soltius

# SAP Work Manager

## Opinion Piece

### Introduction to SAP Work Manager

In 2012 SAP acquired Syclo and with it a number of mobile products based on the Syclo Agentry platform.

Prior to the acquisition Syclo was a long standing SAP partner with impressive global success in mobilising organisations, mainly in the areas of logistics and maintenance operations.

One of Syclo's most popular products was the Work Manager application. Now called SAP Work Manager, this has replace SAP's Mobile Infrastructure-based Mobile Asset Management solution.

### How It Works

The Work Manager product works a little differently to SAP previous offline mobile products, and indeed many of those offered by other vendors. The two key points of distinction are:

- Generally there is no intermediary data storage between mobile application and backend
- Mobile application logic is published to the device application. It can be readily updated without the requirement for any update to the mobile application itself

**SAP ERP System**

The pre-developed extensive add-on to the SAP ERP system contains the interfaces, administration and monitoring functions for the solution. The add-on integrates with the standard SAP BAPI's and RFC's and is developed within 'Syclo' own SAP namespace.

The communication between the SAP ERP and Agentry systems occurs using the SAP JCo connector.

**Agentry System**

The Agentry system is relatively light-weight and importantly stores no transactional data. It communicates to the mobile application using meta-data to transfer both data (unidirectional) and new screen definitions and logic to the device. The proprietary, encrypted format used for the transmission is called Angel.

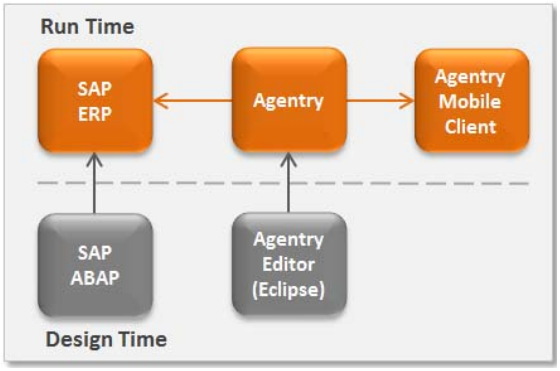


Figure 1 - Basic Architecture Model

**Agentry Client - Front End**

The mobile device has a client installed specifically developed for each OS. Increasingly this client is being referred to as a player.

On initial installation the mobile device client contains no screens, processing logic or data.

Users logon to the mobile client using their own SAP user name and password. The application then syncs master and transaction data from the SAP system through the Agentry server and screens definitions and processing logic from the Agentry server.

Users effectively work offline using replicated data. When they transmit the application connects through the Agentry platform back to the SAP ERP system to perform updates and to download new data and application logic as required.

## The User Experience

In the mobility world it's all about the User Experience (UIX) and the standard for this is increasingly based on consumer grade mobility applications.

In commenting on the Work Manager UIX it's important to understand the underlying meta-model used for the solution. The meta-data approach passes both the application data (the screen design) and master and transactional data to the devices. The design data is then interpreted by the client on the mobile device to render the screen and application functions. In practice this means that additional functionality can be deployed to the devices very quickly, easily and with minimal administration effort. This is a key strength of the underlying architecture and solution.

Any balanced discussion on the UIX needs to recognise that some devices and operating systems are working at their capacity. This is particularly relevant for those dated, often ruggedized devices running sunset operating systems like Windows Mobile 6. End users don't always appreciate such challenges – they are influenced by the UIX of their smart phones and consumer mobile solutions.

While being fully functional, the effect of the meta-driven approach is that the UIX is not a 'consumer' grade experience. Some device solutions are better than others (for example iOS).

Right now SAP Work Manager does not offer a valid Windows 8 solution. Given how long it's taken for Windows 8 to be released and the relatively weak (but increasing) market position, this is perhaps not surprising. SAP have signalled that Windows 8 will be supported in later releases – which is great because we are seeing growing interest in the Windows Tablet from customers.

### Summary UIX Assessment

Here's a basic assessment summary of some of the UI's:

**Apple iPad and Android Tablet**


The show case for the application. Functional and offers great performance. Perhaps let down a little by the graphics and lack of consistent navigation functions.

**MS Windows Mobile**


Historically the work horse of the mobile world for this type of business process. Given what it's got to work with in terms of processing performance and screen size the Windows Mobile UI is pretty good.

**Apple iPhone**


Functional but lacking some of the features of its big-brother iPad version such as Functional Location and Equipment details, Measurement Points and Classification data.

**MS Windows Desktop**


Easily the poorest of the available UI's – but the functionality is there. However the use cases for laptop style deployments is small in a mobile world.

**MS Windows 8 Mobile**


Not yet supported. We can anticipate that the next release of the product will offer Windows 8 support.

Note: With all these operating systems there is also the requirement for platform/ device specific certification.

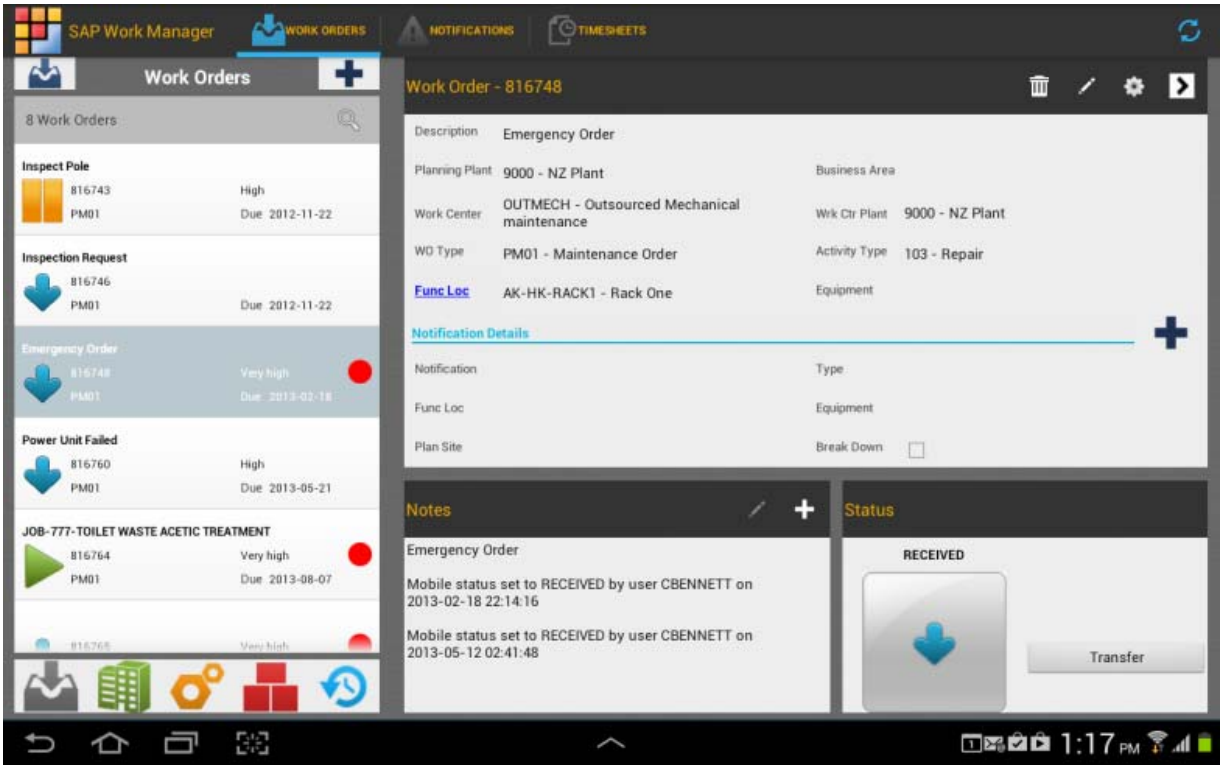


Figure 2 - SAP Work Manager Android Screen (Work Order)

## Base Architecture

The Work Manager solution uses the Agentry platform to through-put data from and to the SAP ERP system. This is a very good concept and provides some significant advantages when compared to SAP's previous Mobile Infrastructure based solution, which stored and synced the data between the ERP system and mobile devices.

Essentially the Work Manager design allows all the processing to occur in the core SAP system where access to the data and transactional events are closest. We have come to refer to this has having the 'heavy lifting' being undertaken in the backend – rather than the mobile application or middleware.

As a result of this architecture the data replication capabilities compared to the SAP MI/ MAM model is vastly improved. For example, for one of our clients we are targeting 50,000+ Equipment records to be replicated to the devices – rather than the previously laborious requirement to apply user specific filters and frequent data set changes.

While options do exists for secure data transmission and device data storage, the support of secure access of the devices to the client's own environment has historically been an issue. Establishing VPN connection is not always a viable solution for many use cases and devices. SAP have addressed this issue with the 5.3 release to enable reverse invoke functionality.

Moving forward the 'Syclo Agentry' based solution is being included over two stages into the SAP Mobile Platform.

SAP's recent commentary on their mobility strategy includes the alignment of not just the platforms but also the underlying technologies. This includes the meta-model approach possibly supported by oData and the extended use of http transmission protocol.

### Summary Architecture Assessment

Here's a basic assessment summary of some of the key architecture capabilities:

**Core Architecture – Agentry Platform**


Great concept where the processing is undertaken by the core ERP system and the 'Agentry' platform acts as a communication hub for the data, transactions, screen design and processing logic.

**SAP Integration**


Very strong in terms of the complete pre-built backend components. Weaker in terms of the manual maintenance required for changes to java classes related to SAP object updates.

## Business Processes and Functions

The Work Manager solution does what it is intended to do well. Its focus is on delivering basic Work Order and Notification functionality. It's not intended to replicate the backend SAP Plant Maintenance functionality.

### Summary Functional Assessment

Here's a basic assessment summary of some of the key functional capabilities

**Synchronisation Process and Speed**


For any off-line solution the ability to synchronise data with the backend effectively and quickly is vital. The Work Manager solution does this exceptionally well.

The only detractor is the error handling on the device which in terms of error clearing is rudimentary. The counter to that is, apart from basic record locking, any processing error conditions should be dealt with by the process design and testing – thus eliminating mobile client errors.

**Create Work Orders**


Allows for the creation of Work Orders on the device.

The solution does not allow for any work undertaken or status updates to be recorded in the created state.

**Process Work Orders**


Update and add operations, add notes (header and operations).

**Create Notifications**


Allows for the creation of Notifications from the device.

The solution doesn't allow for any work undertaken or status updates to be recorded in the created state.

**Process Notifications**


Update and add operations, add notes (header and operations).

**Basic Equipment and Functional Location Data Model**


The base data model for the solution is functional and extensible but there are some interesting anomalies. The backend end model suggests that many standard fields are available to 'turn-on' but not all those available have been mapped to the device through the java classes. An example is the Equipment Technical ID field.

**Search Functionality**


Reasonable but does not provide for wildcard or partial searches. Each search field has its own unique index. This means that, for example, a search for '1234' for a technical ID of 'ABC-1234' is not possible.

**Work Order and Notification Assignment**


There are as many as seven standard models for this association to be made (from the SAP backend). In addition users can re-assign tasks to other users.

### Classification Data


Read only for the prime Equipment in the Work Order – no edit function.

### Equipment (Technical) Documents


Displays the Equipment document references from the Equipment Master record – but not the actual documents and therefore the use cases are limited.

### Photo's/ Camera


Not available as standard. For many organisations undertaking conditional assessment or creating reactive notifications, there is a strong need for integrated photo capture. Reportedly this functionality can be developed (device specific).

### Important Note

Not all functions are available for all devices and operating systems. For example the iOS Tablet and iOS Phone solutions differ not only in terms of the expressed UI (which is understandable given their form factors) but also the functionality that is exposed. For example on the iPhone version there is no:

- Functional Location and Equipment details
- Classification Data
- Measurement Points

## Configuration and Administration

The Work Manager solution comes complete with configuration and administration monitoring functionality which is nicely delivered using SAP Web Dynpro pages. This provides developers and administrators a good degree of control over the process, data models and data filters.

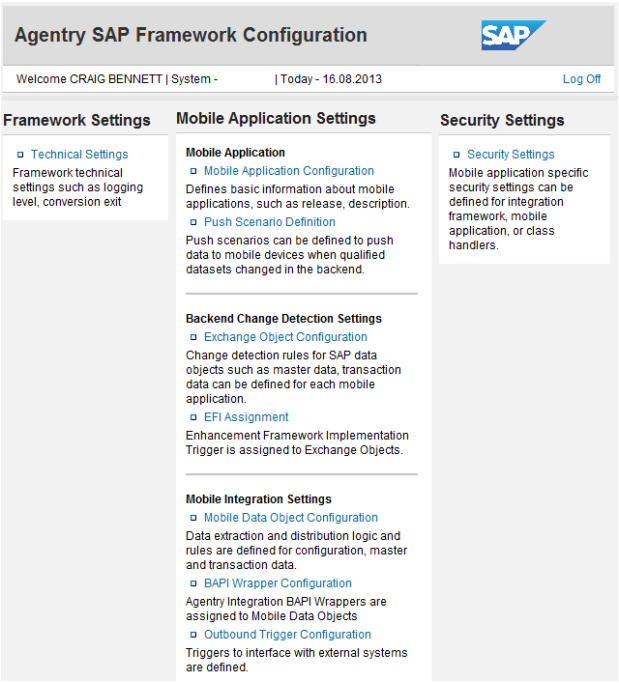


Figure 3 - Agentry SAP Framework Configuration

### Summary Configuration and Administration Assessment

Here's a basic assessment summary of some of the key configuration and administration capabilities:

### Configuration


The configuration options are extensive and well developed. The availability of update triggers for business events and data filters as standard reduces the requirements for customer specific development. Where such development is required then this is fully supported by the SAP operating environment.

### Administration


The administration and monitoring portal is well developed and makes use of the available

Web Dynpro functions – like graphics and images.

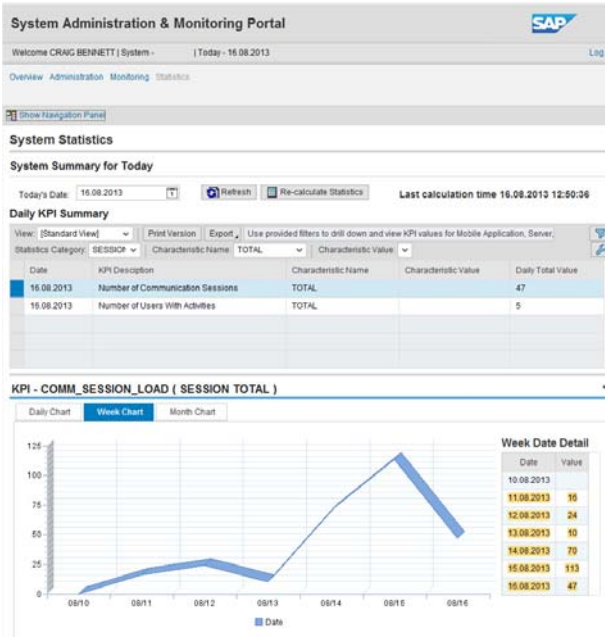


Figure 4 - SAP WM System Administration and Monitoring Portal

## Development and Extensibility

The pre-delivered SAP backend solution package is a definite strength of the product. It is extensible, though there are some elements of overall solution where the development integration between the SAP and the Agentry platform could be improved.

SAP developers are perhaps spoilt with the robust development management solution delivered by SAP's Transport Management System. So it's no surprise that the processes and disciplines involved in development control within the 'Syclo framework' do present some challenges. This extends from the developers and those charged with the overall systems change control processes.

The current approach may be a reflection of Agentry's integration capability with multiple back ends – including Maximo and other databases. It's expected that SAP will work to improve this and provide a more integrated approach in the future SAP Mobile Platform releases.

### Summary Development Assessment

Here's a basic assessment summary of some of the key development capabilities:

**Development - SAP Backend**


Well defined SAP add-on that supports developers in applying customer specific logic or extending the solution. All developed through SAP ABAP and contained within the strong SAP transport management solution.

**Development - Java**


The requirement to manually extend the java classes in support of any changes made to the data models is quite frustrating.

**Development – Agentry Standard**


The Agentry development environment under eclipse is fully functional and extensible. See development and migration below for related functionality.

**Development – Agentry Custom**


Custom development through integration with other applications is only available using OCX's and the use of command line calls. This is only supported on Microsoft platforms.

### Development and Migration


For developers spoilt by the strong, integrated nature of the SAP TMS environment the solution development needs work. This is especially relevant for source control and version management and in a multi-developer environment.

### Test Environment


The solution includes the Agentry Test Environment (ATE). This is a desktop tool that allows developers to visualise the developed solution and see the data stored on a specific test instance.

It does not exactly replicate the devices in all instances but for test support it achieves a reasonably good emulation.

### Development Support


While available the development support offered for the 'Syclo' products is not as accessible and transparent as that we experience and appreciate from SAP.

The expectation is that over time this will improve as the Syclo organisation becomes more integrated into the SAP support and development environment and the community expands.

## Solution Fit in SAP Mobility Options

The diagram below shows a generalised review of each of the mobility options available from SAP and where the SAP Work Manager product (SAP Meta Application) fits within this framework.

The Agentry Platform is currently being integrated into the SAP Mobile Platform. The first release of this integration will be the Agentry runtime components.

SAP's signalled intent is to then integrate the development environments along with an alignment of the various technical options currently supported by the SAP/ Sybase and Syclo solution sets.

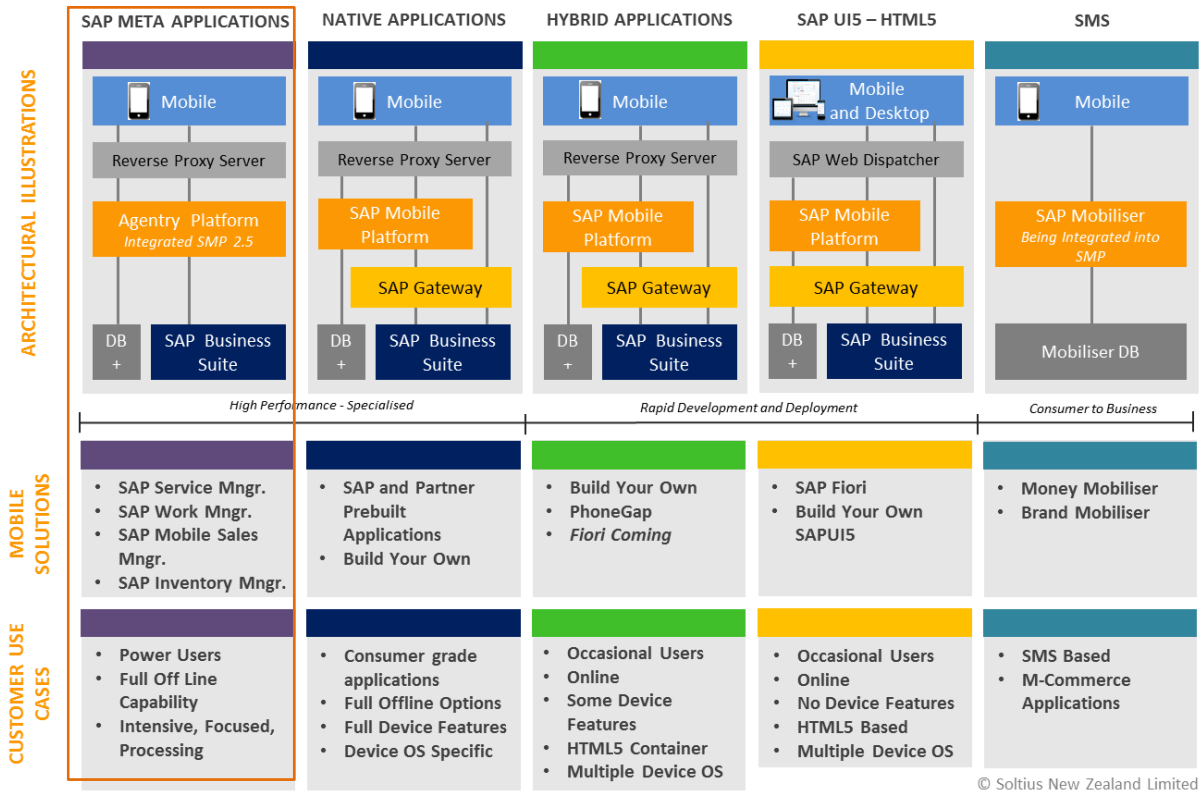


Figure 5 - SAP Mobile Solutions Summary – Source: Soltius NZ Limited

## Conclusion

A lot of attention in the world of enterprise mobility is given to the consumer grade 'iApps'. Mobile applications like SAP Work Manager often get overlooked in the pursuit of the beautiful consumer driven apps. Yet it's these solutions that are the 'grey beards' of the mobile world. In use day in day out, a tool that's often vital to operations and producing the true ROI value.

Right now the SAP Work Manager product is a proven, fully functional and extensible solution. It works for a targeted selection of SAP Plant Maintenance functions. Improvements to the UIX, development options and architecture have been signalled and will be welcome.

**The Alternatives**

Many clients considering their approach to mobility for offline operations underestimate the complexity of event driven delta data and transactional exchanges.

While SAP is fully capable of exposing data for consumption by other systems, the true costs of developing and maintaining integration can be prohibitive.

The deep integration of the Work Manager solution with the SAP Plant Maintenance solution is strength of the solution. As standard it can be installed and operating in days and technical deployed in a matter of weeks.

The overall level of sophistication of the Work Manager solution and the true costs of using alternative approaches should be a key consideration in any solution evaluation.

**The Future**

Mobility is a key focus for SAP and the future for the Syclo acquired products under a SAP Mobile Platform is positive.

One of the truly great things about SAP is the investment they make on-going product development. SAP acknowledges that improvements, particularly around the UIX and solution consolidation, are necessary and are actively working to address these.

## Disclaimer

This opinion piece reflects on several aspects of the SAP Work Manager 5.3 solution. It has been written to provide our customers with a concise summary of the product based on our experience with it.

The assessments included in document are not intended to act as a detailed product evaluation. They use rudimentary and largely arbitrary applied criteria and ratings. They should not be used as the basis for formal product evaluation and or procurement decisions.

## About the Authors

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Craig has 17 years' experience with SAP across a broad range of client engagements and covering solution architecture, project management, functional and technical roles.

Craig is passionate about delivering business value to our clients through the use of mobile processes and technology. He is the Mobility Manager for Soltius leading a team focused primarily on the SAP mobile product suites.

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Rikardt is skilled SAP Technical Architect with extensive experience across a wide variety of technologies and platforms. In addition to his core SAP ABAP and Syclo skills Rikardt also has experience with web development, SAP Sybase technologies, Java and .Net development.

## About Soltius

Soltius was formed in 1996 as the first SAP implementation partner in New Zealand. Our aim at that time was to build a business known for quality implementation advice and guidance at an affordable price. Soltius today is firmly established as one of New Zealand's leading IT consulting firms.

With a permanent headcount of around 90, and access to a global resource pool, we offer an extensive range of SAP services to New Zealand businesses. Our philosophy is to focus on enduring relationships by being able to support our customers through their entire system lifecycle, whether it is through the provision of full project teams under Prime Contract, or by providing one-off specialist advice. Evidence of the effectiveness of this philosophy is the fact that our original customers in 1996 remain loyal and important customers today.

We are proudly 100% New Zealand owned and NZ focused. With offices in Auckland and Wellington we are trusted by more than 50 organisations nationwide to provide SAP business solutions, support and consulting services.