

# Mobile maintenance overview



## MOBILE MAINTENANCE OVERVIEW

### THE PROJECT

Over the last decade, we have seen the pace of technology development increase hugely. From mobile phones to tablet devices to ‘smart’ televisions, right up to connected vehicles and homes. This technology shift is inevitably moving into aviation travel sector. Both the Boeing 787 and Airbus A380 require connectivity, and digital tools, to maintain them. Engineering needs to have integrated systems and hardware within the business to keep pace. Achieving such integration will provide us with the latest tools in support of our drive for greater efficiency and improved productivity. Our goal is to use technology to help us become market competitive.

The Mobile Maintenance project is one of Engineering’s primary Tier 1 programmes and forms part of the ‘Our Plan’ business objective to “use digital technology to transform our business”. It aligns with the work we are doing under the banner of the Capella change programme.

With investment being made in mobile hardware, a new content management solution and significant enhancements to the SAP, the project will roll out over the next 18 months. Beginning in the ramp arena, online/mobile working will cascade on into hangar maintenance, and then component workshops. The new content management solution will come on stream one aircraft type at a time, with component maintenance manuals shortly thereafter.

## INVESTING IN OUR FUTURE

In the current financial climate, the decision by BA's Capital Investment Committee to approve this capital investment should be seen as a fantastic endorsement of everything Engineering intends to achieve via the project. Once the cost of the original mobile working trial is added in, the total capex underpinning Mobile Maintenance comes to some £8million. The graphic below provides an indication of how the funds have been invested.

33%

22%

45%

## INVESTMENT BREAKDOWN

Hardware

SAP Enhancements

## INVESTMENT EXPLAINED

## BENEFITS

Of course, the investment decision was driven by the compelling benefits case Engineering were able to make. As well as the obvious productivity and efficiency opportunities, successful implementation opens up the possibility of achieving a wide variety of non-financial gains across Engineering.

## PEOPLE AND PROCESSES

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- Drive up the quality of information underpinning resource and load planning activities.
- Reduce the frustration caused by having to leave the aircraft side mid-job.

#### SAFETY AND QUALITY

- Improve access, and adherence, to maintenance manuals, procedures and processes.
- Reduce the risk of unrecorded work.

#### OPERATIONAL PERFORMANCE

- Reduce ADDs and delays through easier, quicker and more accurate access to technical information.
- Vastly improved situational awareness – both in the satellite control and for the production teams.

#### SAP Enhancements

- Just over 1/5 of the investment has gone into the largest single group of changes to SAP since it was introduced in 2004. Resulting in new transactions and improvements to existing ones, in addition to the new eTask app.

#### Hardware

- 1/3 of the investment has been on hardware. From the devices to servers and WiFi infrastructure. This portion of the investment was vital in ensuring the implementation becomes a success.

#### ICMS

- The largest portion of the investment is in the new integrated content management system. A replacement for the TI Portal and Knowledge warehouse, ICMS will provide remote, direct, accurate technical documentation to all engineers.
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- Ensure colleagues carry out their role with the most up-to-date information at their fingertips.
- Increase the productivity and efficiency of the delivery and support teams in the organisation.
- Provide the opportunity for greater visibility of task work steps.
- Remove SAP data entry lag, and risk of data transcription errors, to improve compliance data timeliness and quality.
- Better quality data will provide greater richness of information to improve the quality, and delivery, of the daily production plan.

## DELIVERABLES

### DELIVERABLES OVERVIEW

Mobile maintenance often attracts the immediate thought of iPads and the eTask app, mobile maintenance is a huge amount more than just an app on a device. The SAP enhancements upstream all interlink with one another, from enhancing the notifications we rely on for compliance, to creating a balanced plan and managing our operation. The information produced upstream of the app allows the engineer to work with accurate, well planned information on his device, while the app offers him/her immediate benefits with the functionality offered by eTask.

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## DEFECT WORKBENCH

The defect workbench is a new SAP transaction available for use by both production and the EOCC. It allows a user to search, review and fully define a D3 or D7. The transaction is data rich and allows accurate definition of notifications ensuring the user has all the information available to make informed decisions on what action should be taken. Notifications can be directed to relevant departments using the new milestone function while communication lines between planning, production and the engineer at the aircraft side are opened up with the remarks function.

## SLOT PLAN

The slot plan is an engineering version of the airops software we use today to monitor the operation, it is a graphical display of our aircrafts flying schedule allowing a planner to select and analyse maintenance opportunities to plan revisions. The slot plan is the point of entry to the planning workbench and is the first step in the process to creating a new revision or editing an existing one.

## PLANNING WORKBENCH

A data rich transaction allowing a planner to analyse the outstanding notifications of an aircraft. A compliance pane, defect pane and modification pane organise the notifications in a logical manner while quick review columns offer immediate information about a notification including; material status, life rule and number of re-assess alongside many others. The main

function of the planning workbench is to create accurate plans for work in the production environment.

## LOAD AND CAPACITY

Once the notification definition process we will have going forward with mobile maintenance improves and the data is more accurate the load and capacity tool will be a very important tool for engineering. The load and capacity tool will offer a graphical representation of the capacity (resource available) vs the Load (the planned work). This will allow a planner to balance revisions and ensure the plan is achievable. The tool depends on engineering working together to define notifications properly, most importantly defining man hours on ADD's.

## RESOURCE PLANNING DASHBOARD (RPD)

The resource planning dashboard is a digital T card board and interlinks with both the load and capacity tool and the TACD. The RPD (resource planning dashboard) allows a shift manager to organise a shifts colleagues in to teams based on who is available. The transaction offers information of the colleague's skills, cover and availability and so the teams can be planned accurately and efficiently. There will also be a crew room view which will show everyone which teams they are allocated to. The RPD relies on data fed from the HR system and time manager, with this in mind, it is vital that any time manager data is entered in advance of the event, this includes overtime, leave, sickness and any other absence. Failure to do so will result in the colleagues absent or on overtime failing to show correctly in the RPD.

This is important as the RPD feeds the allocation system in the TACD which allocates work to the engineer's devices.

#### TASK ALLOCATION AND CONTROL DASHBOARD (TACD)

TACD is the new version of the electronic whiteboard we use today to manage our operation in the satellites. It allows the FSDE to view and analyse the progress of the work being carried out by the engineers on the aircraft, while having the ability to create tasks from VHF calls and allocating them directly to an engineer's device instantly. The TACD interlinks directly with the eTask app and the functionality provided allows the progress of tasks and revisions to be monitored in real time offering a substantial operational awareness improvement.

#### ETASK APP (IPAD BASED)

The eTask app is the next generation Ramp app. Following on from the trial version, the eTask app has an abundance of functionalities available that allow an engineer to work more efficiently and effectively. Greater task detail, allocation flexibility, stores integration and reporting functions offer huge improvements to the initial ramp app. The major benefit being increased engagement time at the aircraft side, integration to the content management system and access to up to date technical documentation supports the information already on offer within each task pushed to the device.

#### INTEGRATED CONTENT MANAGEMENT SYSTEM (ICMS)



The new content management system is engineering's single solution for technical documentation and procedures. ICMS replaces the TI Portal and knowledge warehouse bringing considerable aesthetic, control and accessibility improvements. Desktop and device access provides aircraft manuals in the same format, hyperlinked and integrated with the eTask app whilst offering smart search functionality. Offline content also allows manuals to be saved to a device for review with automated updates adding in any TR's directly to the manual ensuring adherence to the most recent version.

## TRAINING

### TRAINING SOLUTION

With engineering investing in one of the biggest change projects since the introduction of SAP it is vital that the training solution provided gives all colleagues the most support in the movement towards mobile working. This section will explain the training solution offered as well as where supplementary information and support can be found.

### TRAINING DEVELOPMENT

Mobile maintenance training was developed in house by a team of hard working experienced engineering colleagues. They are volunteers who devoted their time to the project to ensure that the content developed was in the best interests of their own colleagues and engineering as a whole. The training concepts were developed alongside the GLA and their own experts to ensure it adhered to training guidelines. In respect of the practical training

the colleagues whom deliver the courses are also engineering production colleagues who volunteered to support the work areas in the road towards mobile working.

## ASCEND

British Airways' corporate learning tool is Ascend, it allows courses to be built and stored online for completion at a time that suits without being off lined from the work areas. Ascend also allows learning to be tracked and audited by quality.

## SAP ENHANCEMENTS ASCEND COURSES

The mobile maintenance ascend courses were designed to give a 'how to' demonstration of the new SAP enhancements. Software is a difficult product to train and the team toyed with different methods. One being the use of screenshots and annotations, however, when analysed, it was found that around 2000 screenshots would need to be produced which was both unmanageable and counterproductive as a training tool. The chosen method was to use videos of the transaction actually in a realistic scenario. Many software products use this method for training and a professional software was sourced to produce the content over a period of 2 months. The videos can be stopped, paused and scrolled through if further time is required on a certain point or notes need to be taken.

## ETASK ASCEND COURSE & BALEARNING APP

The eTask ascend course is a little different to that of the SAP Enhancements, the ascend course serves as a placeholder for the

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competency assessment but the content itself is based on a BA corporate app named BALearning on the iPad device itself.

The BALearning app allows an identical mimic of the real eTask app to be created. The content can then be manipulated to direct a user to choose the correct process and function resulting in the user

becoming familiar and aware of how the eTask app works. If a user makes an error it is not a problem as the learning app offers a safe environment to practice in.

The eTask training app that is released is available at any time allowing a user to refresh on functionality when required.

#### BALEARNING APP FIX

Some users have reported the BALearning app is malfunctioning and the screen blanks on opening. This is due to a problem Mobile Enabled Operations encountered in March with corporate apps across the BA network having issues.

The fix: Delete BALogin App and Device Doctor App and then reinstall, following that enter the BA App store and ensure all apps are up to date including the BALearning app. This should remedy the fault.

#### ASCEND COMPETENCY ASSESSEMENTS

The ascend competency assessments are a quality requirement.

#### PRACTICAL TRAINING

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The training team were very keen to have a practical element of training included in the solution, one that allows candidates to practice using the new tools in a safe environment with instructors who are experts in the developments. The solutions were again developed by the SME team alongside the GLA.

#### EOCC PRACTICAL TRAINING

The EOCC have developed a comprehensive practical training and readiness programme. This includes a full 1 day training course using the new tools in a safe environment while learning new processes and procedures attached to those tools. They also assess individuals on a 1 on 1 basis prior to going live ensuring the candidates are capable and ready to use the tools, assessing competency in addition to setting up layouts and variants applicable to their role.

#### MVS – MAINTENANCE VISIT SIMULATION

Production colleagues, once they have completed the mandatory ascend modules will be allocated to an MVS course. A Maintenance Visit Simulation course is a 1 day offline course where a candidate will experience and use all of the tools produced from mobile maintenance in a simulated aircraft visit. The simulation begins prior to the aircraft visit highlighting the process of data enrichment and timely entering of HR data, from there the simulation moves through the satellite to the aircraft arrival and through to the aircraft departure. At each point of the aircraft visit the instructors demonstrate functionality and highlight any key points while the candidates actually work the aircraft on the devices like they would in a real life scenario. The

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candidates are assessed by monitoring their engagement throughout the session as well as a written exam at the end of the session.

## POST TRAINING SUPPORT

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As with any training programme there are often further questions and clarity required by a candidate. For that reason a post training support structure has been implemented.

## KEY USERS

Key users in each area are the first port of call for any clarifications or questions regarding mobile maintenance and they will be on hand to every shift to aid in the process of implementation and beyond. Again key users are engineering colleagues and have candidates' best interests in mind.

## YAMMER

Yammer is BA's business social media option. There is a mobile maintenance group which is monitored daily by the project team. Any questions or queries will be answered in a timely and accurate manner so don't hesitate to ask for any clarity or report any issues found. Yammer is available via a desktop or via the app store on the iPad.

## KEY FUNCTIONS QRH

This mobile maintenance handbook offers an overview of the project, deliverables, training as well as offering a comprehensive quick reference handbook (QRH) for functionality of the new deliverables. It is a working document so if there is anything that is missing please report it to the owner or mobile maintenance yammer page.

## ENGINEERING PROCEDURES

### BA ENGINEERING TECHNICAL PROCEDURES AND WORK INSTRUCTIONS

Mobile Maintenance is now part of British Airways Engineering Technical Procedures/Work Instructions. Alongside this there will be local procedures which will be briefed and cascaded by your business area representatives. Follow the instructions below to access the engineering procedures and work instructions related to Mobile Maintenance