Data Driven Safety – Managing our Safety Critical Systems

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We Use Data to Help Prevent Major Accidents

- Integrity
- Process Safety
- Assurance

Offshore, We Rely on our Safety Systems

We have multiple safety systems which must work when we need them

- Fire detection
- Emergency Shutdown
- Alarms & Communication
- Firefighting Water Sprays

We do a lot of work to make sure they remain functional

- Inspect
- Test
- Maintain
- Repair

We need to monitor the status of this for thousands of components

- Inspection done on time?
- Faults found?
- Repairs planned?
- Repairs complete?

And roll this up to understand the overall status of these systems

Data management and visualisation challenge

- Computerised Maintenance Management System
- Tools to visualise and access data

Serica's Data Visualisation Needs

Serica became Operator of Bruce in 2018

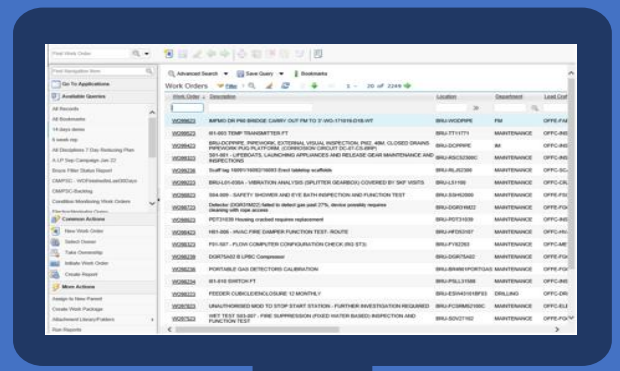
- **A new team from a range of backgrounds**
- **Maintenance Management System – IBM Maximo**
- **Data and workflows transferred from previous operator**
- **Initially only basic tools to access and visualise data**

One System - Many Needs

Different People with Different Needs

- On Site Technicians who do the maintenance
- Planners and Schedulers
- Engineers who manage specific safety systems
- Offshore Site Management
- Technical Assurance and Verification
- Senior Management

Maximo
Maintenance Management System



Proliferation of Spreadsheets

Over reliance on small number of Maximo data specialists

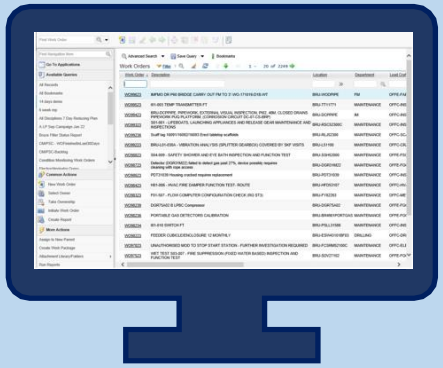
Potential for inconsistent data to be used

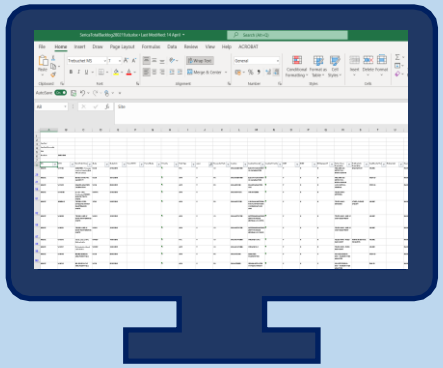
People Joined Serica with different Backgrounds and Experience

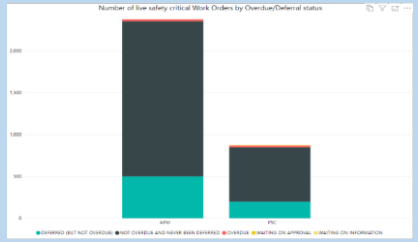
- Range of experience with maintenance management systems
- Different experiences with Maximo
- Unfamiliar with specific build and implementation in the system
- Different uses of terminology

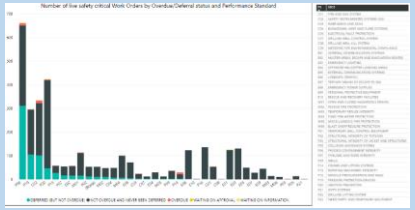
A quick, simple, flexible approach was used to develop the tools which make the data useful

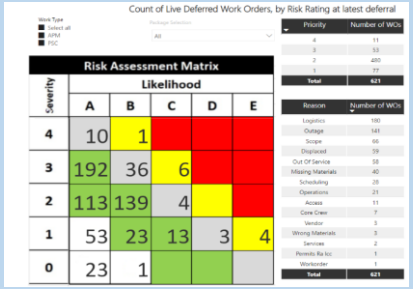
Data Visualisation Development

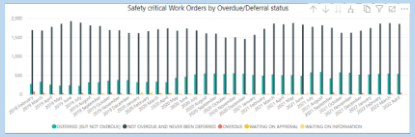












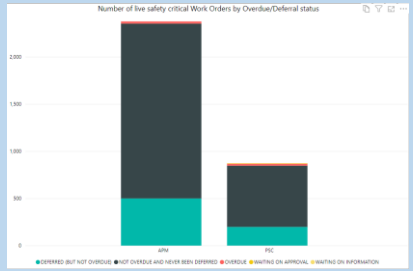
- Small, informal teams
- Data and system specialists made available
- Use Stock Data Visualisation Tools - PowerBi
- Start small and build quickly
- Try things out
- Make dashboards available as soon as possible
- Learn and Feedback
- Use to improve data quality in underlying systems

Data Visualisation Development

Display data from Maximo in PowerBi

Develop understanding of basic data build in Maximo

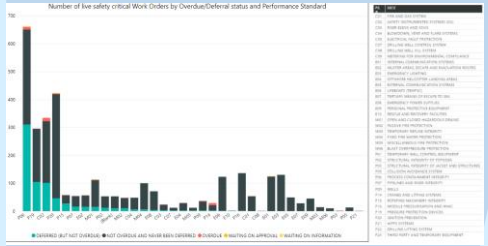
Develop standard queries into Maximo



Show data for each safety system

Problem: identifier codes for each safety system don't follow same format

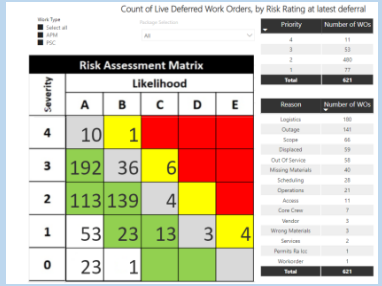
Update format of these codes in Maximo



Show deferral status of all workorders

Problem: deferrals are managed in a different module in Maximo

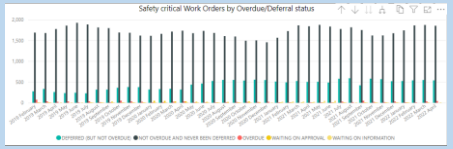
Create a tool to link data from different modules



Trend Data Over Time

Problem: Maximo does not hold historical data

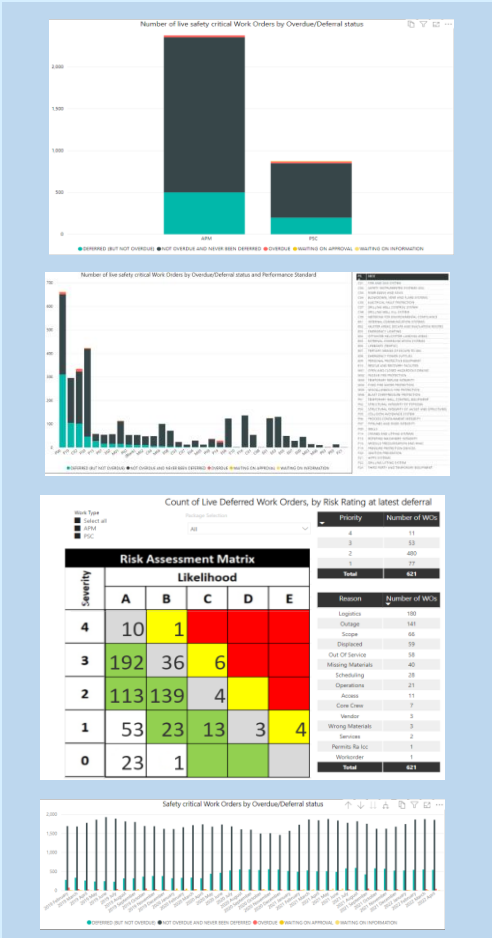
Build local database with scheduled data updates from Maximo



Impact and Next Steps

Is it having Impact?

- Engineers using data for technical assessments
- Dashboards being used in management presentations
- Allowed industry data reporting requirements to be easily met
- Requests made for new charts or data to be included
- Used to find data quality issues in underlying systems
- Similar approach adopted to build dashboards in other areas



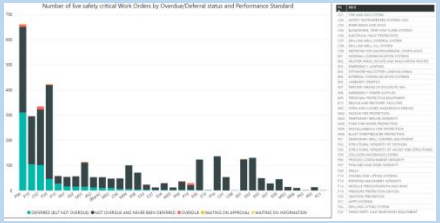
What Next?

- Continue to develop new dashboards
- Explore new ways to visualise and use data
- Integrate data from other sources and systems
- Increase use of local database to manipulate and trend data
- Use feedback to improve data quality in underlying systems
- Understand and prevent major accidents

Data Driven Safety

Integrity

What is the Status of our equipment and systems?



Process Safety

How does this cumulatively impact our ability to prevent major accidents?

Assurance

Are we doing what we should be doing?

Thank-you