OSIsoft.

# REGIONAL SEMINAR 2012

APAC

The Power of Data

# Leveraging PI AF

Presented by **Tony Watkins & Steve Miller, Optimate**

# Agenda

- Introduction
- Systems
- Methodologies
- Benefits
- Practical Considerations
- Key Factors
- Recommendations

# About Us

- **Steve Miller :-** Managing Director at Optimate Pty Ltd with 25 years' experience in the design and delivery of integrated operations solutions.

- Optimate Pty Ltd is a Solution Consulting and Systems Engineering Company with a strong track record of designing and delivering Process Automation and Operational Intelligence Solutions over a wide range of Industries.

# Introduction

- Asset centric companies are getting an increasing level of support from back office systems ( ERP, MES, Doc Management etc.)
- Control Systems vendors have / are migrating toward object oriented architectures.
- The use of OSIsoft's PI Historian is very prevalent and technologies for integration with business systems are available.
- Centralised Operations Supports Centres are increasing as they allow companies to concentrate a high level of expertise and leverage the above infrastructure
- This presentation will discuss an approach for leveraging PI AF to extend the benefits of the available data / information.

# Introduction

Leveraging PI AF will involve the integration of data and processes in PI AF with the data and processes in the various systems of record.

The Key Drivers for taking this step and ensuring that a robust design for PI and AF are delivered to the business are –

1. A good source of data within the business will experience an exponential increase in the requirement for integrity
2. A failure in data integrity within the business will undermine the value and benefits of the single source of truth

# Systems

## Typical Systems of Record

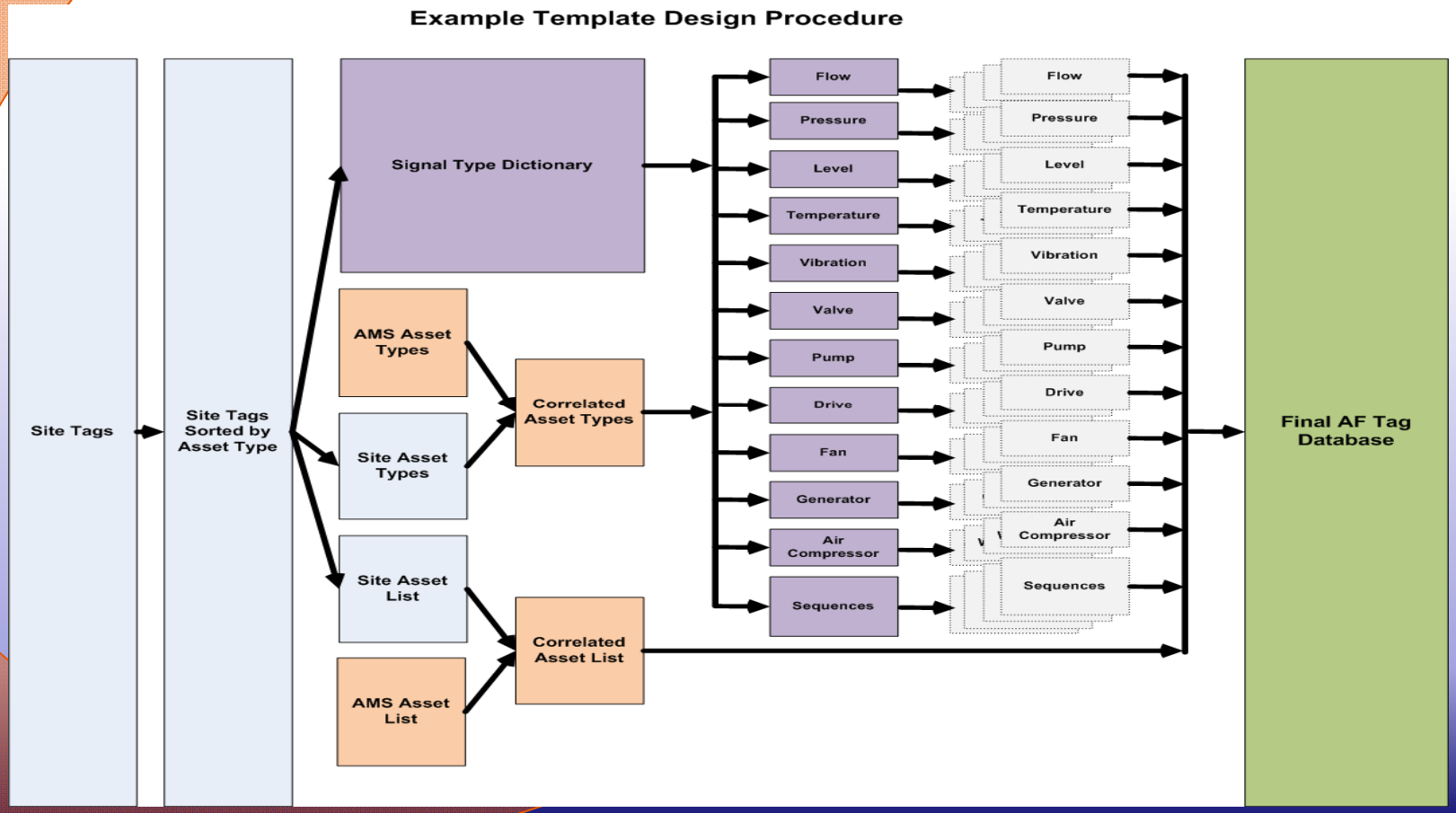
1. Control Systems – Real Time Plant data, Process Logic,
2. PI Historian – Historical Time Series Plant Data
3. Calculation and Validation Engine – Calculations, formulas and validation logic.
4. Operations Management Systems – Shift Logs, Voice Recording, Event Management, Production Reporting
5. Manufacturing Execution Systems – Production Planning, Logistics Plans,
6. Active Directory – Information roles, security and permissions,
7. Asset Management System – Asset Meta Data, Work Orders, Maintenance Plans, Activity Plans.
8. Document Management System - Policies, Procedures, Drawings, Manuals, Specifications etc
9. Financial System – Budgets, Forecasts, Cost Accounts, Asset Life
10. HSE System – People, Compliance monitoring and reporting

# Methodology

The core approach to leveraging AF is three fold:-

1. Create a system of record for the relationship between assets and plant data. ( AF )
    1. Finalise Asset list and Templates for each Asset type
    2. Record the relationship between plant tags and the template attributes for an asset (programmatically?)
2. Create a system of record for the relationships between assets and an Operations Hierarchy ( In AF – Supports Operational Reporting and Process Modelling )
    1. Define an Operations Hierarchy for each of your plant types. Some international standards are available.
    2. Record the relationship between each Asset and the Operations Hierarchy.
3. Identify and supplement the relationship between assets and other systems ( AF )
    1. Create an aggregated Super set of meta data from the other systems
    2. Record the relationship between each Asset and the relevant Meta Data.

# Template Definition



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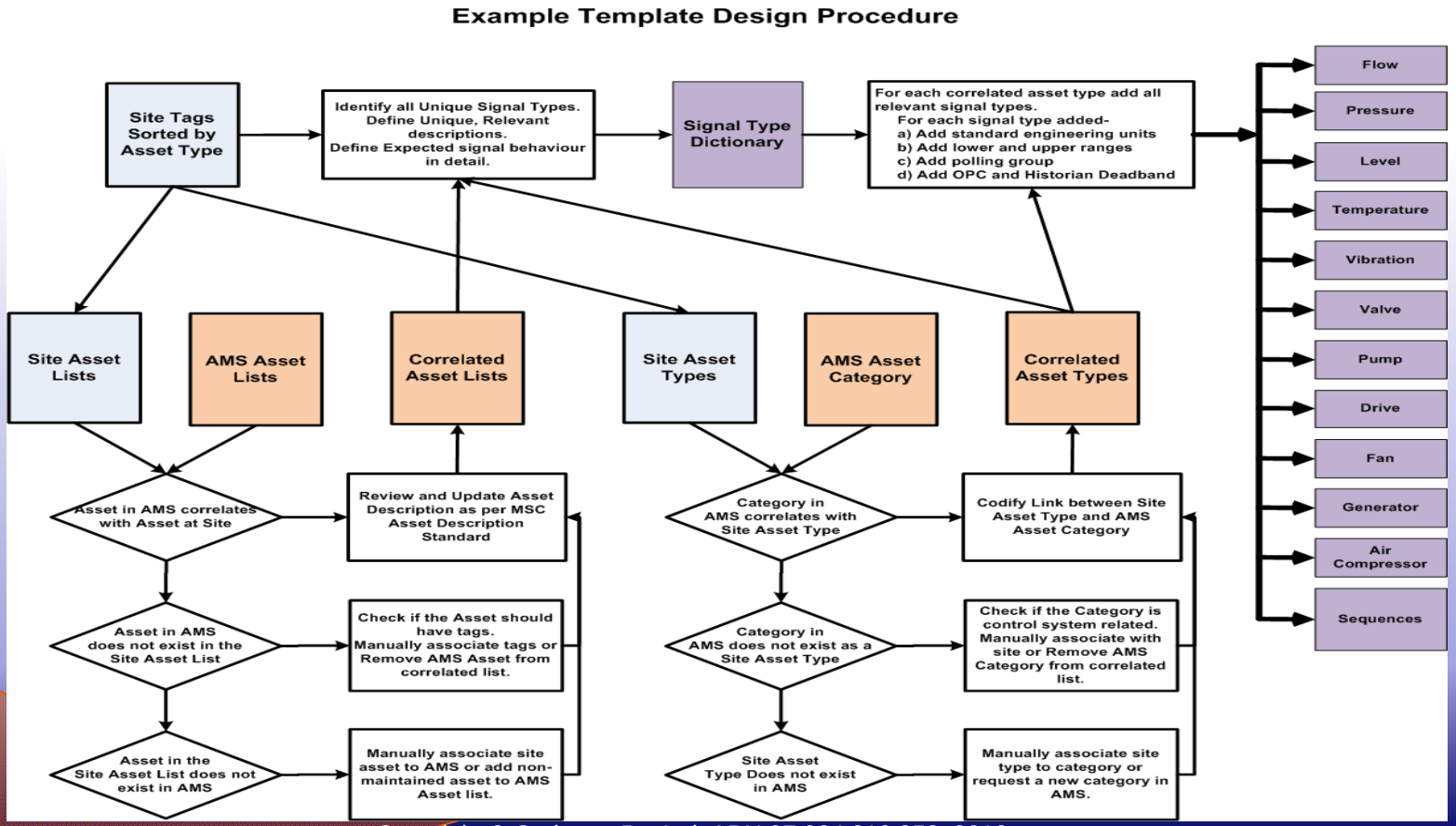

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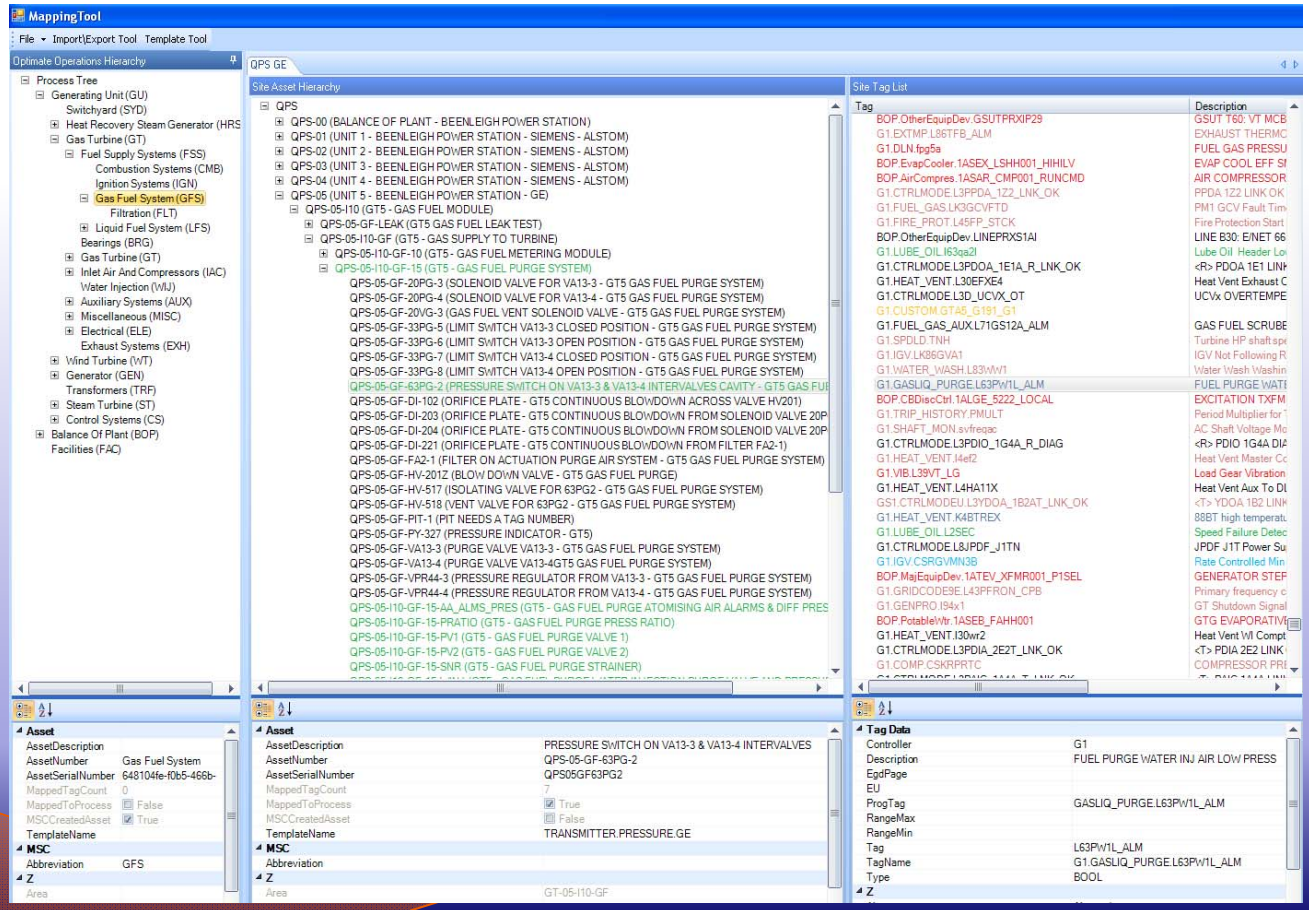
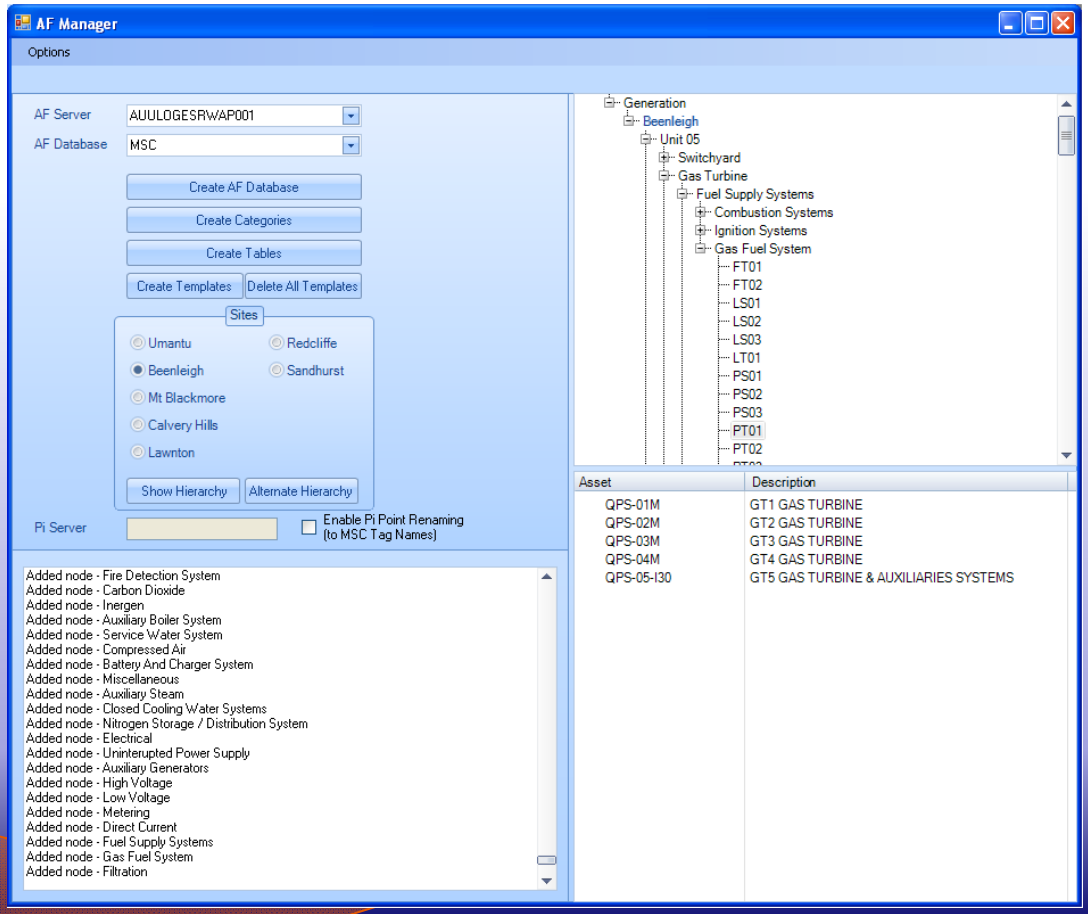
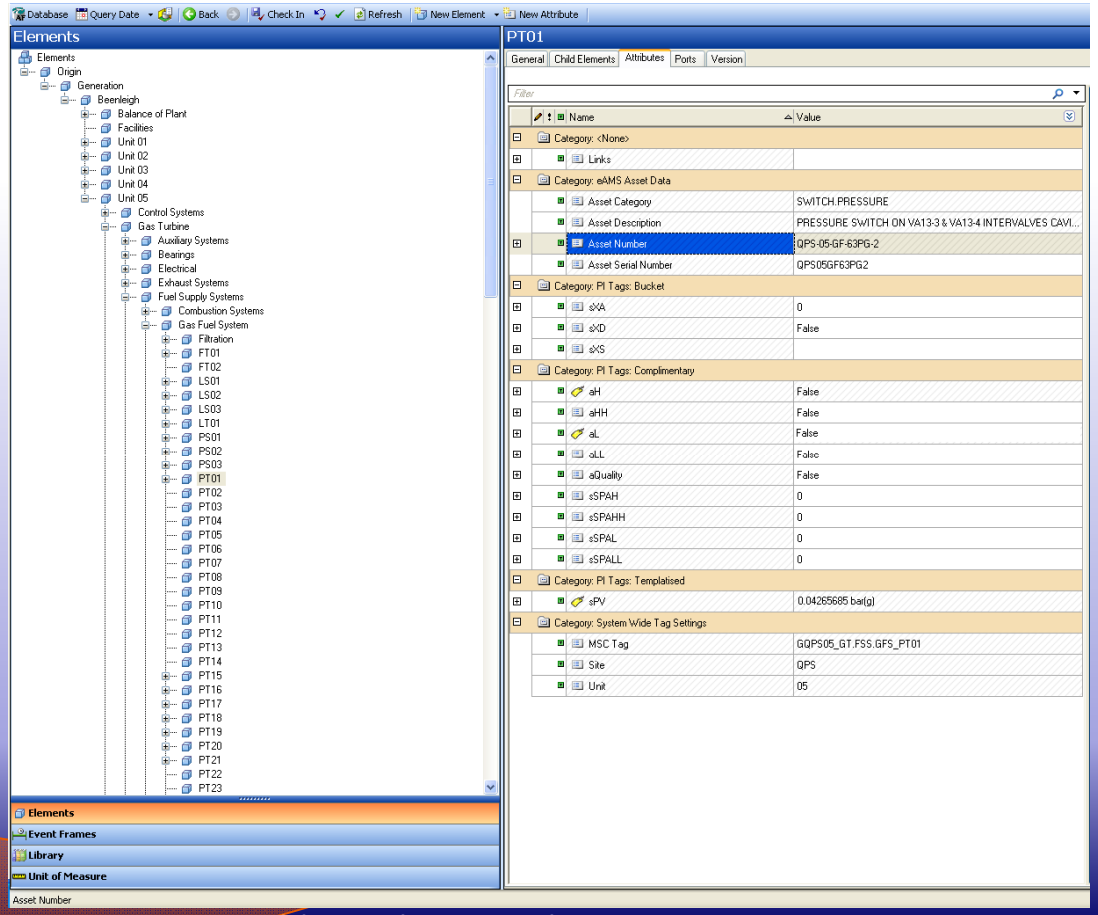
# Tag Mapping



# Operations Hierarchy & Asset Mapping



# Asset Framework



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# Benefits

## Project and Ongoing Administration Benefits

1. Database ( SoR ) for Asset and Tag mapping Rules
2. Templatisation of Sites, Assets and Tags for reduced config / admin effort
3. Templatisation of Pages and Content for reduced config / admin effort
4. Templatisation of Calculations and Validation for reduced config / admin effort

## Operations Benefits

1. Use of the same data in multiple perspectives or contexts.
2. Multi Subject Data Access.
3. Data driven content
4. Ability to Respond to changing Business Environment

# Key Factors

Some of the Key Factors that influence the design of the methodology and ultimately the success of the outcome, for a given project are:-

1. The operating environment within which the information will be used ( 8 x 5, 24 x 7 )
2. The actual processes, procedures and activities that the users will carry out.
3. The maturity of Master Data Management within your organisation
4. The maturity of a Service Oriented Architecture within your organisation
5. The actual data and capabilities of the Systems of Record.

# Practical Considerations

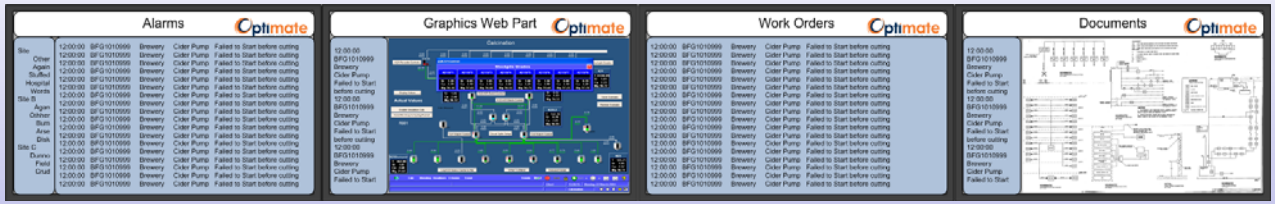
1. The methodology has to be tailored to the objectives of the business and the project.
2. Tag and Asset mapping can be labour intensive, even with good software tools and especially where existing standards are poor.
3. Availability of the best internal people for a project is hard to coordinate.
4. The availability of real time data exposes internal support services to requirements for real time responses to problems. This will challenge their normal services levels.

# Recommendations

1. Start with defining the BAU processes ( drafts only ) that the project will create or change.
2. Ensure the information foundations are strong
    1. Key Master Data is well structured and governed
    2. Relevant and appropriate Service Oriented Architectures
    3. Robust and Scalable Technology Architectures
3. Make the time to identify your requirements – “Know what Good looks like”
4. Keep it Simple for all stakeholders – “Make it easier for people to do their job”

# An example of “Good”

1. Adding new sites / assets is procedure driven requiring minimum effort.
2. All information accessible via a “Portal” from any company workstation
3. Multiple screens or tabs displaying different content relating to a single context




4. Users can, via single navigation, see information on multiple subjects within 15s
5. All personnel look to the portal first for all data related to business assets.
6. System Engineering and Updates are appropriately flexible and timely
7. System availability of > 99.9%

# Thank you for your time

ph:- +61 7 34424200
steve.miller@optimate.net.au
tony.watkins@optimate.net.au

# THANK YOU

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