



# Silver Screen Meets Black Gold

What Oil and Gas can learn from the Film Industry

George Ilko, 29<sup>th</sup> May 2013, Aberdeen

# Advance Organiser

*As Einstein said, “Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid.”*

- An introduction to ‘Smart Thinking’ 
- How the film industry uses technology
- How the oil and gas industry could benefit from a similar approach

# About ISN

- Founded in 1999
- 3 of top 4 UK Independents
- Specialist in Upstream Infrastructure



# Introducing 'Smart Thinking'



# What is 'Smart Thinking'

'Smart Thinking' is about the content of what you know and how you use it...



James Dyson



Fiona Fairhurst



Spencer Silver & Art Fry

# Creating smart habits

...and changing behaviours:

- The mind is designed to think as little as possible

In 1870 this man...



Christopher Sholes

Created this...



QWERTY keypad

# Creating smart habits

...and changing behaviours:

- Habits are created by consistent mapping and repetition



*Habit change requires replacing bad habits with new ones! E.g. Email*

# Promote quality learning

...by knowing your limits:

- The mind imposes limits when perceiving and thinking about the world (the role of three)





# Promote quality learning

- Use your awareness of these limits to improve the quality of your knowledge...



or



[www.moviemistakes.com](http://www.moviemistakes.com)

# Understanding how things work

- Causal knowledge is the information you know about how the world works
- The quality of our causal knowledge is worse than we think it is (10,000 HRS!)
- We can improve the quality of our causal knowledge through self-explanation



# Making comparisons

...and applying your knowledge:

- Reusing past experiences requires finding similarities between past and present
- Analogies allow us to use similarities from distant domains
- Retrieving a good analogy can be difficult, but there are ways to improve it
  - We need high quality knowledge about the base domain
  - We need to connect the base and target domains
  - *We need to re-describe the problem*



# How the film industry uses technology

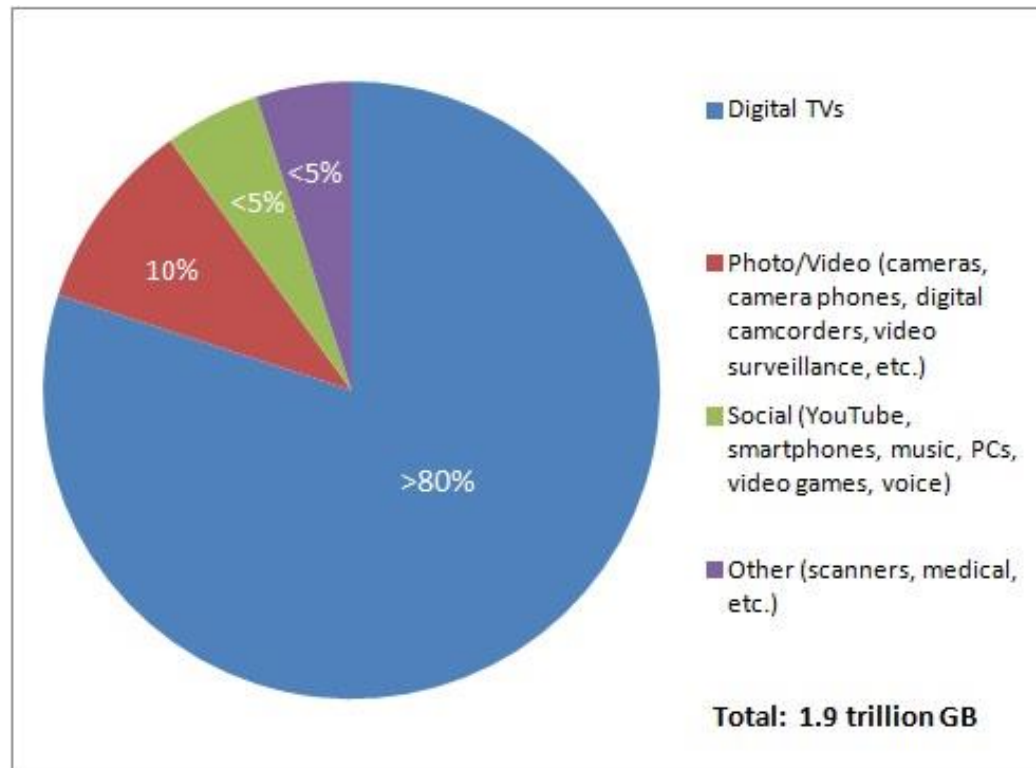


# Data created in 2012 by Source

- In 2005, analysts at market research firm IDC began publishing an annual estimate of all the bytes added to the “digital universe”
- Defined as “all the information created, replicated, and consumed in a single year”
- the number has grown from 130 billion gigabytes to 2.8 trillion gigabytes in 2012
- IDC’s latest projection is that by 2020 the number will reach 40 trillion.

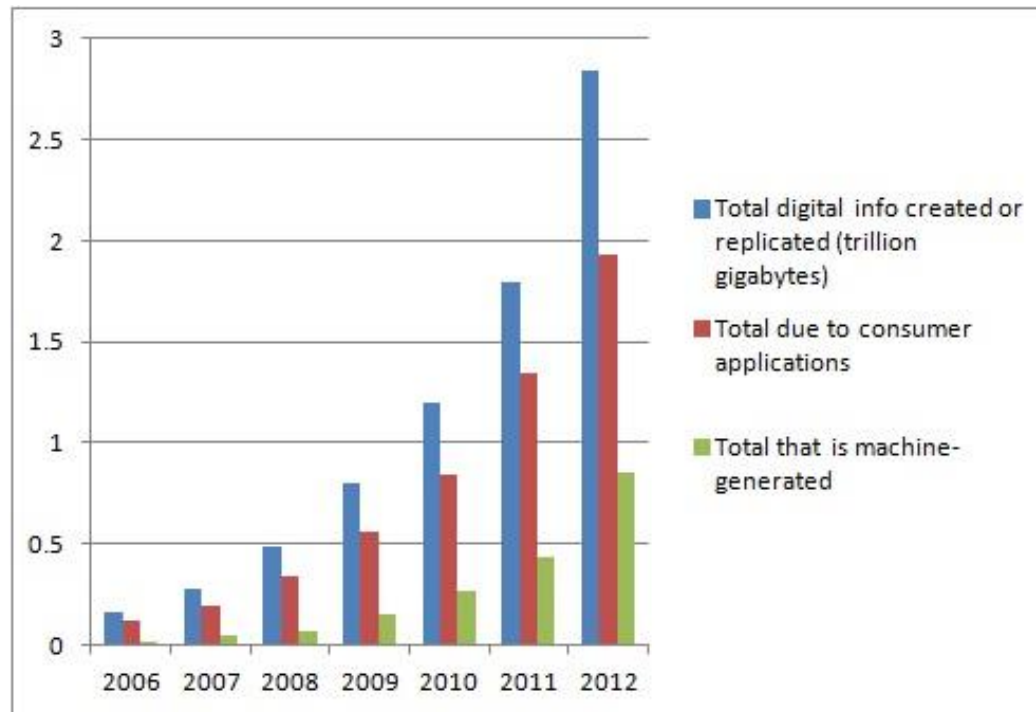
# Data created in 2012 by Source

...Source: IDC



# Data created in 2012 by Source

...Source: IDC



# Data created in 2012 by Source

- The numbers show us that the world's supply of what is commonly called "big data"—pools of analysable and potentially useful digital information—is still relatively small
- Much of the data generated by consumers, like that episode of your favourite sitcom saved on your Sky+ box, isn't very useful for analysis and is eventually deleted
- More promising for big-data analysis are the readings from machines monitoring our world, from surveillance equipment and medical devices. And that's just getting started!



# The Digital Intermediate Process

...from celluloid to digital to celluloid:

- 24fps images
- 2K = 2048x1556 pixels or 12.54MBps frames
  - $12.54 * 24 * 60 * 120 = 2166912$ MB or 2116GB or 2.0TB
- 4K = 4096x2048 pixels or 50.26Mbps frames
  - $50.26 * 24 * 60 * 120 = 8684928$ MB or 8481GB or 8.28TB

# The Digital Intermediate Process

...from celluloid to digital to celluloid:

- Telecine from rushes, to picture lock
- Manual film scanning and editing (splicing, conforming, dust busting)
- Data Management (2.06TB per 6 reel 2K film requires 330Mbps jitter free playback per suite)

# The Digital Intermediate Process

...Colour science and digital film recording:



# Capital FX and 'Smart Thinking'

...how 'Smart Thinking' changed an industry:

- ARRISCAN Film Scanning
- Barcode reader
- Automating the splicing and conforming of reels
- Automating editing and shot selection
- Automating dust busting and scratch repair

# Capital FX and 'Smart Thinking'

...how 'Smart Thinking' changed an industry:

- Data Management
  - Achieving 2.06TB per 6 reel 2K film
  - requires 330Mbps jitter free playback per suite
  - SGI GRIO SAN (NASA technology)
  - DMF and BETA testing(Vodafone Maclaren Formula 1 and CERN)

# The Digital Intermediate Process

...Colour science and ARRILASER film recording:

- Peter Doyle and his colour memory
- The spectrometer workflow approach
- Look up tables and colour cubes
- The new workflow proven with:
  - Deluxe Acquisition
  - Atonement and the Cinematography BAFTA
  - Children of Men (first remote colour grading)
  - EFILM London was born

# The Digital Cinema Initiative

...how 'Smart Thinking' evolved an industry:

- Air/Sea/Land and language logistics for D&D release
- \$1BN annual cost
- “Have you ever heard of the DCI?”
- “What are you doing this afternoon?”
- Michael, Ali, Jim and JPEG2000 lossless compression
- DCP creation and distribution as an evolution of DI
- An industry first...
  - Ice Age 2:The Meltdown (and the Mammoth’s tail)
  - Casino Royale and piracy

How Oil and Gas could benefit from a  
'Smart Thinking' approach





# From the Silver Screen to Black Gold

...G&G challenges are very similar to film

- G&G data management challenges have been solved using Tiered storage architectures
- Remote playback of large G&G image sets is entirely possible using techniques pioneered to deliver 24fps 2K/4K
- Remote access to G&G workstations via Citrix Modular Architecture ThinClient and XenClient
- De-duplication and replication for business continuity (learn from Kodak's mistakes)

# From the Silver Screen to Black Gold

...Oil and Gas is very slow to adopt new technologies

- Microsoft BPOS launched in 2008
- Flex LM licensing practices
- InfiniBand data networking
- Fibrechannel data networking (FCoE)
  
- *IT needs to be effective, not busy*

# From the Silver Screen to Black Gold

At ISN, we're helping our clients to innovate and leading the way with 'Smart Thinking'...

- Geoscience challenges are very similar to film
- Many technical issues are already resolved (which mitigates your risk)
- Employ Citrix HDX and WAN optimisation (for competitive advantage)
- Embrace consultants with Citrix XenDesktop modular reference architecture experience
- Embrace consultants with High Availability and Citrix XenDesktop architecture experience
- We have existing case studies and are delivering smart thinking solutions in production environments to Oil and Gas multinationals

# Summary

“Everybody gets so much information all day long that they lose their common sense”

Gertrude Stein

- Develop organisational ‘Smart Thinking’
- Research how other industries use technology
- Just because you’ve always done things the same way, doesn’t mean it’s the best way
- Employ consultants with expert base domain and target domain experience

# Thank you

## Any Questions?

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