Aalto University
School of Business

Data Science for Business II

From predictive to prescriptive modeling

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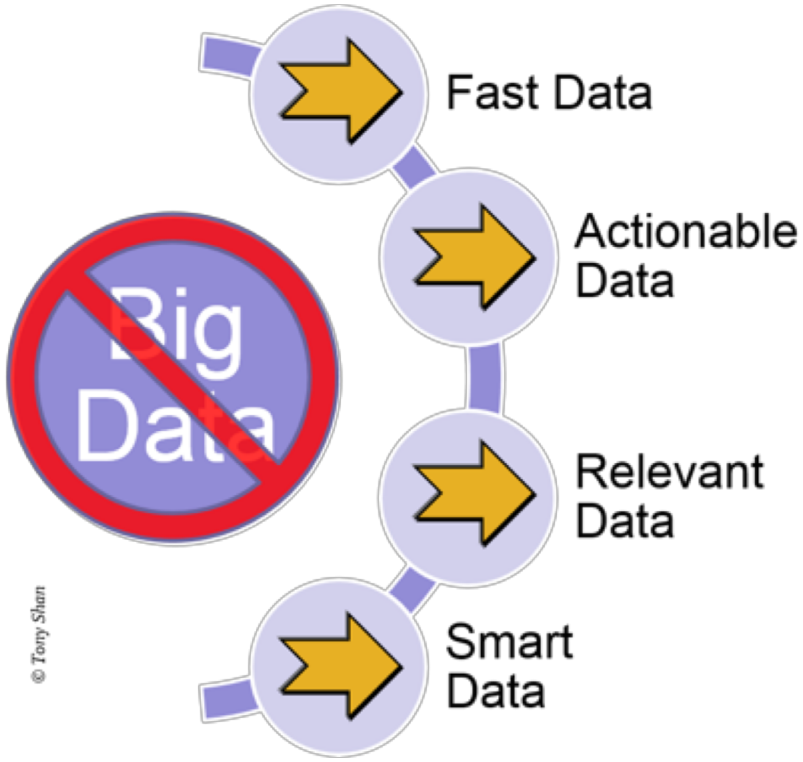
Data is dead?



Source: socialmediatoday.com

Data = record of history that says nothing about the future or "what-if" scenarios

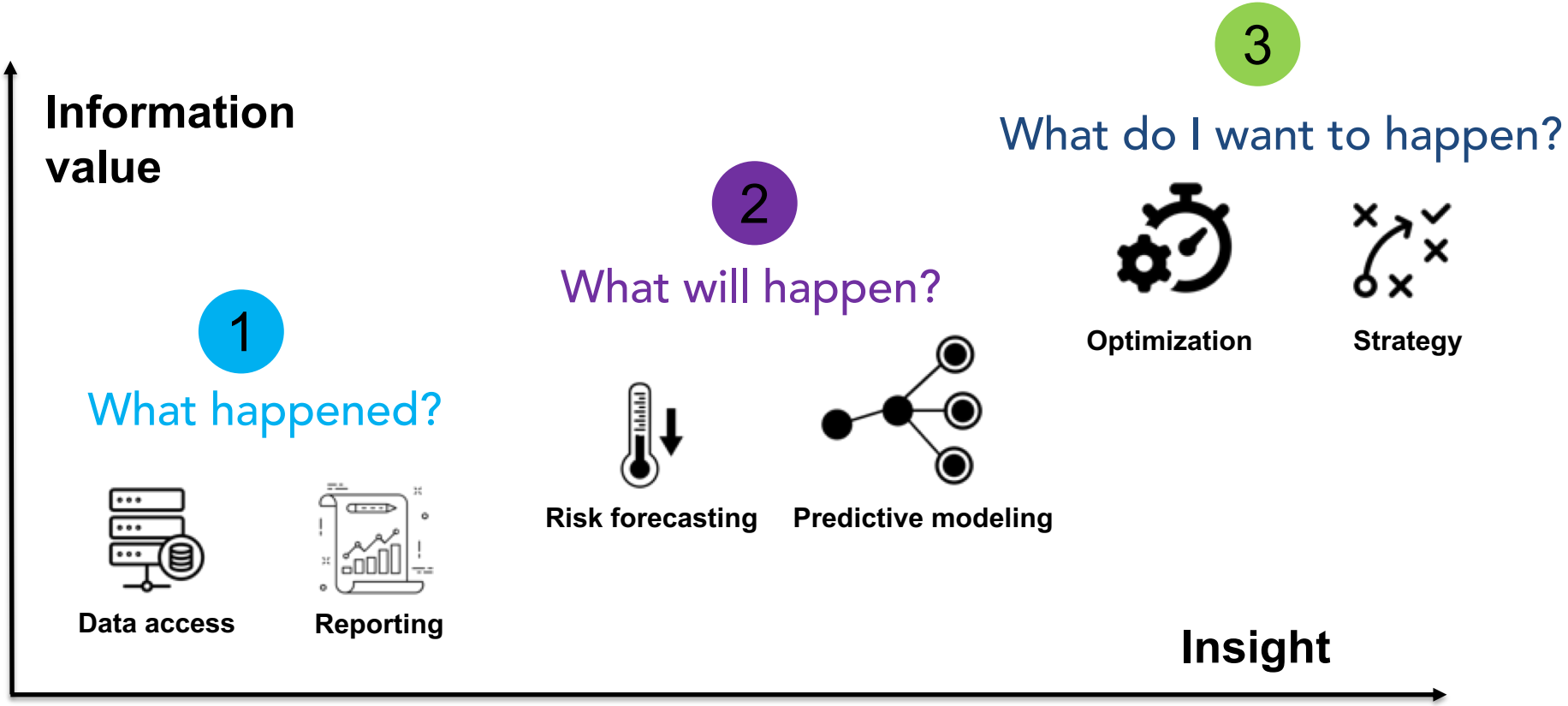
Companies need to make decisions

- analytics is not more data!

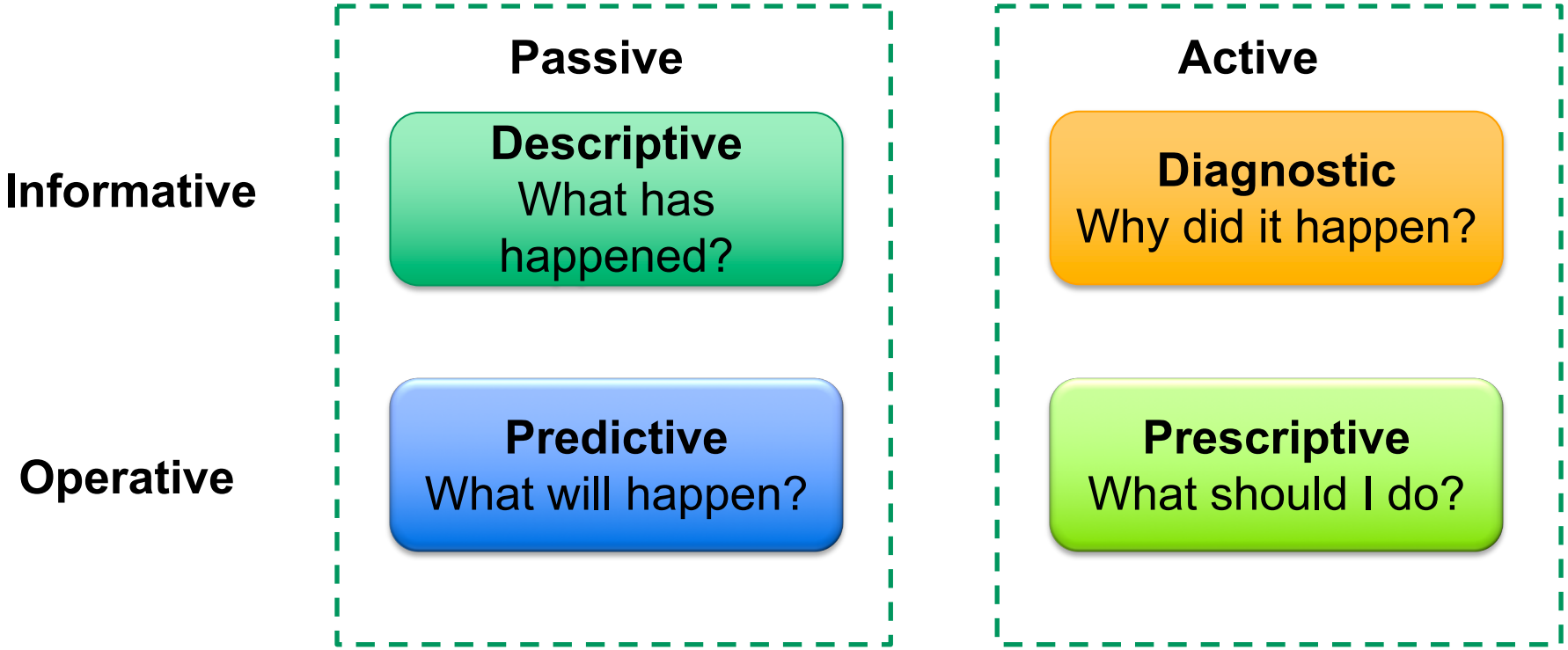
- analytics is optimizing decision making in situations of uncertainty

Reference: alfredessa.com

Path to prescription



From passive to active analytics



Course timeline and topics

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Recap on predictive modeling	Introduction to prescriptive modeling	Case: Sports analytics	Case: Prescriptive analytics in Finance	Visiting lecture: From data to business opportunities	Course project presentations
• Modern regression analysis techniques • Regularization and variable selection • Forecasting and time series	• Optimization tools for prescriptive modeling • Decision analysis • Fundamentals of stochastic programming	• SportsIQ / Jirka Poropudas • Case related guidance and techniques	• Nordic Investment Bank (NIB) / Simo Heliövaara • Case related guidance and techniques	• Jyrki Koskinen from Avaamo Konsultointi • Time to prepare team presentations (DL 26.3.)	

Sports teams (final report DL 13.4.)

Finance teams (final report DL 20.4.)

Grading

The course assessment is comprised of the following two parts:

- Class activity (tutorials, lectures, exercises) 30%
- Team case (course project) 70%

All assignments must be completed to pass the course. Evaluation criteria are separately specified in each assignment.

When evaluating work done in teams, starting level of the student teams will be taken into account in grading.

Special attention is paid to the teams' development in knowledge sharing and learning.

Team cases

Make sure you have registered for one of the two alternative cases!

Project 1: Lending Club loan portfolio construction

The objective of the project is to (i) predict the default probabilities of loans in Lending club and (ii) use these predictions to construct an optimal loan portfolio.

Project 2: Optimal betting portfolio for Liiga playoffs

The objective of the project is to (i) predict the performance of teams in the playoffs of the Finnish ice hockey league “Liiga” and (ii) use these predictions to optimally allocate a betting budget.

Assessment and grading of team case (70% of total grade)

- The grading of team cases is based on a combination of peer evaluation and a corresponding evaluation by teachers.
- Evaluation rubrics will be provided separately.
- To conduct the peer evaluation, you will be provided with a separate observation form. Each student will be able to evaluate each member of the team. All peer evaluations will be confidential.

Review material (DSFB-1 books)

If you need a review on the content of DSFB1 course, which is in pre-requisites, please have a look at the following books.