Flare Solutions Limited
Rule-based Information Management

**Finding Petroleum
Digital Oilfield Event, London
1st December 2011**

**Glenn Mansfield
December 2011**

Agenda

Introduction

What do we mean by the rules?

Case Studies

Benefits, Lessons and Questions

What are the rules?

Who defines them?

How do we encourage adherence to the rules?

Introduction to Flare Solutions

- Flare Solutions Limited provides consulting and information management solutions to the international oil and gas industry
- Flare was formed in 1998, by E&P technical professionals with a broad range of industry experience

Consulting

•Information Management Consulting
  •Strategy, Document conventions and Standards, Process capture and best practise development
•IM project support
  •Implementation, Project and change management

Solutions
•Web-based IM application suite •Search tools – E&P Catalog™ •Process tracking tools – EPCat-Tracker •Operational reporting tools

FLARE OIL & GAS
TAXONOMIES

Queen's Award for Enterprise Innovation, 2009
This is the highest award that can be given to a UK based company.
This award was for Flare's innovative information management solutions for the oil and gas industry.

British Computer Society (BCS) European Awards, 2006
Knowledge Management Project Award – Winner (with Shell)
Intranet Project Award – Highly commended (with Shell)
Content Management Project Award – Highly commended (with Shell)

National Green Apple Environment Best Practise Awards, 2009
Silver medal.
This award was for the environmentally friendly operating practices of Flare, the staff and for deploying systems that help our clients become more efficient

SPE: Open General Session – Best practise

- A recent article in E&P Magazine covered the open general session at this year's SPE Annual Technical Conference and Exhibition
- The topic was "Enhancing Standards and Best Practise in the Oil and Gas Industry".

- Excerpts
    - Matthias Bischel, Shell:
        - has pushed on two fronts: "improved well design and standardized corporate training"
    - Jose Formigli, Petrobras:
        - culture "begins with the top management", need to "learn from experience"
    - William McArthur, Director of safety and mission assurance, NASA
        - "Our safety process grew out of a lot of very, very painful and public experiences…"

NASA: Why people make mistakes

- William McArthur, NASA, On why people make mistakes
  - Overconfidence
  - Schedule pressures
  - Budget pressures
  - Highly complex systems
  - Normalization of deviance
    - standards are incrementally subverted over time without consequence, or with reward

- Define – Monitor – Maintain

- The article goes on to ask
  - "But what is best practise in the industry? What standards should be employed?"

- These are the rules!
  - We achieve this through management systems

What do we mean by the rules?

Management Systems
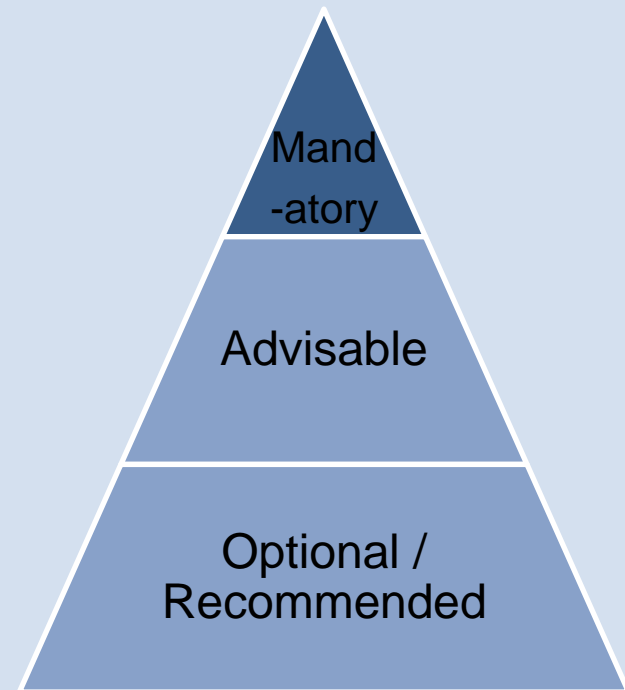
Oil and gas management systems

Stage Gate Processes	1. Scope	2. Select	3. Define	4. Execute	5. Assess

Standard Operating Framework

HSSE

Corporate Responsibility

Drilling

Field Development

Exploration Wellfile

Wellfile

Client requirements

Audit Trail

Stage Gate Processes

1. Scope	2. Select	3. Define	4. Execute	5. Assess
Gate	Gate	Gate	Gate	AAR

Policies

Procedures

Templates

Examples

External Standards

Ownership

LINKS

Deliverable Checklist

- ☑ Deliverable 1
- ☑ **Deliverable 2**
- ☑ **Deliverable 3**
- ☑ **Deliverable 4**

Lessons Learned

Incidents

MoC / Dispensations

Actions

Metadata

Naming Standards

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Publishing Architecture

Search

Stakeholders

Best practise authors (designers of the rules)
Management (governance, metrics)
IM support staff (publishing, custodianship)
Records management (legal retention, security)

Technical professionals of disparate disciplines and business areas (publishing, finding content)

The whole system is made up of rules

Stage gate rules
Ownership and accountability rules
Deliverables required and when
Policy, Procedures, External guidance
Naming standards and metadata
Applications

Key challenges

- Moving from paper based solutions to electronic
- A complex environment
  - The management systems we are discussing are more than a set of documentation
  - They are collaborative, project-based activities supporting different publishers, users and usage
- Must define key deliverables for 'typical' project
- Must link with the various rules
- Must provide a supportive publishing environment
  - well-defined approval and publishing process
  - use a common meta-model (pick-lists)
  - stored deliverables in secure and accessible corporate stores (respecting security).

- The solution needs to help people do their jobs

User interfaces

We identified five types of interface

Define
Best practise environment

Visualise
Management System Diagrams

Monitor
Process Tracking environment

Maintain
Adding new versions, feedback loops and learning

Search
Search and discovery environment
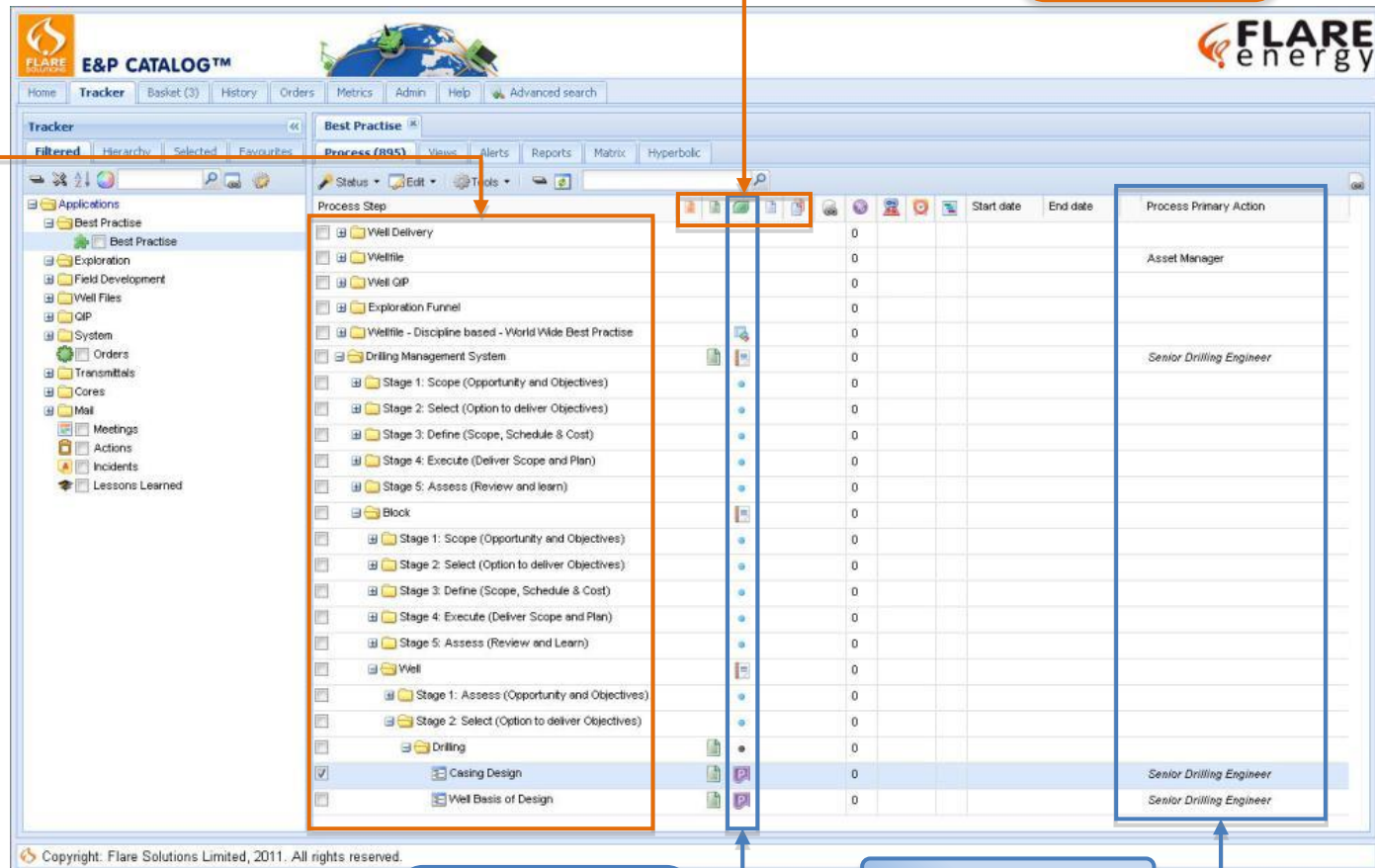
Define
Best practise author environment

Links to Inputs, Procedures and Outputs (deliverables)

Hierarchical Stucture

Different types of step: Project headers, Activites, Deliverables etc

Accountability

Visualise
Corporate Responsibility MS

Reader can access the policy with simple left click

Management System or author can access and update a document.

Version control is maintained.

Links within processes are checked

This panel can be embedded in other applications, e.g. Intranet portal

E&P CATALOG™

Tracker | Basket (3) | History | Metrics | Admin | Help | Advanced search

RM Process ☒ | CR Projects ☒ | Drilling MS ☒

ocess (29) | **CRMS/Hierarchy** | CRMS | Hierarchy | Views | Alerts | Reports | Matrix | Hyperbolic

CR Management System (CR MS)

Vision → Core Values

Business Principles | CR Policies

The CR Management System (CR MS)
Documentation Hierarchy

Plan — PS 1-7

Do

Gated Process & Deliverables

Standard Operating Framework

PS 8 & 9

PS 12

Act — PS 10 & 11 — Check

Guidance and Implementation Tools (Internal and External)

MANDATORY

Vision
Core Values
Business Principles
CR Policies

Performance Standards
Gated Process & Deliverables
Standard Operating Framework

Standard Operating Procedures

Guidance and Implementation Tools
(Internal and External)

MANDATORY

Visualise
Drilling Management System

Reader can access the policy with simple left click

This panel can be embedded in other applications, e.g. Intranet portal
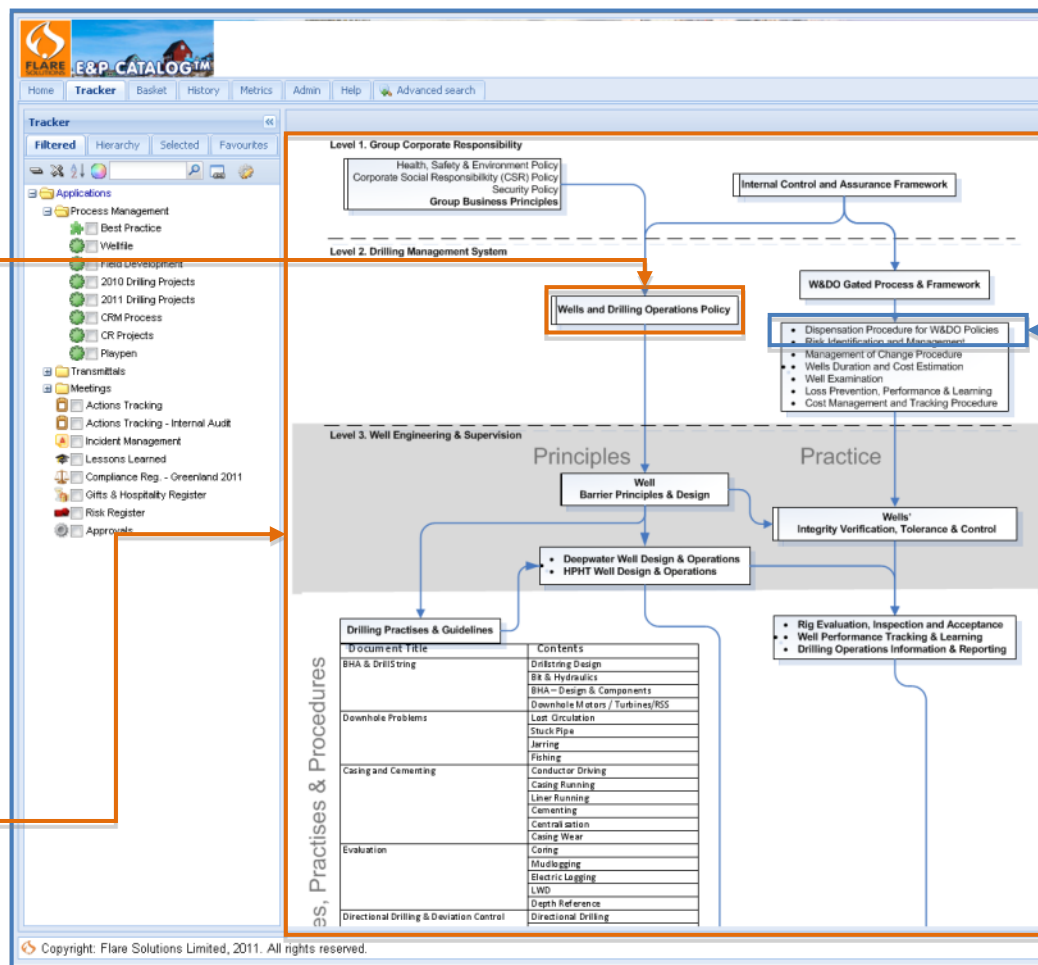
Management System or author can access and update a document.

Version control is maintained.

Links within processes are checked

Maintain
Add new versions

Access to internal and external procedures and guidelines.

Links to templates

Version control and authoring from here

Search

"Google-like, E&P smart"

Same version control and authoring capabilities available from general search results

Monitor
Process / Stage gate tracking view

Hover over to expand the Rosette indicator

Inputs: What information was used to create the output?

LINKS Internal, Policies, procedures, standards, guidelines and templates.

Outputs: What was created?

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Alerts

Key Remark
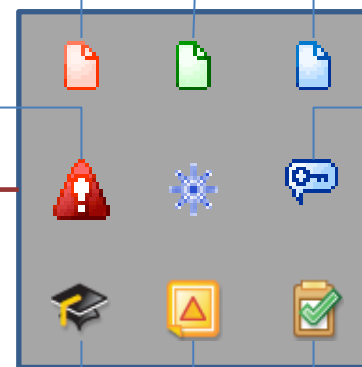
Lessons Learned:
Create
Track
Link, Attach
Auto-attribution
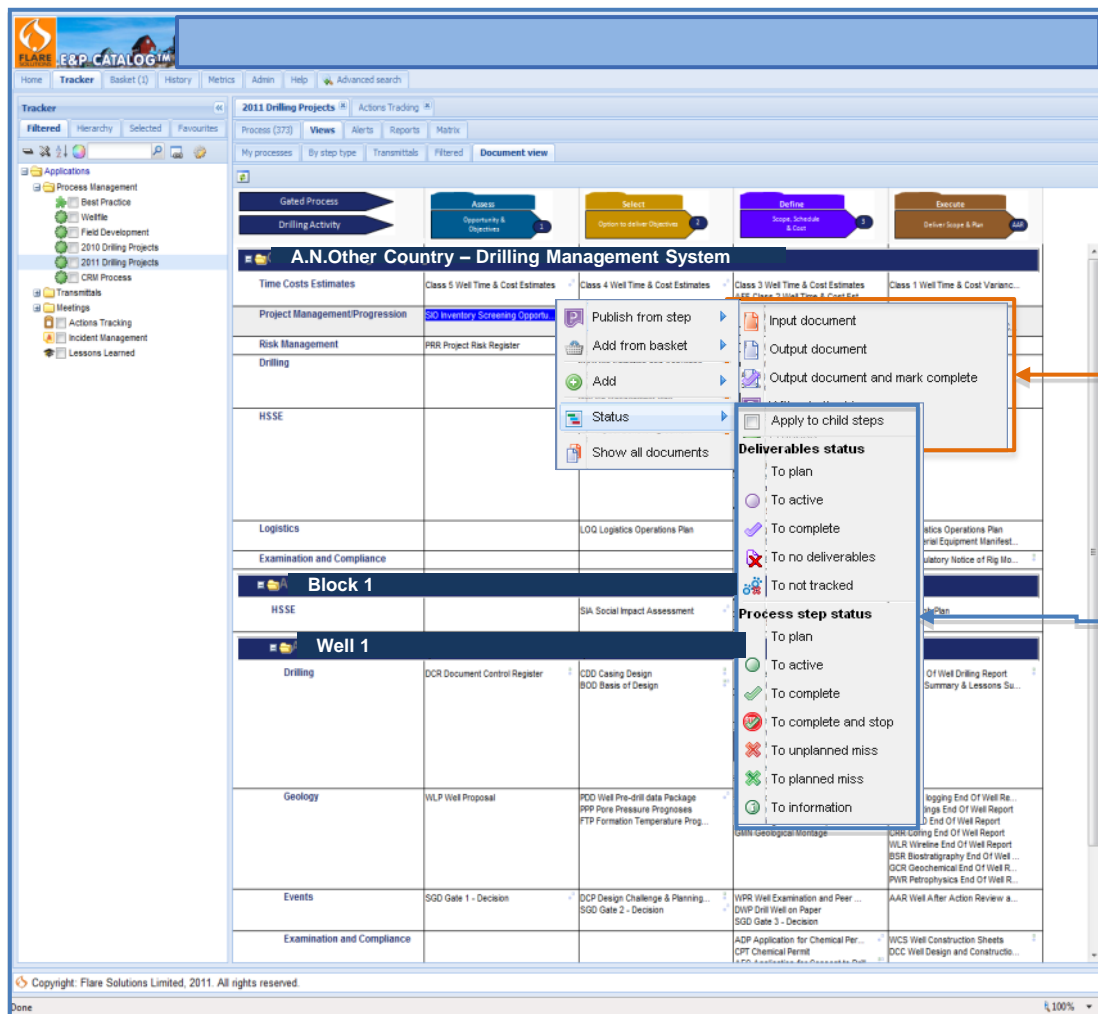
Incidents
Create
Track
Link, Attach
Auto-attribution

Actions
Create
Track
Link
Email handling

Monitor
Publishing environment

Publish content with inheritance of Keywords/Metadata

This **inheritance is critical** to the success of the overall system**.**

Sets: Asset, Project phases, Context, Records management etc.

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Supports serendipitous searching

Track process steps, in terms of the **process** and the **information**

Maintain
Lessons Learned Search Alerts

Physical architecture:
Scalable and flexible

- **Multi browser based application suite**
- **No client install required**

Other Centres

Corporate Centre

Rigsite

Replication

EPCat Suite

Replication

EPCat Suite

EPCat Operational Applications
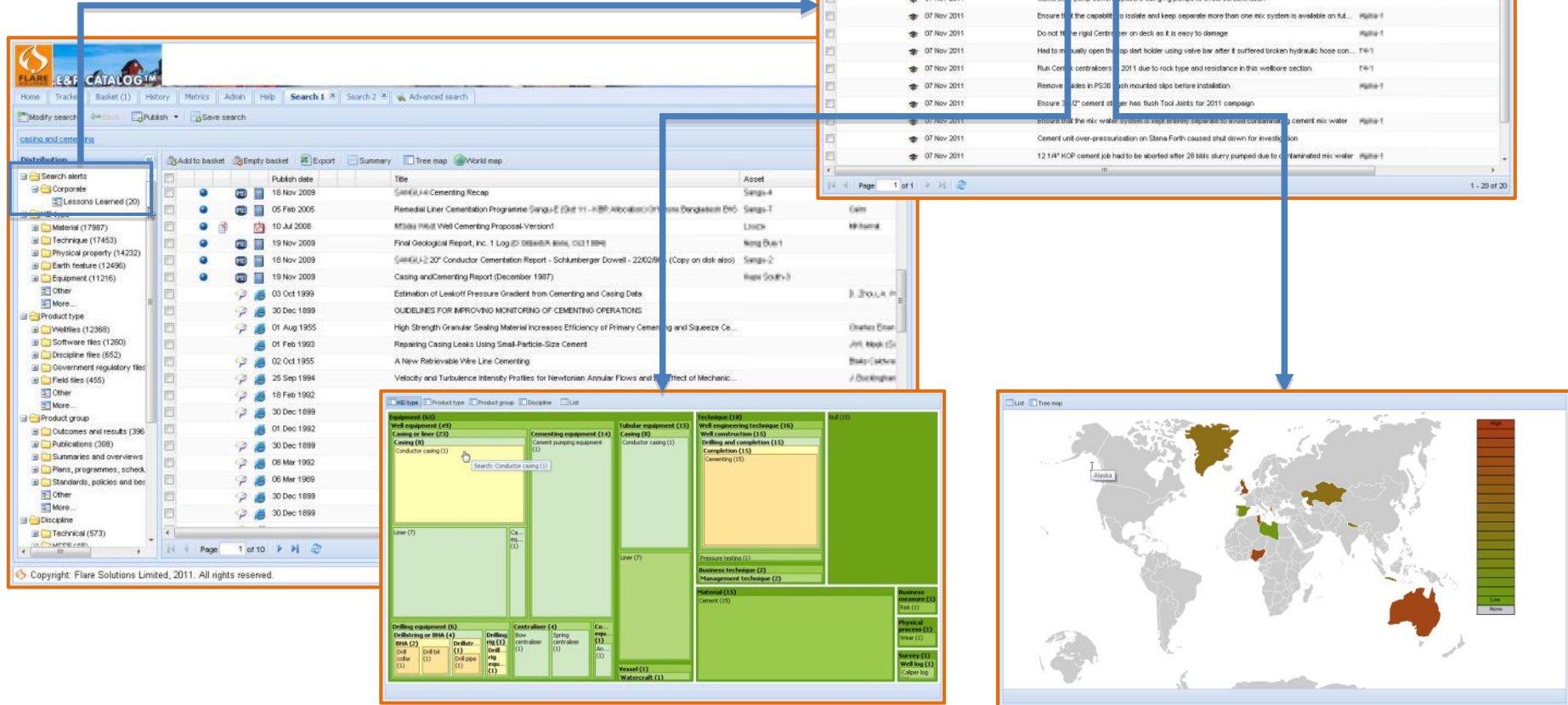
EPCat Operational Applications

Rig 1

EPCat Doc Store

Docu-mentum

Share-Point

EPCat Doc Store

Rig 2

Shared Folder System

Rig 3

Rig 4
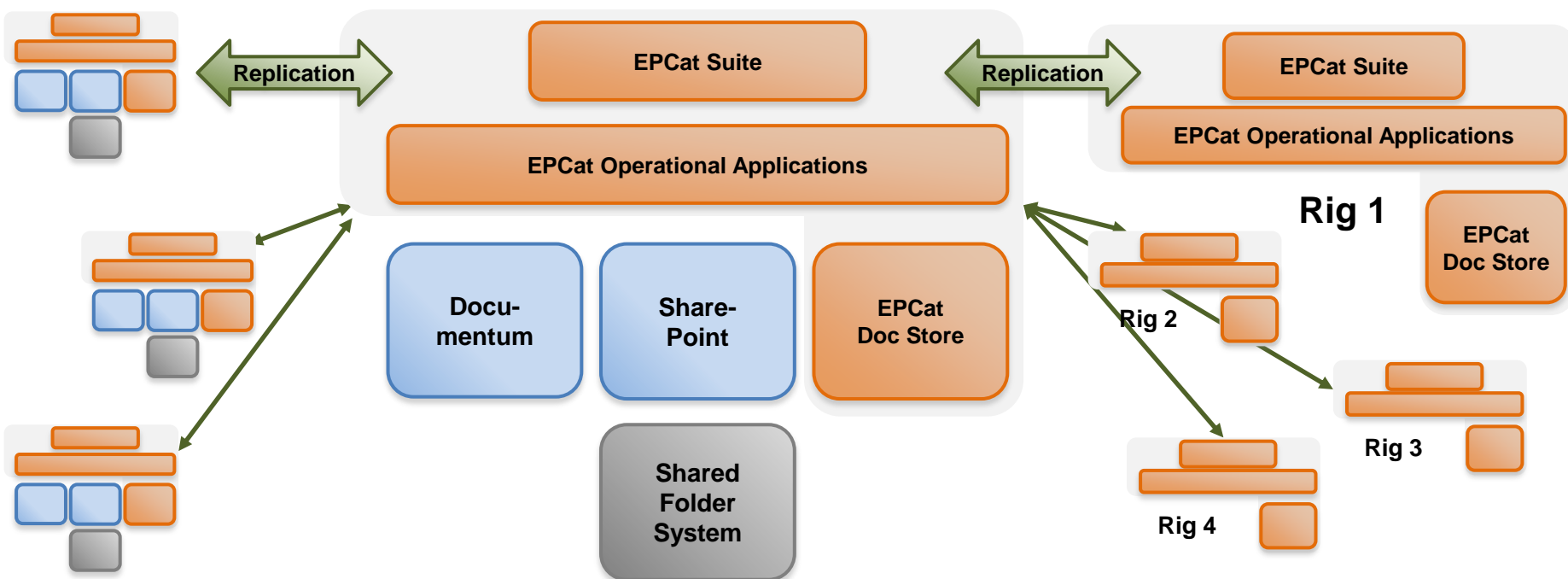
- **Local access to Search metadata**
- **Global pointers to content**

- **EPCat Index points to content in repositories**
- **Copy/move/migrate content**
- **Flare Taxonomies and EPCat Search capabilities**

- **Rigsite access to Procedures, Guidelines and Operational Tools**
- **Local Publishing Environment**
- **Local performance!**

Results

- Management can define and maintain rules
- Rules can be deployed quickly
- Users can follow the rules
- Management can monitor adherence to the rules

- Feedback loops allow users to interact and improve systems:
  - Management System
  - Lessons Learned
  - MoC/Dispensations

- Feedback helps to encourage ownership and responsibility and avoid complacency

- Publishing
  - The information (deliverables) are added to the 'corporate memory' with full, standard metadata

- Searching
  - General language search
  - Minimise overload
  - Serendipitous

- Visualisation
  - Easy to navigate/relate to systems
  - Different visualisations required
    - By user communities
    - By management system type - Drilling Management, Corporate Responsibility Management, Exploration Wellfile Management

Drilling Management System
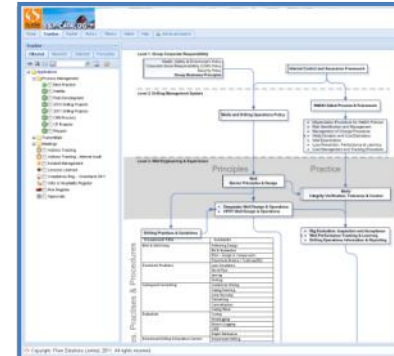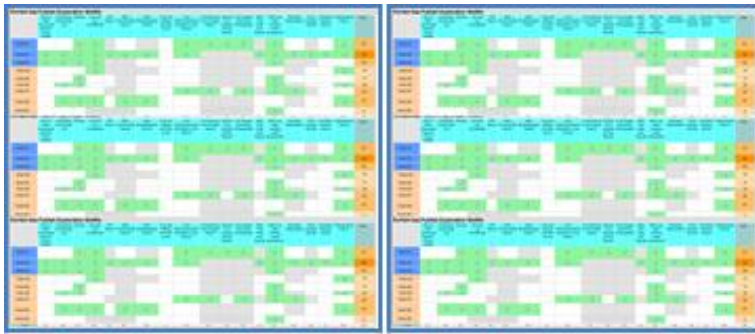## Same information – different view to retrieve

The Drilling team
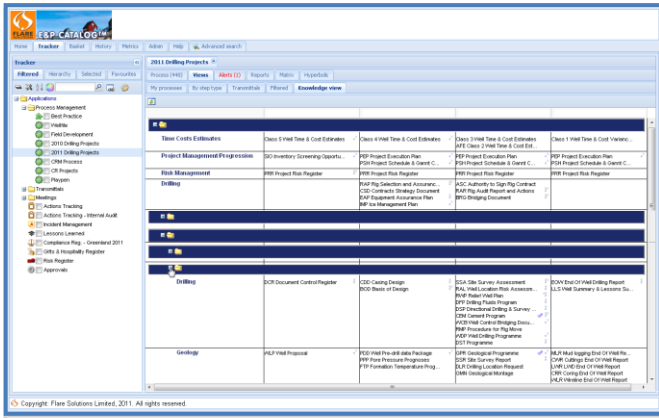
Single Web 'Dashboard' for all drilling engineering team members. Staff one click away from the view/information

Drilling Management/Best practice Management System overview

'Dashboard' oversight for all relevant information Linked to both simple maps and GIS systems. Make Faster decisions

Information Management Staff

'Dashboard' across projects to manage 'drilling' portfolio Spot process busts early on – same time and money

Everyone: Integrated 'Google' like search

Type terms, see results like 'Google'. Left hand menu also shows the contents of your search by Document Type, Well, Project etc

Corporate Responsibility Management System
Same information – different view to retrieve

The HSSE Team

Single Web 'Dashboard' for all drilling engineering team members. Staff one click away from the view/information

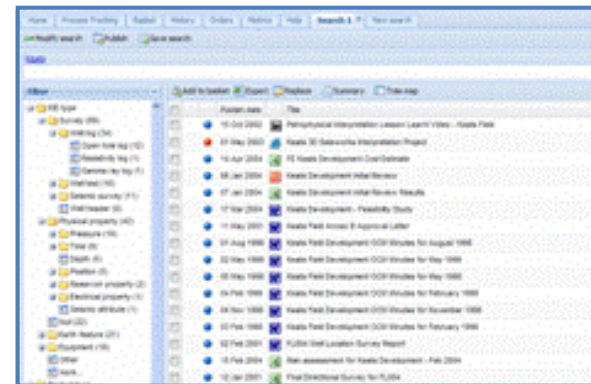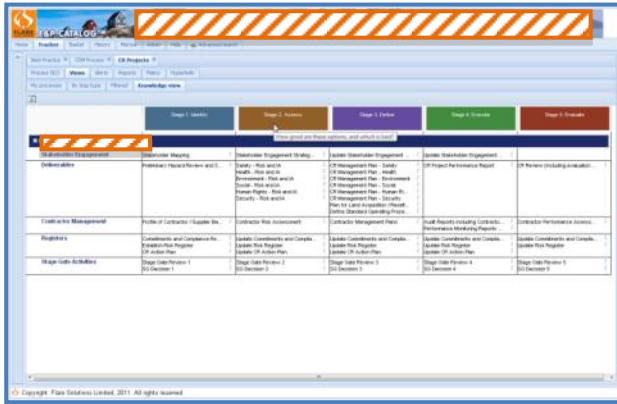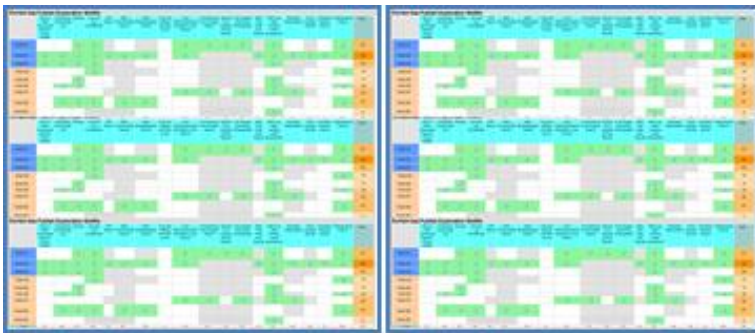### Best practice / Authoring Management System overview

'Dashboard' oversight for all relevant information Linked to both simple maps and GIS systems. Make Faster decisions

Information Management Staff

'Dashboard' across projects to manage 'drilling' portfolio Spot process busts early on – same time and money

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Type terms, see results like 'Google'. Left hand menu also shows the contents of your search by Document Type, Well, Project etc

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Exploration Wellfile System
Same information – different view to retrieve

The Exploration team

← **Prospect**
Maroon

← **Well**
JD12-3
JC1-2
JC1-2ST
JB03-1a
etc

**Single Web 'Dashboard' for all their team exploration reference material
Staff one click away from the view/information**
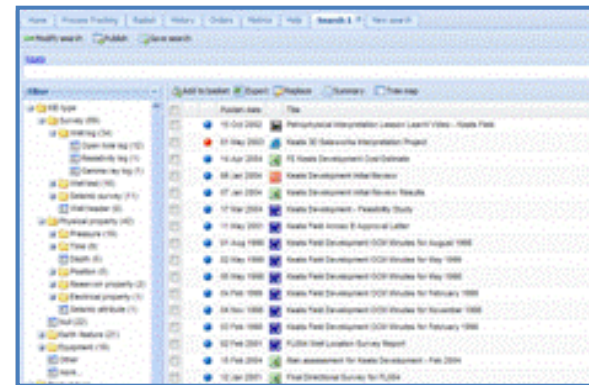
Global Portfolio
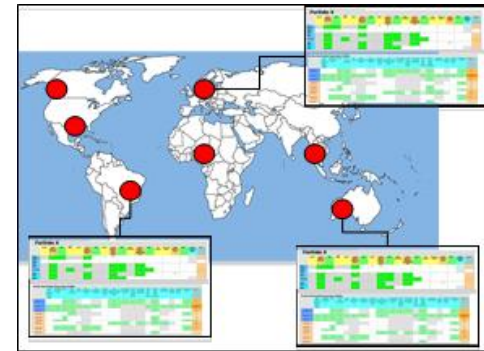
**'Dashboard' oversight for all relevant information
Linked to both simple maps and GIS systems. Make
Faster decisions**

Information Management Staff
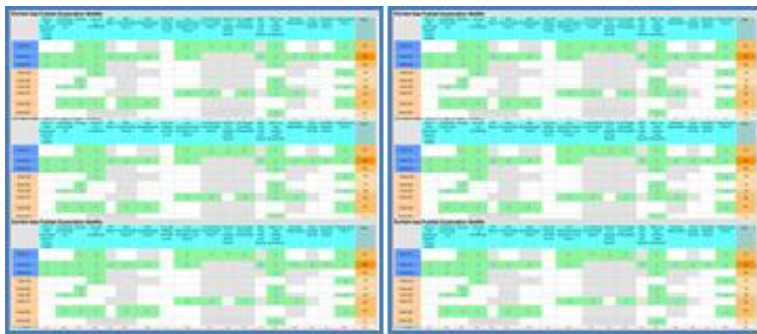
**'Dashboard' across projects to manage 'well-file' portfolio
Spot process busts early on – same time and money**
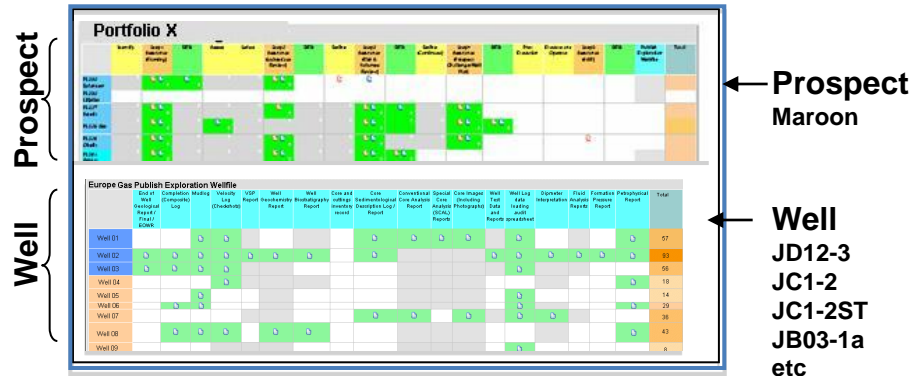
Everyone: Integrated 'Google' like search
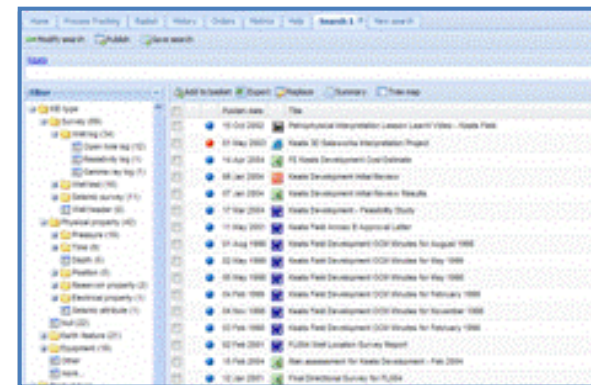
**Type terms, see results like 'Google'. Left hand menu also shows the
contents of your search by Document Type, Well, Prospect etc**

Lessons

- Ensure that the project or system has 100% management support
  - Start with projects that get management attention
  - Solve management problems

- Think about how to influence behaviour
  - Behavioural science
  - Carrot vs. stick

- Make sure that your IM initiatives connect with the business
  - Connecting within IM is one thing
  - Making the business understand why it helps them is another
  - **WIIFM?**

- You need effective consultation with the business
  - Helps later with buy-in
  - Ensures solutions are as required

- People are not good at extrapolation
  - Prioritise stakeholders
  - Provide discipline and/or focused examples

- Rules have different purpose and uptake
  - Some rules are implemented automatically
  - Others are not rules, more guidelines

- Include appropriate feedback mechanisms
  - Best practise, Lessons, Incidents
  - Management of change, Dispensation

- Make things as simple as possible, but no simpler
  - Re-use components
  - Provide simple visual aids
  - Keep the rules as simple as possible

- Developing rules
  - Make the rules as simple as possible
  - ensure they are communicated
  - ensure they are up to date and managed
  - ensure they are accessible when needed
  - in a format that is recognisable

Summary
Rules-based Information Management

What are the rules?

- Checklists
- Procedures
- Legislations
- Guidelines
- Templates
- Policies

Who defines them?

- Principal engineers
- Best practise authors
- The company
- Industry bodies
- Governments

How do we encourage adherence to the rules?

- Embed the rules as part of the day to day operations
- Make it as easy as possible to follow the rules
- Embed beneficial functionality
- Provide feedback mechanisms
- Provide visualisations that assist users to navigate
- Ensure that users are aware that managers are watching
- Make sure managers monitor and respond to deviations
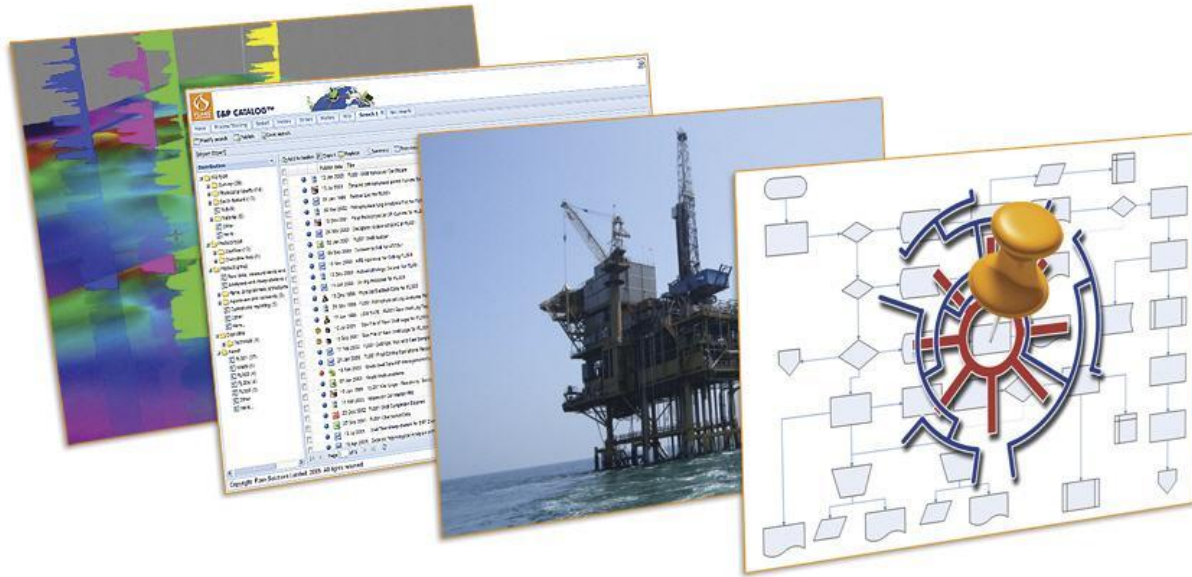
Thank you for listening

Any Questions?

g.mansfield@flare-solutions.com

Tel: +44 118 969 8045
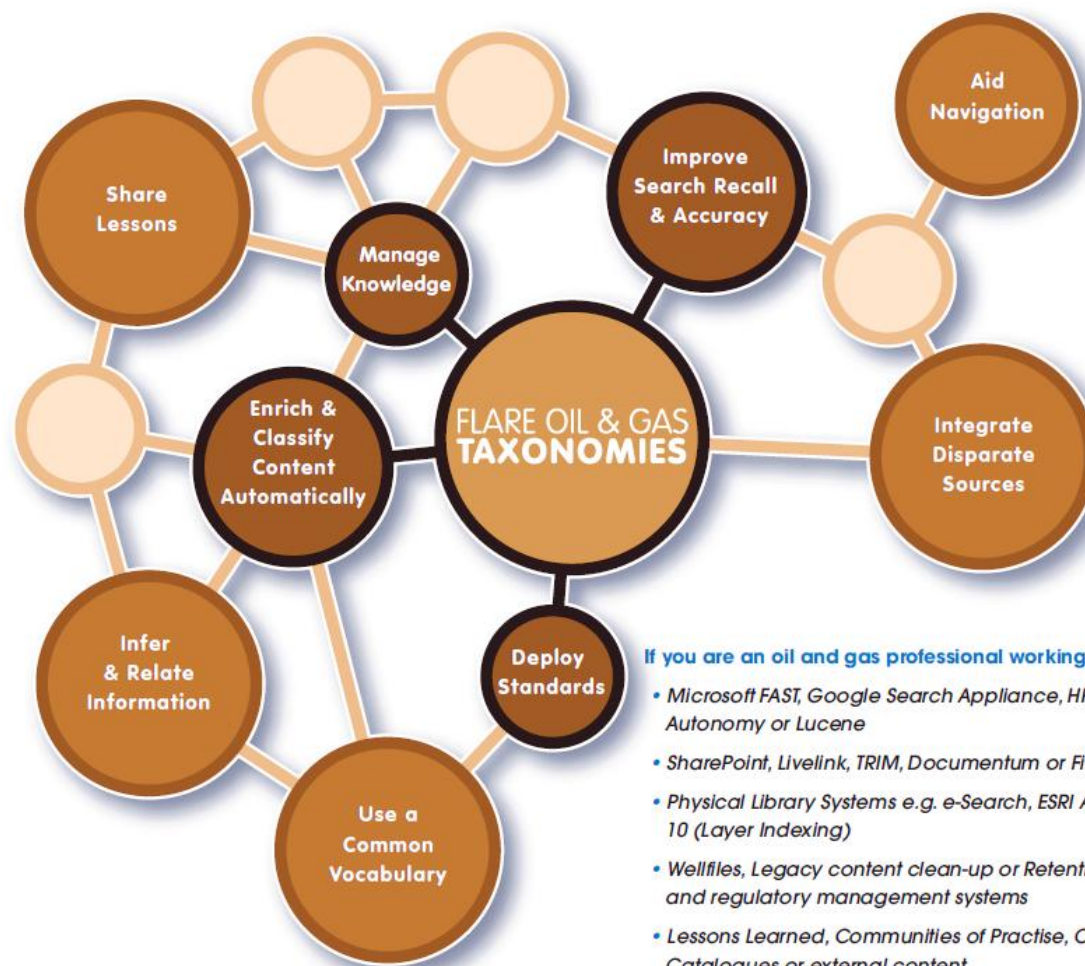**Mob: +44 7703 234 893**

Using intelligence to pinpoint your oil and gas information

Me and my favourite gadget!

Flare's Taxonomies can improve your search results by up to 75% without the need for new technology

FLARE OIL & GAS TAXONOMIES

- Aid Navigation
- Improve Search Recall & Accuracy
- Share Lessons
- Manage Knowledge
- Enrich & Classify Content Automatically
- Integrate Disparate Sources
- Infer & Relate Information
- Deploy Standards
- Use a Common Vocabulary

If you are an oil and gas professional working with:

- Microsoft FAST, Google Search Appliance, HP Autonomy or Lucene
- SharePoint, Livelink, TRIM, Documentum or FileNet
- Physical Library Systems e.g. e-Search, ESRI ArcGIS 10 (Layer Indexing)
- Wellfiles, Legacy content clean-up or Retention and regulatory management systems
- Lessons Learned, Communities of Practise, Offsite Catalogues or external content

then Flare can help.