NEMOG – EPSRC Funded Project

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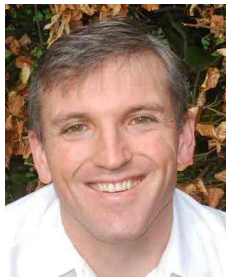
What is NEMOG?

- New Economic Models & Opportunities for Games (NEMOG)



Peter Cowling

Feng Li

Kiran Fernandes

Ignazio Cabras

Daniel Kudenko

Knowledge Transfer Network
Creative Industries

TIGA
Representing the Games Industry

the Creative Assembly

Science City York

introversion software

ALBINOPIXEL

AI Factory

GAMEREPUBLIC

AiGameDev

SiDE
Social inclusion through the digital economy

Complex City apps

PLAYGEN

miniMonos

TECH CITY UK

FOUR DOOR LEMON

Revolution

RED KITE GAMES

LIMBS ALIVE

CITY OF YORK COUNCIL

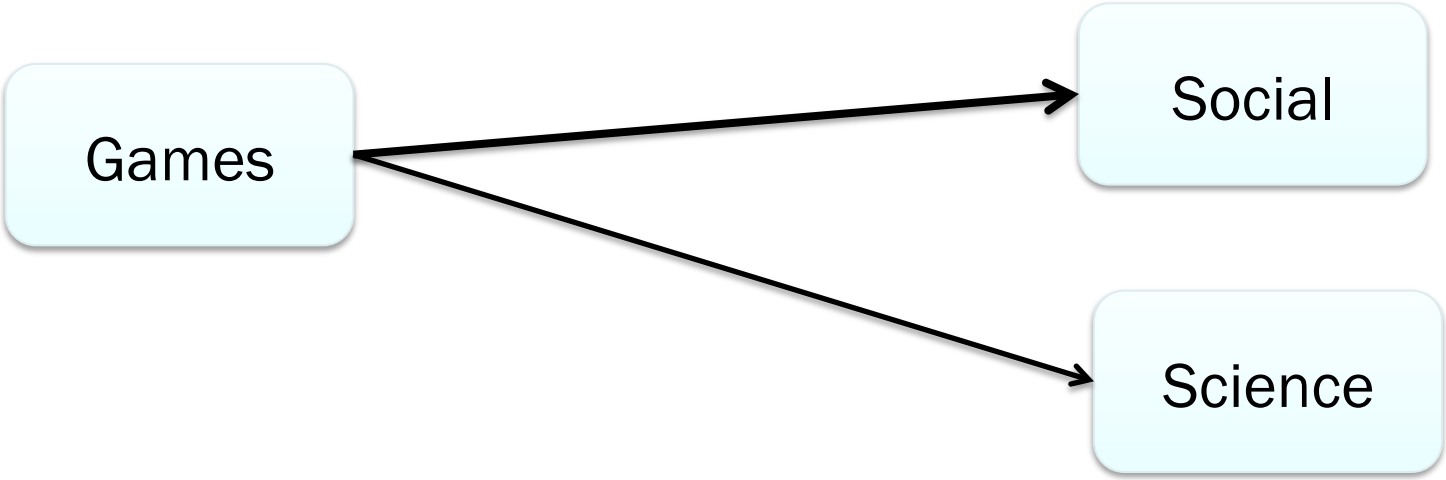
A British thing

- 1 in 3 people describe themselves as gamers. (ISFE)
- Overall, in 2012 UK consumers bought a total of 63 million console & pc videogames – which works out at more than one per person in the UK (UKIE/GFK-Chart Track)
- Take up of games console play has increased to over 50% in the last year (Ofcom)
- Half of UK households contain at least one video-games console. (Ofcom)
- Almost as many people regularly go to the cinema as regularly play online games on a PC. (Digital Entertainment Survey)
- 50% of Facebook visits are to play games (Mark Zuckerberg)

At the Heart of UK Business

- The UK has the biggest developer base in Europe, and is home to 48 of the world's top 100 development studios. (Develop 100)
- 7050 people work in the computer games development and publishing, with a further 6,900 working in VFX, 27,550 in online content and 800 in mobile content.
- Alongside over 1000 game and software retail specialists, a total of 6,700 retailers sell games. (GFK-Chart Track)

What is the NEMOG project about?



Games for Stroke (Ulster)

- The Problem Area:
  - **Stroke** is a leading cause of severe physical disability.[1]
  - Difficult to provide optimal therapy for patient's needs.
  - Difficult to maintain patient motivation.[2]
  - Upper limb remains weak in up to 66% cases.[3]

- The Solution:
  - Technology has been applied to stroke rehabilitation in many studies.[4]
  - Video games may be effective in optimising engagement & motivation.

1. British Heart Foundation & Stroke Association (2009) *Stroke Statistics.* http://tinyurl.com/stroke09
2. Burdea (2002) *"Key note address: Virtual rehabilitation – benefits and challenges."*
3. Van der Lee et al. (1999) *"Forced use of the upper extremity in chronic stroke patients".*
4. Crosbie et al. (2007) *"Virtual Reality in Stroke Rehabilitation: Still More Virtual Than Real".*

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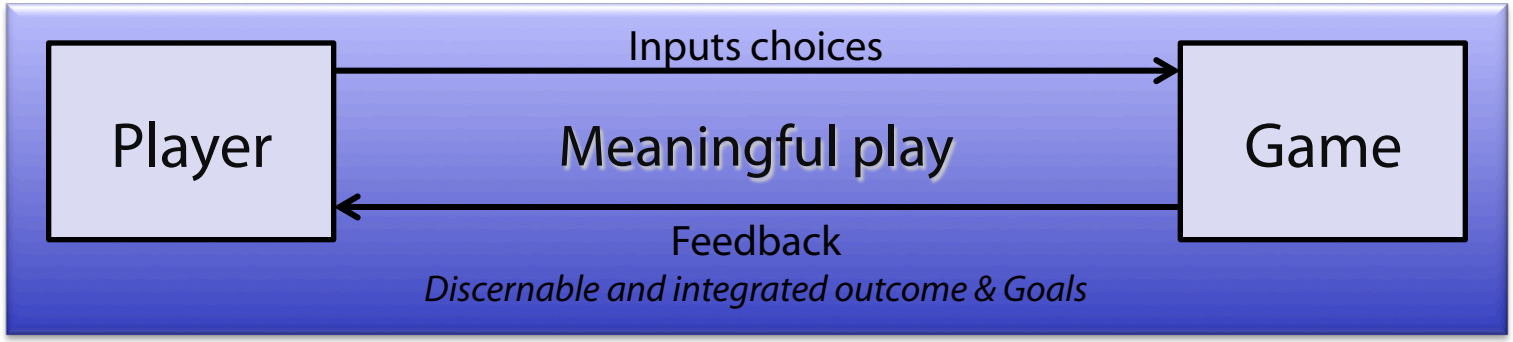
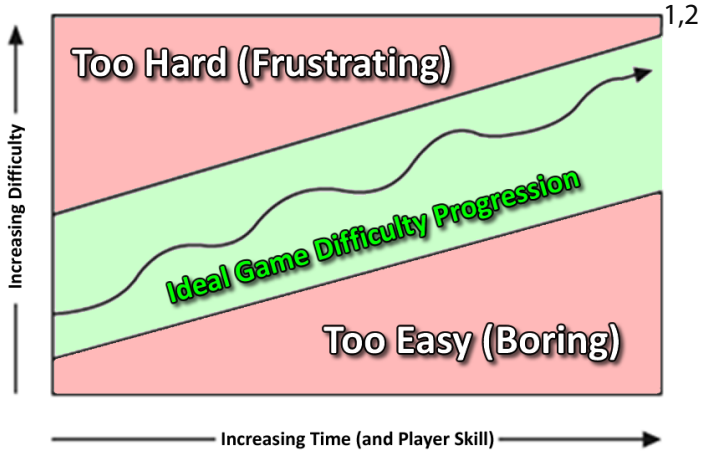
Game Design Principles

- Meaningful Play





[1,2]

- Maintaining Challenge Appropriately
  - Match patient abilities.
  - How to maintain challenge?
- How to handle failure?

1. Csikszentmihalyi (1988) *"Optimal Experience: Psychological Studies of Flow in Consciousness"*.
2. Rabin (2005) *"Introduction to Game Development"*.

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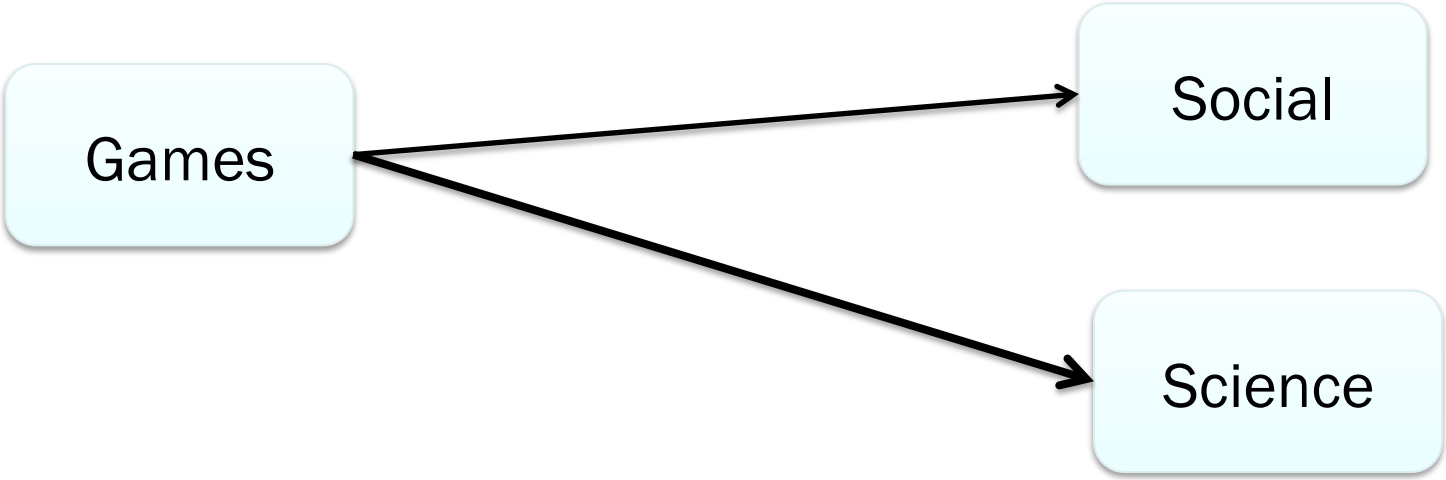
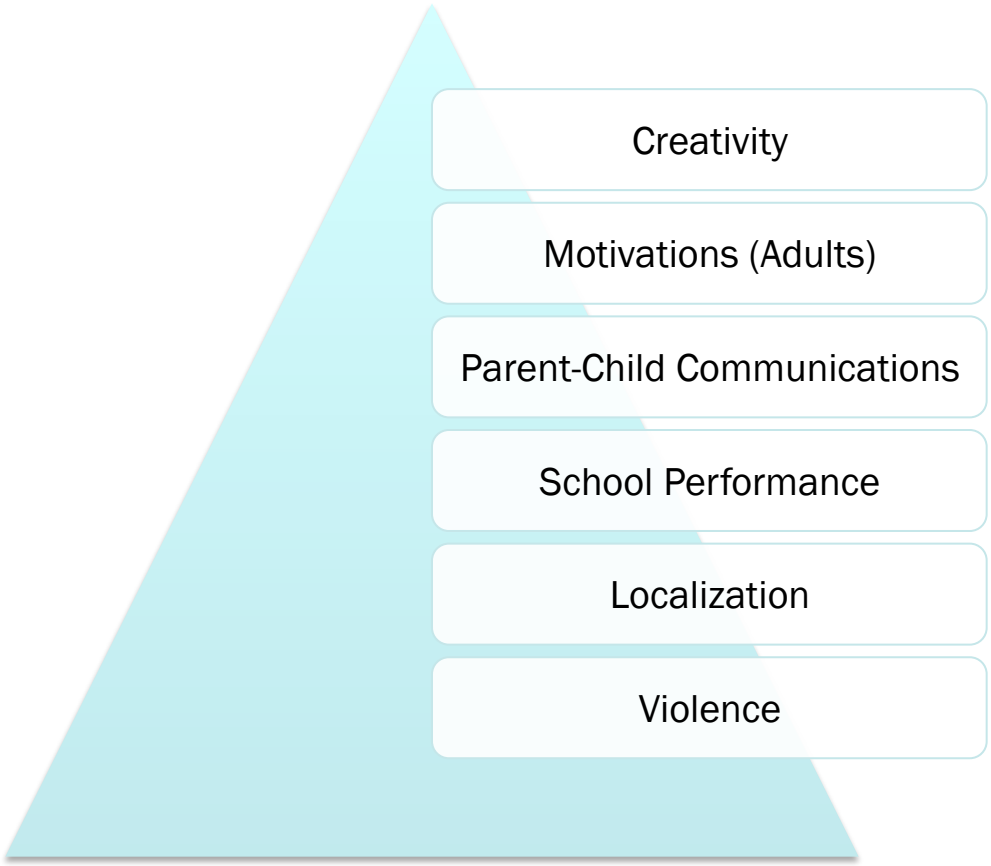
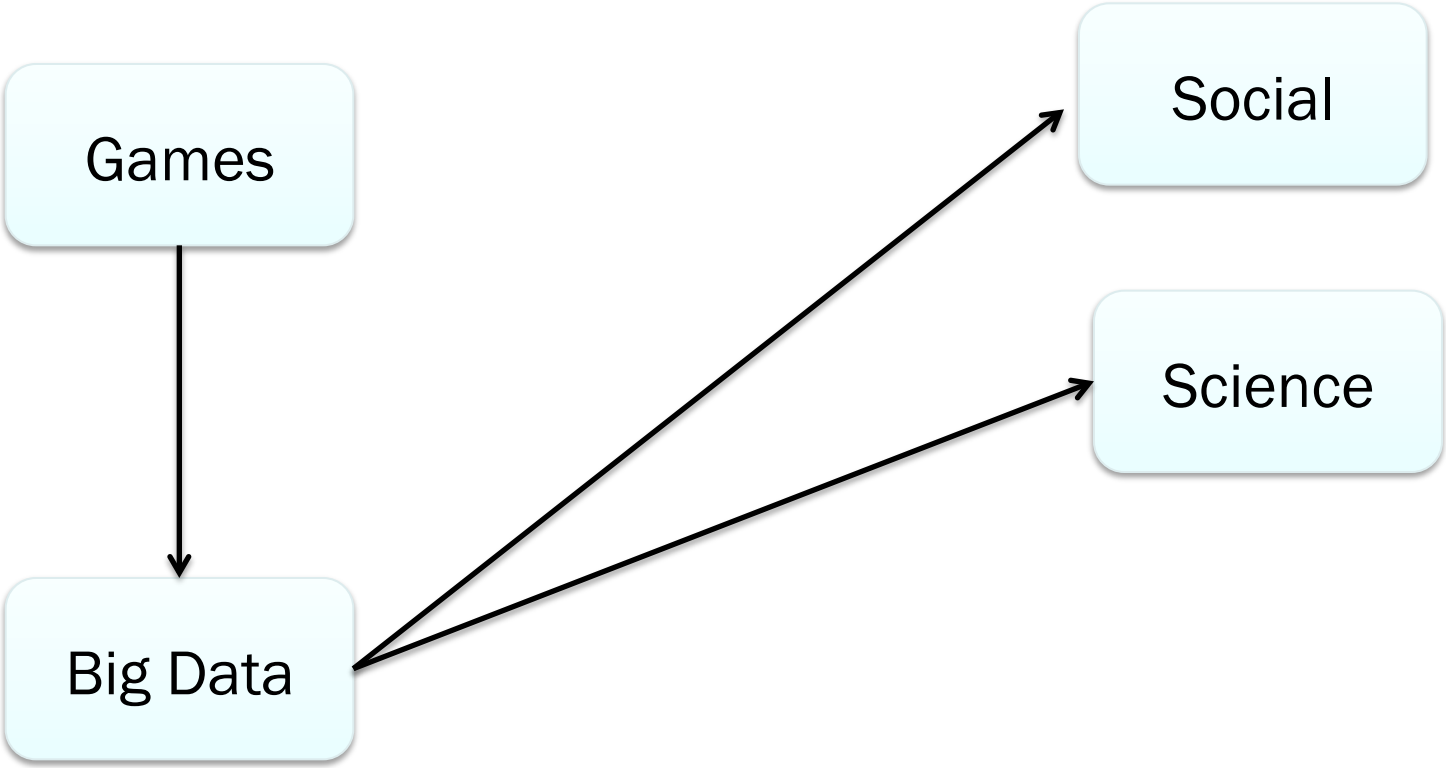


Games for Science

Literature on Games



What is the NEMOG project about?

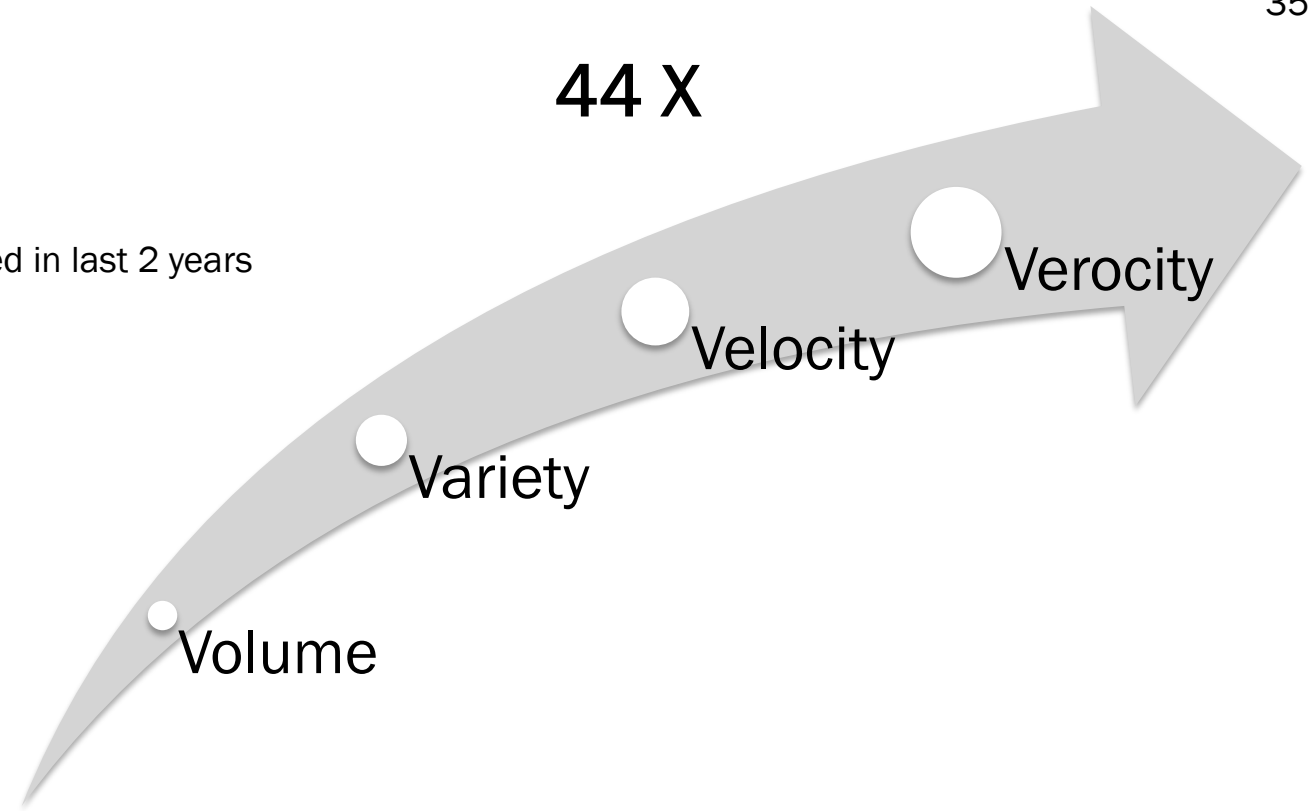


What is Big Data?

2020
35 Zettabytes

44 X

2.5 quintillion
90% generated in last 2 years



2009
800,000 Petabytes

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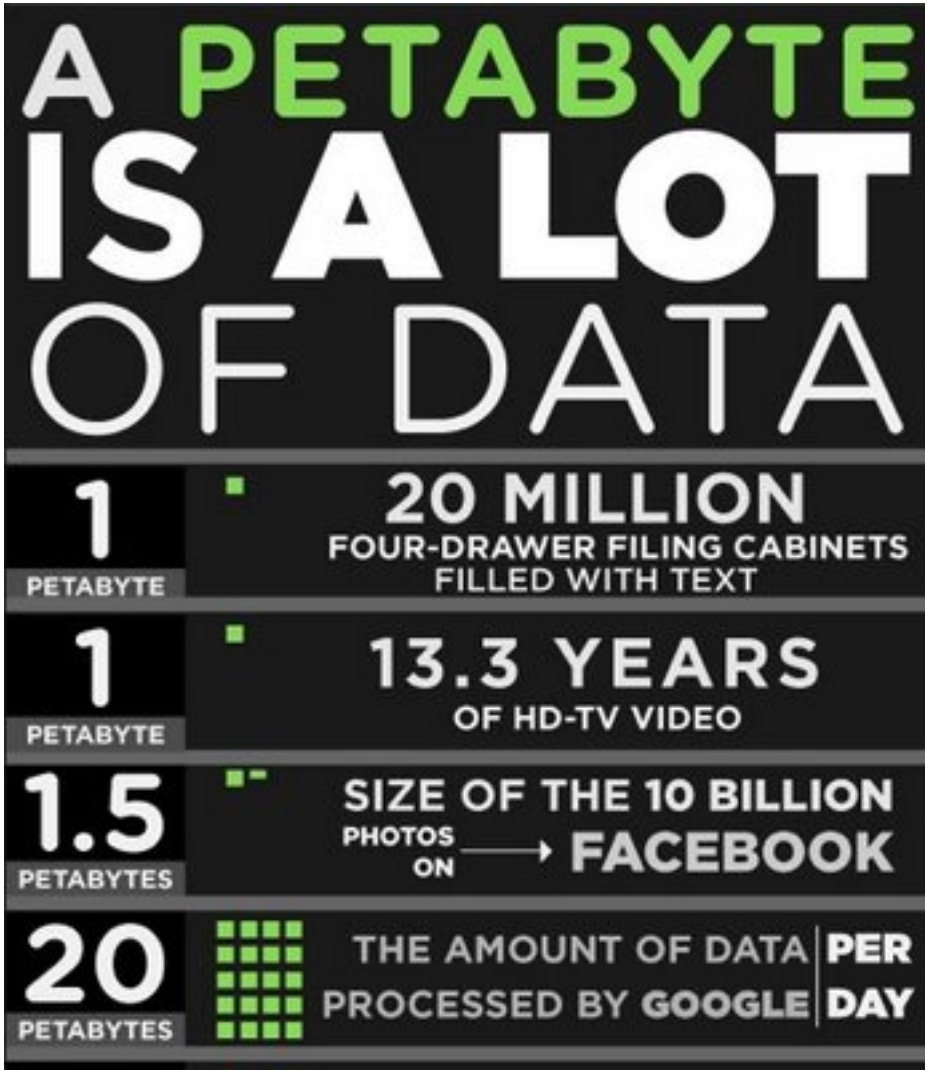

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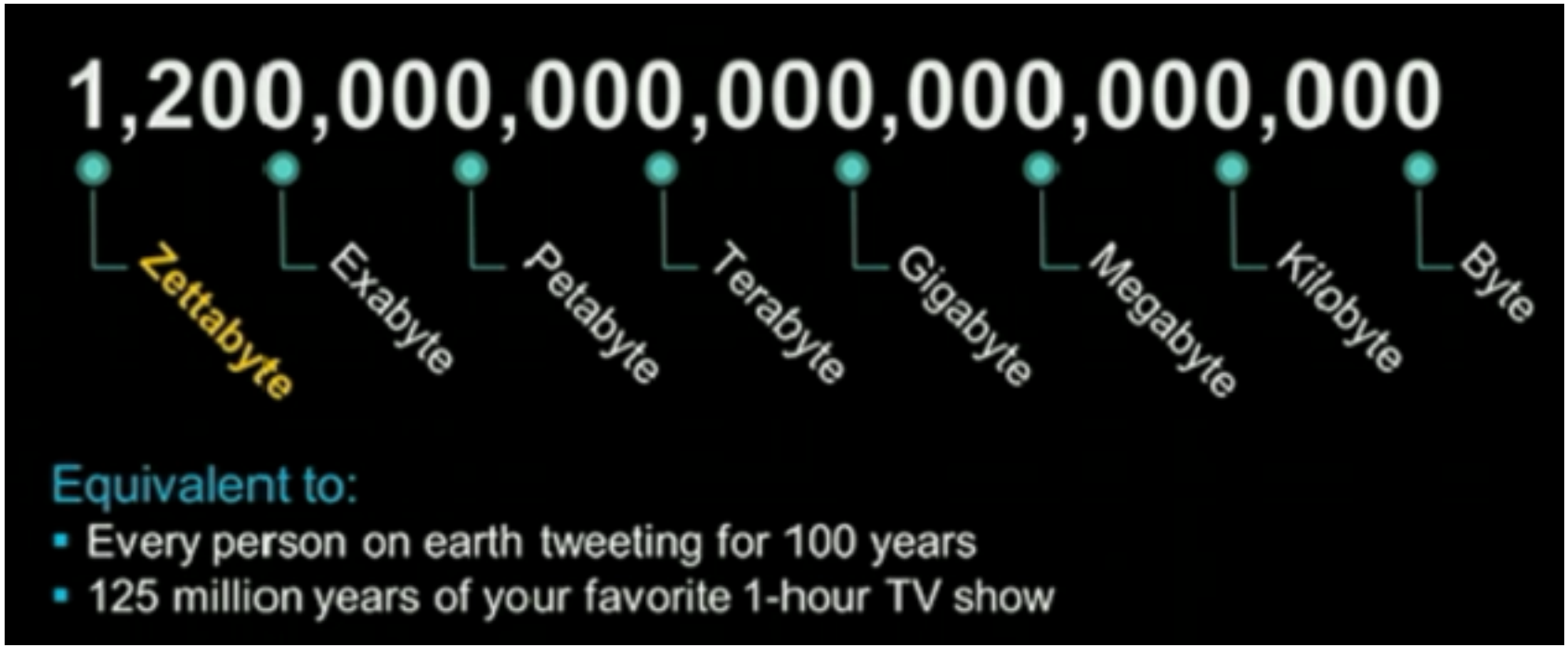

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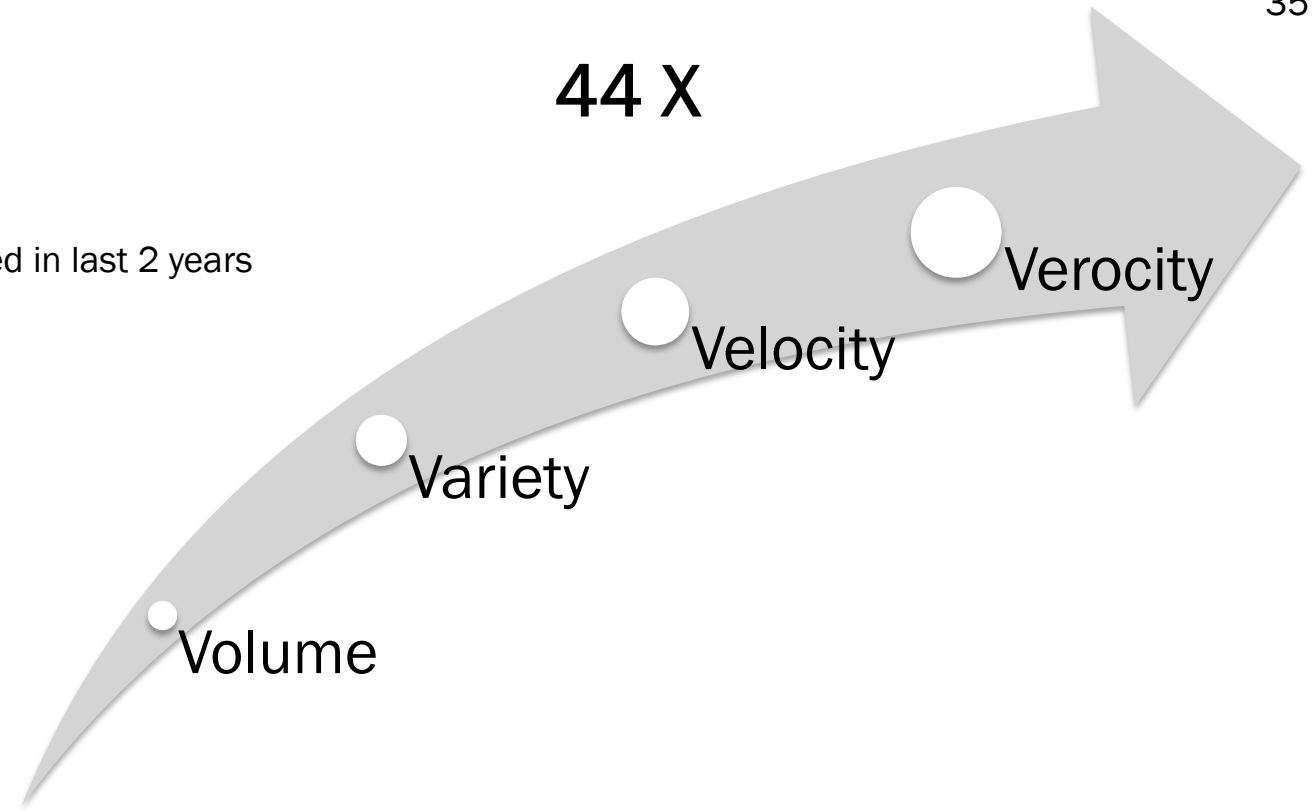

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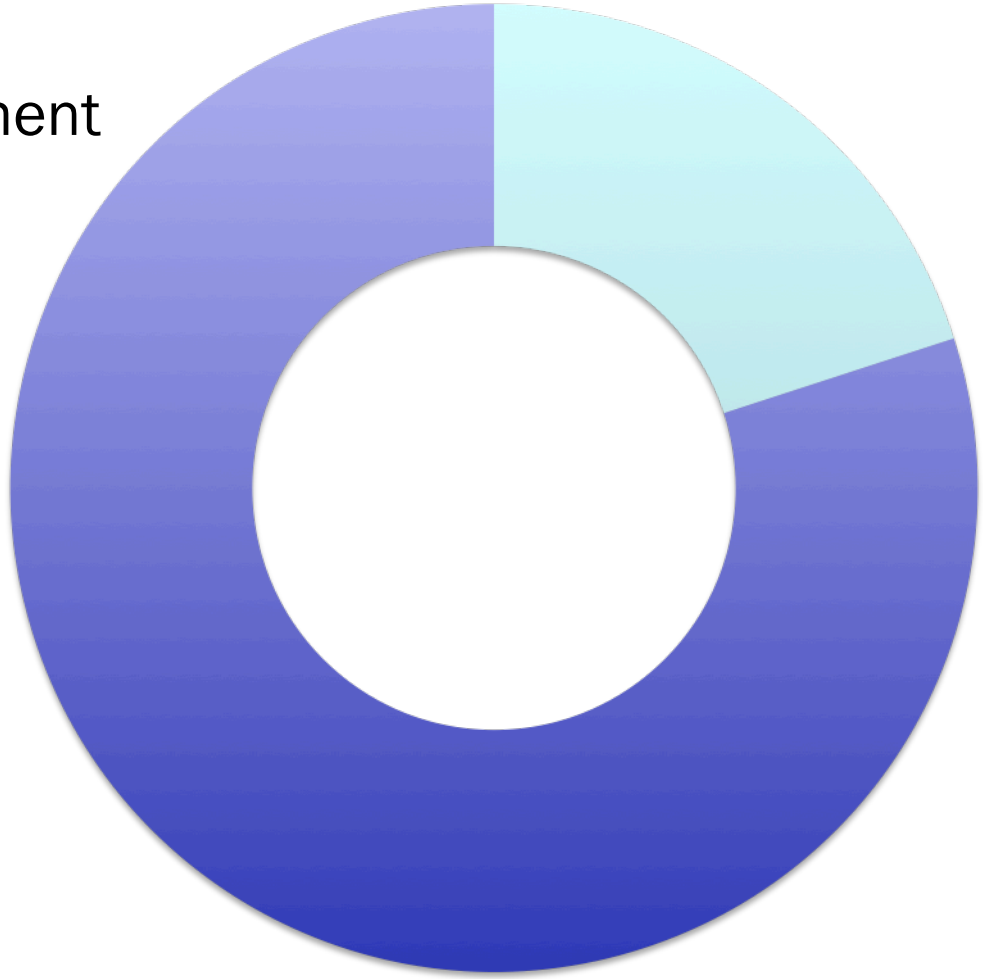
What is Big Data?

Data in Movement
Data in Rest



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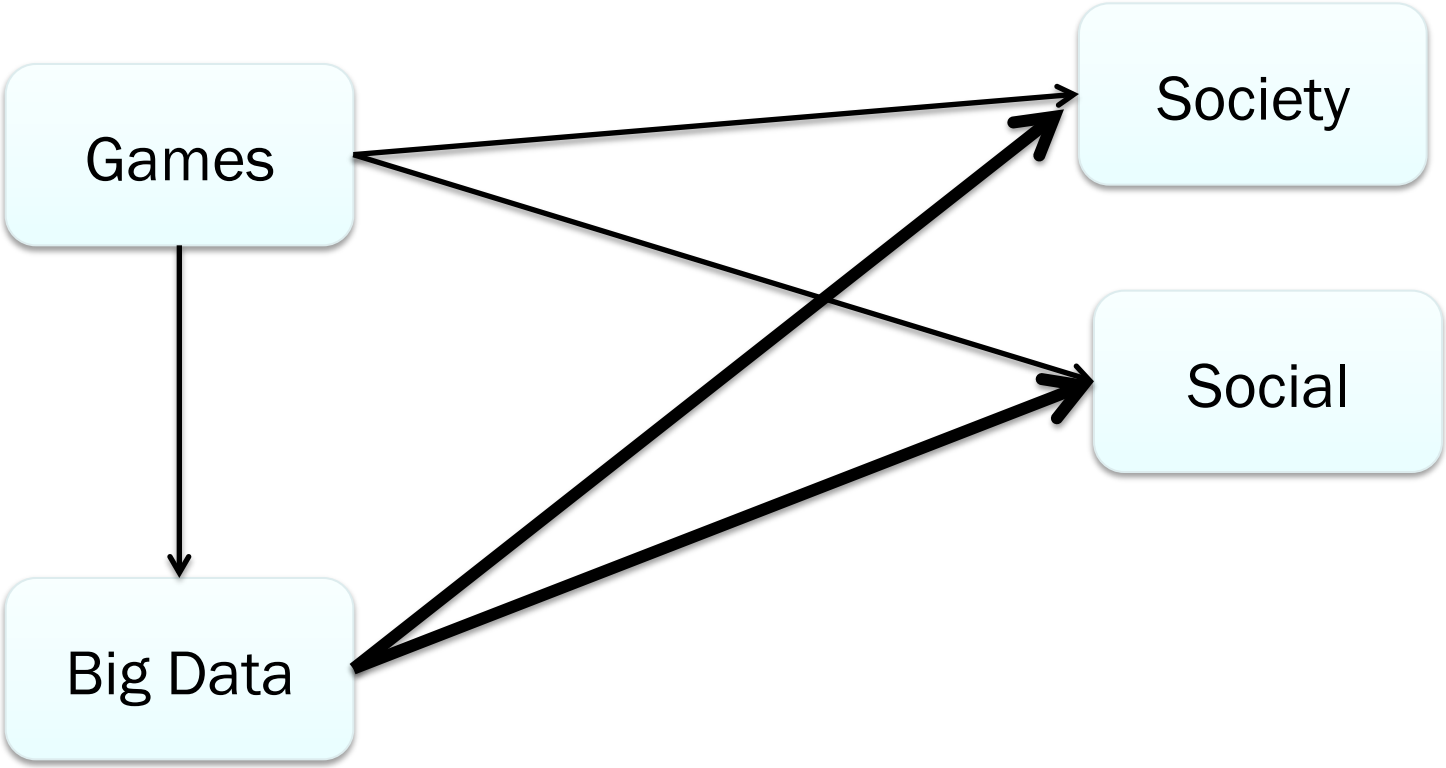
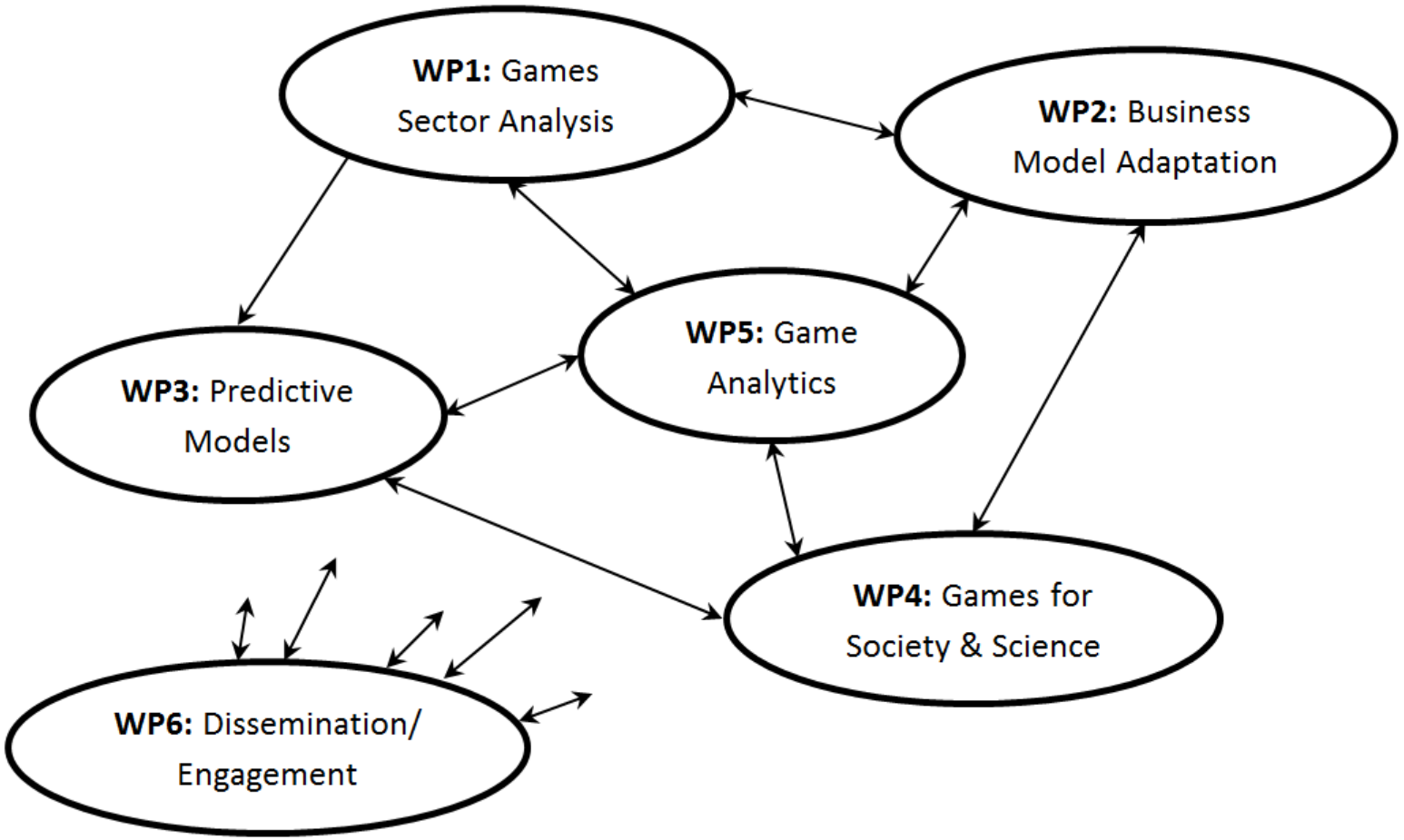


NEMOG Project



What are we going to do?

- https://www.youtube.com/watch?v=fI-K_KmUSbQ