

Last year....



Digital Offshore

2016



Data Science





Do you make your living selling data?



Do you make your living analysing data?



Do you make your living creating data?



Do you make your living helping others ?





Who thinks the oil price will never rise >\$100 again?



Never drill a dry well again by 2020?



More HC still to be found than found?

Steve H & Scottish Enterprise



- An Engineer 15 years in a Multinational – Oil & Gas Services
- A Business Professional Strategy, M&A, Operations, HR, Business Development, Innovation.
- A coach, mentor & advisor
- A facilitator helping to make things happen

Overview

- 1. SE Supports **individual companies** to grow ...grants/expertise/networks
- 2. SE develops, invests & manages projects to help sectors to grow
 - Creating conditions to encourage growth
 - Removing barriers / obstacles that prevent growth
 - Identifying opportunities and investing in resources to realise them.



"We identify and exploit opportunities for Scotland's economic growth by supporting Scottish companies to compete, helping to build globally competitive sectors, attracting new investment and creating a worldclass business environment."





Predict, Prevent, Produce More

Wednesday 4th May

- 1. Who is in the room?
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- 7. Consultative Study

Objectives

- 1. Share with you our thinking about the **Data Science opportunity**
- 2. Encourage you to volunteer your companies, data, resources to exploring these opportunities
- 3. Update you on our **plans to consult with you** about this opportunity and to seek your active involvement both today and later on.





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Can Data Science Help Maximise Economic Recovery?

Schematic to Help Facilitate Discussions

- 1. Improve the viability of UKCS Operations.
- 2. Improve the viability of Scottish O&G Companies
- 3. Increased sales & exports of Scottish developed Digital/ Data Oil & Gas products & services

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Too many vendors offering unproven golden bullet solutions Current UKCS Exploration Activity is nearly nil

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5 Major Challenges

The cost of implementing data science solutions is perceived to be prohibitive

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1. Improve the viability of UKCS Operations.

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5 Major Challenges

Current price per boe is <\$50 and this is likely to be reality for a while The cost of implementing data science solutions is perceived to be prohibitive

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solutions

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4 Strategic Ambitions

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4 Strategic Ambitions		Support operators to build the Investment case ,prove & de-risk Investment in DS	Increase & Sustain Exploration through DS	Improve reliability & efficiencies through DS
Current price per boe is <\$50 and this is likely to be reality for a while	The cost of implementing data science solutions is perceived to be prohibitive	Too many vendors offering unproven golden bullet solutions	Current UKCS Exploration Activity is nearly nil	Current Production Efficiency is <60%

- 2. Improve the viability of Scottish O&G Companies
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4 Strategic Ambitions	Support DS companies to develop Competitive aligned Risk/reward proposals	Support operators to build the Investment case ,prove & de-risk Investment in DS	Increase & Sustain Exploration through DS	Improve reliability & efficiencies through DS
Current price per boe is <\$50 and this is likely to be reality for a while	The cost of implementing data science solutions is perceived to be prohibitive	Too many vendors offering unproven golden bullet solutions	Current UKCS Exploration Activity is nearly nil	Current Production Efficiency is <60%









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Activity

1. On Line

1.	What type of organisation are you?
	An ICT provider - SME
	An ICT provider - ,major
	A user of ICT - in the O&G Industry
	A user of ICT - outside the O&G industry
) An academic
	A representative from a public agency such as Scottish Enterprise
	Other

2. We need your help to help us build the evidence of need and demand for support & investment.





Predict, Prevent, Produce More

In Development....

- 1. A case for Digital / Data as a TLB theme Icadership board
- 2. Digital / Data to be a part of the appropriate solution centres within the **OGTC** ...connected to....

Activity

On Line 1.

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Other				
	ost valuable opportunity y our organisation?	ou see for the appli	cation of current data	a management & analytica

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3. A Data Science for O&G Centre



4. A support programme


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UKCS Production Profile

Can Data Technology Help improve Productivity?

Find the Missing Platform?



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Government Funded Seismic Programme



Can Data Technology Help find & recover hydrocarbons?

Predict the Predictable?



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Can Data Technology help to reduce lift cost?

Prevent the Preventable?

Figure 10: Weighted Average Lifting Costs for UK and Other Regions





Figure 6: Capital Investment by Region in 2014

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Can Data Technology inform Capital Investment decisions?

Increase ROI



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Opportunity

- 1. Can Data Technologies **increase uptime** and improve efficiency?
- 2. Can Data Technologies **improve prediction** and reservoir modelling accuracies?
- 3. Can Data Technologies better inform capital investment decisions?
- 4. Can Data Technologies reduce lift cost?

However "they" have been saying that for decades...







Data2Text Founded 2009, 3 scientist's + 1 entrepreneur



Floated on AIM in 2014 for £100M

Current trading at £35M and 50 data scientists



Analysis by NLG Engine

EVENT: 6:58 AM



ACTIONS: 6:59 AM

Examples of Where Data Technology Could Realise Value?

Area of Applicat ion		Exploration		Operations & Maintenance		Supply Chain / Logistics		Engineering
Potential Problems / Opportunities	1. 2. 3.	Predict and identify where best to drill for optimum oil flow Understand the geology/seismic for the region not just at a block level. Understand subsurface dynamics and microbiology	1. 2. 3. 4.	Prevent critical equipment failure Identify opportunities to optimise pressure & flow control Manpower scheduling Improved weather impact analysis and forecasting	1. 2. 3.	Reduce total cost of carriage and supply Reduce CO2 emissions from carriage Reduce working capital and optimise inventory profiles	1. 2. 3.	Identify optimum solutions for complex problems based on previous experience Analysis of equipment & process performance Identify ways to extend life of assets





Examples of Where Data Technology Could Realise Value?

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We Are Actively Seeking projects at the Company, Supply Chain or UKCS Region Level

Examples of Where Data Technology Could Realise Value?

Area of Applicat ion		Exploration		B.H.A.P. ideas.
Potential Problems / Opportunities	1. 2. 3.	Predict and identify where best to drill for optimum oil flow Understand the geology/seismic for the region nor just at a block level. Understand subsurface dynamics and microbiology	2.	Imagine a swarm of micro drones, in the reservoir, sending realtime data back. The servoir is a swarm of micro drones, in the reservoir is a servoir is a servoi
				and geological data available for all data

geeks to predict HC's.





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Will this secure, protect or grow jobs...or will we lose more jobs?





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THE FUTURE OF EMPLOYMENT: HOW SUSCEPTIBLE ARE JOBS TO COMPUTERISATION?*

Carl Benedikt Frey[†] and Michael A. Osborne[‡]

September 17, 2013

Abstract

We examine how susceptible jobs are to computerisation. To assess this, we begin by implementing a novel methodology to estimate the probability of computerisation for 702 detailed occupations, using a

Rise of the Robots Will Eliminate More Than 5 Million Jobs





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Harvard Business Review

Fluvial Facies Reservoir Productivity Prediction Method Based on

Principal Component Analysis and Artificial Neural Network

Gao Pengyu¹ Jiang Chong¹ Huang Qin¹ Cai Hui¹ Luo Zhifeng² Liu Meijia¹

(1 Cnooc (China) co., LTD. Tianjin branch; 2 Southwest Petroleum University)

Abstract

It is difficult to forecast the well productivity because of the complexity of vertical and horizontal developments in fluvial facies reservoir. This paper proposes a method based on Principal Component Analysis and Artificial Neural Network to predict well productivity of fluvial facies reservoir. The method summarizes the statistical reservoir factors and engineering factors that affect the well productivity outcosts information by applying the principal component

TECHNOLOGY

How People Will Use AI to Do Their Jobs Better

by H. James Wilson and Cyrille Bataller

MAY 27, 2015





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Create / Attract & Anchor New High Growth Data Technology Ventures





7 Years



From zero to \$10Bn Val and \$1.7Bn Sales

Business Model Innovation

> Can we learn & apply?

Egg Funders and Founders

based on reports in Telegraph, WSJ, and The Atlantic



Digital Founders Cohort 1 April – Sept 15



Next Cohort Live Now - March to Sept 16 Applications now open for early stage





1. Who is your customer?

- What can you do for your customer?
 How does he acquire your product?
- 4. How do you make money off your product?

5. How do you design & build your product?

6. How do you scale your business?

Glimpse the methodology

A 20 week programme built around USA best practice designed to accelerate investor readiness and growth plans.

Digital Founders Cohort 1 April – Sept 15



Next Coho

We need people with ambition, big ideas, hungry to change the world.... Application







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Next Coh

Application

And we need mentors, investors, problem owners to support...







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Support Companies to Grow, Innovate & Internationalise

www.scottish-enterprise.com/oilandgas





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Develop Innovative, **Novel Methods**, **Technologies**, **Services**...

DEBUNKING MYTHS ABOUT INNOVATION THAT MIGHT BE HOLDING YOUR BUSINESS BAC Early Embracing increasing leads to a but it doesn't have to be helping you stay all in all an DON'T HAVE ENOUGH TIME. FAILURE IS NOT AN OPTION Facts Testing and learning are h act. You don't need his he Early Danking of the world's most es to get it rig but this pro I CAN GROW MY BUSINESS SUCCESSFULLY



SCOTTISH ENTERPRISE'S INNOVATION SUPPORT

EM NOT CREATIVE SO I CAN'T BE



prise



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Pathfinders Wanted

- Do you have a datastream or data set that you think might have hidden value within it?
- 2. Do you have **a problem** where you need a business case to validate investment in technology?
- 3. Do you have a **digital technology** or **usage case** that you would like us **to test and evaluate**?

We are looking for bold pathfinders . We have resources , we want your problems so we can prove value.

Contact: <u>steve.harrison@scotent.co.uk</u> or <u>duncan.hart@thedatalab.com</u> to arrange a discussion.



Myth Busting

- 1. We don't have time
- 2. We can't spare the people
- 3. We don't have the data
- 4. We can't afford it
- 5. It can't be that good
- 6. Lets wait

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Digital Entrepreneurs Wanted

- Do you have an idea for a Data Technology venture but unsure where to start?
- 2. Would you like to be a Digital Offshore millionaire, but don't have a killer idea?
- 3. Do you have an idea for a Data Technology but not the ability to develop it?

We are looking for bold entrepreneurs.

We have resources, we want to help you build a venture of scale & value.

Contact: <u>graham@Elevatoruk.com</u> or : <u>steve.harrison@scotent.co.uk</u> to arrange a discussion.

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SCOTTISH DEVELOPMENT INTERNATIONAL

Evidence Gathering

- 1. Listen to you and others
- 2. Establish the **demand** and urgency
- **3. Understand** the challenges, constraints and friction
- 4. Explore ideas, plans and ambitions
- 5. Flush out potential projects



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Resource Approval

- 1. Develop the **project concepts**
- 2. Seek **industry endorsement** and buy-in
- 3. Gain **necessary approvals** and permissions
- 4. Start to **deliver support** (ASAP)



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Review

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Thank You

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