Customer Support, FHS & PLM: Same or complementary?

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Farnborough, 21st July 2010

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FHS: Not something really new for us

- Flight Hour Services (FHS) is a new buzzword, but it's old cake for Airbus Military – we performed this kind of customer services already 15 years ago, before our integration into EADS.

- The term we used for FHS was FISS (Full In-Service Support).

- We have learned a lot of things during the years.

- The first lesson is that all contracts are different, and that there is not such a thing as a "standard" FHS.

- The second lesson was that the customer world is very different – that's when we started talking about SLM (Services Life-Cycle Management).

- The third lesson is that we also need internally PLM to support SLM.

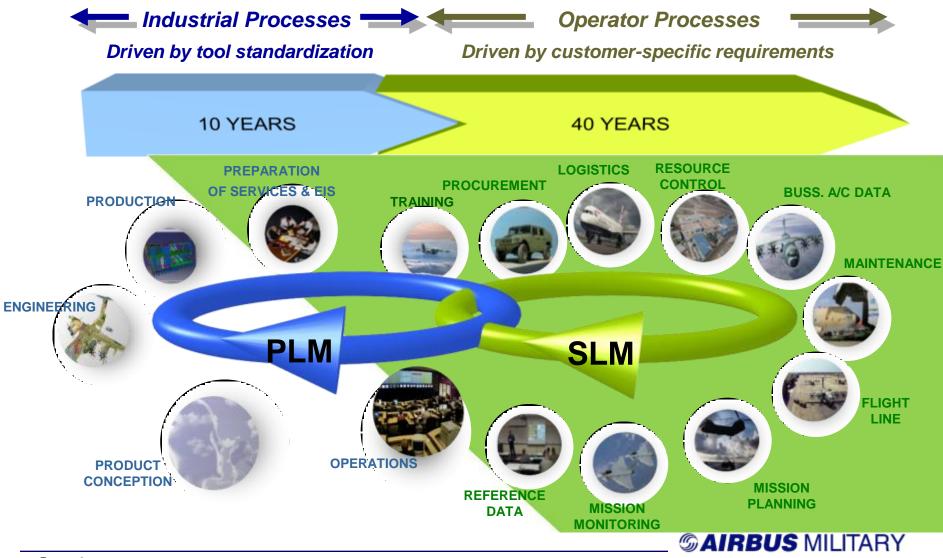- The last lesson is that we need to adhere to standards because the customers have their own systems.

Sample task distribution for a FISS contract 12 years ago

	TASKS		Responsibility	
			Customer	CASA*
A.	**SCHEDULED MAINTENANCE**			
	1.	Preflight / Daily inspections	●	
	2.	Periodic inspections / "A" Servicing	●	
	3.	"C" and "Y" inspections		●
	4.	LRU overhaul (Off-aircraft)		●
B.	**UNSCHEDULED MAINTENANCE**			
	1.	Failure detection (on-aircraft)	●	
	2.	Disassemble and change LRUs (including engine & propeller)	●	
	3.	Minor modifications.	●	
	4.	Embodiment of Service Bulletins	●	●
	5.	Major modifications		●
	6.	Minor structural repairs	●	
	7.	Major structural repairs		●
	8.	LRU shop repair (off-aircraft)		●
C.	**LOGISTIC SUPPORT**			
	1.	Identification of suppleme4ntary repairs		●
	2.	Initial spares provisioning	●	●
	3.	Warehouse administration		●
	4.	Maintenance of supplied material		●
	5.	Supply of fuel, oils and lubricants	●	●
	6.	Spares reprovisioning		●

Note: 12 years ago, Airbus Military was still Construcciones Aeronáuticas S.A. (CASA)

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PLM & SLM: Two interconnected universes

Our customer services (marked green) target the SLM business, addressing a full range of long-term extended services, but also a section of the PLM, because they need to prepare for services, and provide feedback to Design.
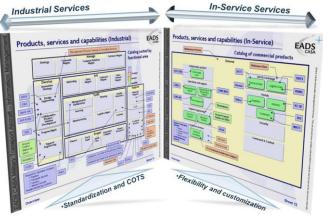
Industrial Processes — **Operator Processes**

Driven by tool standardization — *Driven by customer-specific requirements*

10 YEARS — 40 YEARS

PRODUCTION

PREPARATION OF SERVICES & EIS

TRAINING

PROCUREMENT

LOGISTICS

RESOURCE CONTROL

BUSS. A/C DATA

ENGINEERING

PLM

SLM

MAINTENANCE

PRODUCT CONCEPTION

OPERATIONS

REFERENCE DATA

MISSION MONITORING

MISSION PLANNING

FLIGHT LINE

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PLM

- Covers industrial processes
- Design & manufacture of the products
- Generic product control
- One major cycle (10 years) and many smaller cycles
- More or less sequential
- Internal standardization
- Mainly COTS tools
- Can be controlled by management
- Number of interfaces limited
- Covers 20-40% of LCC
- Needs feedback from SLM to improve products & efficiency

FHS depends on having efficient products and effective feedback, as it impacts our costs!

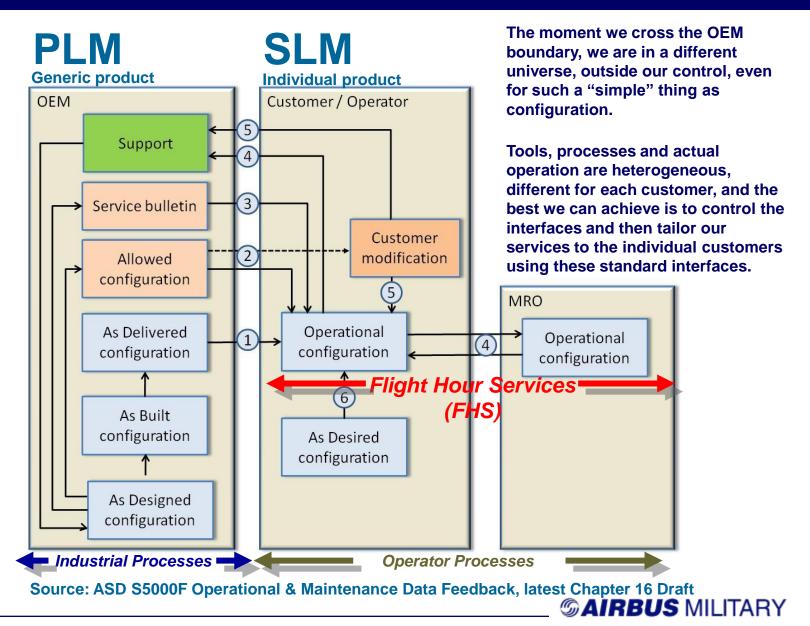**Yet the tools in both universes are different.**

The only solution to bring the two universes together is by means of international standards

> **We went for the ILS suite of ASD standards**

SLM

- Covers operator processes
- Use of the products
- Individual product control
- Many continuous cycles (daily, for 40 years)
- All phases simultaneous
- Driven by customer-specific requirements and needs
- Flexibility & customization
- Cannot be imposed to customers
- Number of interfaces unlimited
- Covers 60-80% of LCC
- Needs inputs from PLM to work & support operation
- FHS belongs to **this** universe as it is performed in the customer world!
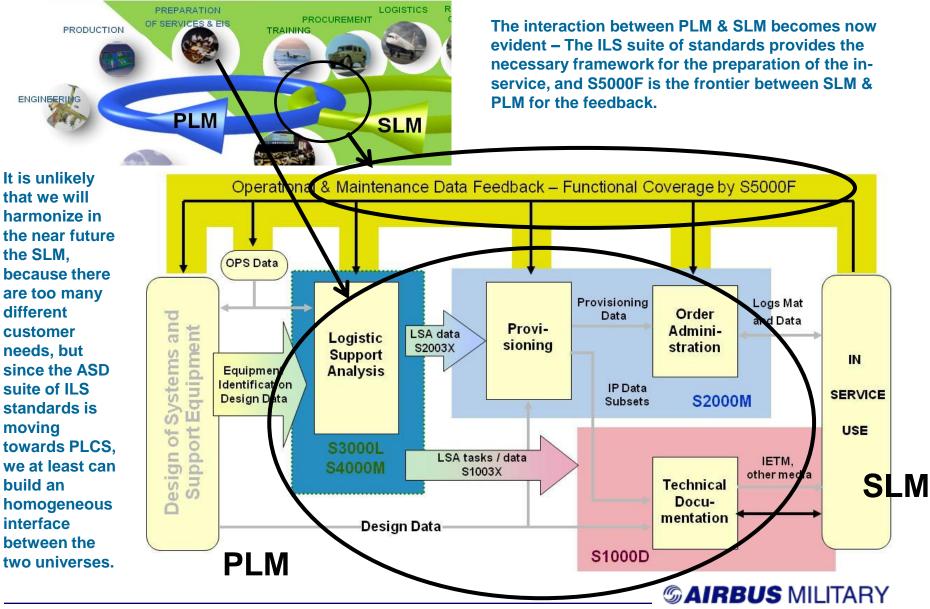
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Interaction example between PLM & SLM

The moment we cross the OEM boundary, we are in a different universe, outside our control, even for such a "simple" thing as configuration.

Tools, processes and actual operation are heterogeneous, different for each customer, and the best we can achieve is to control the interfaces and then tailor our services to the individual customers using these standard interfaces.

Source: ASD S5000F Operational & Maintenance Data Feedback, latest Chapter 16 Draft

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Business implication of FHS

- FHS implies going into the "customer universe" (SLM), where the rules and the tools are different from those that we have in-house.

- Customer Services has a methodology to integrate itself, called ILS, (Integrated Logistic Support), but today this is not integrated with PLM.

- Traditionally, PLM has been mainly oriented towards Engineering & Manufacturing, but Customer Services needs to be integrated for a proper Service preparation and entry into service.

- This is not only to ensure quality Customer Services products and services, but also to ensure the link with design, specially if we want to reinforce the feedback to design so as to improve our products, our efficiency and profitability when carrying out FHS contracts.

- The product structure and product control in the SLM is not the same as for PLM, so we need a mapping between the two.

- Similarly, our customers use their own tools, so feedback will be always limited, unless we can harmonize such feedback.

- A harmonized feedback and a mapping between the design & support structures will allow us to close the PLM loop.

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The ASD suite of ILS standards

The interaction between PLM & SLM becomes now evident – The ILS suite of standards provides the necessary framework for the preparation of the in-service, and S5000F is the frontier between SLM & PLM for the feedback.

It is unlikely that we will harmonize in the near future the SLM, because there are too many different customer needs, but since the ASD suite of ILS standards is moving towards PLCS, we at least can build an homogeneous interface between the two universes.

Operational & Maintenance Data Feedback – Functional Coverage by S5000F

OPS Data

Design of Systems and Support Equipment

Equipment Identification Design Data

Logistic Support Analysis
S3000L
S4000M

LSA data S2003X

Provi-sioning

Provisioning Data

Order Admini-stration

Logs Mat and Data

IP Data Subsets

S2000M

LSA tasks / data S1003X

Technical Docu-mentation

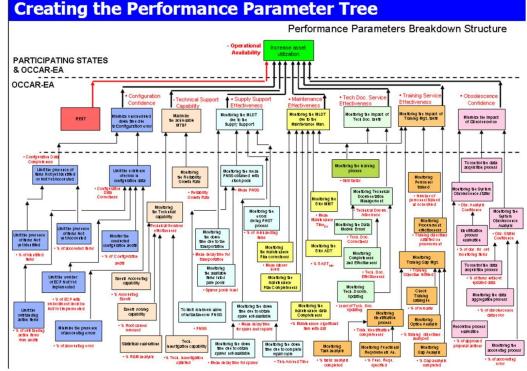IETM, other media

S1000D

Design Data

IN SERVICE USE

PLM

SLM

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Standards will also reinforce the FHS feedback to the customer

- Our customers also need feedback to monitor our FHS performance
- However, contracting such data on a case-by-case basis is expensive
- Part of the data that customers require could come from the internal PLM (configuration data, obsolescence information, technical support, etc).
- Standards provide a common ground for negotiation and data exchange
- This will also reduce the cost of FHS contracts, as no new developments will be required
- If we can combine customer needs and our own feedback to the PLM universe, we have a win-win situation.
- This is why our customers also participate in the standardization efforts

Sample customer FHS performance requirements

Source: OCCAR presentation at International Defence Logistics 2010

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Conclusion

- It is unlikely that the SLM universe will become less chaotic, as there are too many customers with too many different needs.

- We believe that the ASD suite of ILS standards can however form a bridge between the PLM & SLM universes.

- The cornerstones are ASD S3000L (LSA), which links the customer services (ILS) world to the design and ASD S5000F (Operational and Maintenance Data Feedback), which provides the "feed" to close the PLM loop.

- Since they both address also the customer needs, they should gain wide acceptance.

- Since both standards are based on PLCS, their integration with PLM should be relatively simple.

- For FHS contracts, such standards become critical, as they provide the common data structures and data exchange, to which many heterogeneous systems (at the OEM & customers) can eventually link.

- This issue is starting to be addressed at EADS level as part of the PHENIX PLM Harmonization program, in the SSC & PLM4CS groups.

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Thank you for your attention

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