



# Frank van Harmelen

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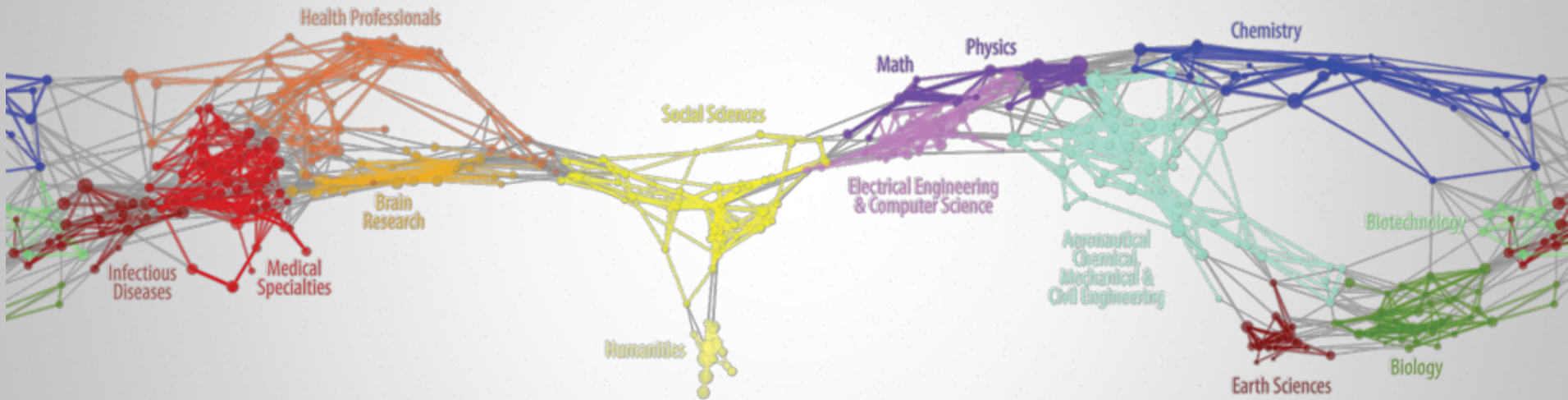


<http://www.youtube.com/watch?v=-HvAtRTwdAQ>

## **Take home message**

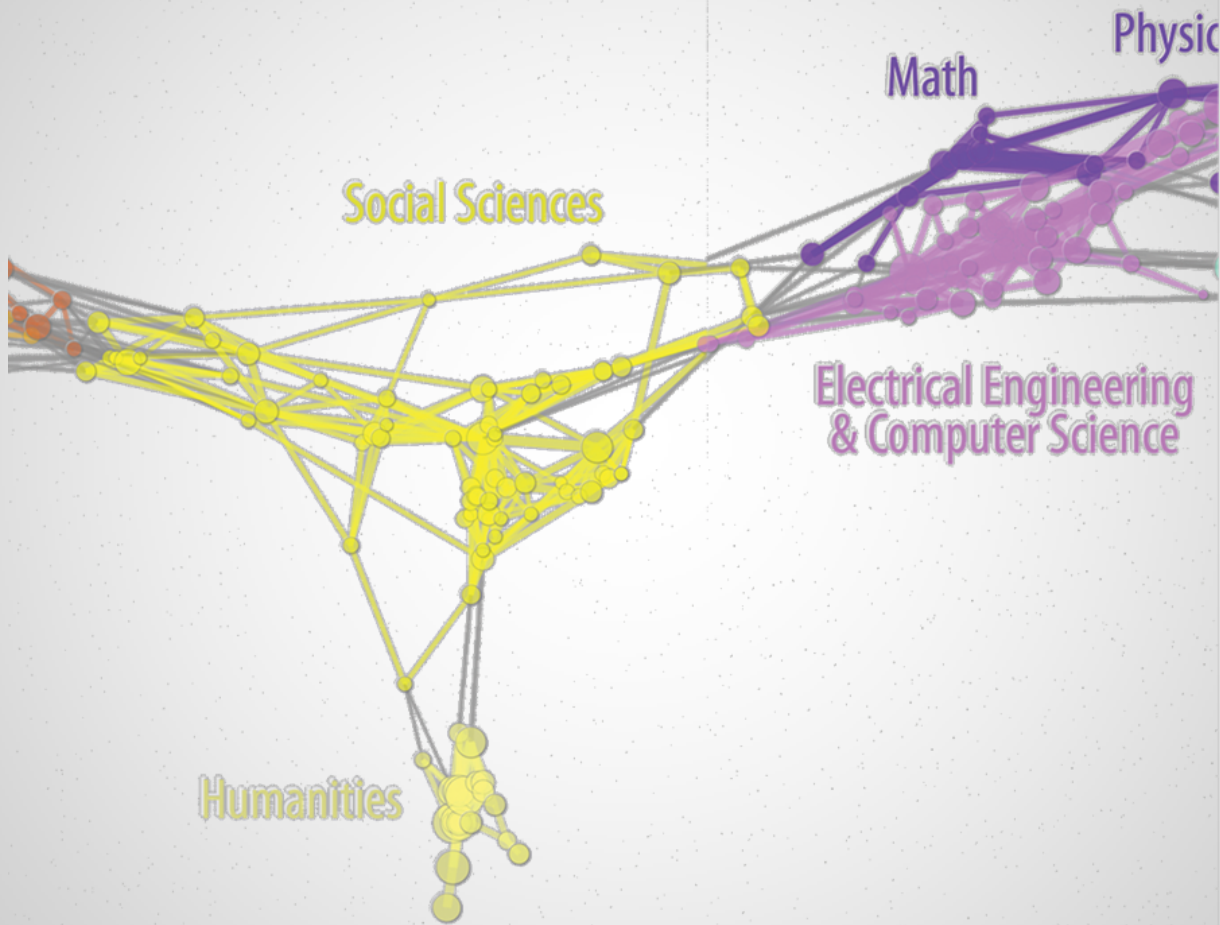
the (unexpected) innovation potential  
for computer science  
with our “soft” partners  
in Social Science and the Humanities

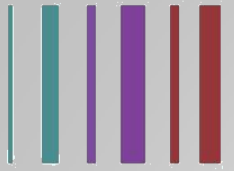
# The “Map of Science”



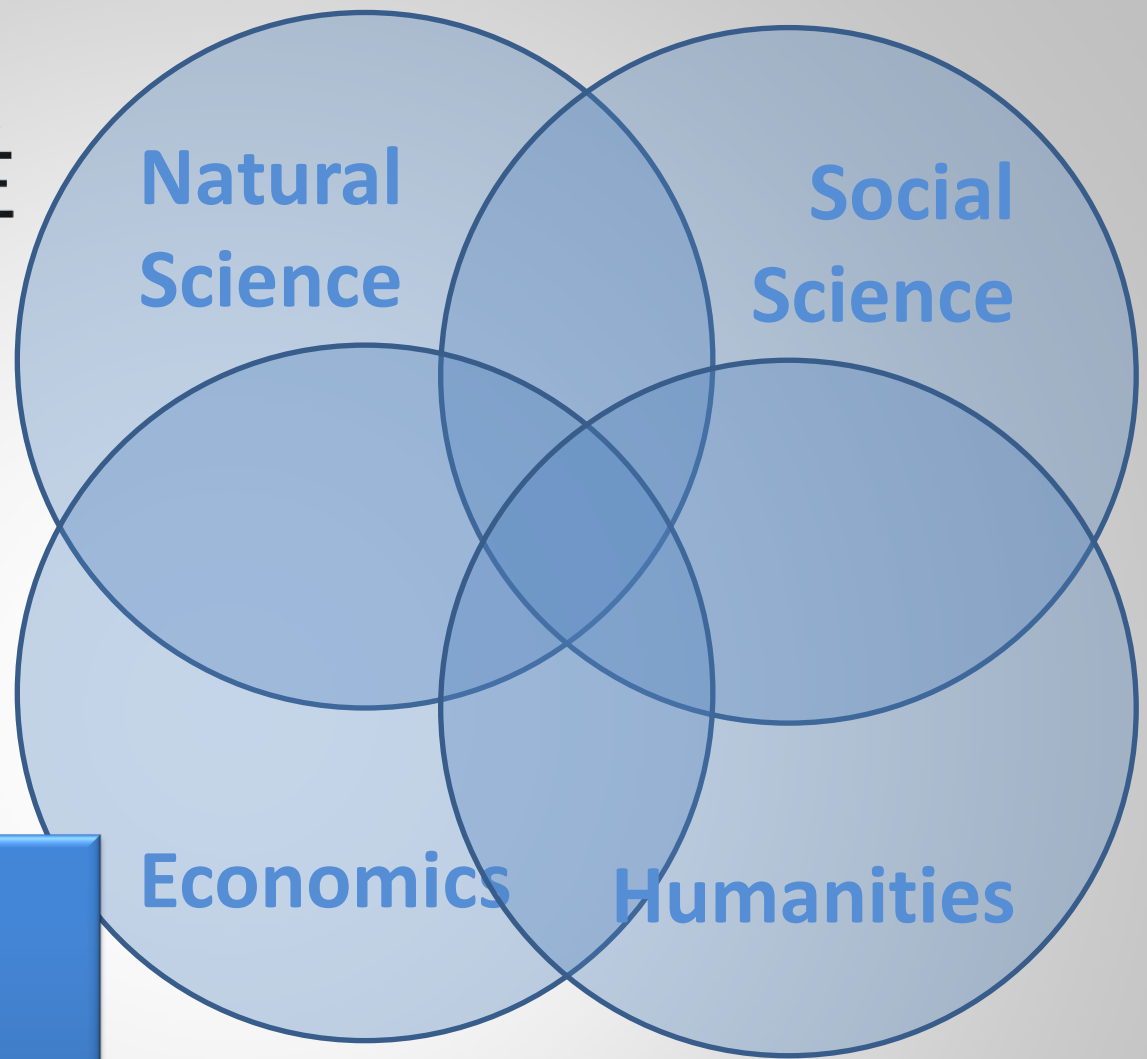
Based on:  
7.2 million scholarly documents,  
16,000 journals  
2001-2005

# See what happens in the heart of the map of science





NETWORK  
INSTITUTE



- 130 research fte
- 250 headcount
- 6m€ external funding
- 500 publications
- modest budget:  
€2300 per fte

# “Connectivity changes everything”

- the digital **world**
- the knowledge **society**
- the dynamic **organisation**
- the networked **individual**



- helping with the information and knowledge overload
- ensuring security, privacy and trust
- accelerating science through e-Science
- improving health & well-being through e-Health
- understanding cultural identity in a networked world
- improving access to our cultural heritage

# What's in it for Computer Science ?

virtual environments & serious games  
3D modelling & simulation,  
game theory, multi-agents



how to represent & compute with  
implicit & common-sense knowledge

logical inference in a  
distributed environment

information acquisition,  
spreading and processing  
in a network

analysis of very large  
text corpora  
(syntactic, semantic)

dealing with “difficult” data:

- heterogeneous
- dynamic
- inconsistent
- distributed

# Joint lab facilities

## Entertain Lab



<http://www.youtube.com/watch?v=nirrSw2SrEM>

## Game Cellar



## DAS4 WAN cluster



## Media Lab





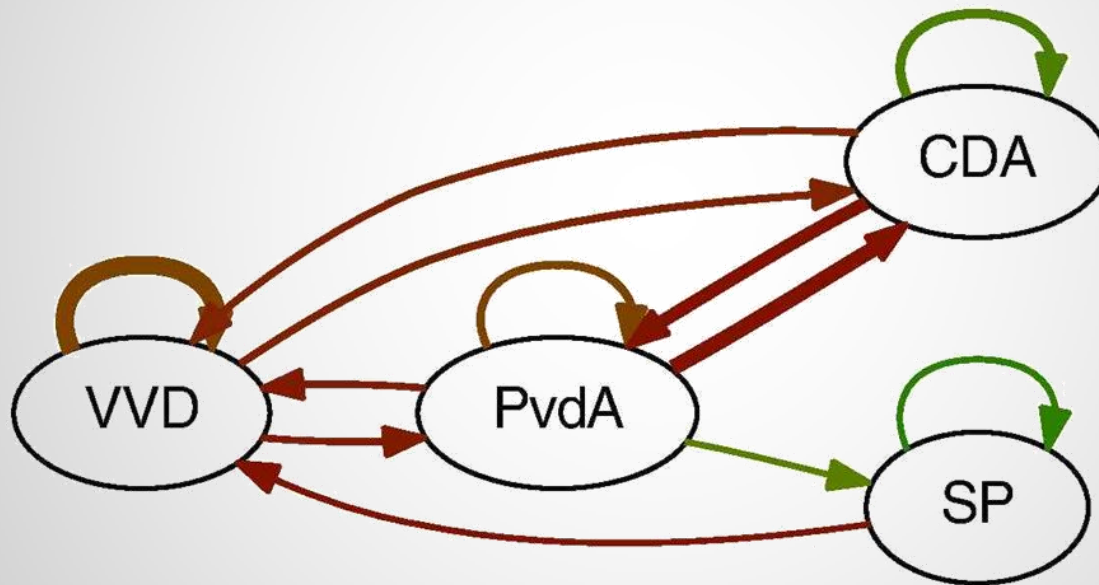
# Our instruments to **facilitate** interdisciplinary research



- **Joint research assistants**  
(2 researchers from 2 faculties can ask for 2 students from 2 faculties for 1 year)
- **Joint PhD projects** (2 supervisors from different faculties each get  $\frac{1}{2}$  a PhD student)
- **Sponsoring of: events, EU proposals, training**
- **Communication:** postermarkets, mailing list, Web site
- **Public-Private-Partnership projects** between humanities researchers & creative industry
- **Research vouchers with industry** (fund a researcher 5k€ to spend 1 month with a company)

# Example: Communication Science:

Is the content of party-political programmes and election speeches predictive of failed government coalition attempts?

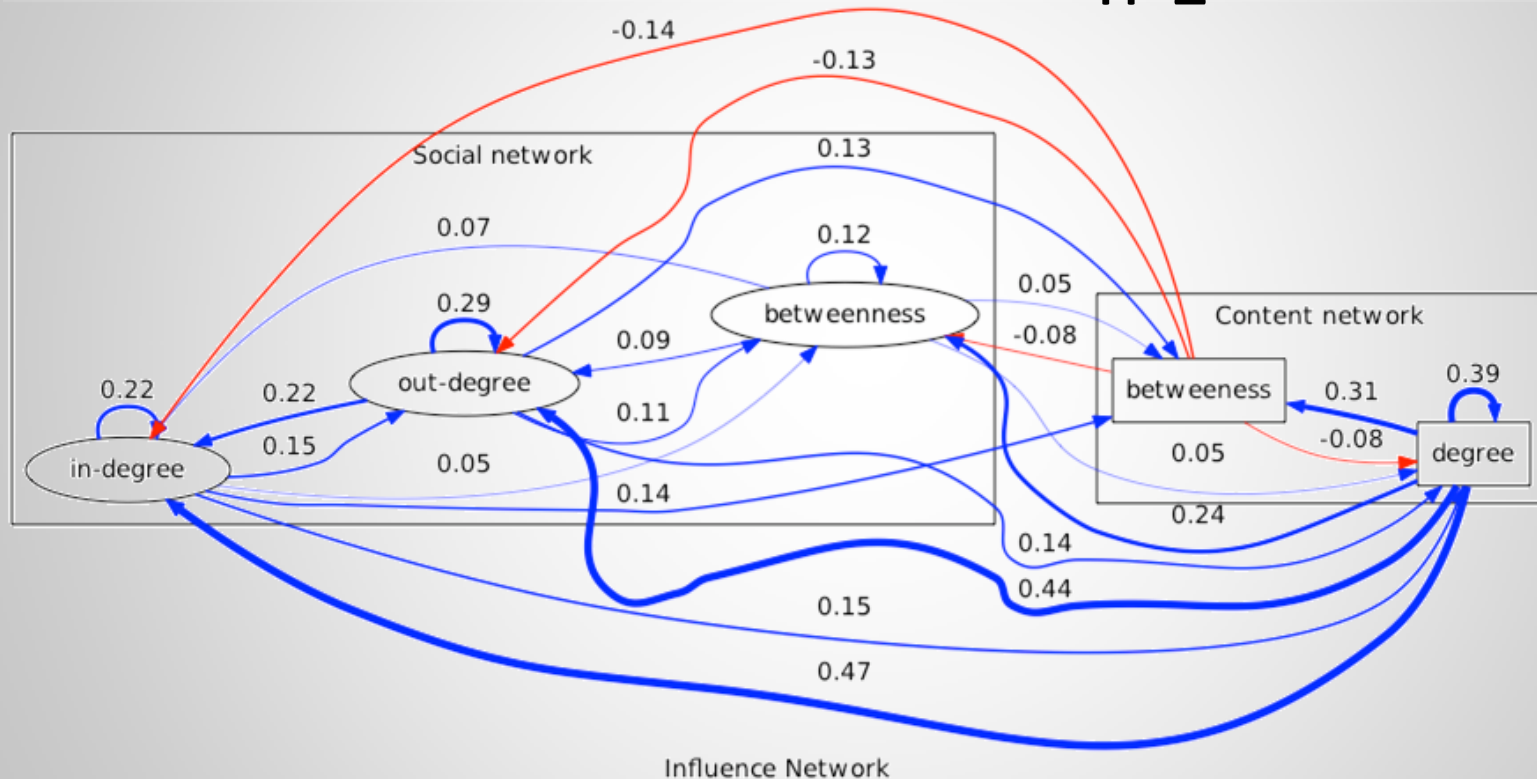


## Data:

- All party manifesto's,
- half a year of all Dutch newspapers

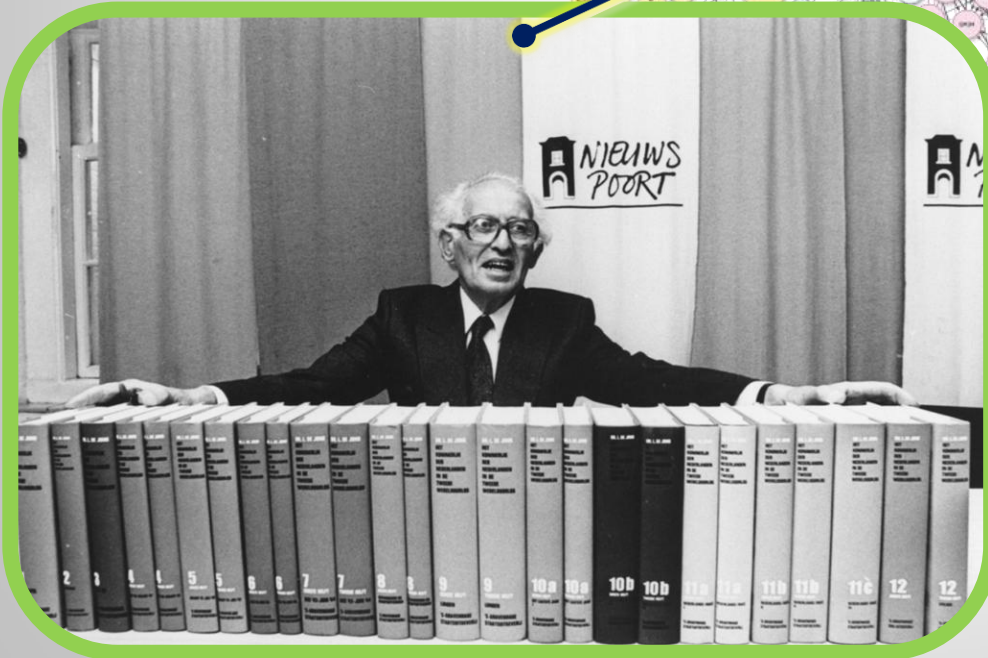
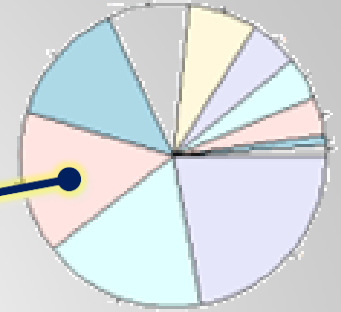
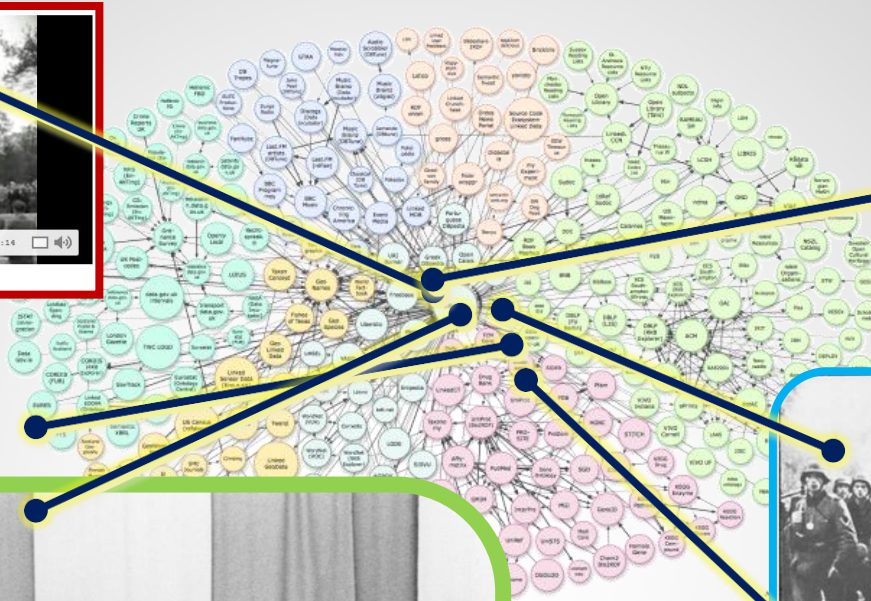
# Example: Organisation Science

Predicting social network at  $T_n$   
from content at  $T_{n-1}$ ?



- Discussions from online forum nl.politiek
- 21.000 participants talking about 19 Dutch political parties during 259 weeks.

# Verrijkt Koninkrijk





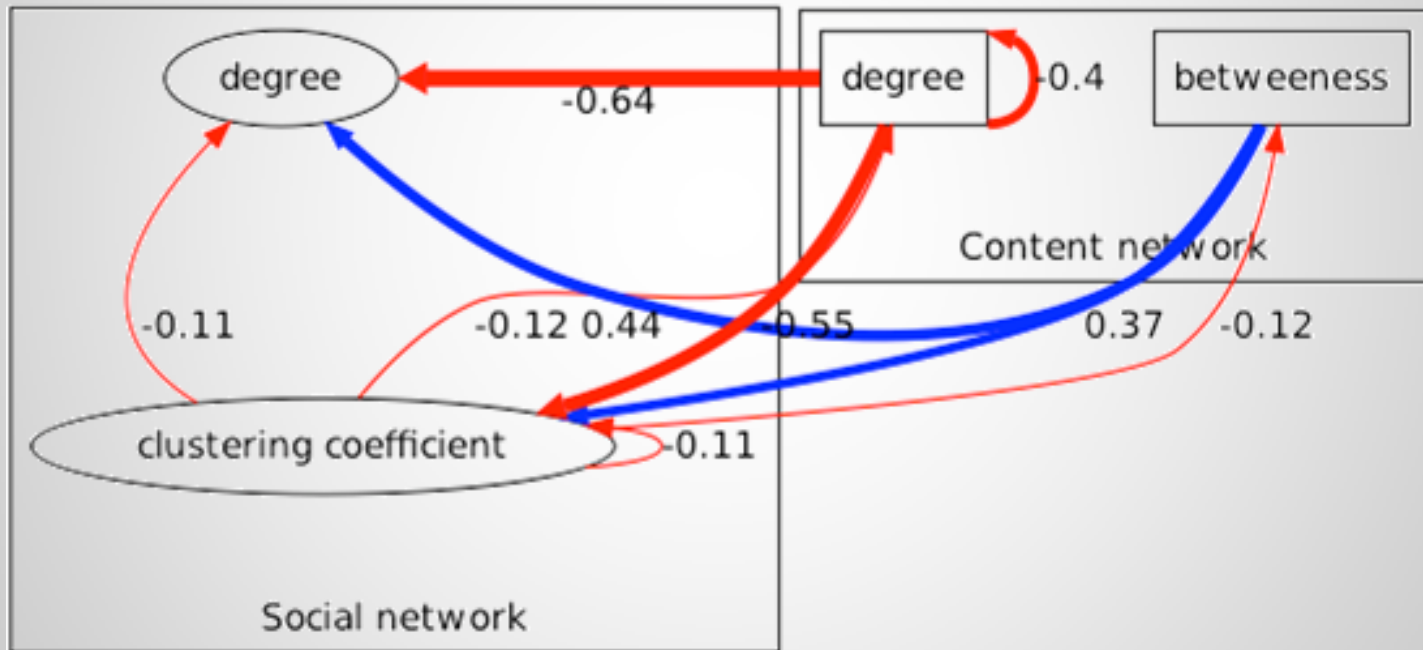
# M0num3nt3n app

> 3000 monuments (4 & 5 May)



# Example: Science Dynamics

Is thematic co-occurrence at  $Y_n$   
predictive of co-authoring at  $Y_{n+1}$  ?



- 5 year conference series,  
1000 papers/year, 3000 authors/year

# Industry Speed-dating & vouchers



**MORPHEUS**

Literature study on creating durable knowledge sharing communities



Software prototype on finding cultural heritage objects based on attributes



Facebook analysis on relation between language-use and interaction frequency



Social network study on dynamics in knowledge sharing



Developing inexpensive virtual reality hardware

# Industry Speed-dating & vouchers



Developing algorithms for skill matching



Survey report on green IT practices



KADASTERDATA

de plek voor woninginformatie

Software to reduce technical barriers  
for open data publishing



Belastingdienst

Experiments with open data publishing





# PPP's with creative industry (embedded young researchers)



- Innovation strategies for the Concertgebouw
- Ethics of bio-art
- Cultural apps for Amsterdam
- Crowdsourcing for cultural heritage knowledge
- 3D Reconstructions of lost monuments
- Product valorisation in the creative industries
- Optimizing user-involvement in creating products

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