Event: Improving IT/IM Infrastructure Decisions

Strategies for oil & gas information management

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Head of Information Management

amor group

Global issue in finding information in data

2 x

Data is doubling every two years

1 in 3

Business leaders frequently make decisions based on information they don't trust, or don't have

1/4

Managers spend 2 hours a day searching for information
50 % of what they find is worthless
42 % of them accidentally use the wrong data weekly.

At what cost to the organisations?

Sources:
- **The Guardian, 2010**
- **IBM Institute for Business Value, 2009**
- **IBM CIO Study 2010**

Data - where is it when you need it?

1. Capital Projects

Data

information

information

Time spent looking for information

2. Operations

Data

information

information

3. De-commission

Data

Compliance risk

Regulatory risk

Management Information

Archive

time & people

Compliance

Production

Milling certificates

Maintenance reports

Fabrication

Duplicate reports

Unstructured

corrosion

Design

Due - diligence

Legal

Category 1-2

Weld Certification

Structured

Commissioning

Regulations

Water

data

infrastructure

Reservoir records

Acquiring - selling assets

Roles & responsibilities

procedures

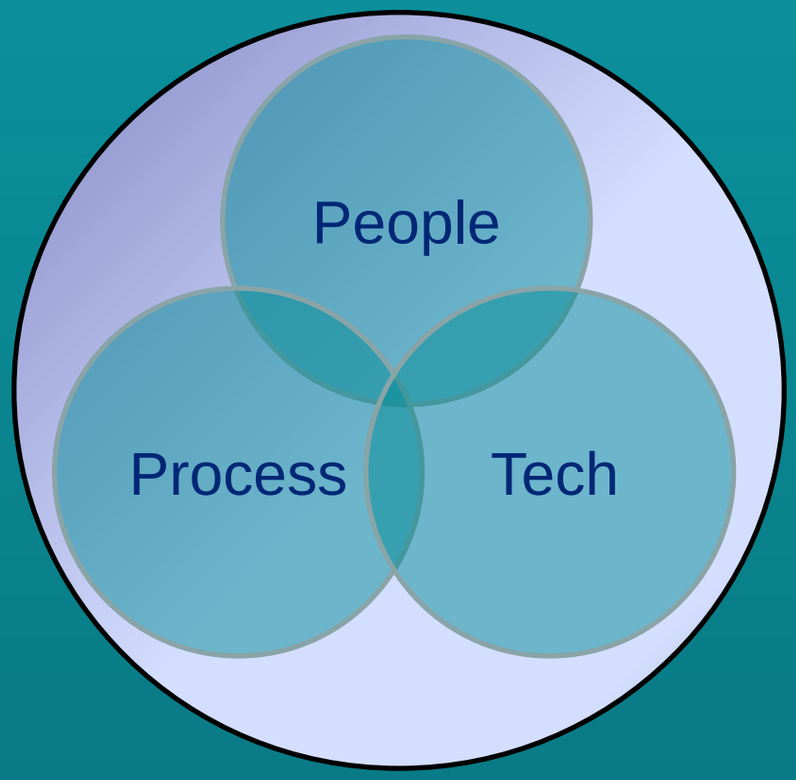
radiographs

incident reports

Topics

- Managing risks
- Governance / compliance issues
- Economic implications
- Systems
- Quick profile about Amor

What is IM?



Need Info

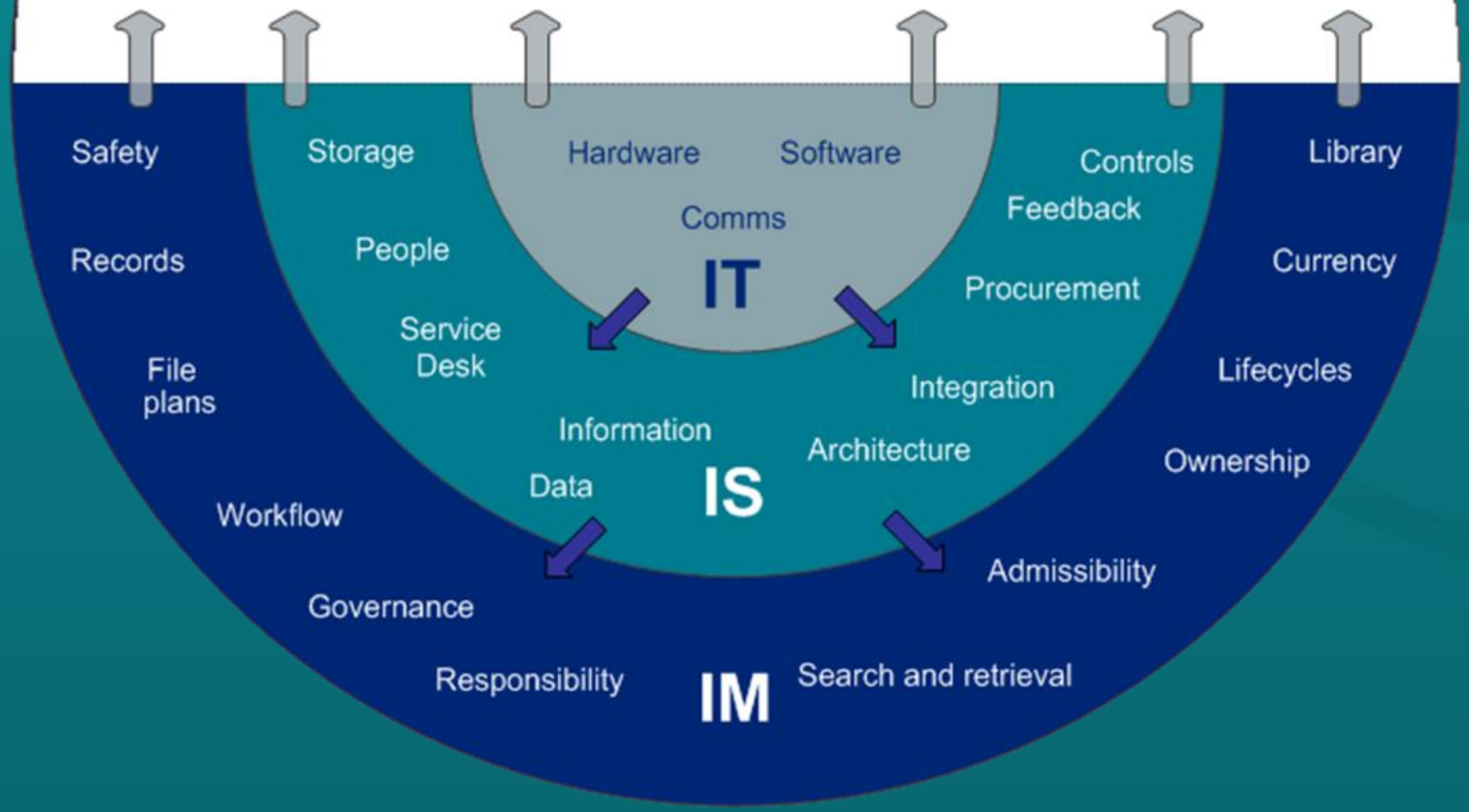
Get Info

Use Info

Governance/Compliance
Risk Reduction
Competitive Advantage

Supports
Safety Case

The Business



Oil & Gas Information Mgmt.

Decommission / Divest

Projects

Modifications

Production

Partners & Vendors

Acquisitions & Legacy

Ownership & Standard

Eng. Docs	Eng. Data	Sub-Surface	Corporate Info.
Content (of all forms)			
Repositories (EDRMS & unstructured)			
Records			
Knowledge			

Explore Appraise Wells

Seismic Drill

Govern, secure, preserve and provide information for the data owners

NEED IT

1

I NEED INFORMATION

CAN I FIND IT?

YES

GET IT

2

CAN I ACCESS IT?

YES

I HAVE INFORMATION

USE IT

3

CAN I CONFIDENTLY USE IT?

YES

I HAVE OPTIMAL COMPETITIVE ADVANTAGE

Search capability
Naming/ numbering system
Retention schedules
Repository definition
Repository structure
Destruction

Security model
Defined ownership
Role access definition
New start process integration

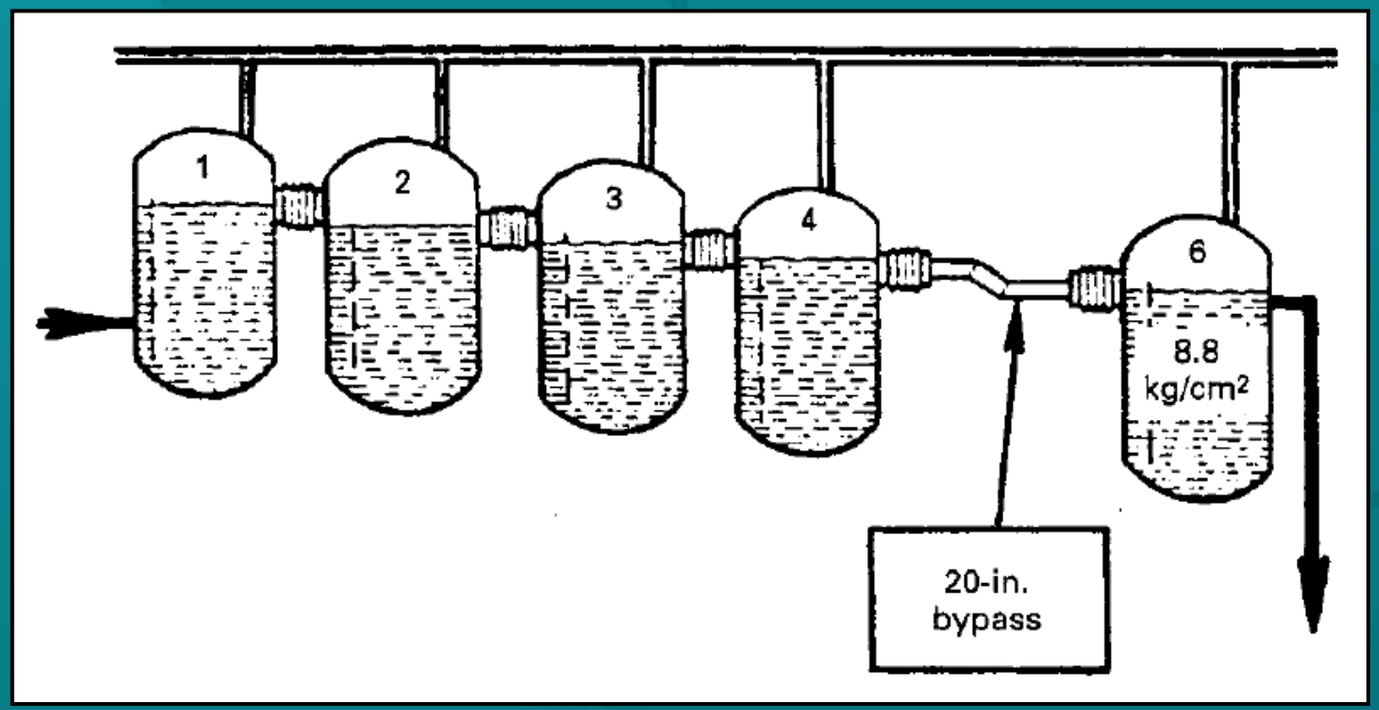
Version control
Defined ownership
Retention schedules
Conversion standards
Repository definitions
Review processes

What IM is not…

- The same as IT
- Business Intelligence or content analysis
- Filing

Example 1: Flixborough

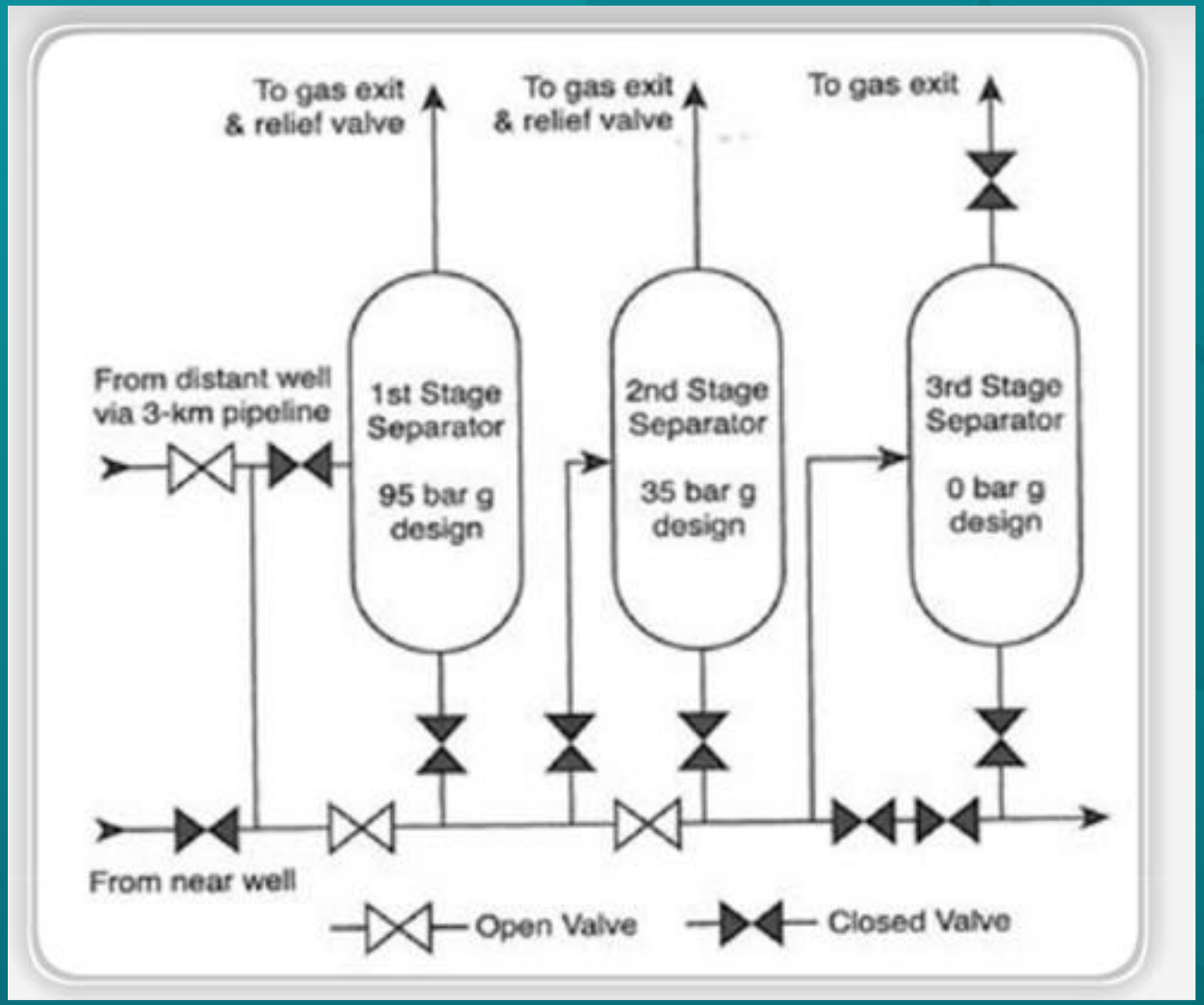
- 1974
- 28 fatalities
- Temporary modification



- Bad design & implementation
- No drawings, other than chalk sketch on the floor

http://en.wikipedia.org/wiki/Flixborough_disaster

Example 2: Poor modification

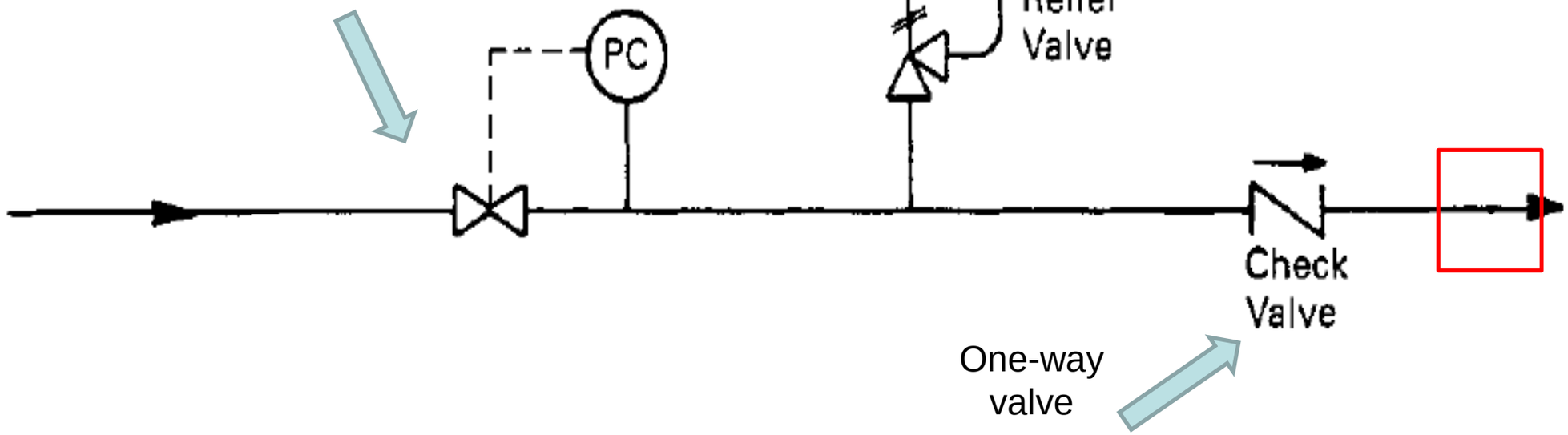


This drawing was created to explain a fatal incident. The Document Control aspect is that although this incident took place in 1998, there were no drawings. If there had been drawings, and Document Controllers facilitating a comment/review process, the bad design may have been corrected and the fatalities avoided. However, bad design was not the only factor, there were also operating errors.

Example 3: Marking up Drawings

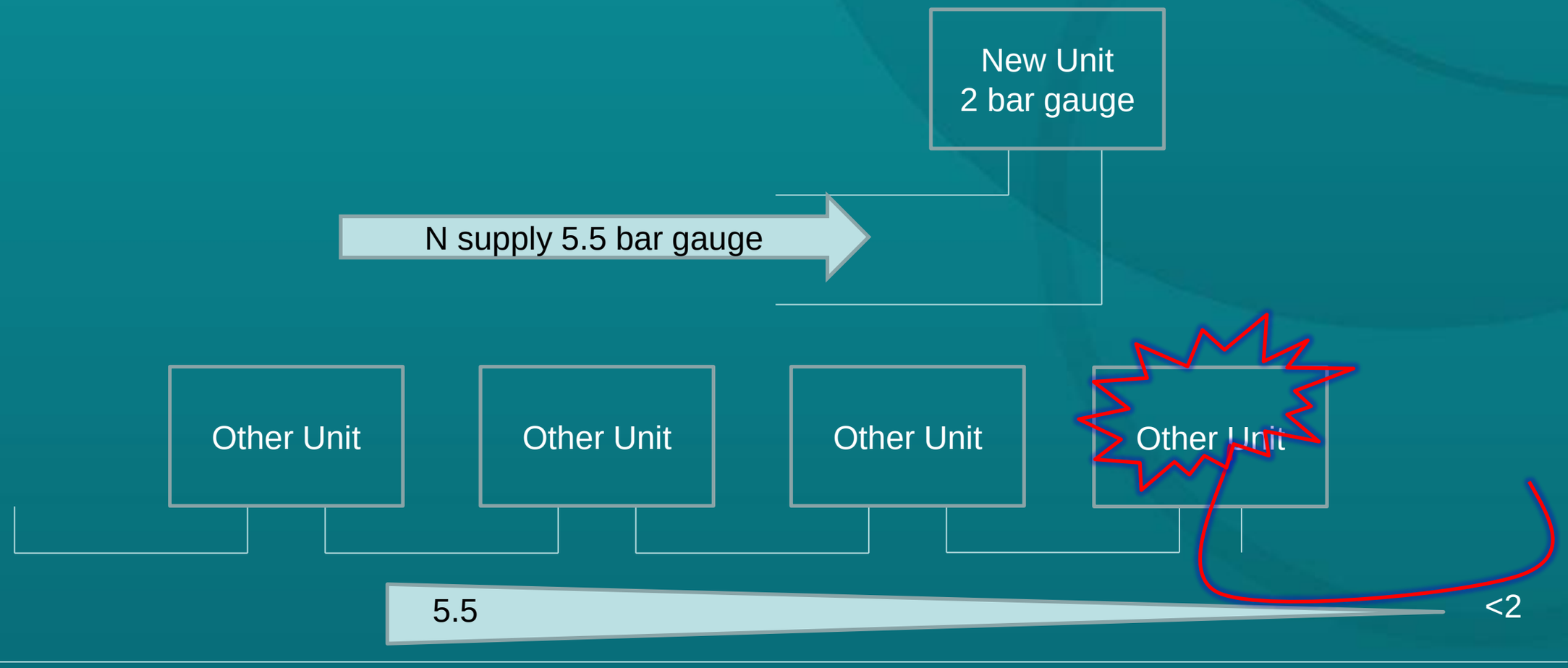
A safety feature to relieve pressure when it gets too high

A Let down valve. Lets down high pressure upstream to low pressure downstream



One-way valve

Example 4: Projects-Ops



What is done in IM?

Departments	Seismic Data Mgmt	Engineering Data Mgmt	Wells Data Mgmt	Library Service	Document Control	Document Mgmt	Records Mgmt	BMS Content Mgmt	Intranet Content Mgmt
Marketing	0	0	0	3	2	4	2	2	0
Office Services	0	0	0	5	4	6	4	3	1
Quality	0	1	1	4	5	6	4	2	1
Business Development	1	0	1	4	5	6	4	4	1
HR	0	0	0	5	3	6	5	4	2
Modification Engineering	0	2	0	3	6	6	5	4	1
Materials	0	0	0	5	7	7	5	4	1
Finance	0	0	0	6	5	8	7	4	2
Asset Integrity	1	3	2	5	6	7	5	4	0
Producing assets	2	4	3	3	6	6	5	5	2
Well Integrity Mgmt services	2	5	6	6	6	8	7	4	2
Subsurface	8	3	8	6	6	8	7	5	3
Operations	3	4	5	6	9	9	8	6	3
Projects	4	7	4	6	9	9	8	6	4
Drilling, completions and well services	2	4	7	6	7	8	7	5	3
Production	2	4	3	5	8	8	7	5	3
Well operations	1	2	5	5	7	7	6	5	1
HSE	0	1	1	6	8	8	6	4	3
Logistics	0	0	0	6	7	8	6	4	2
Commercial	1	0	2	5	5	7	5	4	2
Contracts	0	0	0	6	4	7	5	5	2
Decommissioning	2	3	3	3	4	4	4	2	1
Legal	0	0	1	5	5	6	4	3	2
Procurement	0	0	0	5	4	6	4	4	1
IS	0	0	0	5	4	5	3	4	2
Board of Directors	0	0	0	5	3	5	4	3	0
External client project team	1	1	1	0	3	3	2	0	0

Common Themes

EDRMS seems too complex	Legal Hold / Discovery	(Un)controlled Copies	SharePoint	Mergers, Acquisitions, Divestments
Comment/ Review Process	Data vs. Documents	Controlled Distribution	Data Protection (globally)	Data rooms
Spend X time looking for stuff	Engineering: As-built process	Not sure info can be trusted	Duplication	Crisis
Retention/ disposal	Joe is the only one who can find stuff	Versioning	Off-site storage	Legacy information
Encryption & Lost passwords	Data Owners	Shared Drives	Bring your own device	Big Data vs. Small Comms

Definitions

Service	Definition
Seismic Data Mgmt	Protection and storage of seismic data in the business and submission to external bodies, throughout the data lifespan and inputting to associated procedures
Engineering Data Mgmt	Management of operational data repositories and inputting to associated procedures. Repository may be referred to as an engineering data warehouse, maintenance management system etc
Well Data Mgmt	Protection and storage of well data in the business and submission to external bodies, throughout the data lifespan and inputting to associated procedures
Library Service	Centralised records, distribution and search service of published information purchased by the business
Doc Control	Execution of procedures to ensure a very high, auditable level of control of critical technical documentation
Doc Mgmt	Input to procedures and management of repository for general business content for governance and accessibility across the business
Records Mgmt	Input to and application of procedures and policies specifically for documents that meet the definition of a Record, particularly applied towards the end of the lifespan
BMS Content Mgmt	Input to and implementation of the Procedure for the Management of Policies and Procedures and associated tracking, QC and management of the repository.
Intranet Content Mgmt	Input to and implementation of procedures for the creation and maintenance of intranet content (not the intranet itself)

The scope beyond document management

- Document Control Systems
- Enterprise Search
- Well Records
- Project Documents
- Shared Drives / Storage
- Seismic Data
- Operational Documents
- Records Management
- Engineering Data
- Offshore / Onshore Audit
- Knowledge Management
- Management of Change

Information Management: Risk management in oil & gas

- Who goes to court? Ownership (the business)
- Safety case & HSE
- Problems with equipment isolations (P&ID, cause & effect, line drawings)
- Emergency response
- Security
- Legal disclosure / oil price fixing example / reserves / email, etc.
- Enterprise search
- Risk to production: asset maintenance & spares
- Physical: controlled distribution, archives
- Electronic: folders, EDRMS, SharePoint, ERP, Asset Management
- Acquisition / divestment
- Decommissioning
- Legacy information
- Historical information formats & media deterioration
- Political risk / government, new management
- Risk to brand and shareholder value

Information Management: Governance & compliance

- Contract compliance / EPC
- Information Handover Specification
- Pressures from JV or NOA partners
- Subsurface / CDA
- Legal admissibility
- Differing legislation globally
- Data protection act
- BSI and ISO standards, not all fixed: ISO 15926 for data management
- Audit / quality controls, especially third-parties
- Differing number & naming conventions (ENS, DNS, MCL)
- Consistency in catalogues / spares
- Some people want to ‘start again’ and use new naming/numbering schemes (massive undertaking to ensure consistency)

Information Management: Economic implications

- Wrong spares due to poor information management (impact on production)
- Design issues (Mars Climate Orbiter destroyed, 1999: US vs. metric units)
- Fabrication problems (large projects have long supply chains, 200+)
- Re-drawing engineering documents (e.g. £100k for 35 drawings in 2012)
- EPC cost overrun (operator system issues or unclear specification)
- Operator project engineer time wasted (often >25%)
- Cost of manually reviewing docs to enable records management
- Commercial risks around non-disclosure (legal discovery / penalties)
- Re-certifying subsea systems: loss of certification (est. £10m)
- Loss of well abandonment approval note from DECC (multi-£m)
- Legal re-dress (piping & welding design limits / data sheets & certification)
- Re-entering engineering data rather than capture during design (errors creep in)
- Lost time in hunting for correct drawing revisions, especially during incidents
- Poor project to operations handover (information handover specification)

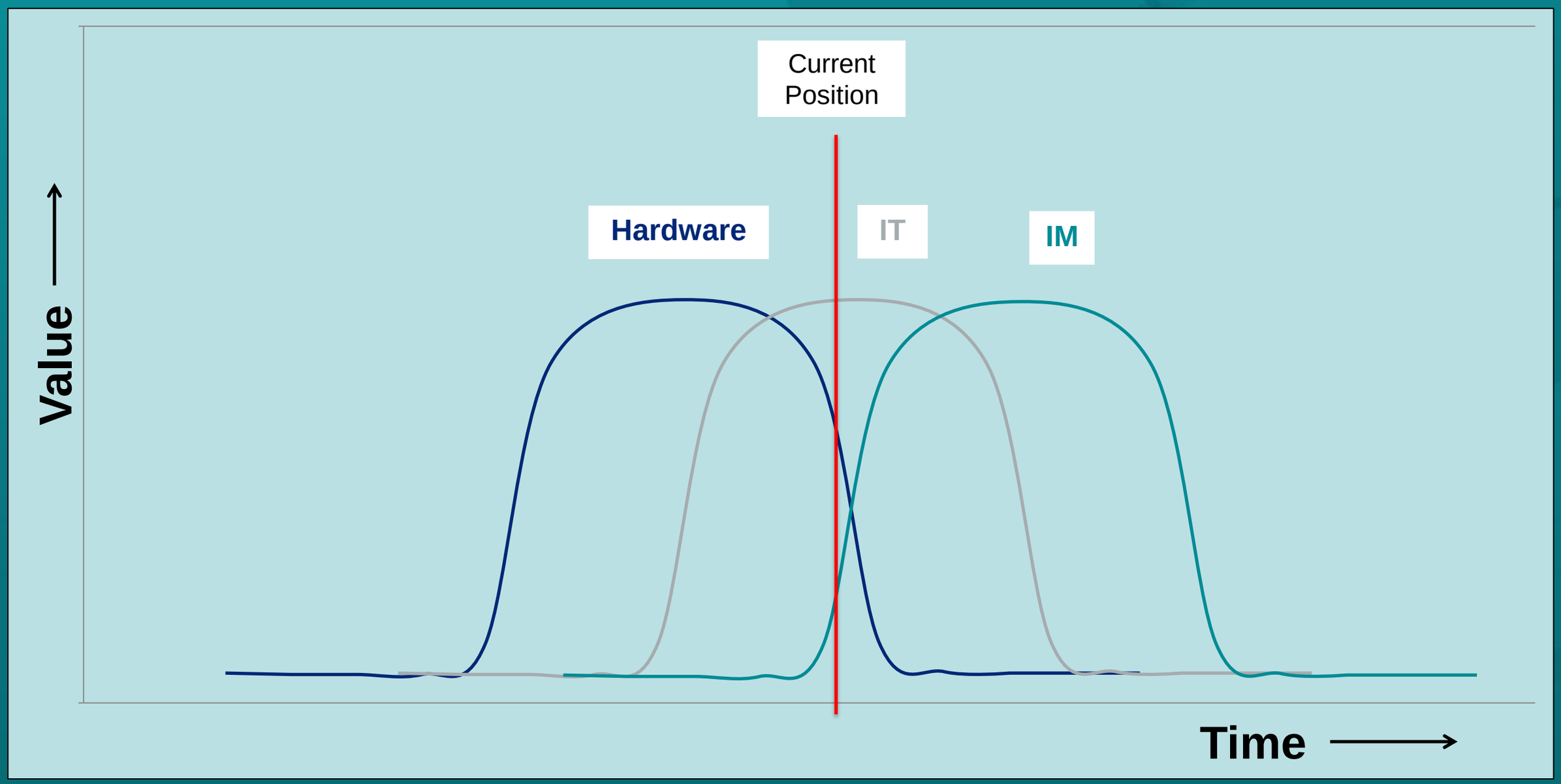
Information Management: Systems

- We have the wrong EDRMS system?
- Projects need their own system
- SharePoint is the answer?
- Ability to provide information offshore, especially transient facilities (Drill Ships)
- Black start – or what to do when the systems aren’t running
- Mobile solutions & BYOD
- Hazardous areas & restrictions on devices that could provide information
- Security models – hard to implement when data ownership isn’t clear
- System integration; i.e. Documentum, SAP, Maximo, etc.
- Data import/export; acquisition example, one million documents
- Physical media & archives (including digital preservation)
- New techniques; **Correlation UK** for complex information analysis
- Move to data-centric not document-centric models; engineering data warehouse
- Over-dependence on email & sending large files
- Poor control of local storage, memory sticks or removable disks / NAS
- Chaotic shared-drives
- Information silos (often from legacy assets)

Information Management Expertise: Helping to fix it

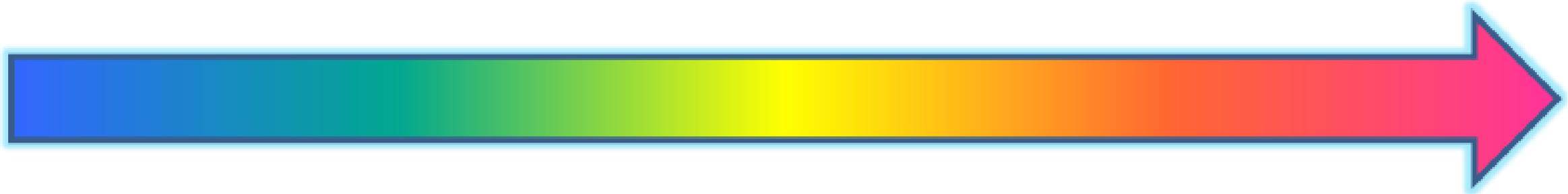
- IM consultants and business analysts
- Experienced document controllers
- Training route established for document clerks
- Developing engineering and geoscience data skills
- New role developed; doc control technical authority
- IM Energy Forum building best practice, sharing knowledge & experience
- Engineering project improvements continuing
- Oil & gas DC foundation course
- New RGU course (projects doc control)
- IM service catalogue

Maturity of the market



Service delivery model

Information Management "Spectrum of Value"



Lower value & cost, more passive role

Higher value, Amor Managed

"Body Shop"	"Amor MS"	Projects	Managed Service
• Agency-style • Contract/staff • No cover • No dev. plan • No Svc. Mgmt.	• Amor-run • Mainly staff • Cover / XRP • PDP & training • Working methods • SDM	• Audit / CSA • IM Strategy • Gap analysis • Consultancy • IM Energy Forum • Legacy projects • Quality Assurance	• "Outsource" or client-led service • SLA / KPI targets • Svc. Mgmt. Model (policies, instructions) • Focus on delivery • Risk/reward options

“Working with industry and professional partners is something RGU attaches great importance to in order to ensure the continued relevance of what we do. The relationship between the Department of Information Management and Amor Group has been enormously beneficial to both sides. We have benefited from strong industry input to our teaching and knowledge exchange activities and practitioners have had an opportunity to benefit from expertise within the University. The relationship has led to some imaginative developments, not least the Information Management Energy Forum. Through the forum, industry and the university came together to identify training needs and developmental gaps; this led to the creation of the Document Control Foundation course, a bespoke module highly-relevant to industry needs, which has attracted more students than any other RGU professional development short course.”

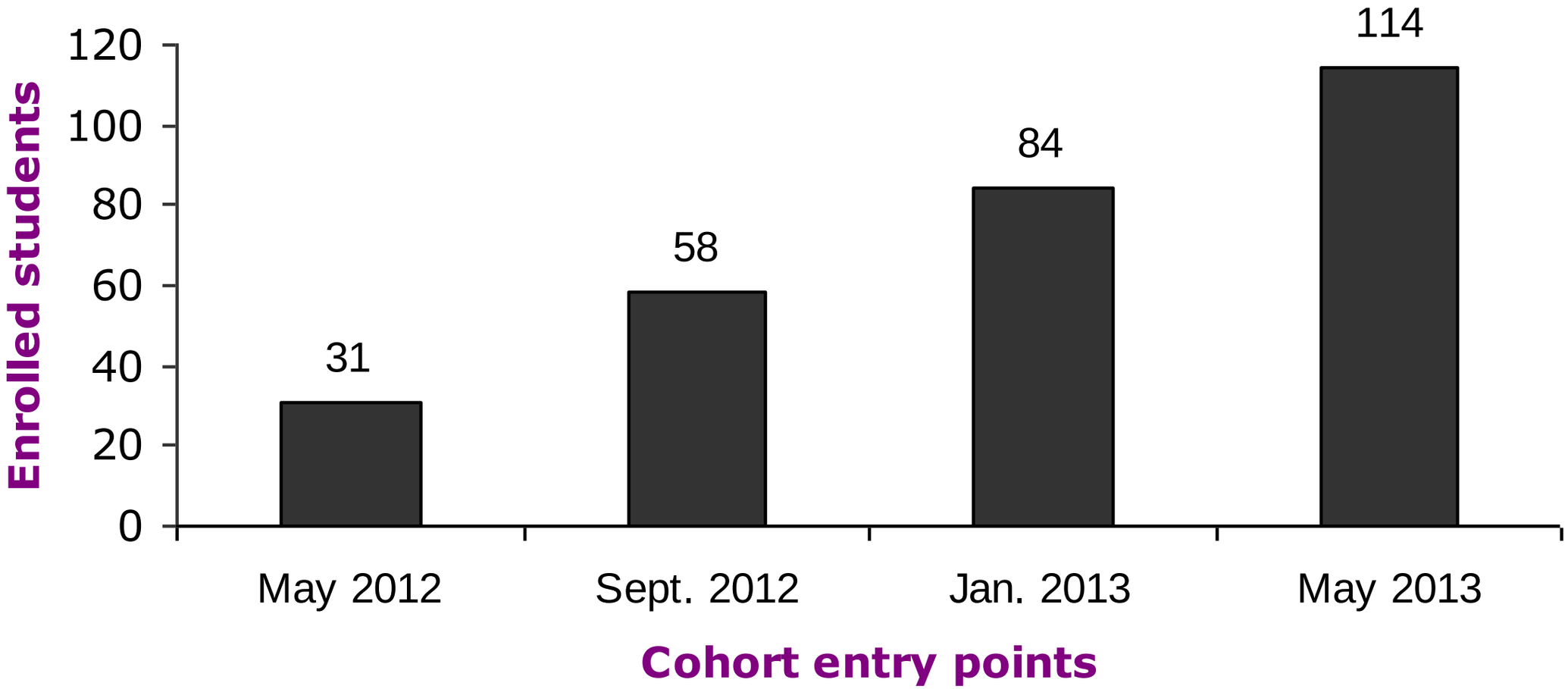
Professor Peter Reid, Professor of Librarianship and Head of Department of Information Management, RGU

I am happy to endorse Amor as an organisation committed to the development and promotion of information management and particularly its support for IM professional networking, evidence–based research and service improvement and its contribution to the development of training and career progression in IM. This has been evident in our collaboration during the KTP project and in our current collaboration agreement.

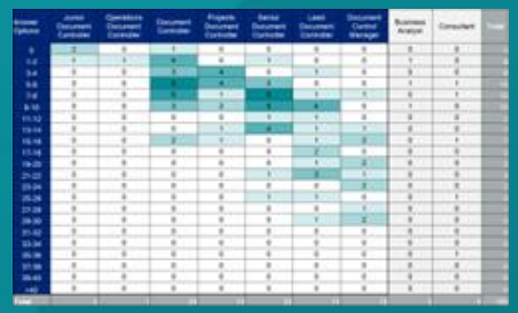
Dr. Laura Muir, Senior lecturer in the department of Information Management with departmental responsibility for knowledge exchange activity. She is also Course Leader for the MBA Information Management course and the Document Control Foundation short course

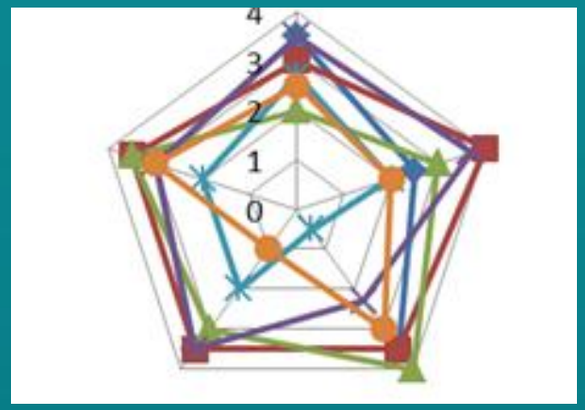
PROFESSIONAL DEVELOPMENT @ RGU
ENHANCE YOUR CAREER STUDY ONLINE
FLEXIBLE REWARDING A CLEAR FUTURE

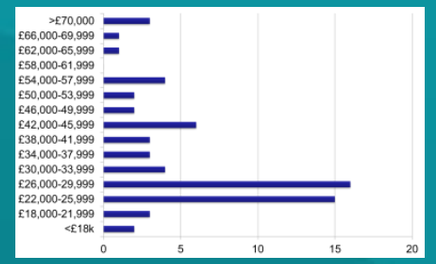
Document Control Foundation
Student Enrolments

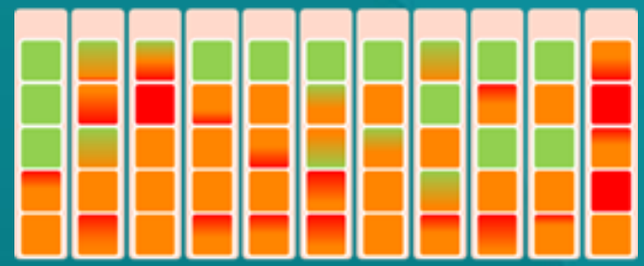


IM Energy FORUM

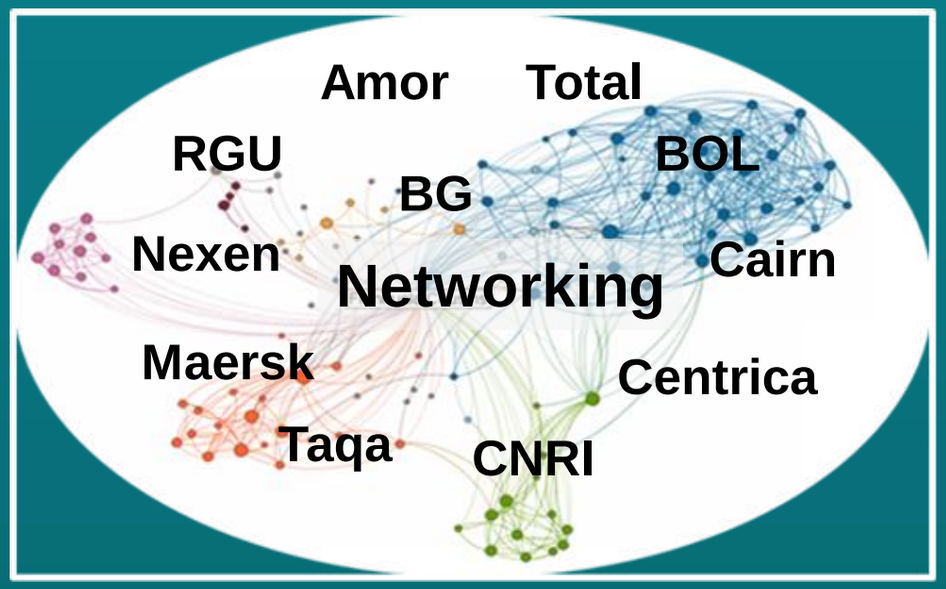








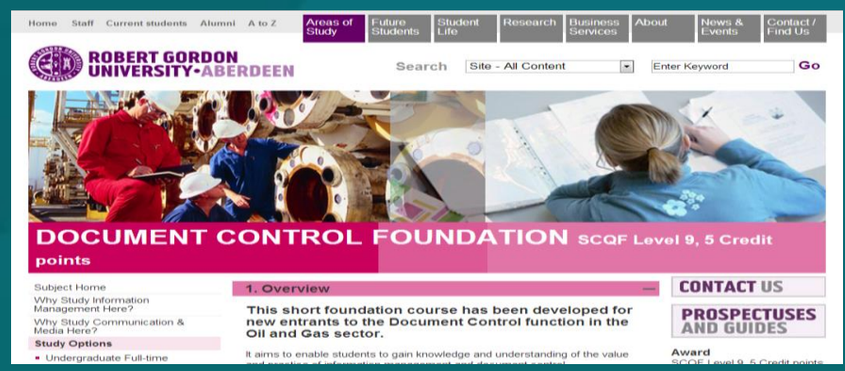
Topics
Issues



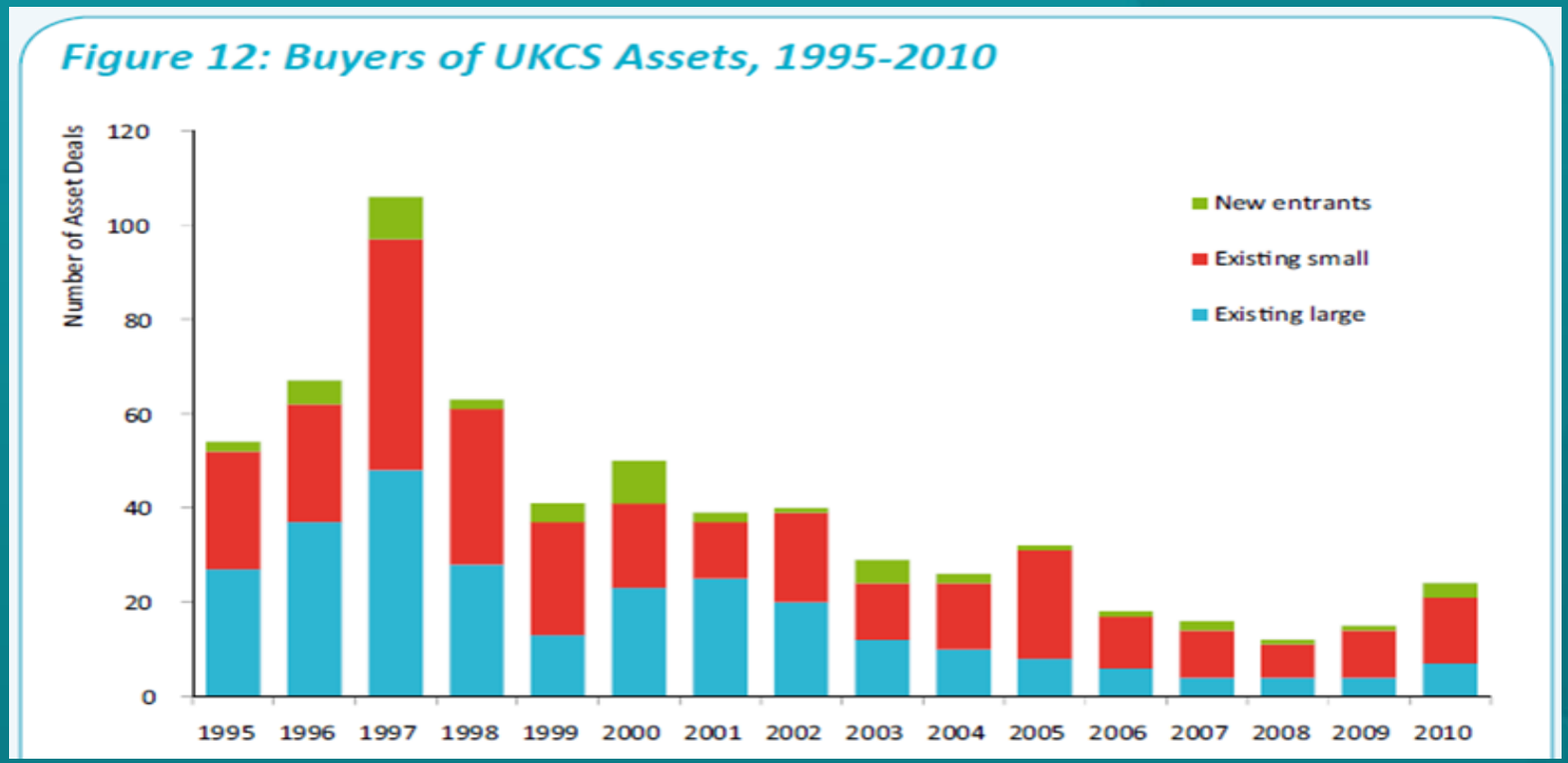
Research
Events
Training

Steering Group

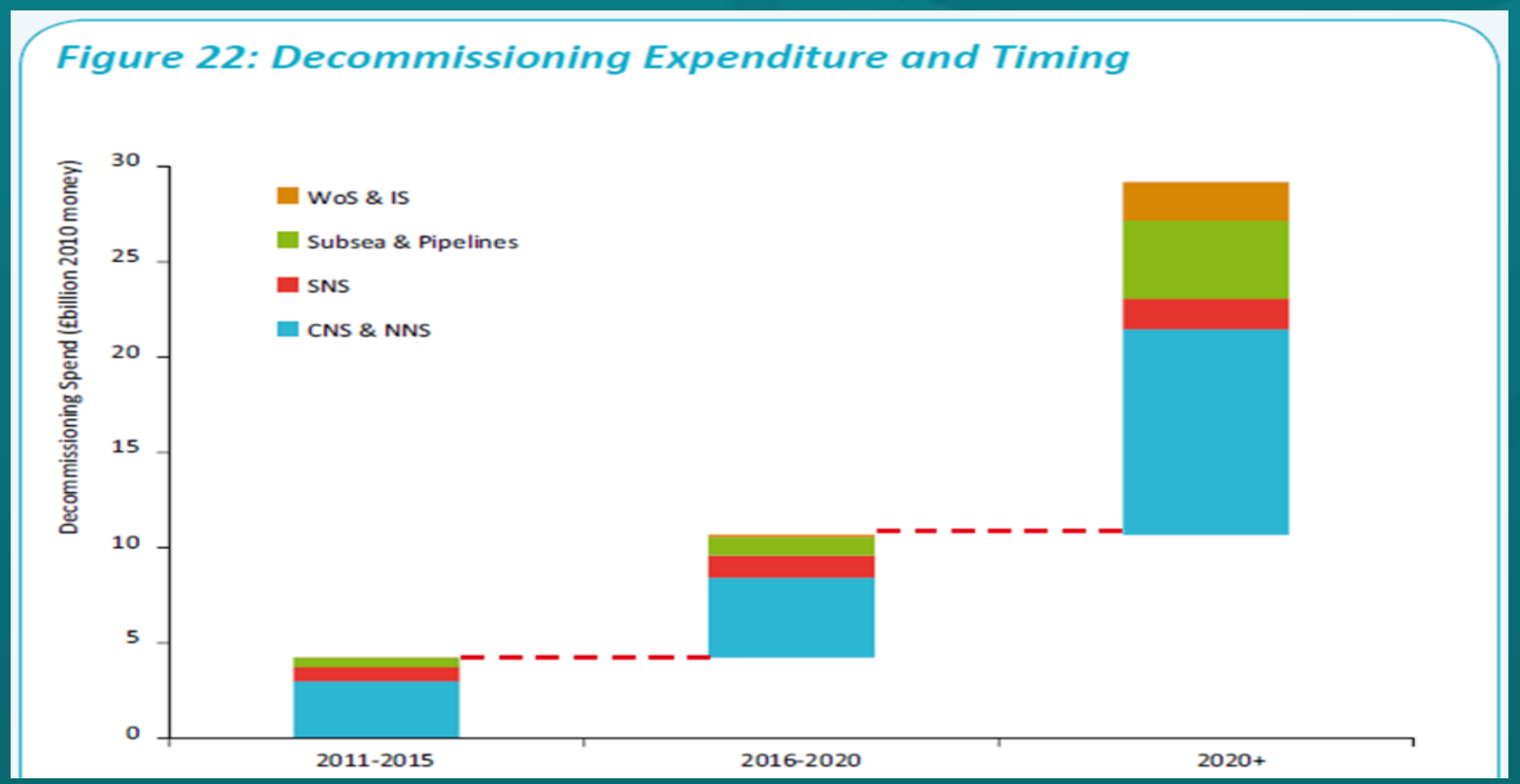
Best Practice



Future demands



Source: Wood Mackenzie
www.woodmacresearch.com



Source: Oil & Gas UK

Who are Amor?

Formed in 2009 from a management buy-out of firms with 20 year+ trading history
Based in Scotland but with international offices

In the **Energy** sector we: deliver scalable technology managed services, information management and process solutions to help protect production assets

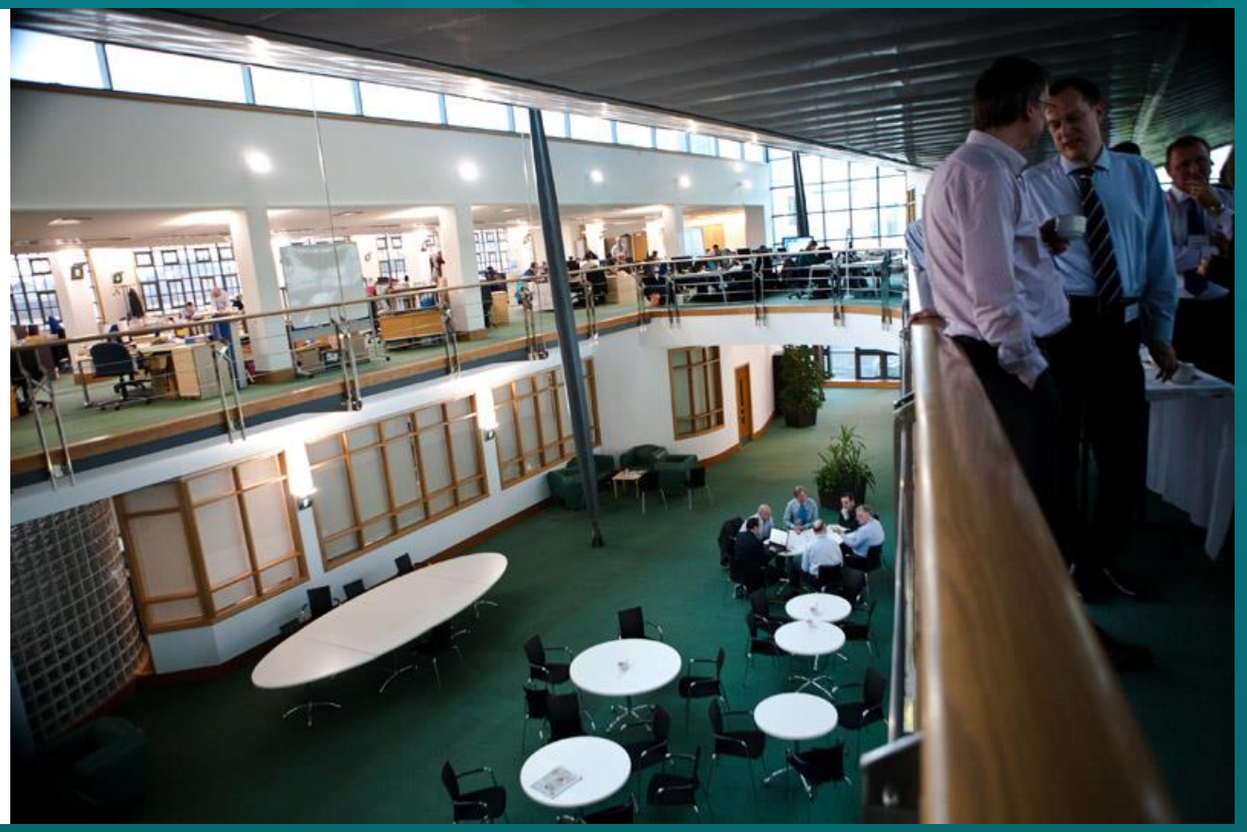
In the **Transport** sector we: have the world's only truly integrated set of airport operational solutions that enable airports operators to establish and monitor service levels to drive an increase in performance across their airport

In the **Public Services Sector** we: create ingenious IT solutions that exceed our customers' expectations through improvements and efficiencies in your business

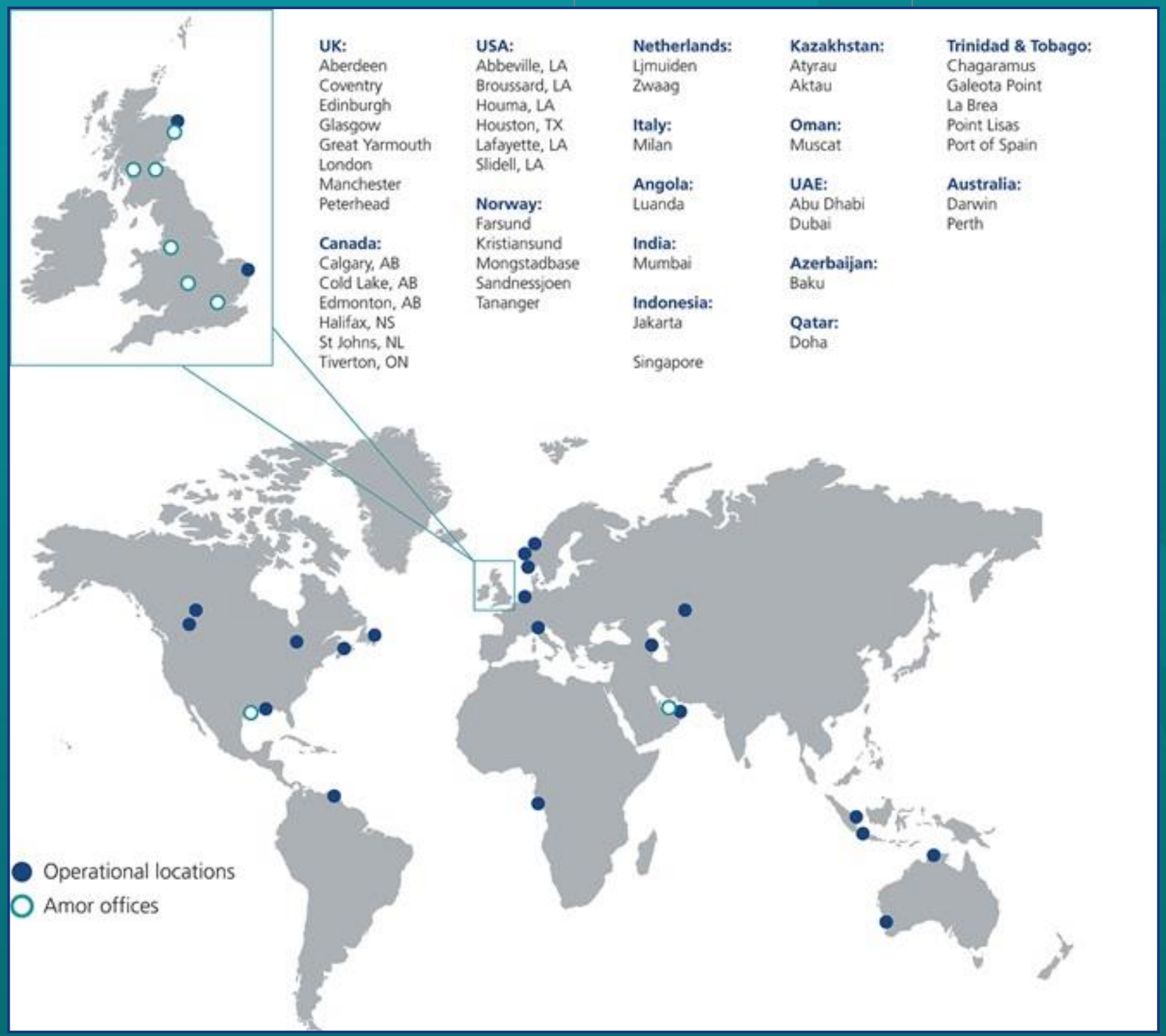
TOTAL
SCOTTISHPOWER
BAA
Dubai Airports
Managing the World's Leading Airports
British Waterways
The Scottish Government

Company Profile

- 600+ staff £57m turnover, 20% growth year-on-year
- 50% of our income is from the Energy Sector
- Target is growth to £250m turnover by 2017
- Investment of over £4m in products & services in 2012
- Expansion; Manchester, London, Houston & Dubai and into public sector & transport markets
- Planning further investment & acquisitions



Where do we work?



Dave Bruce
Energy Sector Director
(Aberdeen)

Bryan Parker
Regional Manager
(Houston)

Jamie More
Regional Manager
(Dubai)

What do we do in Energy?

Supporting our customers' ever expanding **global** operations for over **20 years**; our scalable technology managed services and process solutions help ensure well governed, safe and efficient operations for some of the biggest names in the energy industry

Our energy services and solutions include:

- from co-sourcing to our fully managed IT service
- **information management**
- Tier III aligned data centre
- disaster and work area recovery
- process safety management system
- process control system security
- application development and support

Thank you,
any questions?

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