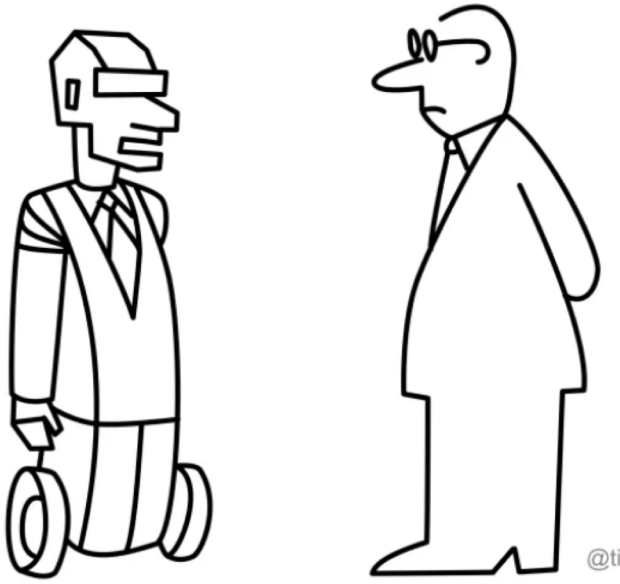

"The good news is I have discovered inefficiencies. The bad news is that you're one of them."

Ministry of Defence

Data Science in Intelligence:

Rethinking Intelligence Processes in the Information Age

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To be discussed

1. Introduction
2. Information Age challenges for the IC
3. Reshaping Intelligence Frameworks
    1. Intelligence Cycle
    2. Critiques – Moving beyond
    3. Determining Objectives
    4. Data science methodology
4. Tackling IC challenges in the Information Age
5. Concluding
6. References
7. Q&A

Introduction

- PhD-candidate Intelligence and Security at Netherlands Defence Academy
- background in jihadism research, currently focused on *identifying and tackling bottlenecks in data science integration in the Intelligence Community*

- Interdisciplinary trajectory, supervised by:
  - Assistant professor dr. Roy Lindelauf (Quantitative Intelligence Analysis)
  - Professor dr. Sebastiaan Rietjens (Intelligence and Security)
  - Current project with Professor dr. VS Subrahmanian (Computer Science at Dartmouth College, USA)

"Exploiting the rapidly growing sources of data available for collection and analysis is one of the greatest professional challenges facing today's intelligence leaders. […]

The question is not *whether* to develop data science capabilities, but rather *how* to do so."

- Data Science for DIA RAND Report, 2016

Identifying Information Age challenges

- Intelligence products should be timely, relevant, accurate and actionable, but 'battlefield' is changing:
  - Diverse threats
  - Increasingly non-state actors
  - Operating in a networked fashion on a global scale
  - Using technologies aimed at weaknesses in our security system

- From information scarcity to information overload
- In the past military intelligence sparked innovation, now learning from private-sector developments
- Most intelligence personnel seems to have qualitative background

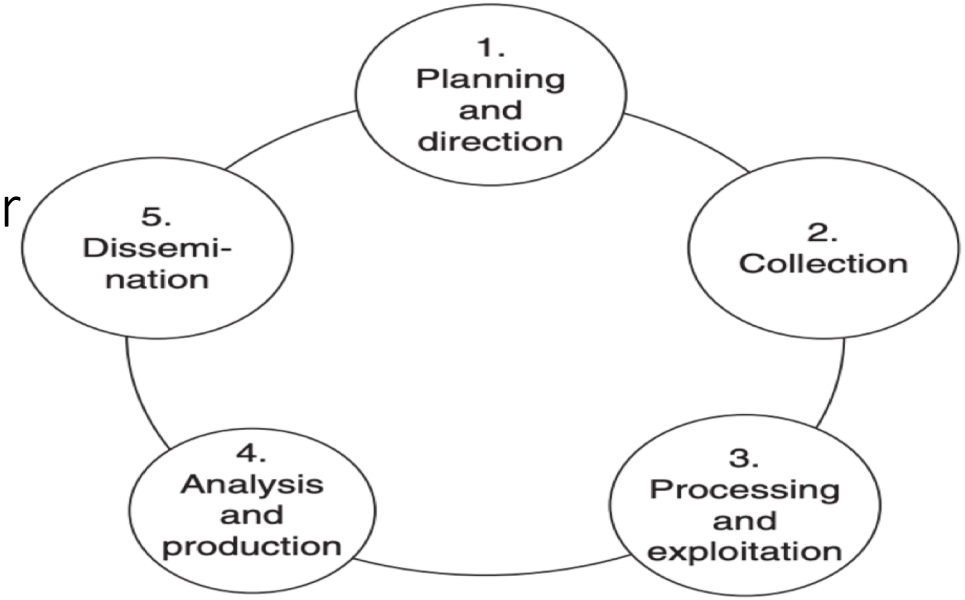
Reshaping Intelligence Frameworks

How do we obtain the best suited framework for intelligence processes to deal with Information Age challenges?

1. Intelligence cycle
2. Critiques: moving ‘beyond’ the intelligence cycle
3. Determining objectives: Monitor, Search, Research, Discover
4. Can Data Science methodology contribute?

Traditional Intelligence Cycle

1. Intelligence request
2. Obtain raw information
3. Filter and ready raw information
4. Transform into ‘intelligence’
   & produce a product
5. Distribute product to customer



'Moving beyond' the Intelligence Cycle?

- Limited direction by policy-makers
- Interaction: understanding the problem before collection
- Parallel processes rather than sequential
- Empirical vs normative approach
- Open system: interaction with the environment
- *Access* rather than *collection*?
- Targeting request – but who's the target?

Determining objectives

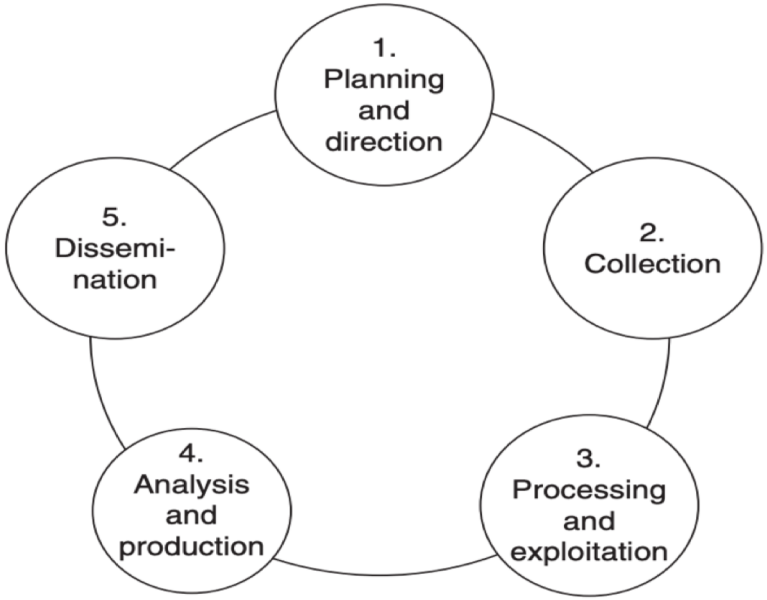
Analysis domains based on:

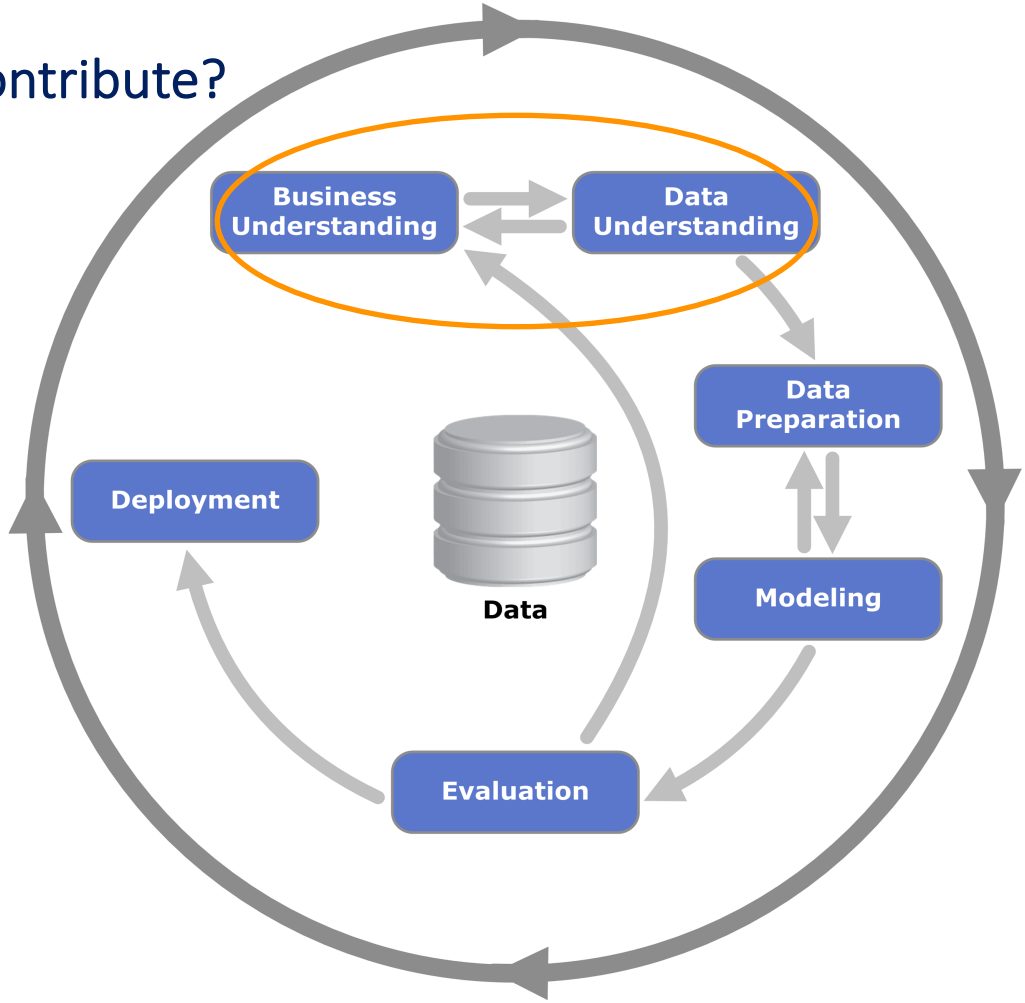
- What do we need?
- What do we know?
- What can be known?

→ Determine the role of the analyst and the appropriate tools

Source: Biltgen & Ryan – *Activity-Based Intelligence, 12*

Can data science methodology contribute?





Cross-Industry Process for Data Mining (CRISP-DM)

Tackling IC challenges in the Information Age

- Focus shift: Use data overflow for discovery
- Continuous interaction from intelligence problem to data question
- Focus on data governance and process management within intelligence organizations
  - Learning from large, complex private-sector organizations
- Determining ‘value’ in IC, how can data science create value?
- We do not necessarily need *more* technology, we need to learn how to implement it in existing organizations

Concluding

- Many arguments to revise the intelligence cycle
- Current revisions do not tackle main Information Age challenges
- We have to include environment interaction, business understanding, knowledge discovery and data governance in a comprehensive framework for intelligence processes in the Information age

- Work in progress. Next up is an empirical perspective: interviews with 30 intelligence practitioners in NL and US on their experiences with integrating data science in the IC.

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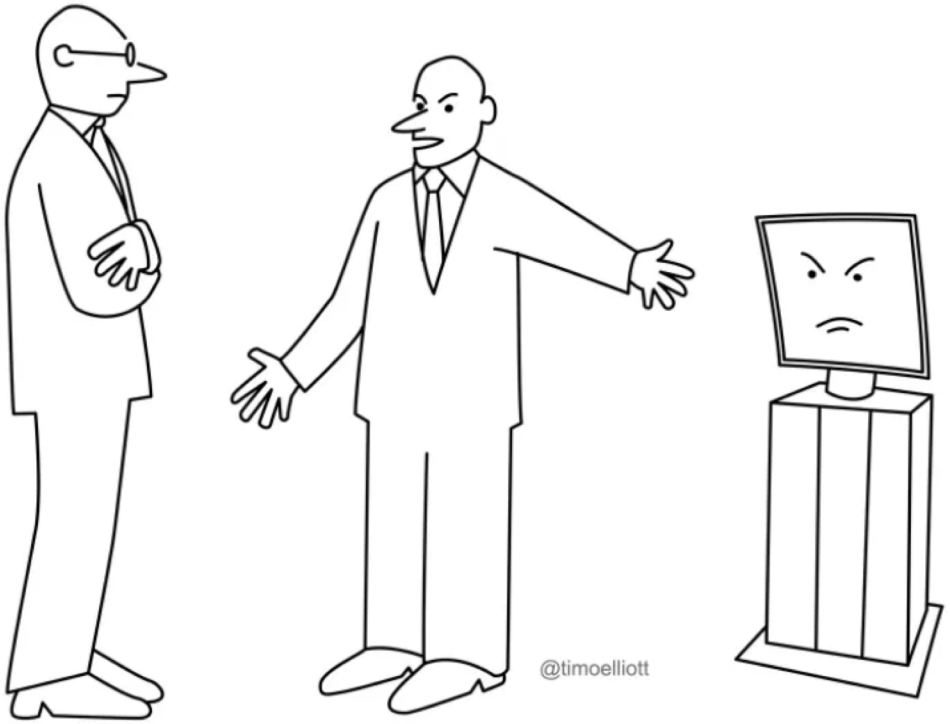
Q&A



His decisions aren't any better than yours — but they're WAY faster...

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