Production Planning at Lufthansa Technik AERO Alzey (LTAA)
LTAA Production Planning System
Slide 2

Lufthansa Technik AERO Alzey – Production System

Agenda

1) Lufthansa Technik AERO Alzey – Company Overview
2) LTAA Production System
3) Major Production Challenges
4) Former Production Monitoring & Control at LTAA
5) New LTAA Production System based on Goldratt’s Theory
6) Goldratt’s theory assigned to LTAA’s Production System
7) IT architecture at LTAA
8) Success so far…
Lufthansa Technik AERO Alzey – Company Overview

Key Facts for 2012

- Specialized in Turboprop and small Turbofan Engines
- 100% subsidiary of Lufthansa Technik AG
- 490 employees
- 229 Mio. € Revenue
- More than 100 Customers
- 480 Engines repaired and overhauled (per year)
- Service Center in:
  - Tulsa, Oklahoma, USA
  - Melbourne, Australia
  - Buenos Aires, Argentina
Lufthansa Technik AERO Alzey – Company Overview
Competence Center for regional aircraft engines

- GE CF34 Turbofan Engine
- PW100 & PW150 Turboprop Engine
- PW 901A Auxiliary Power Unit
Lufthansa Technik AERO Alzey – Company Overview

Typical workflow at LTAA
Engine removals from aircraft mostly driven by unforeseen issues
  - Shop load forecast difficult

Workscope mostly based on findings
  - Repair can require 100MH or 1500MH

Many material sources
  - Repair of original part, new material, used material

Many Customer decisions during shop visit
  - Mainly cost driven

OEM requirements to consider
  - Deviations from manuals all to be accepted by aviation authority, OEM and customer
Daily production meetings
- 90 engines to be discussed
- 25 participants, 2 hours
- Data collection on the shop floor to fill individual spread sheets (1 hour preparation)
- Not all issues were addressed
- No documentation of decisions

KPIs were only available looking backwards
- already too late for corrective actions
- Justification discussions instead of pro-active solutions
LTAA's production system is based on Goldratt's Theory\(^1\)

The throughput of any linear production is always limited by a single „bottleneck“

In a series of funnels, the „bottleneck“ is the funnel with the smallest outflow surface

The task is to IDENTIFY and RESOLVE bottlenecks continuously

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\(^1\) ["The Goal" by Eliyahu M. Goldratt and Jeff Cox]
Main Production bottlenecks at LTAA are:
- Capacity (man power)
- Material availability
- Tooling
- Deviations from OEM technical documentation
- Production line stops

In order to identify a bottleneck, all workflows are visualized to everyone involved in the process – from mechanic to manager.

In order to resolve a bottleneck, all critical workflows are addressed in dedicated workflow databases.
Lufthansa Technik AERO Alzey – Production Planning
IT architecture at LTAA

LTAA ERP System
Online PCR

FAST/pro
Scheduling/Timing
Line Stop Management

IDENTIFY
Financial Performance Viewer
Shop Performance Viewer
Engine Shop Visit Viewer
Repair Process Viewer

RESOLVE
Capacity Planning
Material Planning
Tooling Delivery
Concession Database
Linestop Management

Lufthansa Technik AERO Alzey
– Production Planning
IT architecture at LTAA
Lufthansa Technik AERO Alzey – Production System

Success so far…

- Fully transparent production system → all information is available for everybody
- Real-time monitoring and control of all production processes → less communication/meetings necessary
- Each LTAA bottleneck addressed in dedicated workflow databases
- Simulation of the future using FAST/pro Scheduling technology to identify and resolve FUTURE bottlenecks
- Increased work-center efficiency
- All production KPIs enhanced (TAT, CDP, Efficiency, TCRR)\(^1\)
- Significantly higher engine output per month @ same workforce size

\(^1\) [TAT=Turn Around Time, CDP=Customer Delivery Performance, TCRR=Test Cell Rejection Rate]
Thank you for your attention