E-RECORDS

OUR INNOVATION JOURNEY - A PAPERLESS OPERATION

SWARAN SIDHU - HEAD OF FLEET TECHNICAL MANAGEMENT
SOMETHING ABOUT US...

> WHAT WE DO:
We are low-cost European point-to-point short-haul airline.

> WHERE WE DO IT:
Intra-European short-haul network.

> OUR AMBITION:
Is to be Europe’s preferred short-haul airline, delivering market leading returns.

> OUR CAUSE:
 Seamlessly connecting Europe with the warmest welcome in the sky

317 aircraft
90m+ passengers
1,000+ routes
40 bases

Airports to which easyJet flies
How many aircraft does EZY operate = 317 (UK 178 / AU 113 / CH 26)

Average number of daily flights that EZY operate in the summer season = Between 1800-1900, highest number of sectors was 1942 on 15th September

How many passengers do we carry each day = Up to 330,000

Significant challenges to the operation
- Weather
- ATC
- Strikes
- Aircraft FOD Damage/Ground Damage
- MRO/OEM performance
OUR AIRCRAFT

> 317 AIRCRAFT... and growing!
> Average age: 7 years
> 8,400,000+ hours flown with Airbus
> 5,250,000+ flights flown with Airbus
OUR AIRCRAFT

317 A/C

- A320C: 53%
- A320N: 4%
- A321N: 1%
- A39C: 42%

Europe by easyJet
OUR AIRCRAFT

317 A/C

36%

56%

8%

UK

EU

SWISS
FLEXIBILITY IN GROWTH

> Flexible fleet arrangements to respond appropriately to market conditions
> Support 317 Airbus A320 family aircraft at present.
  - Single type operator
  - Largest operator of A319 in the world, second largest A320 family
  - Just received our first A321N in July 2018

> Employ 255 staff.
  - 55% Part M and Part 21
  - 45% Part 145

> Maintenance spend of £268 million in FY17 (£3.09 per seat flown).
WHY ARE RECORDS SO IMPORTANT?

1. Safety
2. Reliability
3. Asset value
4. Efficient transfers
RECORDS SUPPLY CHAIN

- LLPs
- LANDING GEARS
- ENGINES & APUS
- MANUALS
- DELIVERY DOCS
- CERTIFICATES
- Utilisation
- STATEMENTS
- DAMAGE & REPAIRS
- MAINTENANCE RECORDS
- COMPONENTS OCCM/HARDTIME

Paperless operation

AIRCRAFT AIRWORTHINESS RECORDS

ADs, SBs & MODs

E-RECORDS PAPERLESS OPERATION
I COULD FIND THIS PAPER FOR YOU...
STILL PAPER BUT ORGANISED

E-RECORDS
PAPERLESS OPERATION
Easyjet’s vision was to become fully digital in managing its aircraft technical records that were capable of being intelligently indexed and providing the capability to prepare end of lease exit ready aircraft documentation.

We already had in operation a digital solution that allowed an indexed filing system. However that was not sufficiently efficient to remove the reliance on paper. To reach that goal we needed to adopt an innovative technology that would give us these efficiencies. Hence we designed a solution in collaboration with our current maintenance software providers and introduced e-sign as part of a major maintenance information and control system upgrade.
WHY THE NEED

NEGATING HUMAN ERROR
Removing error risk in terms of accountability of records verification

HEADCOUNT FLAT
Create an efficient Airworthiness Records organisation

EFFICIENCY
More efficient maintenance checks by removing the requirement to print and sign

SAFETY
Enhancing safety by having mandatory sign off steps

COST SAVINGS
Negating Shipping and Storage of paper documents

TRANSPARENCY
Remote access for Lessors and authorities
WHAT DID WE DO

Progressive build up to paperless by first creating online TLP verification
Utilisation feed through ACARS/AIMS interface
Removed hardcopy log books Airframe/Engine/APU and adopted AMOS as the alternative
Scanned all historical records to STREAM and created an online re-delivery bible to coordinate EOL exits
Incorporating aircraft damage reporting directly into AMOS negating the need of paper forms
Undertook a major upgrade of our maintenance software system

Introduced by designing in collaboration with our maintenance software provider an e-sign solution
HOW DID WE ACHIEVE IT

Updated from version 9.8 to 10.9
(Swiss / IT / KSU)

Communicated and worked closely with our Competent Authority to approve our e-sign solution (CAA)

Worked with our technical records digital storage supplier to ensure effective receipt and display of e-sign records (STREAM)

Prepared our Lessor community to accept digital records transfer as well as internal departments involvement (Lessors / EZY SME / HOD)
We verify 100% of our maintenance records on a daily basis. Scan and transfer it to long term storage.

With a fleet of 300 plus aircraft that’s a huge amount of paper and data to process.

**ONE OF THE LATEST COUNT**

- **Daily Verification:**
  - 950 Tech Log Pages per day.
  - 370 Daily Work-Packages.

- **Archive Storage:**
  - 4,592 boxes / approaching 10 million documents.
  - 1.2TB scanned Data

- **Managed by easyJet since 2010:**
  - Current Fleet 317+
  - 475+ APU Changes
  - 200 Aircraft Deliveries
  - 462+ Landing Gears Changes
  - 562 Engine Changes
  - 46+ On-Time Re-deliveries
POST E-SIGN

E-sign capability at all MRO network stations

80% reduction in paper

Reduction in Logistics and Storage

Enhanced Safety during maintenance
LESSONS LEARNT

Project Management Consistency
Project scope consistency

Lack of e-sign comparable solution for benchmarking to understand what success looks like

Competent authority buy in throughout the process
Key Super Users commitment and availability
Governance/Structure to be agreed at senior level to ensure proper funding/resource

Identifying the relevant Stakeholder group to be involved in Steering Meetings e.g. Swiss AS/Cross Consence/Aer Data
**What Went Well?**

### Key Learnings

| **Scope and objectives** | - The business and project team were agreed and worked together on the vision to deliver the system upgrade and eSign functionality.  
- The financial and contractual impact of the upgrade not occurring was communicated clearly to the business from IT. |
| **Business value and economics** | - Reduction in contract staff for technical records verification by reducing paperwork management & storage.  
- Enabling the start of a paperless maintenance vision.  
- Avoiding extended system support costs.  
- Keeping headcount flat. |
| **Governance and organisation** | - Regular weekly meetings in the last 12 weeks before upgrade. There were items that had been missed and this regular drumbeat helped keep on top of any issues and actions if they appeared.  
- The engineering management team were aligned in the goal to upgrade and understood the risks of not, whilst also understanding the open risks at each phase. |
| **Solution and deliverables** | - The AMOS system has been very stable since release with no outages or slow downs reported since go-live  
- eSign is working well and has reduced paperwork processing by easyJet enormously circa 80%. |
| **Planning and execution** | - During the transition period, having a dedicated phone number and staff in easyJet MOC worked very well. This consisted of AMOS Admin and business KSUs from Line Maintenance, Component Engineering, Tech Records and MOC Front Desk. This did however take out the 2 key admin to night shifts which caused fatigue and left project team without expertise during day shifts.  
- Tech Records overnight support for MOC if any issues occurred during the night with paperwork.  
- Clear cutover plan with expected durations and decision points with regular communication working very well through the night. No concerns from business as they had regular updates on schedule. |
WHAT WE CAN DO DIFFERENT NEXT TIME?

1. Avoid combining AMOS system upgrade with e-sign

2. Allow for sufficient training/familiarisation of e-sign

3. Extend the testing phase of e-signed document migration from maintenance system to document storage system

4. End to end process mapping to understand full effects of removing paper i.e manual reporting sheets such as SBs

5. More realistic go-live dates

6. Part 145 capabilities to manage electronic cards
WHY ARE WE NOT TOTALLY PAPERLESS?

- E-Tech Log still to be adopted but in evaluation phase.............
- Lack of common interfaces between all the different stakeholders involved.
- OEMs and MROs have not embraced a Paperless concept fully
- Also, because we are driven largely by the use of paper during the cycle of the aircraft. From delivery of a new aircraft we receive it, transfer data from it, print it, sign it, scan it, file it, store it and then return it.
CRADLE TO GRAVE
LIFE CYCLE

Airlines 1, 2, 3...control:
Airworthiness, configuration, compliance, AMP, Data, Records, Tech Pubs,
End of Lease needs & Maintenance Execution by MROs

MROs - Maintenance Events:
(airframe, engines, components)
Task card records, certification records, parts records.

Lessors & Airlines require for delivery & re-delivery:
Aircraft record logs, aircraft inspection reports, technical publications, Certificate of
Airworthiness, AD status, LLP status, AMRs, Technical Logs, Weight & Balance status, Engine
status, Certificate of Export, etc...

OEMs
Build, provide initial delivery and through-life OEM technical & operational support.
NEW AIRCRAFT

Implementation

New aircraft and components delivered from OEMs will be all paperless

PAPERLESS-OUT

Heavy Maintenance, Shop Visit or Pool event

Paperless-IN

PAPERLESS-OUT

Paper-in

AIRCRAFT AND COMPONENTS IN-SERVICE WITH PAPER FROM THE PAST WILL TRANSITION TO PAPERLESS

PAPERLESS-OUT

Paperless-OUT

In-service AIRCRAFT
EASYJET CHALLENGES

1. Standardise aircraft delivery data
2. Automated re-delivery & publication
3. E-Tech Log
4. Working with Industry Working Groups
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<th>Regulatory</th>
<th>Operators/MROs/OEMs/IATA</th>
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| • Acceptance of digital and electronically generated documents replacing paper  
• Accept e-sign the same as dfps.  
• NAA harmonisation on paperless records | • Adoption of common standards for data portability between airlines, MROs and supplier organisations.  
• Standards flexible enough to adapt to future evolution of technology solutions  
• Universal adoption of standards for proprietary systems and communications (data migration) between proprietary systems.  
• Agreement on industry goals and associated timing.  
• Quantifying the cost/benefit and timing of moving to paperless.  
• And most importantly... keep costs under control. |

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<th>Technology</th>
<th>Lessors</th>
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| • Proprietary technology solutions bring intellectual property hurdles that need to be considered.  
• Harmonise technology solutions that allow practical system access and data portability | • Lessors need to standardise their requirements for record management and promote paperless  
• Standardise lease agreements related to paperless records |
It is time for change

EASYJET along with a number of the STAKEHOLDERS are innovating towards a more automated and efficient way of working in the life cycle of our aircraft.

STAKEHOLDERS

- AIRLINES
- MROs
- OEMs
- AVIATION AUTHORITIES
- PARTS SUPPLIERS
- LESSORS
1. Quicker to process.
2. Easier to search.
3. Reduced storage.
4. Safer records, safer aircraft.
5. Helps to maintain value of assets.
...AND THIS IS WHAT IT WOULD LOOK LIKE

System that talk to each other

Hey! I understand you! 😊 Me too! 😊

No more....

Transfer to a 100% paperless operation
OUR INNOVATION JOURNEY CONTINUES........

E-RECORDS
PAPERLESS OPERATION
THANKS!

europe by easyJet