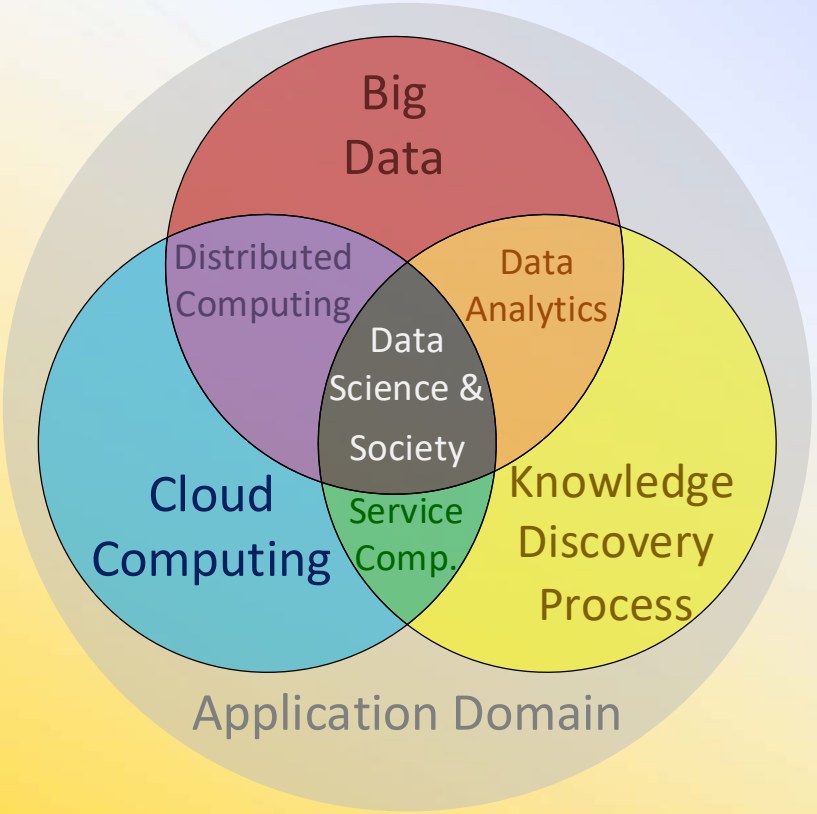
Data Science & Society

InfoMdss is an obligatory course in

- **Applied Data Science** (ADS) profiles
- Master **Business Informatics** (MBI)

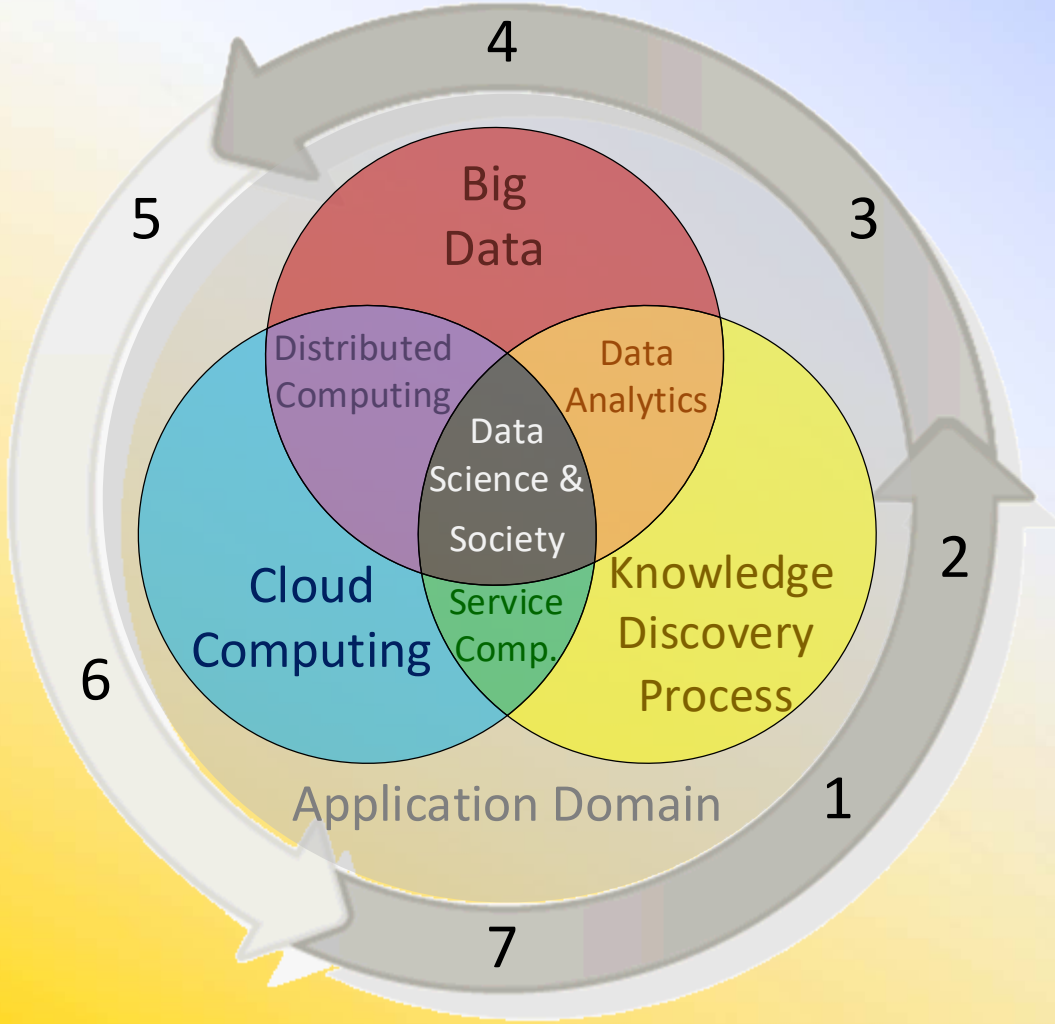


Dr. Marco Spruit
m.r.spruit@uu.nl

Associate professor
ADS Profile Coordinator

Learning outcomes

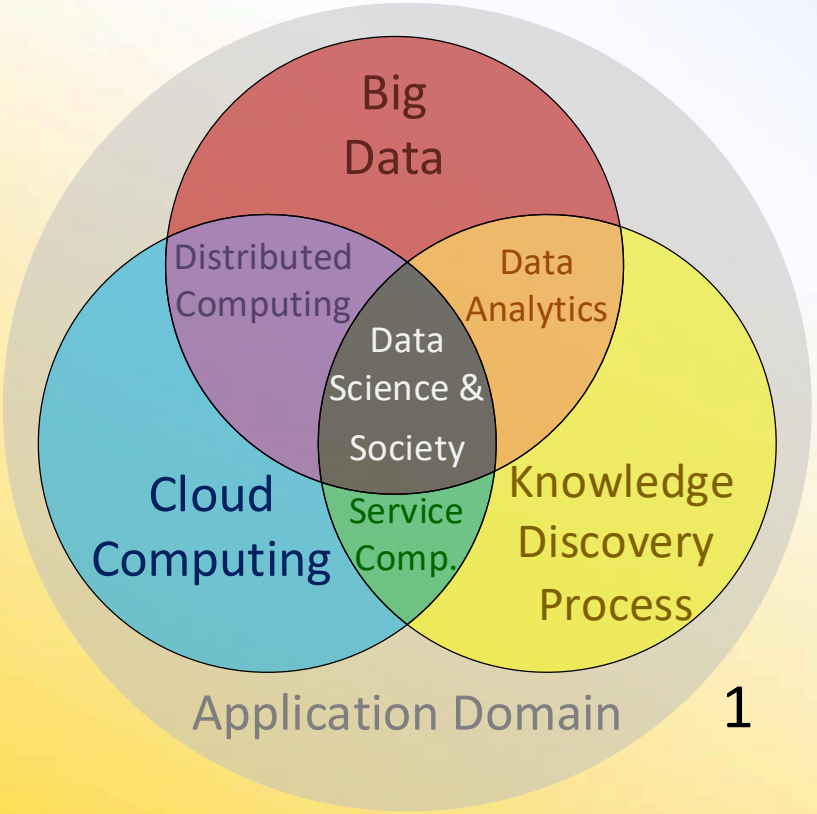
I. Understand the role of data science and its societal impact
II. Recognise the knowledge discovery processes in applied data science
III. Identify trends and developments in big data technologies
IV. Apply selected big data technologies to solve real-world problems



Society focus

UU Application domains:

- Neonatology
- Business
- Epidemiology
- Geography
- Cell biology
- Ethics & Privacy
- Psychiatry

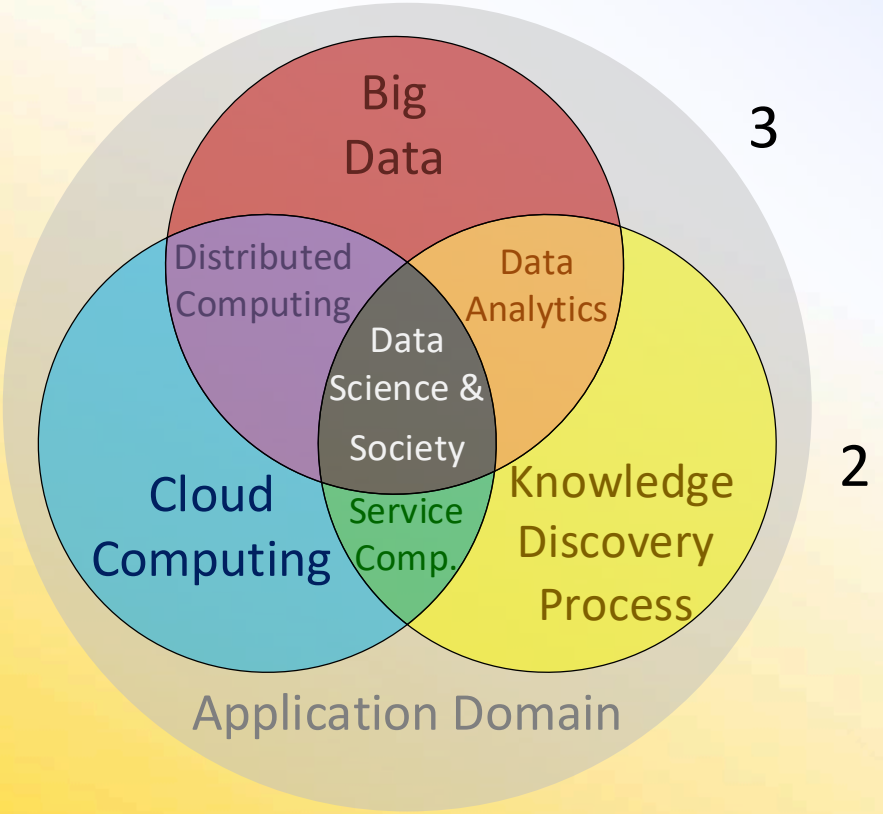


Process focus

Knowledge Discovery Process:
- = Applied Data Science
- CRISP-DM method

Data Analytics:
- Methods & Statistics
  - Traps in Big Data analysis
  - p-values, multiple testing, overfitting, etc

- Workshop tutorials!



Big Data focus

Big Data:

- Context: Book review
- Focus: Identified by experts

- 4Vs
- BD vs DWH
- SQL vs NoSQL

- Ethics & Compliance
  - Philosophical perspective?

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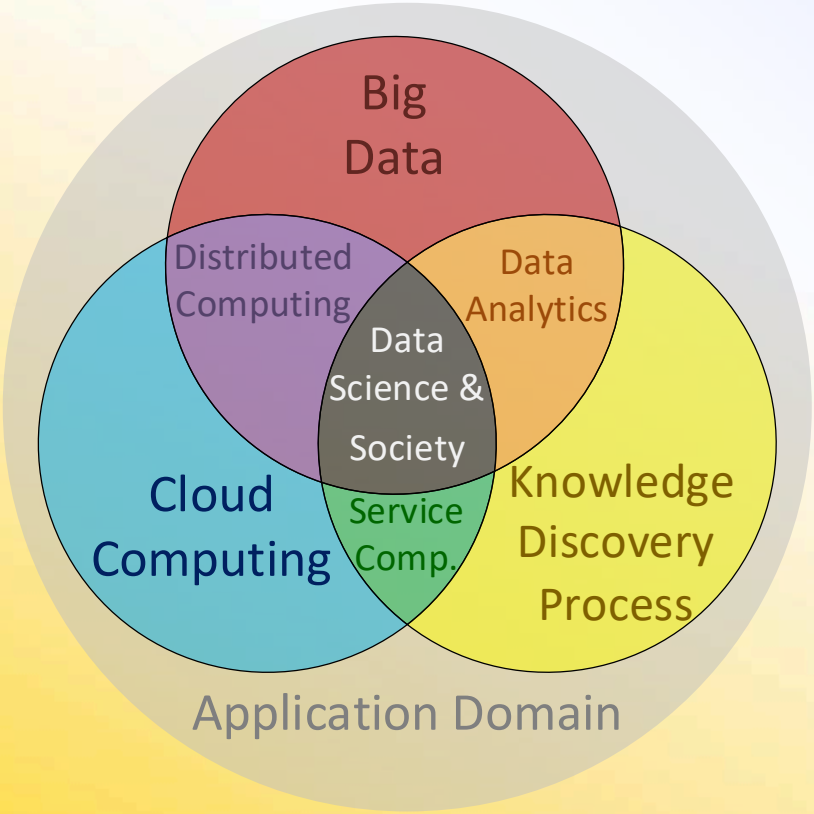

Cloud Computing focus

Cloud Computing:

- Infrastructure choices:
  - Local/UU servers (control)
  - IaaS / PaaS (scalability)
  - HPC / Grid (performance)

- MS Azure DSVM
- Or… AWS, Google ?

- Horizontal scaling vs vertical scaling

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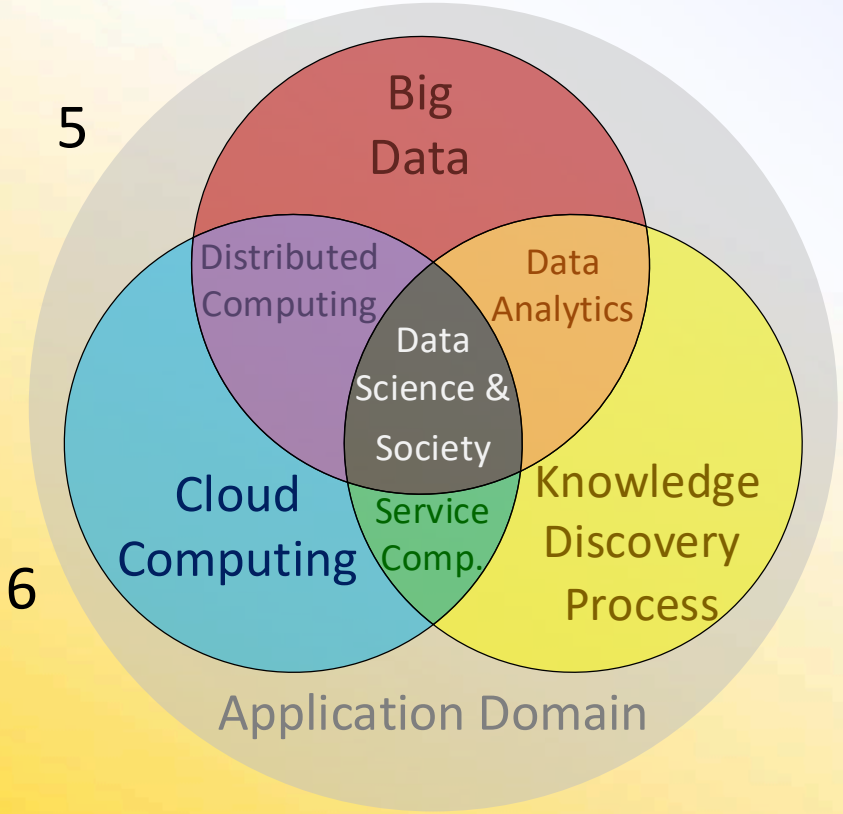


Domain experts ***empowerment*** focus

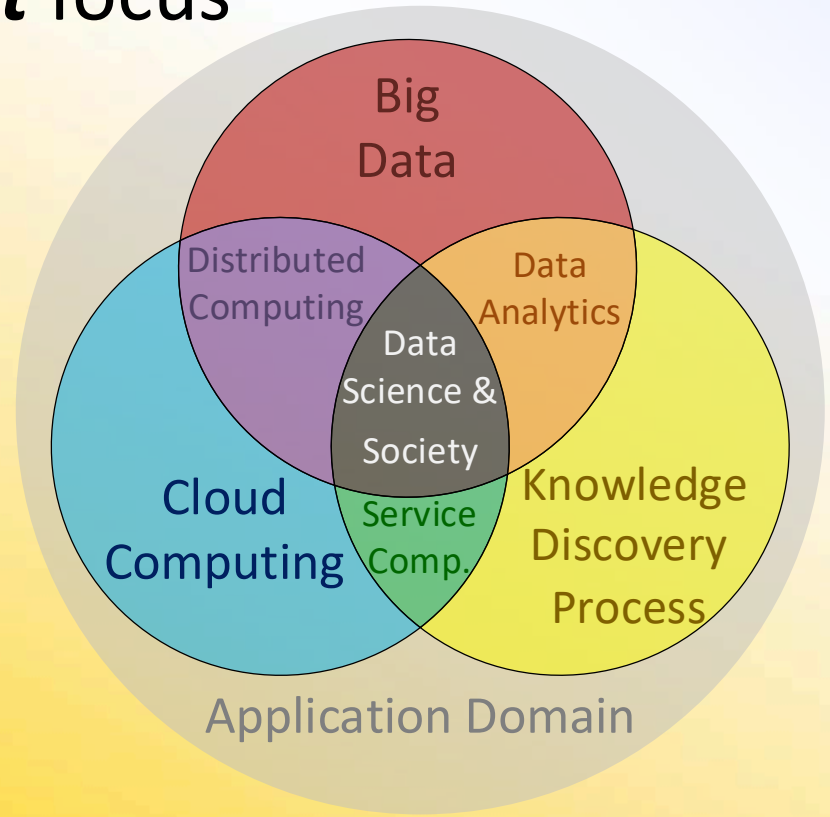
Service Computing:

- = Applied Data Science
  - ORTEC, CLA case studies

- *"Self-service Data Science"*
  - Empowerment of experts
  - Using pre-trained models
  - → My research theme....

e.g.

ORTEC: Spark workflow
Azure: Cognitive Services



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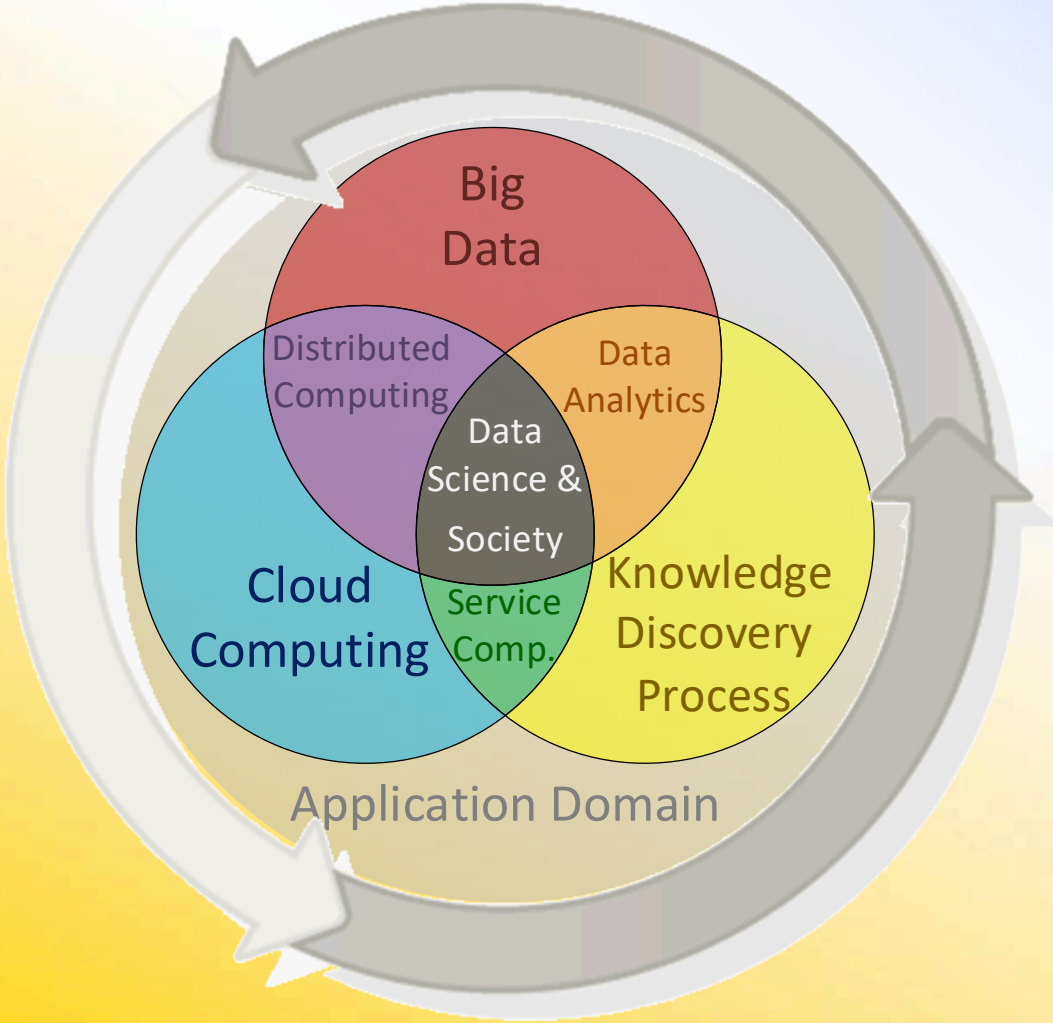
Workshops in MS Azure

Deficiency assignments:
- Bash
- Python

Hadoop from Commandline:
- Wordcount in Python
- Neonatology project

Spark with Jupyter Notebooks:
- Wordcount in PySpark
- Epidemiology project



Questions