyjournal.com/faq/is-amazon-stressful-to-work>

## Is Amazon stressful to work?

"While it has been an incredibly rewarding place to work, the pressure often feels relentless and at times, unnecessary.

⚠ Takedown request | View complete answer on [bloomberg.com](#)

## How stressful is it to work at Amazon?

High stress

Other critics say Amazon sets unreasonably high production quotas for its warehouse workers, creating constant stress. Amazon keeps track of how long it takes pickers to pull items from shelves and put them on a bin. Workers who fail to meet the rates set by the company to pull items risk losing their jobs.

⚠ Takedown request | View complete answer on [syracuse.com](#)

## How long do most people stay at Amazon?

The average Amazon warehouse worker leaves within just eight months – that's an unmistakable sign that Amazon's jobs are unpleasant, to put it kindly, and that many Amazon workers quickly realize they hate working there because of the stress, breakneck pace, constant monitoring and minimal rest breaks.

⚠ Takedown request | View complete answer on [theguardian.com](#)

# Data-driven management of workers

US & WORLD / POLICY / REPORT

## How Amazon automatically tracks and fires warehouse workers for ‘productivity’



Illustration by Alex Castro / The Verge

/ Documents s company track workers

By Colin Lecher

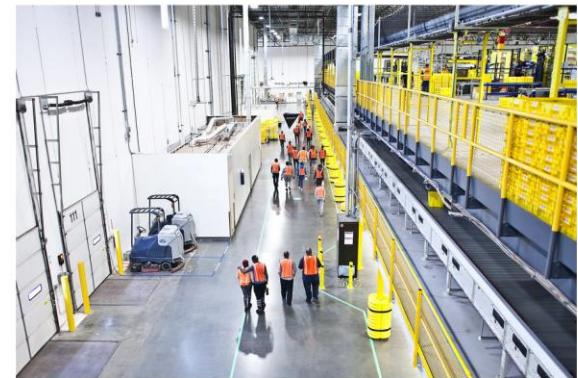
Apr 25, 2019, 7:06 PM GMT+3 | ▾



The New York Times

*If Workers Slack Off, the Wristband Will Know. (And Amazon Has a Patent for It.)*

Share full article 118



Employees at an Amazon warehouse in Carteret, N.J. The e-commerce giant has been known to experiment in-house with new technology before selling it worldwide. Bryan Anselm for The New York Times

# What is your opinion?

If your company proposes the establishment of Key Performance Indicators (KPIs) for employee management, would you, as the head of the Business Intelligence department, endorse such an initiative? For example, in the context of a retail chain with a sales team comprising 50 individuals, the CEO recommends terminating the employment of the salesperson with the lowest monthly sales revenue, and the company will do it every month dismissing one salesperson. Would you be in favor of or opposed to this suggestion?

Please submit your answer at: <https://presemo.aalto.fi/bic/>

# Kesko-Group – A different way of thinking

A similar system in the warehouse counts the number of cases delivered by employees. Notably, Kesko adopts a **piecework wage system**, coupled with a commitment to retain employees even in cases of lower performance. This unique approach has contributed to fostering widespread employee satisfaction. – A story from a course student in 2024.



# What makes the outcome different?

US & WORLD / POLICY / REPORT

## How Amazon automatically tracks and fires warehouse workers for ‘productivity’



Illustration by Alex Castro / The Verge

/ Documents how company tracks workers

By Colin Lecher

Apr 25, 2019, 7:06 PM GMT+3 | ▾



# Amazon

# Kesko-Group

28.2.2024

8

<https://www.identoi.com/case-kesko>: the picture is not relevant to the teaching case.

<https://www.theverge.com/2019/4/25/18516004/amazon-warehouse-fulfillment-centers-productivity-firings-terminations>

# Company Profit vs. Consumer Welfare

**Big data price discrimination:** merchants analyze large datasets to identify patterns, preferences, and behaviors of customers, allowing businesses to tailor their pricing strategies to maximize revenue.

- For instance, an online retailer app charges loyal customers a higher price than new customers

Bloomberg the Company & Its Products ▾ | Bloomberg Terminal Demo Request |  Bloomberg Anywhere Remote Login | Bloomberg Customer Support

Bloomberg Europe Edition ▾ Sign In

• Live Now Markets Economics Industries Tech AI Politics Wealth Pursuits Opinion Businessweek Equity

Opinion | Noah Smith, Columnist

## Big Data Might Lead to Higher Prices

Web use can give retailers clues about which customers to charge more.

March 9, 2018 at 2:00 PM GMT+2

---

 By Noah Smith  
Noah Smith is a former Bloomberg Opinion columnist. He was an assistant professor of finance at Stony Brook University, and he blogs at Noahpinion.

✉ Subscribe to newsletters

FORBES > INDUSTRY > POLICY

## Will Big Data Bring More Price Discrimination?

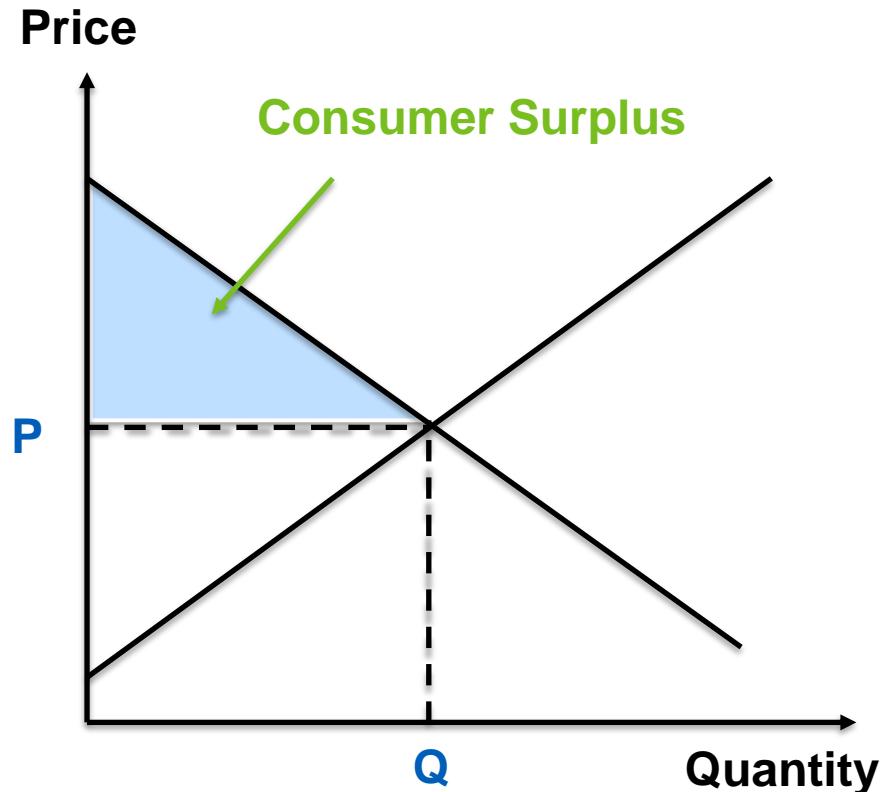
Adam Ozimek Former Contributor  
Adam Ozimek Contributor Group 



Sep 1, 2013, 10:48am EDT

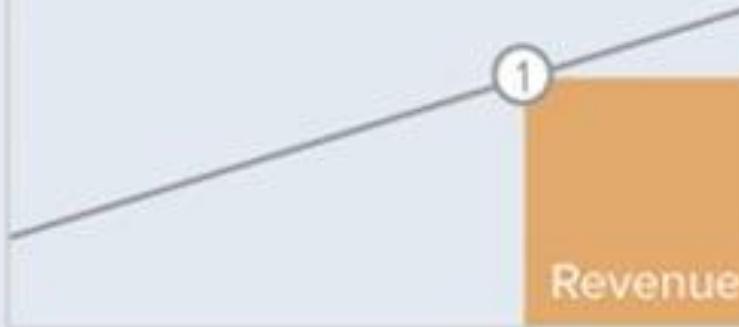
# Consumer Surplus

refers to the benefit to the purchaser of buying a product for a price lower than the amount they were willing to pay.



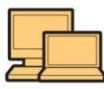
# Static Pricing vs. Dynamic Pricing

**Static Pricing**  
(Single Price Point)



**Dynamic Pricing**  
(Multiple Price Points)



 Computer  
Desktop PC running Internet Explorer and laptop running Mozilla Firefox  
DELIVERED SAME RESULTS IN ALL CASES

**ORBITZ**

Average price of top 10 hotels

Clinton Hotel South Beach

\$192.30

DIFF.

\$32.70

▲ \$32.70

\$225.00

\$243.00

\$41.00

▼ \$41.00

\$202.00

**KAYAK**

Average price of top 10 hotels

Clinton Hotel South Beach

\$275.70

\$48.50

▼ \$48.50

\$227.20

\$172.00

\$13.00

▼ \$13.00

\$159.00

**priceline.com<sup>®</sup>**

Average price of top 10 hotels

Clinton Hotel South Beach

\$150.50

\$0.40

▲ \$0.40

\$150.90

\$249.00

\$0.00

► \$0.00

\$249.00

**Hotels.com**

Average price of top 10 hotels

Clinton Hotel South Beach

\$244.10

\$1.20

▲ \$1.20

\$245.30

\$243.00

\$0.00

► \$0.00

\$243.00

# Price discrimination with big data

A 2014 article in the Boston Globe on the hotel industry about their dynamic pricing models shows that travel companies intentionally offer users prices based on factors such as previous purchases and clicks or what kind of device they were using. The study done by Northeastern compared a Desktop PC running Internet Explorer and a laptop PC running Firefox with an iPhone running Safari.

# Price discrimination is not allowed

As an EU national, a trader cannot charge you more when you buy a product or service **just because of your nationality or country of residence**. Some price differences can be justified if they're based on objective criteria and not just on nationality. For example, differing postage costs may mean you pay more for delivery in one country than in another. However, traders may still set different net sale prices in different points of sale, such as shops and websites, or may target specific offers only to a specific territory within a Member State. Under EU rules, all these **offers must be accessible for consumers from other EU countries**.

However, there is no possible justification for differences in access to goods or services for customers from different EU countries in the following three situations:

- sale of goods without physical delivery – for example, if you buy something online that you will **collect from a shop**, rather than have it delivered to your home
- sale of electronically supplied services (excluding copyright protected content) – such as cloud computing services, or website hosting
- sale of services provided in a specific location – for example **hotel bookings, car hire, tickets** for entry to theme parks

# Personalised pricing

Retailers can use algorithms to track your online browsing behaviour preferences and to set prices accordingly. The aim is to price items based on what you would be willing to pay for a particular item. This practice is not illegal, however as a consumer you are entitled to complete price transparency.

In line with EU rules, traders are obliged to inform you whether the price is personalised based on automated decision-making and profiling of your specific consumer behaviour.

## *Sample story*

### *You have a right to know*

*Ana from Romania regularly browses her favourite online shops, checking prices of various items, regardless of whether she is going to buy them or not. Apart from price fluctuations, she also notices that the price change depending on the device she uses. More surprisingly, her friends see different prices when they check the same site at the same time, which confuses her even more.*

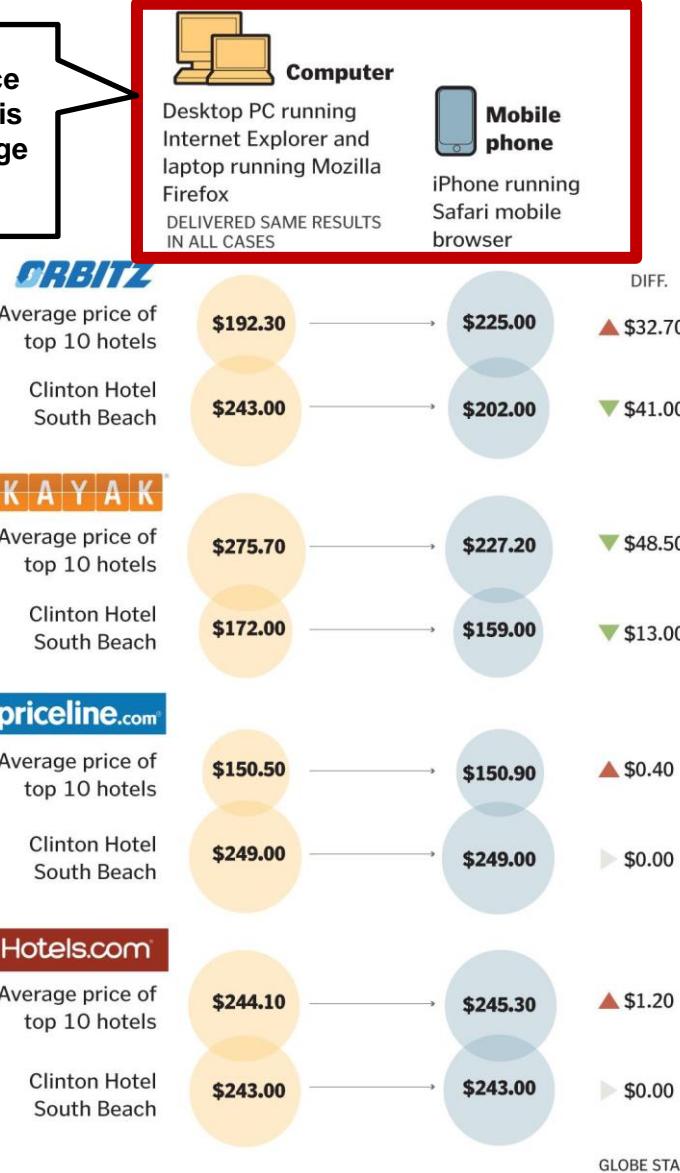
*According to EU rules, before making a purchase, you have a right to know if or when a trader uses an algorithm to change the price of the product you're interested in.*

# What is your opinion?

**What will you do when data analytics increases company profit (also your salary) but reduces consumer welfare and surplus?**

Please submit your answer at: <https://presemo.aalto.fi/bic/>

What if the price discrimination is calculated by age and gender?



A 2014 article in the Boston Globe on the hotel industry about their dynamic pricing models shows that travel companies intentionally offer users prices based on factors such as previous purchases and clicks or what kind of device they were using. The study done by Northeastern compared a Desktop PC running Internet Explorer and a laptop PC running Firefox with an iPhone running Safari.



Aalto University  
School of Business

# Section 2: BI software

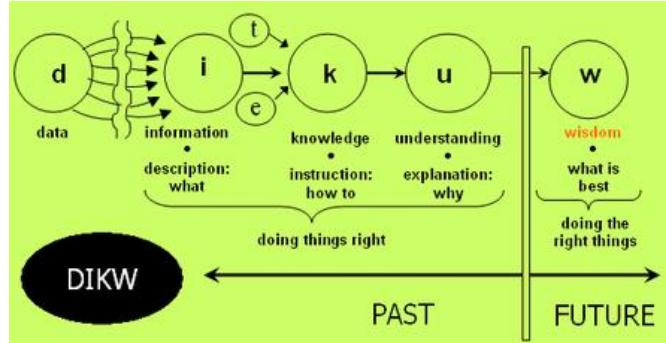
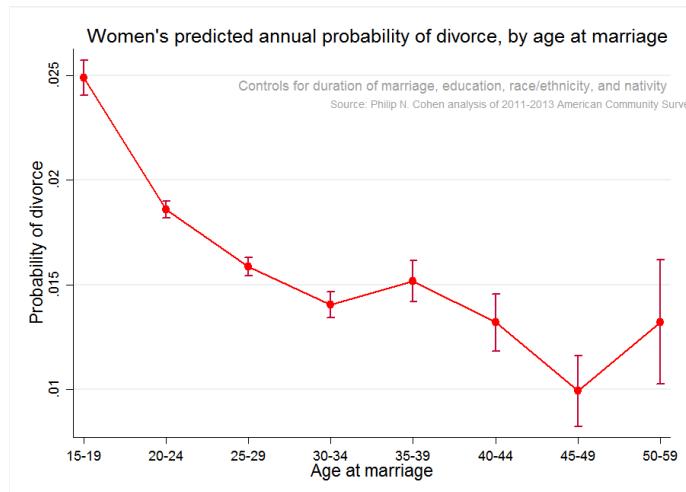


# What is the difference between data and information?

28



ID	Age
1	28



There are lots of reasons why late 20s/early 30s would make sense as a time to start a lifelong partnership with someone: people are old enough to understand if they really get along with someone or are just blinded by hormones. They've already made significant life choices and taken on some responsibilities. And they may be just financially solvent enough to be able to contemplate supporting someone should the need arise.

You decide to get married at 28 years old.

You make your friends get married at 28 years old

# Question: Are insights and wisdom needed before action-taking or making impacts for BI practices?

Share your opinion at:  
<https://presemo.aalto.fi/bic/>

# What is BI software?

- Business intelligence software is a type of application software designed to **retrieve, analyze, transform and report data for business intelligence**.  
The applications generally read data that has been previously stored, often - though not necessarily - in a data warehouse or data mart. - Wikipedia
- BI software is normally **dashboard-based**; by clicking or dragging variables into the dashboard, one can create interactive figures or reports.
- Most BI applications are **under constant development**, so their interfaces are likely different from year to year.
- **Tendency:** BI tools are moving toward cloud-based services.

# Top 10 Business Intelligence Tools

Sisense



Looker



Qlik Sense



Tableau



Domo



Microsoft Power BI



BOARD



SAP Business Objects



Dundas BI



IBM Cognos Analytics



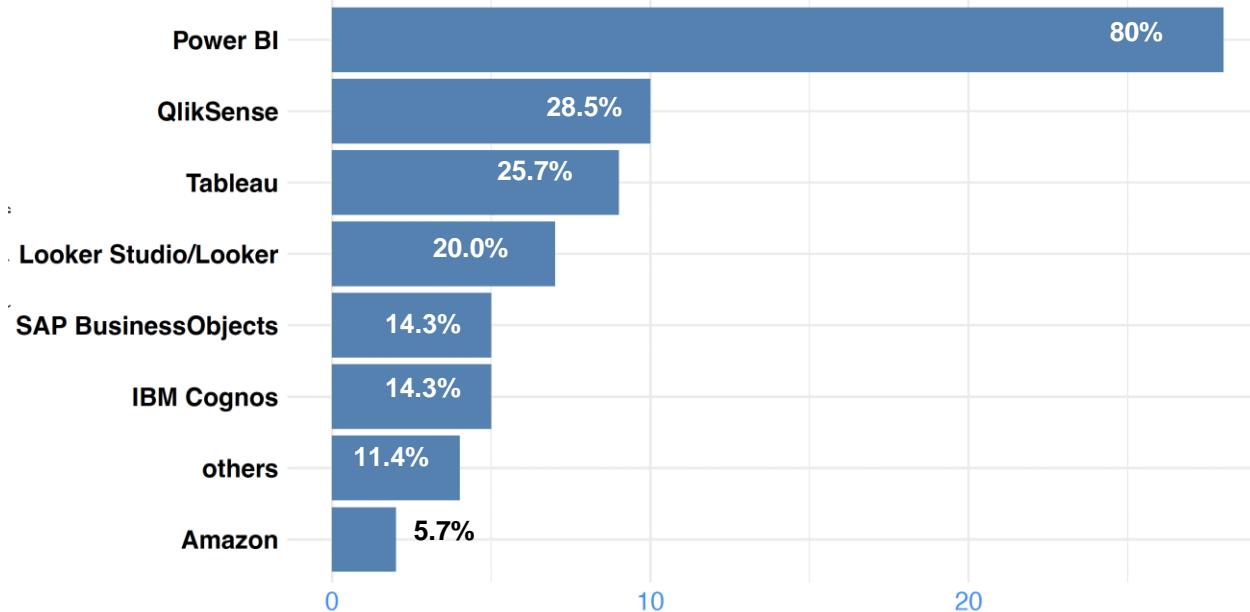
# Self-service BI tools adoption

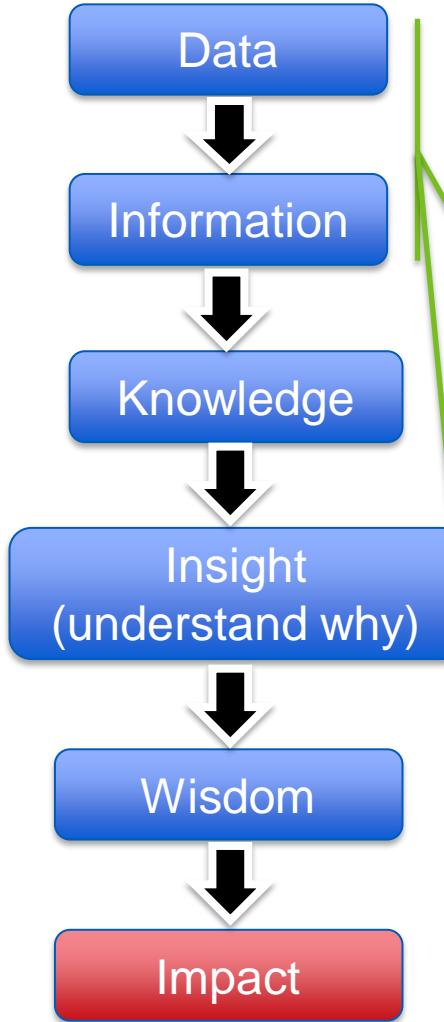
A!

Aalto University  
School of Business

Self-service BI tools are essential for Finnish companies to do BI. However, some Finnish companies seem to use too many BI tools simultaneously.

Finnish companies widely use self-service BI tools. On average, a Finnish company would use **two** different BI tools, with a few companies using even **three** or **four** self-service BI tools within the companies. Power BI is the most often used BI tool by Finnish companies, followed by QlikSense, Tableau, and Looker Studio.





### **Challenge: Data is often not properly labelled or managed.**

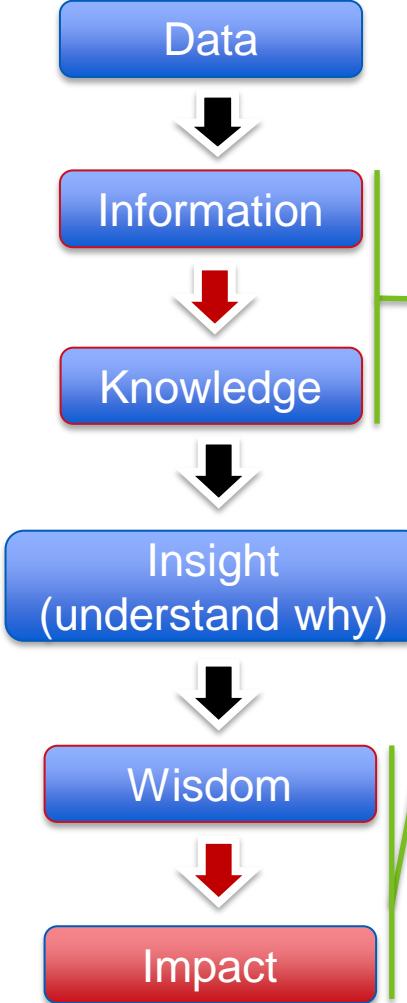
BI deployment forces company to think about their data availability and data quality problem -- No data, no BI.

- Company can also pay (e.g., to IBM) to build their data warehouse or data mart, before setting up the IBM Cognos. Through building up a data warehouse, data can be properly labelled.
- Data from different data sources can be merged at a BI software.

### **Challenge: Access to data and data security.**

- Non-specialist can directly utilize the data without SQL background, through clicking on data.
- You can specify users or groups of users who are eligible to access a specific report or content.
- Data masking function to “mask” sensitive data, e.g., personally identifiable information.
- Downloading and modifying data in e.g., IBM Cognos, can be prohibited.

See: [https://www.ibm.com/support/knowledgecenter/SSEP7J\\_11.1.0/com.ibm.swg.ba.cognos.ug\\_cra.doc/c\\_accesspermissions.html](https://www.ibm.com/support/knowledgecenter/SSEP7J_11.1.0/com.ibm.swg.ba.cognos.ug_cra.doc/c_accesspermissions.html)

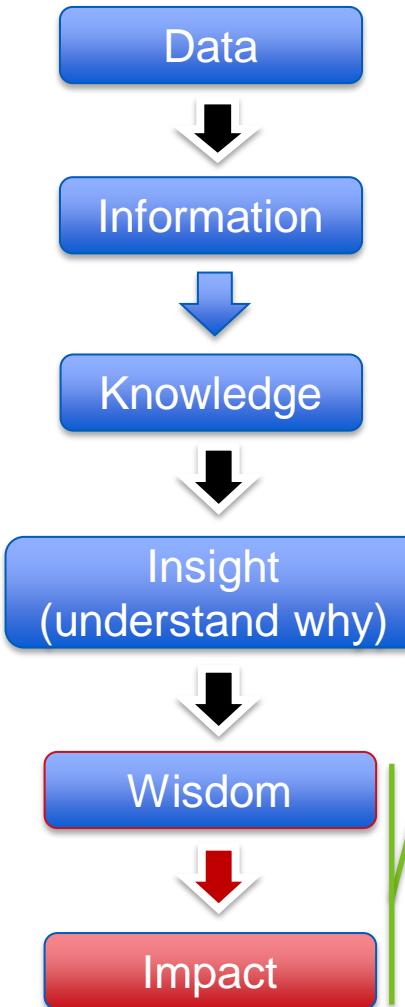


## Challenge

- **Non-interactive report:**  
Reports cannot be updated automatically:
- **How to convince your boss about your finding?**
- You can easily share your dashboard (or report) to others – your boss can explore the figures and charts that you developed.
- As data is directly connected to your report, the validity of your report can be justified.
- BI software can do a much better job than Excel or SPSS to create different types of figures, even sometimes better than R or Python, such as geographic maps, figures for text mining, decision tree, etc.
- Setting auto refresh in a report.



# Necessity for BI software

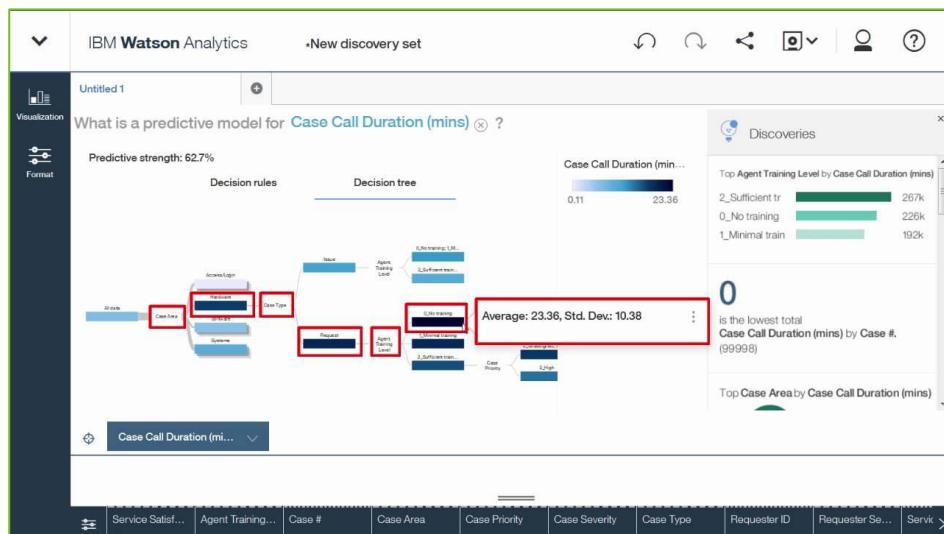


## ***Challenge: How to convince your boss about your finding?***

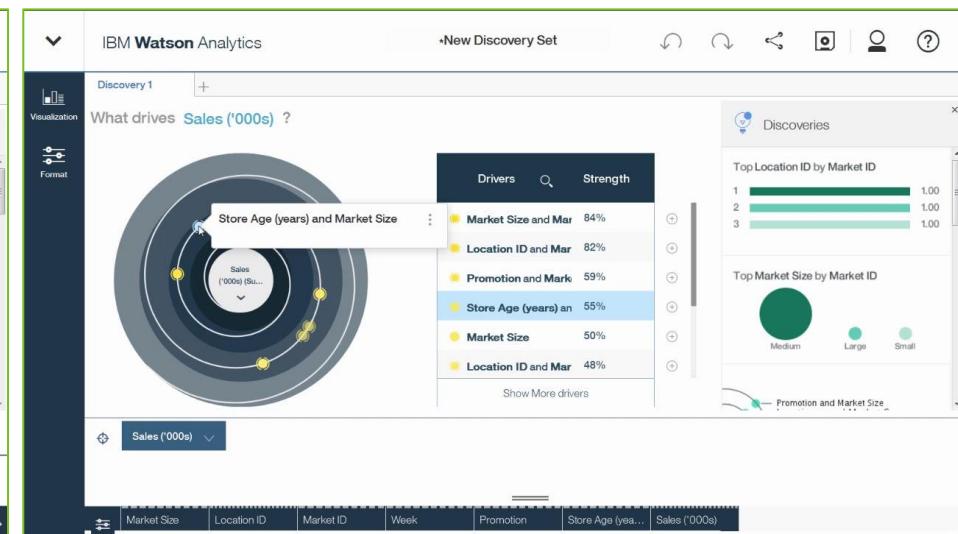
- “A picture is worth a thousand words”.
- An interactive picture is worth more than a thousand words.
- Studies show that a feeling of control of using a decision support **tool** reduces users’ perceived risk of decision making, thereby increasing their confidence to rely on the tool (or your interactive report) to make decision.

# Merits of dash-board based BI tools

BI tools can generate nice figures in a way easier and faster than languages like R or Python.



Decision tree



Spiral Chart



Aalto University  
School of Business

# Section 3: BI-related jobs

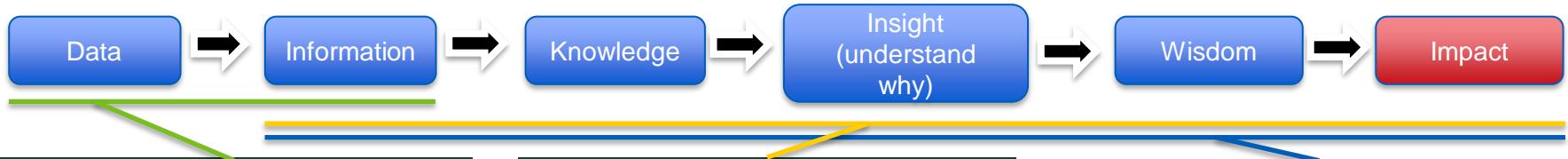


# Skills for being a BA

What do you think are the necessary skills that a competitive business analyst need to have?

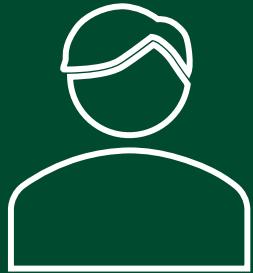
- Excel skills
- Business intelligence software (e.g., Power BI, Cognos) skills
- R or Python skills
- Data engine skills, such as Hadoop
- System development skills, like Java
- Machine learning
- Advance statistic knowledge
- Business acumen
- Good presentation skills
- Cloud service
- Strategic knowledge on BI

Share your opinion at:  
<https://presemo.aalto.fi/bic/>



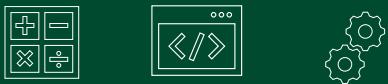
## Data Engineers

Also known as database administrators and data architects.



They are versatile generalists who use computer science to help process large datasets. They typically focus on coding, cleaning up data sets, and implementing requests that come from data scientists.

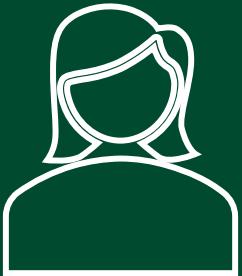
**Skills:** Programming, Mathematics, Big data



*Will use programmes such as:  
Hadoop, NoSQL and Python*

## Business Analysts

Also known as data analysts.



They typically help people from across the company understand specific queries with charts.

**Skills:** Statistics, Communication, Business knowledge



*Will use programmes such as:  
Excel, Tableau, Power BI, IBM Cognos, SQL*

## Data Scientist

Also known as Data Managers, Statisticians



A data scientist will be able to take data science projects from end to end. They can help store large amounts of data, create predictive modelling process and present the findings.

**Skills:** Mathematics, Programming, Communication



*Will use programmes such as:  
SQL, Python, R*

If you can lead the building of the whole enterprise BI system, you are an analytics architect.

# Business Analysts vs. Data Scientist

## Some interesting classification:

1. "What is a data scientist? In short, a person who is better at statistics than any software engineer and better at software engineering than any statistician."

- <https://medium.com/odscjournal/data-scientists-versus-statisticians-8ea146b7a47f>

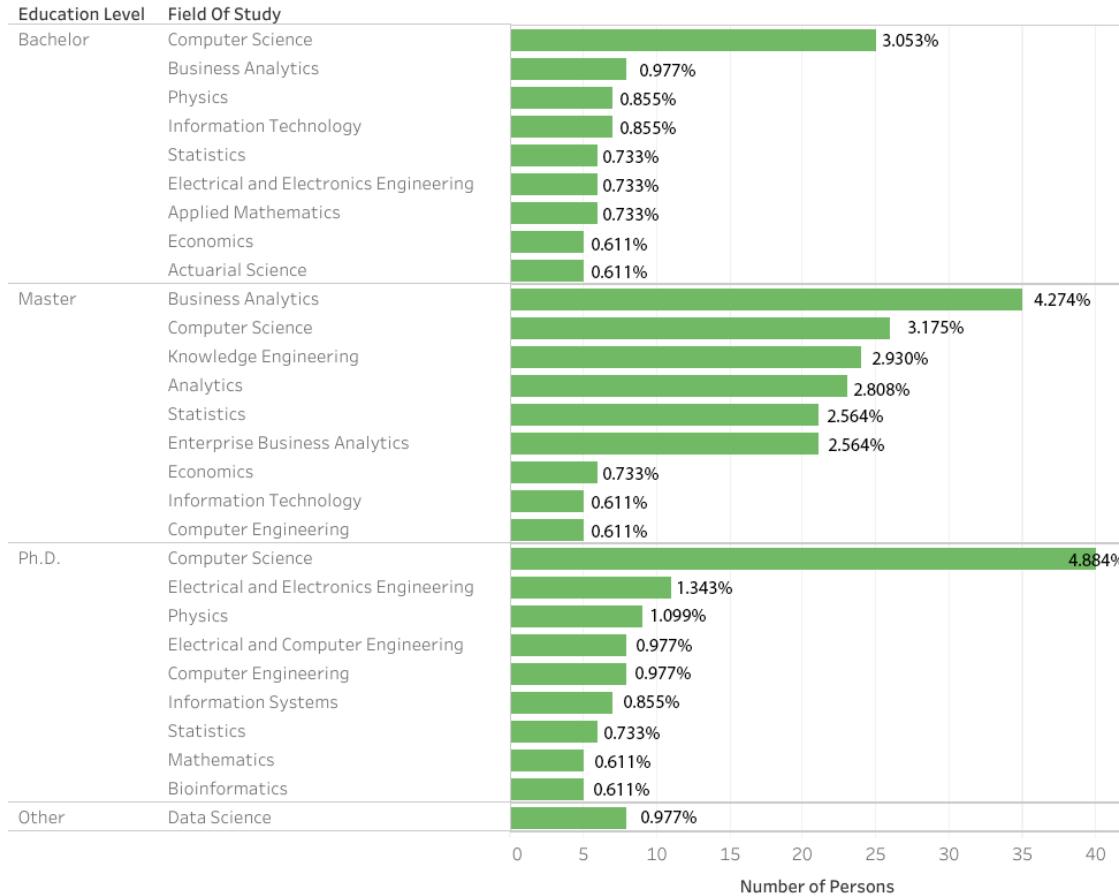
2. Data scientists must be well versed in machine learning and data mining, but business analysts do not have to be.

- <https://www.educba.com/data-scientist-vs-business-analyst/>

**My View:** Business School Students who understand business, but also have decent programming and statistic skills should be well qualified for DS jobs.

# A study based on 869 data scientist profiles from LinkedIn (August 2019)

## Top Fields of Study, by Highest Education



- Those with a computer science and engineering, or business analytics background dominate the data scientist job market.
- It is a fact that most data scientists who analyze business data do not have a business background.

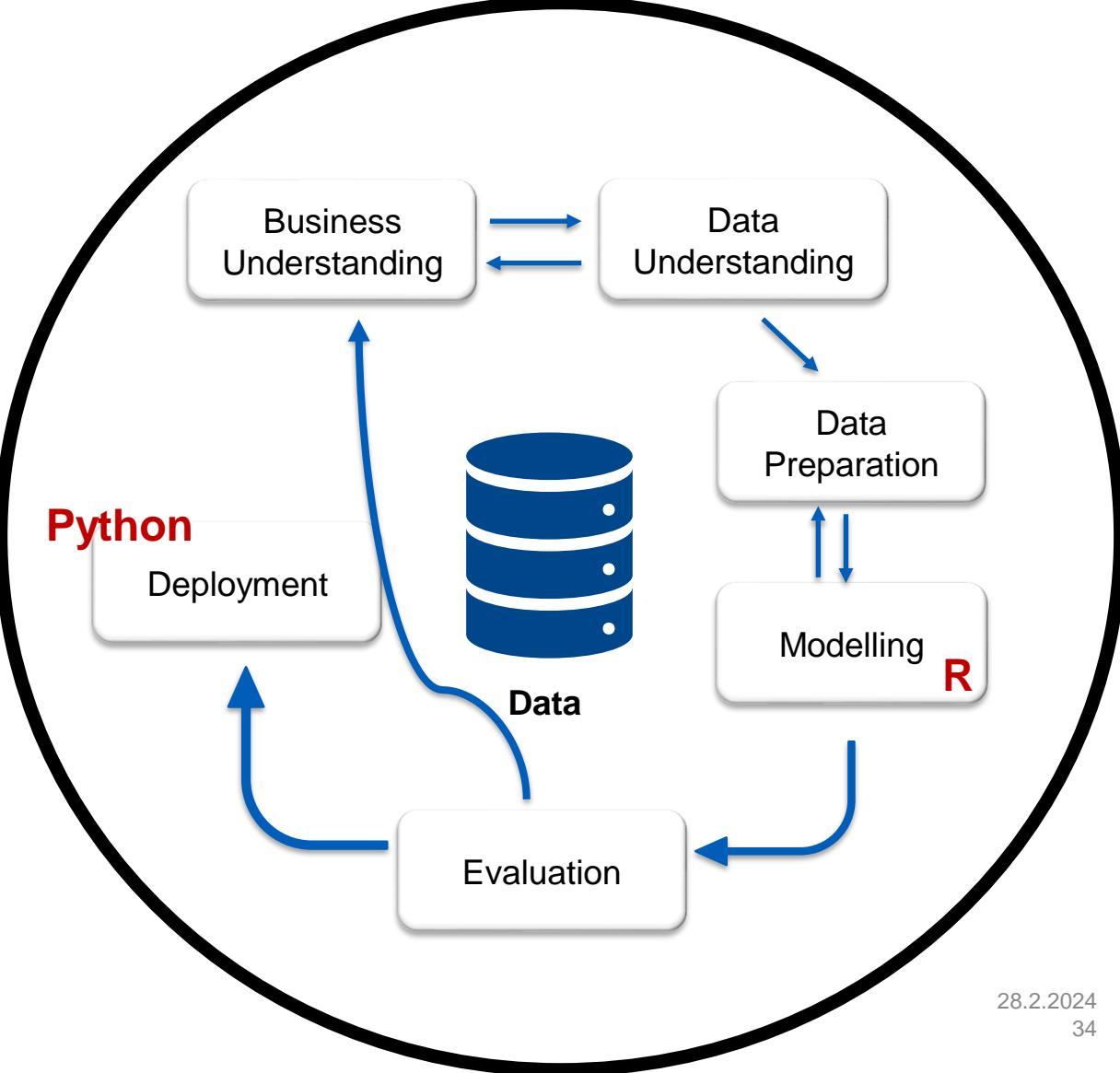
# Required Skills for Data Scientist: A Research on 1,001 Data Scientists

365°

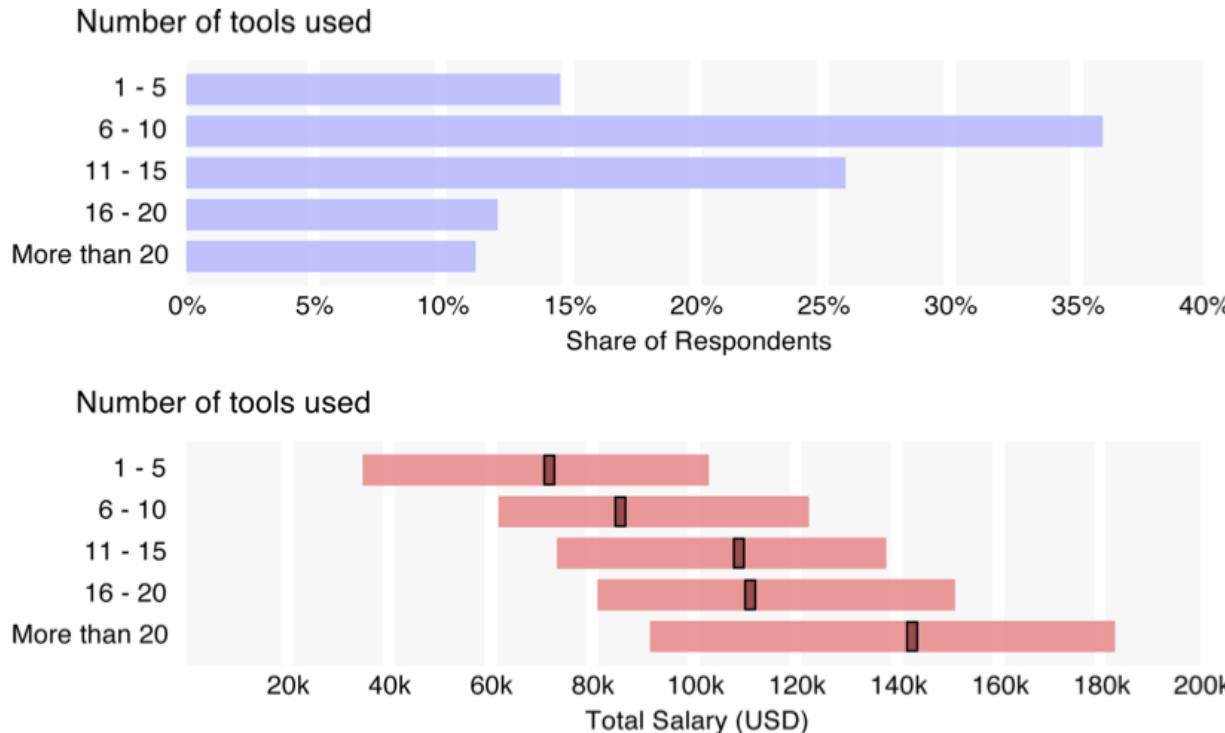
Programming Skills Listed



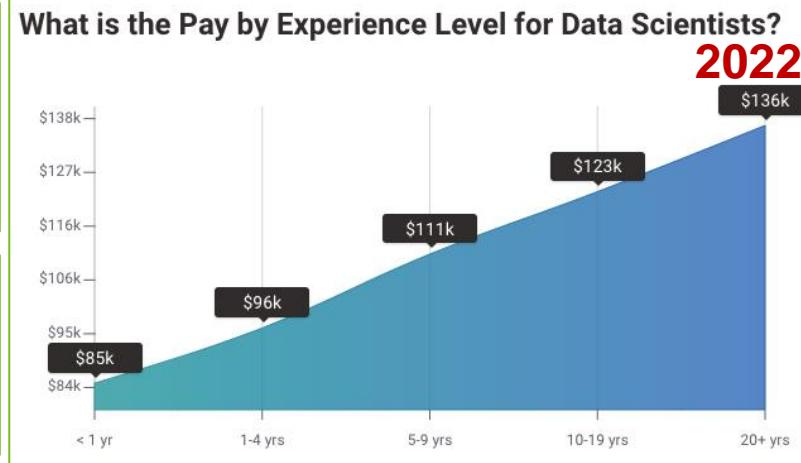
# Why is Python more popular than R?



# The relationship between number of different tools versus data scientist salary



# Data Scientist Salaries



How much does a data scientist earn on average? According to [Glassdoor](#), the average base pay for data scientists in the U.S. is \$117,212 a year. The confidence in the estimate is very high, as it is calculated based on a sample of 18,000 salaries in **2022**.



Aalto University  
School of Business

# Section 4: BI-Job Success Factor



# What I see and suggest?

- Data scientists have been a separate group for most companies, **independent** from the BI department.
- Their jobs focused on new applications or product **development but NOT on management**. In other words, there is **a separation** between advanced analytics and better enterprise management.
- I have **never** seen a simple case of using machine learning or AI for more effective strategic enterprise management.
- **My suggestions:** The data scientist team should understand the business that they are working for.

# The Case of a Cargo Transportation Company

- The company operates a B2B online business platform.
- The company takes care of cargo transportation between the harbor and factories by distributing transportation tasks to thousands of truck drivers.
- Truck drivers registered their trucks as equipment of small companies.
- The company develops an algorithm to recommend/distribute transportation tasks based on many factors, such as the distance between the harbor and factories, assuming truck drivers prefer long-distance tasks that can yield more money for the drivers.



# The Case of a Retail Store

**Example 1:** The BI team believes that offering diverse discounts on tens of products at a large retail store starting next week (associated with a public holiday) would boost sales and increase revenue.

**Time Pressure:** The analysis was just completed in a few days based on the latest sales data before the public holiday.

**Request on store staff:** replace the new price tags for tens of products and complete them in a few hours.

**Outcome:** Printing the new price tag requires manual input of selecting a product and typing the new price, which is very time-consuming. Given that the retail store workers have already been very busy, they complain about the request from the BI team.

The BI team traces the performance of their suggestion, noticing the problem and collaborating with IT department to offer a new price tag printing solution

# The Case of a Retail Store

**Example 2:** Analytical findings suggest that implementing discounts in conjunction with the upcoming shopping season could significantly enhance the sales of specific products, according to the BI team. However, the retail store's storage room currently faces a shortage of these products. Consequently, the team initiated an order for the required items and requested their timely delivery to the stores.

**Outcome:** The BI team later noticed that the store had a small storage room, which could not accommodate the volume of the product ordered.

# Being a Good Business Analyst

Who you would recruit as a BA for a large company, Like F-secure?

## Person A

- Sales: 70%
- Marketing: 15%
- R&D: 15%

## Person B

- Sales: 100%
- Marketing: 0%
- R&D: 0%

## Person C

- Sales: 0%
- Marketing: 100%
- R&D: 0%

Submit your answer at:  
<https://presemo.aalto.fi/bic/>

# Favorable skills for a being business analyst in a big company

Yes, BI experts greatly gain from understanding cross-company data. Like, if you are working in Sales, understanding also what Marketing or R&D does is critical. All the analysts in my time have their specialty, but they all understand all the key things about all parts of the company.

Example, data understanding.

Person A:

Sales 100%

Marketing 0%

R&D 0%

Person B:

Sales 70%

Marketing 15%

R&D 15%

I would hire Person B 10/10 times, and person B would also be much more likely to succeed.

So yes, understanding the whole flow of data is key, but also, generally, as an analyst you should understand the business you are analyzing. If you are the world's best mathematician, it does not help if you cannot relate at all with what a Salesperson does!

Business understanding (specific) and Cross-company overview (high level) are the 2 key things any new analyst should get quickly!



**Head of Business Intelligence, F-secure**



Aalto University  
School of Business

# Section 5: BI Data Strategy



# Role-playing as a potential BI leader



**John needs your help!**

This man's name is **John**, and he has several years of experience working as a BI report developer and a decent knowledge of machine learning. John is applying for a BI leadership position at different companies or organizations

- Johan believes that the optimal status of organizations is that the organizational data is used by its employers to the maximum.
- Organizations should maximize access to data for employers who want to use it.

# Assume three BI leader job openings:

1. A Terveystalo (a Finnish private healthcare company) BI leadership position
2. An OP bank BI leadership position
3. A R-kioski (a chain of convenience stores) leadership position

Share your answer at:  
<https://presemo.aalto.fi/bic/>

Data Management

# What's Your Data Strategy?

The key is to balance offense and defense. by Leandro DalleMule and Thomas H. Davenport

From the Magazine (May–June 2017)



# Defensive vs. offensive

**Defensive Data Governance** centres around safeguarding an organization's data assets. Its primary concern is compliance with regulations and laws, risk management, and the protection of sensitive data from breaches or unauthorized access. Defensive data governance places a strong emphasis on data security, privacy, and data quality.

**Offensive Data Governance** primarily focuses on utilizing data as a strategic asset for business growth, innovation, and competitive advantage. It seeks to proactively identify opportunities, optimize processes, and drive revenue by leveraging data. Offensive data governance encourages data democratization, empowering a broader range of employees to access and use data for decision-making.

# The Elements of Data Strategy

	Defense	Offense
<b>Key Objectives</b>	Ensure data security, privacy, integrity, quality, regulatory, compliance, and governance	Improve competitive position and profitability
<b>Core activities</b>	Optimize data extraction, standardization, storage, and access	Optimize data analytics, modeling, visualization, transformation, and enrichment
<b>Data-management orientation</b>	Control	Flexibility
<b>Enabling architecture</b>	SSOT (Single source of truth)	MVOTs (Multiple versions of the truth)

# The Data-Strategy Spectrum

A company's industry, competitive and regulatory environment, and overall strategy will inform its data strategy.



SOURCE: Leandro DalleMule & Thomas Davenport © May 2017 The Financial Brand

<https://thefinancialbrand.com/news/data-analytics-banking/data-strategy-playing-offense-defense-65419/>

**News**[Top stories](#) [Latest](#) [About us](#)

 The article is more than 2 years old

**Bankruptcy Petition**

## Hacked psychotherapy centre Vastaamo files for bankruptcy

Vastaamo's business will be sold to Verve, where Vastaamo's clients can continue their therapy.



Vastaamo clients are encouraged to consult with their therapists or psychiatrists about continuing therapy through Verve. Image: Petteri Bülow / Yle

**YLE NEWS**

11.2.2021 19:01 · Updated 11.2.2021 19:43

 Share

<https://yle.fi/a/3-11785891>

**News**[Top stories](#) [Latest](#) [About us](#)**Crime**

## HUS confirms data breach by ex-staff member, hundreds of patients' data compromised

An internal investigation by the Helsinki and Uusimaa Hospital District (HUS) into data protection uncovered three instances of data breaches involving patients' information.



One of the discovered breaches already occurred in 2021 but was only disclosed to affected patients this summer. Image: Elina Ervasti / Yle

**YLE NEWS**

23.8.2023 11:24

 Share

The Helsinki and Uusimaa Hospital District (HUS) has discovered that a former employee, who served as a practical nurse within the district, breached the privacy of nearly 1,000 patients.

<https://yle.fi/a/74-20046541>

# Select One Brand to Evaluate its Data Strategy

- LähiTapiolan
- Fiskars
- Fazer
- Prisma
- Kojamo
- Yle Areena
- If P&C Insurance
- Nesto
- Fortum
- Elisa

# Evaluate the Data Strategy

To determine where your firm falls on the data-strategy spectrum, select the eight objectives that are most important to your business. (Select only eight.)

1. Improve the quality of data
2. Optimize the existing strong bench of analysts and data scientists
3. Create new products and services
4. Respond rapidly to competitors and market changes
5. Leverage new sources of data, internal or external
6. Improve IT infrastructure and reduce data-related costs (number of databases, etc.)
7. Prevent cyber attacks and data breaches
8. Use sophisticated, real-time or near real-time analytics for business
9. Rationalize multiple sources of the same data and information
10. Reduce general operating expenses and streamline business processes
11. Monetize the value of the company's data; use internal data as a product or service
12. Improve revenue through cross-sell, pricing, and expanded customer base
13. Mitigate operational risks such as data breaks, fraud, etc.
14. Generate return on investments in big data and analytics infrastructure
15. Develop analytics and digital capabilities
16. Meet industry regulatory requirements

# Evaluate the Data Strategy

To determine where your firm falls on the data-strategy spectrum, select the eight most important objectives to your business. (Select only eight.)

1. Improve the quality of data
2. Optimize the existing strong bench of analysts and data scientists
3. Create new products and services
4. Respond rapidly to competitors and market changes
5. Leverage new sources of data, internal or external
6. Improve IT infrastructure and reduce data-related costs (number of databases, etc.)
7. Prevent cyber attacks and data breaches
8. Use sophisticated, real-time or near real-time analytics for business
9. Rationalize multiple sources of the same data and information
10. Reduce general operating expenses and streamline business processes
11. Monetize the value of the company's data; use internal data as a product or service
12. Improve revenue through cross-sell, pricing, and expanded customer base
13. Mitigate operational risks such as data breaks, fraud, etc.
14. Generate return on investments in big data and analytics infrastructure
15. Develop analytics and digital capabilities
16. Meet industry regulatory requirements

# Companies can switch between defense and offensive strategies

- A possible example of Danske bank



# Team Structure

**Defensive Strategy**

**Offensive Strategy**

**Excel**

**BI visualization experts, like Power BI users**

**Data analysts (Python or R users)**

**Marketing data experts (A/B test, Customer lifetime value analysis, etc.)**

**Machine learning experts**

**AI experts**



1. Terveystalo
2. OP bank
3. R-kioski



Aalto University  
School of Business

# Section 6: Core BI Elements and CDO Responsibilities



# John is a BI leader now



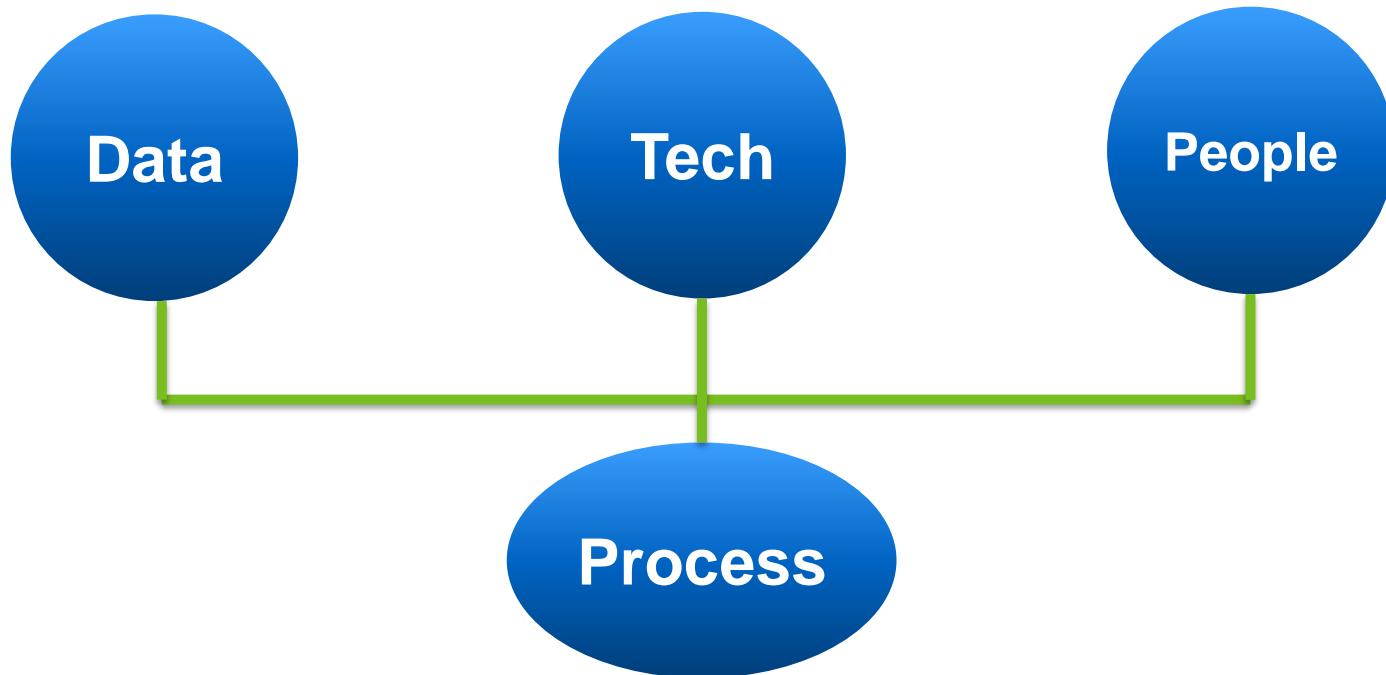
John has recently assumed the role of BI leader for a newly established BI department. In this leadership position, he senses many responsibilities that differ significantly from his prior role as a BI reporter and machine learning algorithm developer. Faced with a sense of overwhelm, John finds himself uncertain where to begin. So, he wants to **categorize** the tasks he must handle.

# Question:

What does John need to address in his job? Please categorize them!

Please submit your answer at:  
<https://presemo.aalto.fi/bic/>

# The Key Elements of BI Management



<https://www.domo.com/learn/article/the-4-elements-of-a-successful-business-intelligence-environment>

28.2.2024

61

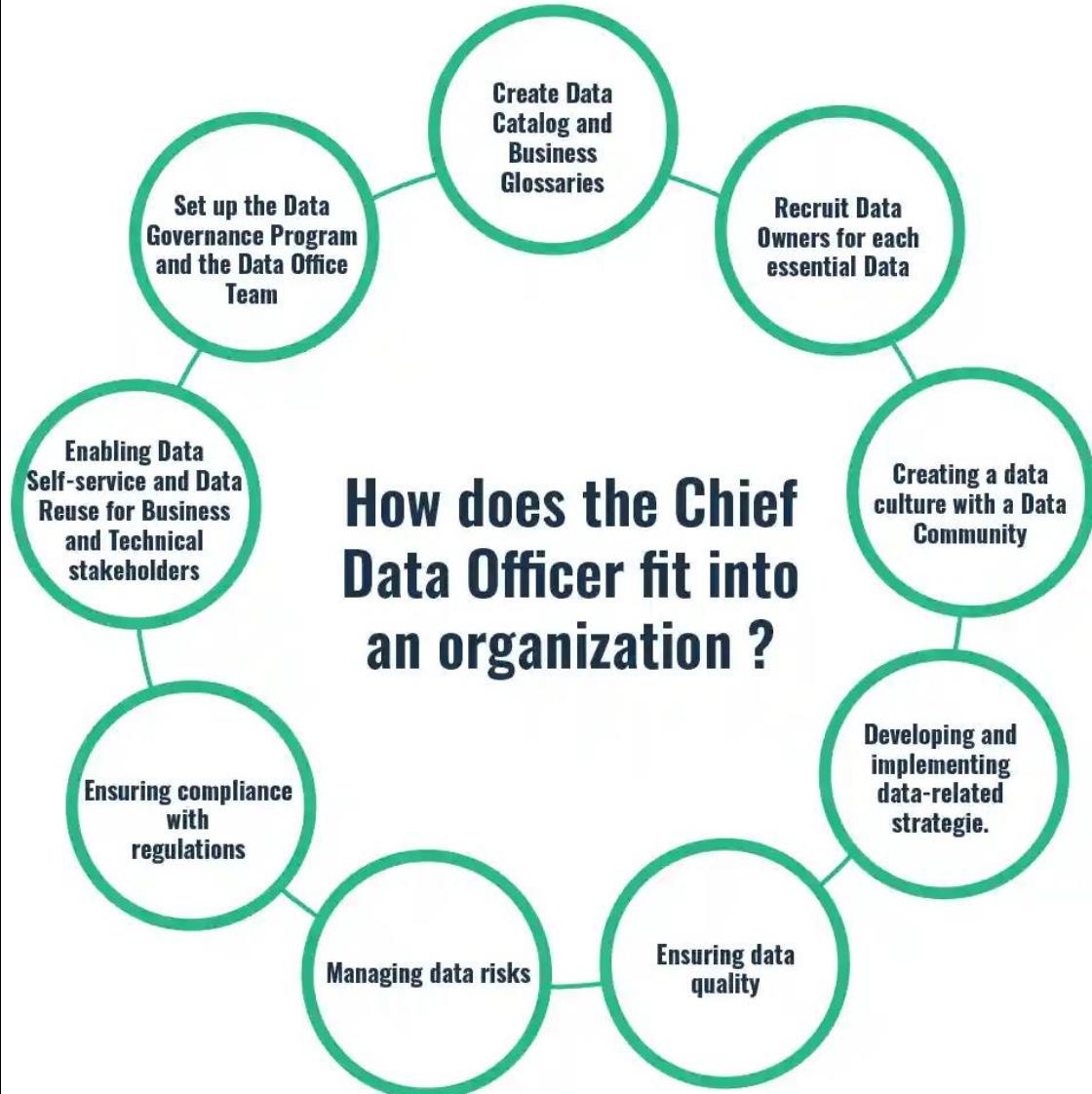
# As the CDO of the company, John is wondering what his responsibilities are and what are not



Please submit your answer at:  
<https://presemo.aalto.fi/bic/>

## CDO's Responsibilities

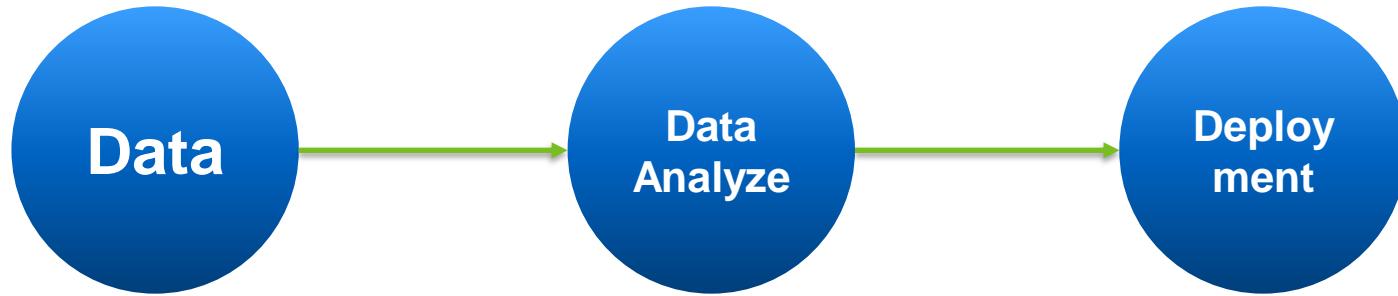
- The CDO's responsibilities also include overseeing data security measures, data privacy, and data ethics frameworks within the organization.
- CDO often works closely with the Chief Information Officer (CIO) and Chief Technology Officer (CTO).
- The main goal of the CDO is to drive business growth and deliver value through data initiatives.
- In some companies, the CDO may also oversee operational functions like creating and managing data architecture and setting up data management systems.
- The CDO's role can be highly complex and differs from one organization to another.



**John is a little bit sad! This is because he has some friction with the company's CIO. Do you think why this happens?**



Please submit your answer at:  
<https://presemo.aalto.fi/bic/>



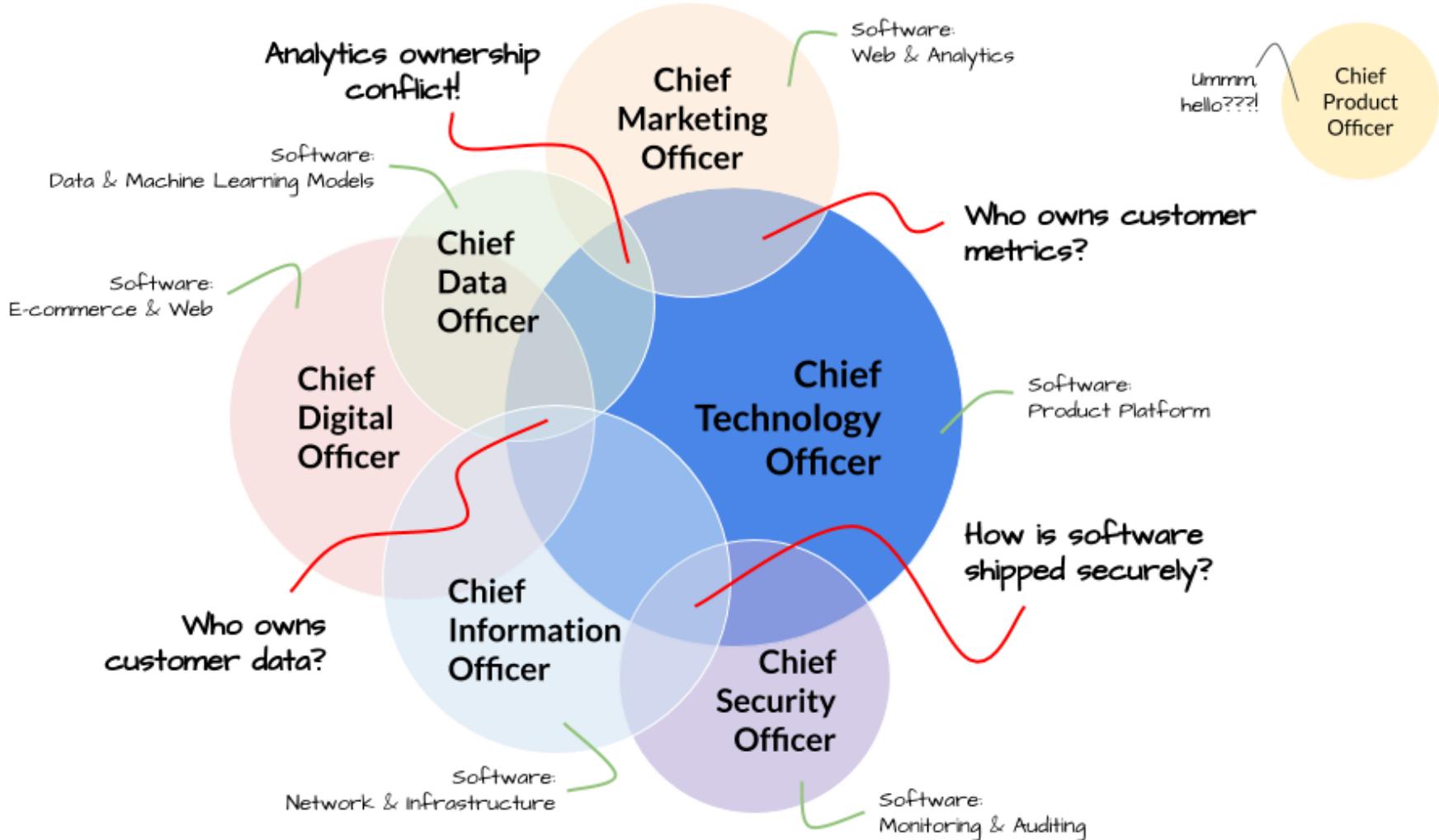
**CDO:** “Could you please help us with some data quality issues? We found the data at these, and these systems are in a poor quality.”

“Could you please let us access your system database?”

“Could you please let us know who is the data owner for these variables?”

**CDO:** “Could you please collaborate with us to deploy some analytics results or functions in your system?”

**“One of the major challenges faced by CDOs is that they often don't own the systems that acquire, store or process data. These systems are the responsibility of the CIO.” -- Laurent Bride, CTO of the data integration company Talend.**



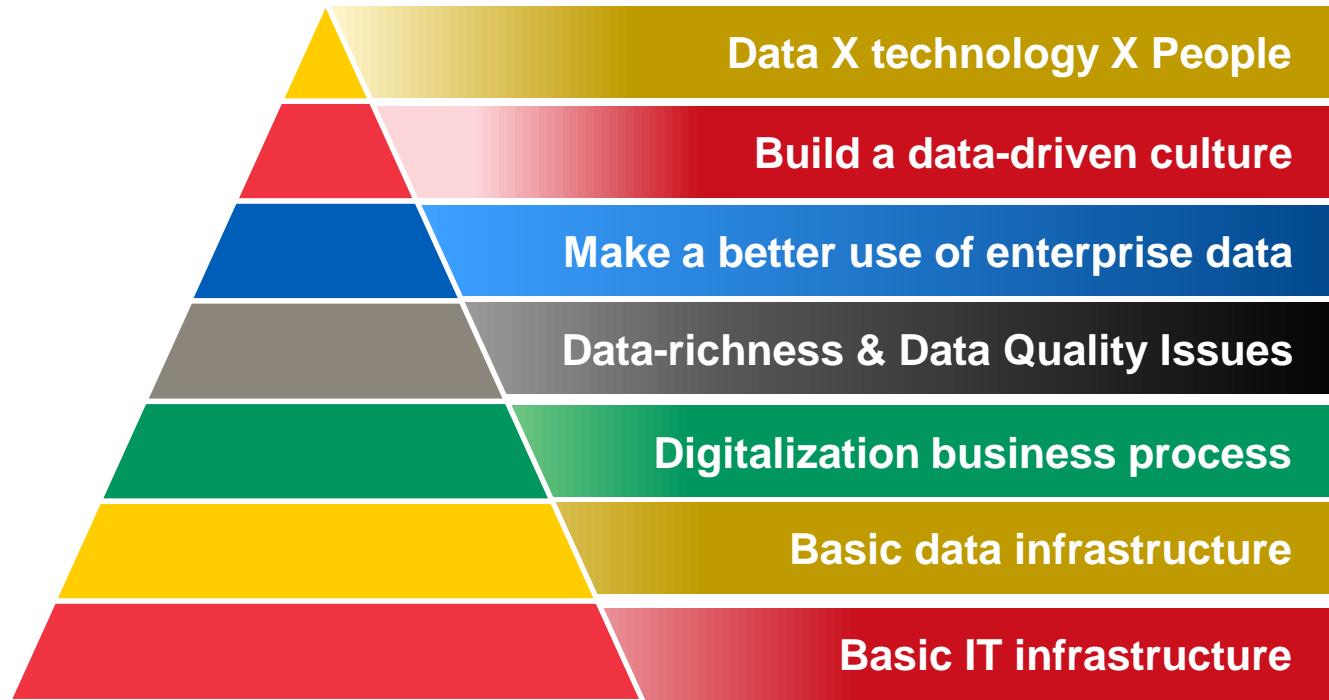
# CIO-CDO Partnership

“The role of the CIO emerged in the mid-1980s, whereas the chief data officer is a relatively new appointment recently gaining traction in the face of increasing digitalization”.

“According to the CIO.com’s State of the CIO 2023 survey, **53% of CDOs report to the CIO or top IT executive, with 35% reporting to the CEO and 7% reporting to the CFO or top finance exec.**” **“But the CDO role is evolving”.** - Helena Schwenk, vice president and chief data and analytics officer at database software company Exasol.

“CDOs from the first generation, [who] tend to care more about managing and governing their data, report to the CIO or IT leader,” Schwenk says. “The second generation tends to be more **business-oriented**, which means they could report to a leader of the business function or the CEO. And research shows that CDOs reporting to the CEO **tend to have more success**. They have sponsorship, a clear sense of direction, etc.”

# Enterprise IT and BI infrastructure



# Recap

- 1. Side Effects of Being Extremely Data-driven  
(Continuance of Class 1)**
- 2. BI Software**
- 3. BI-Related Jobs**
- 4. BI-Job Success Factor**
- 5. BI Data Strategy**
- 6. Core BI Elements and CDO Responsibilities**