



# AERONAMIC

## Is Aras *the* Manufacturing PLM System?

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Event: ACE2018 Indianapolis USA

# AERONAMIC COMPANY



- Founded in 1988 by Ureenco  
Privately owned since 2005

- Strong autonomous growth  
Sales: 55M\$ in 2017

- Employees:  
135 in Almelo, Netherlands  
55 in Sibiu, Romania



# MISSION



## WORLD-CLASS AEROSPACE

To be a world-class supplier and service provider

of

Rotating systems/components and complex parts

in

Aerospace

through

Continuous innovation



# PLATFORMS



## PORTFOLIO AIRCRAFT SUB-SYSTEMS



# VISION AND STRATEGY



## OEM Sub-Systems

CoE  
Wheels &  
Impellers



CoE  
Housings



CoE  
Assembly



## MRO



## Product Development

Motor/Generator  
Technology



# LEAN MANUFACTURING

## CENTER OF EXCELLENCE LARGE HOUSINGS



# LEAN MANUFACTURING

## CENTER OF EXCELLENCE HOUSINGS ROMANIA





# ADDITIVE MANUFACTURING

BUILD NEW  
CENTER OF EXCELLENCE  
2017-2020



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## LIFE OF A MANUFACTURING PART

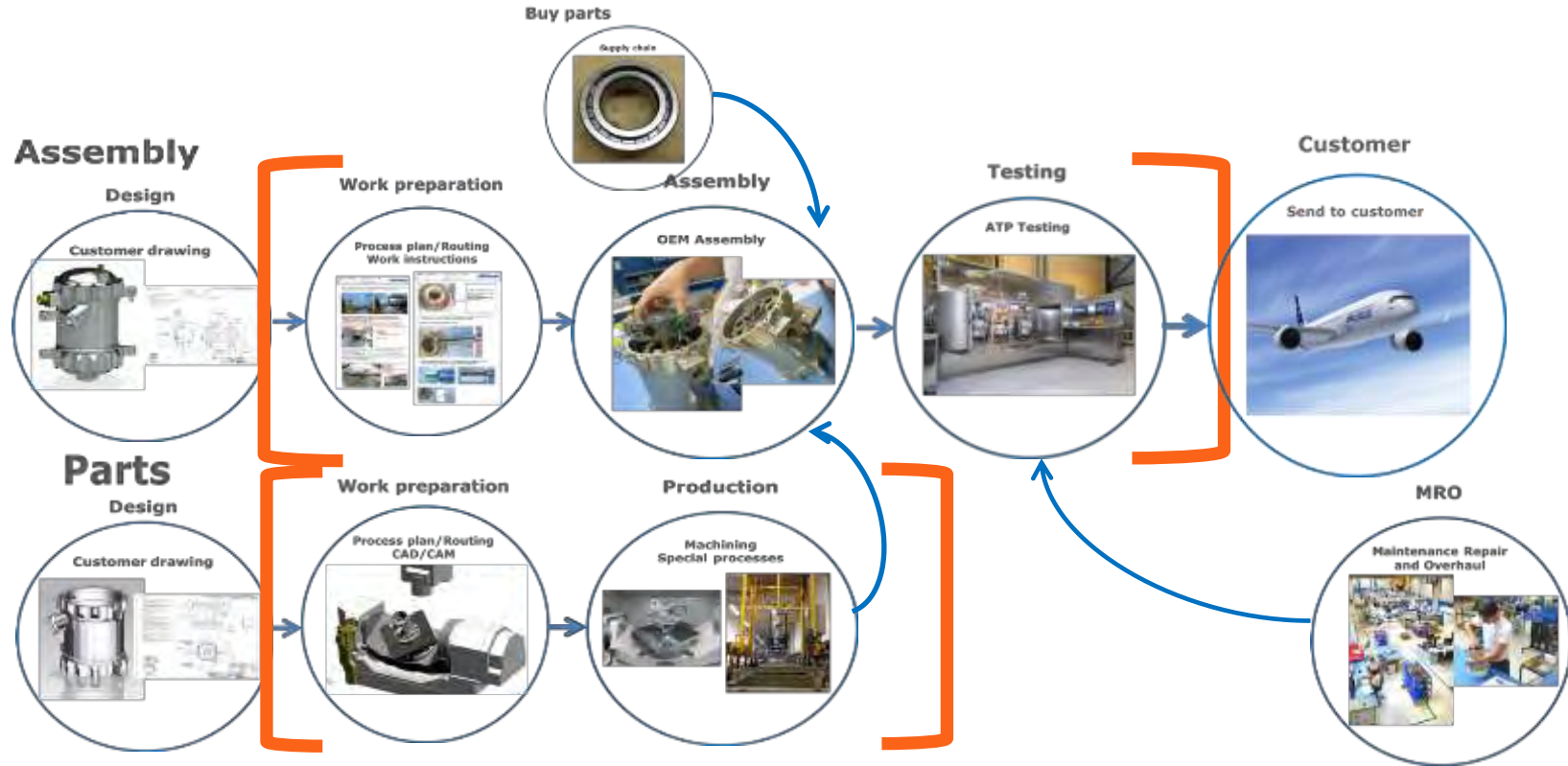


# SCROLL COMPRESSOR AIRBUS A350

COOLS YOUR ENTERTAINMENT SYSTEM

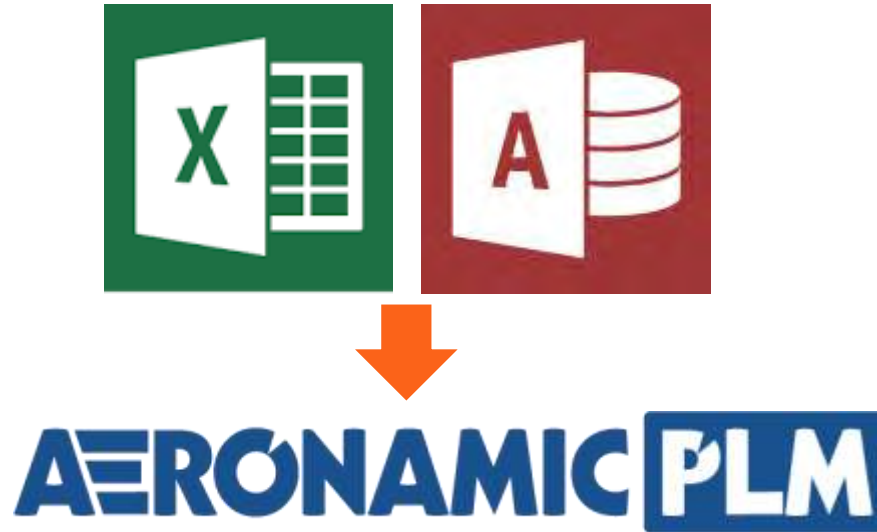
A 3D CAD model of a scroll compressor, showing its cylindrical body with various ports and mounting brackets. The model is rendered in a light gray color with some blue highlights on the ports.

# LIFE OF A MANUFACTURING PART

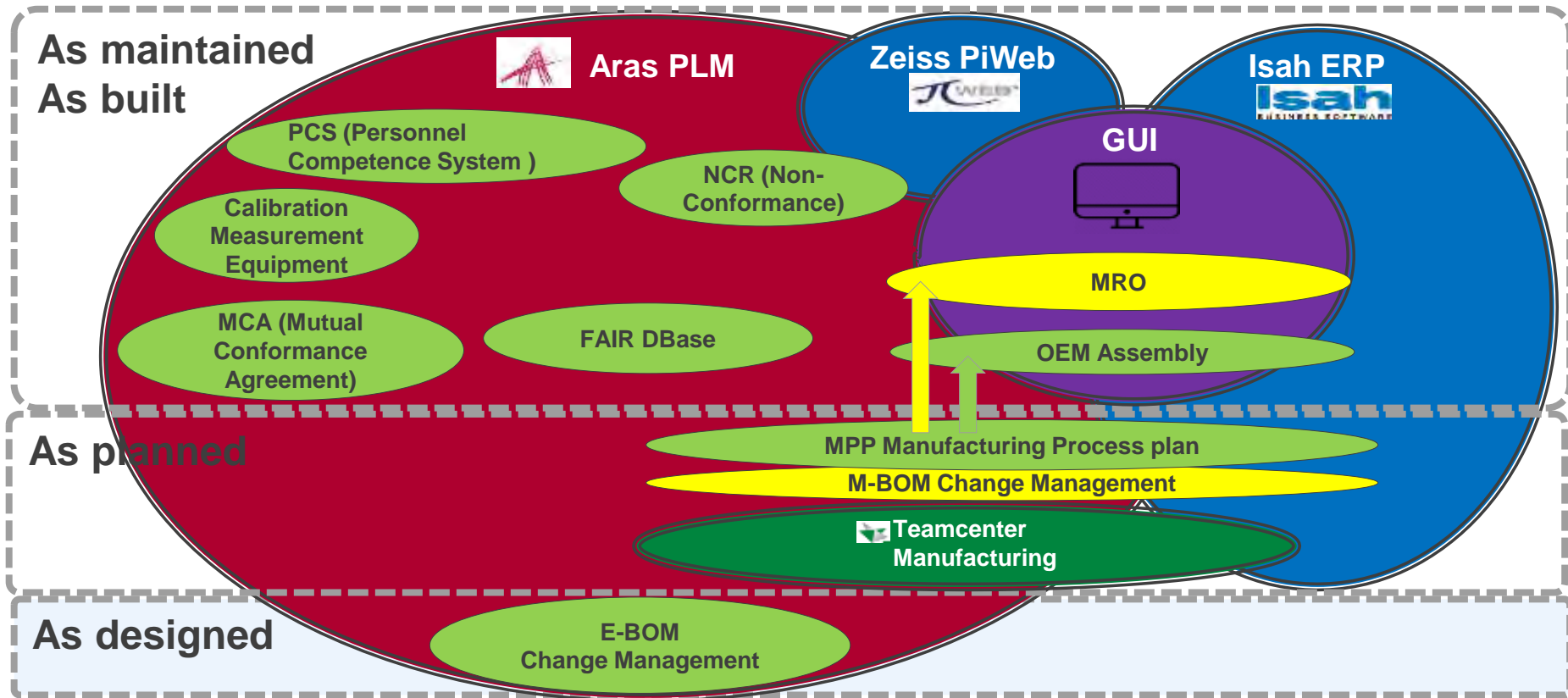




- Aras selected in 2012
- Replace applications, Excel sheets and paper
- Minerva as implementation partner



# PLM LANDSCAPE 2018

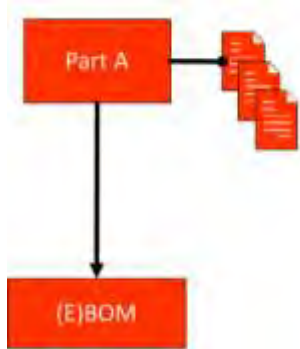


# ARAS PLM ↔ ISAH ERP – AS DESIGNED

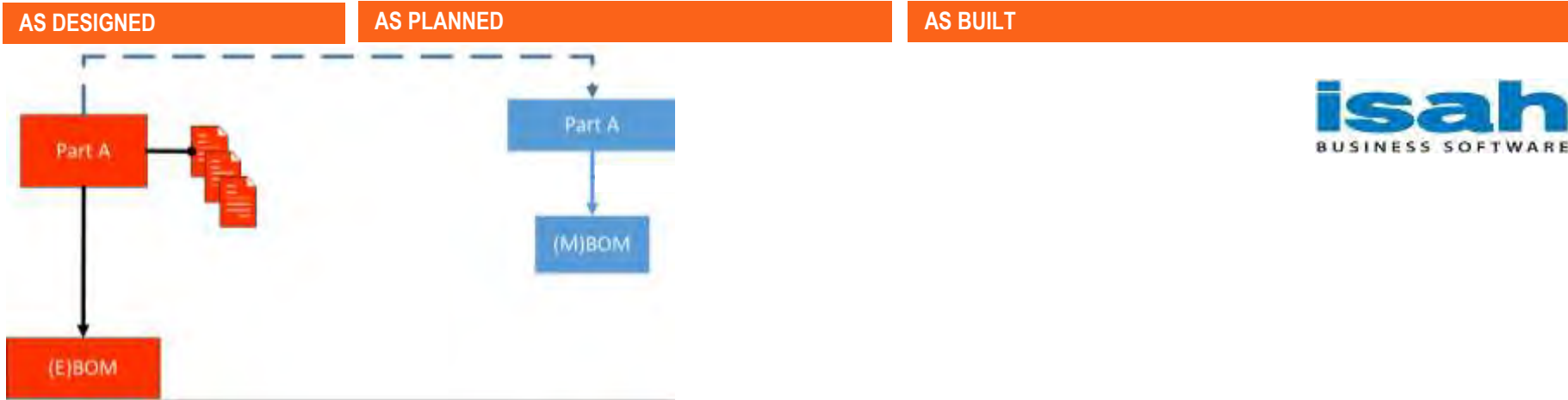
AS DESIGNED

AS PLANNED

AS BUILT

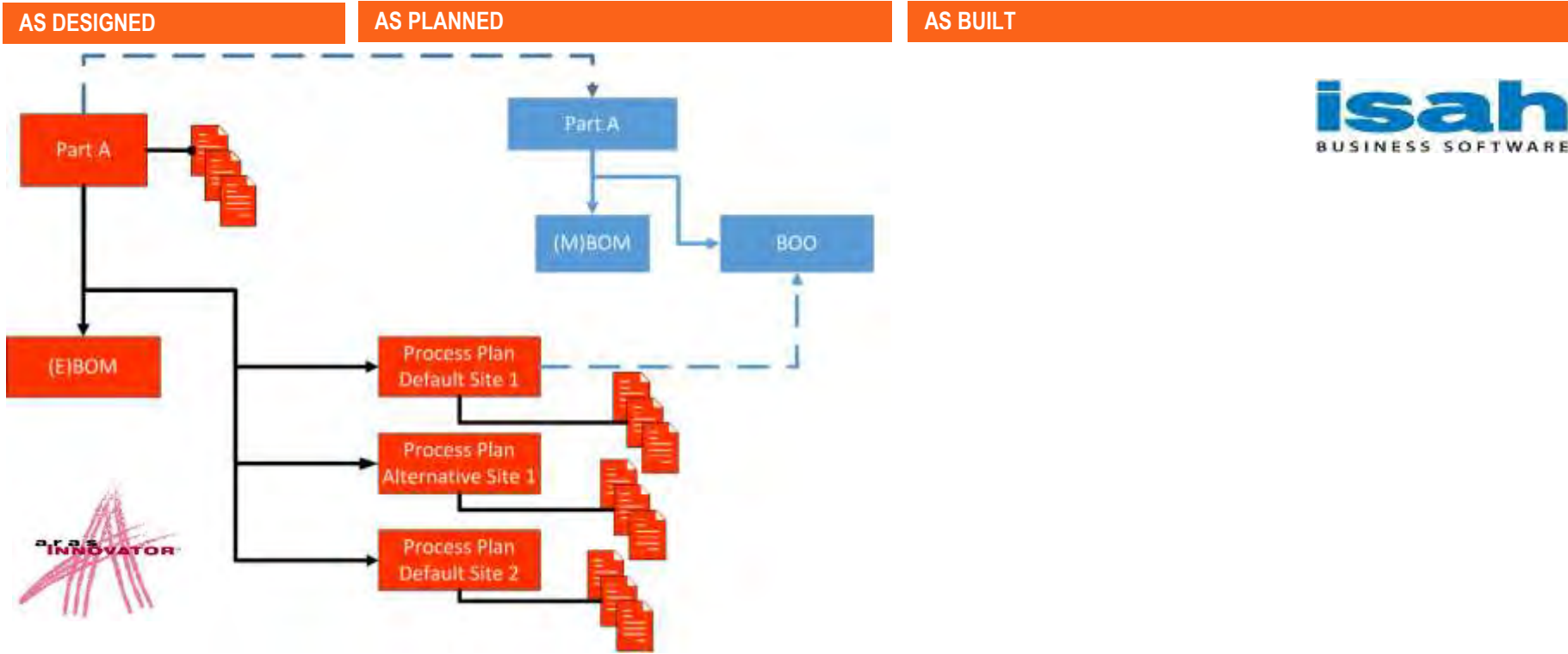


# ARAS PLM ↔ ISAH ERP – AS PLANNED (PART)

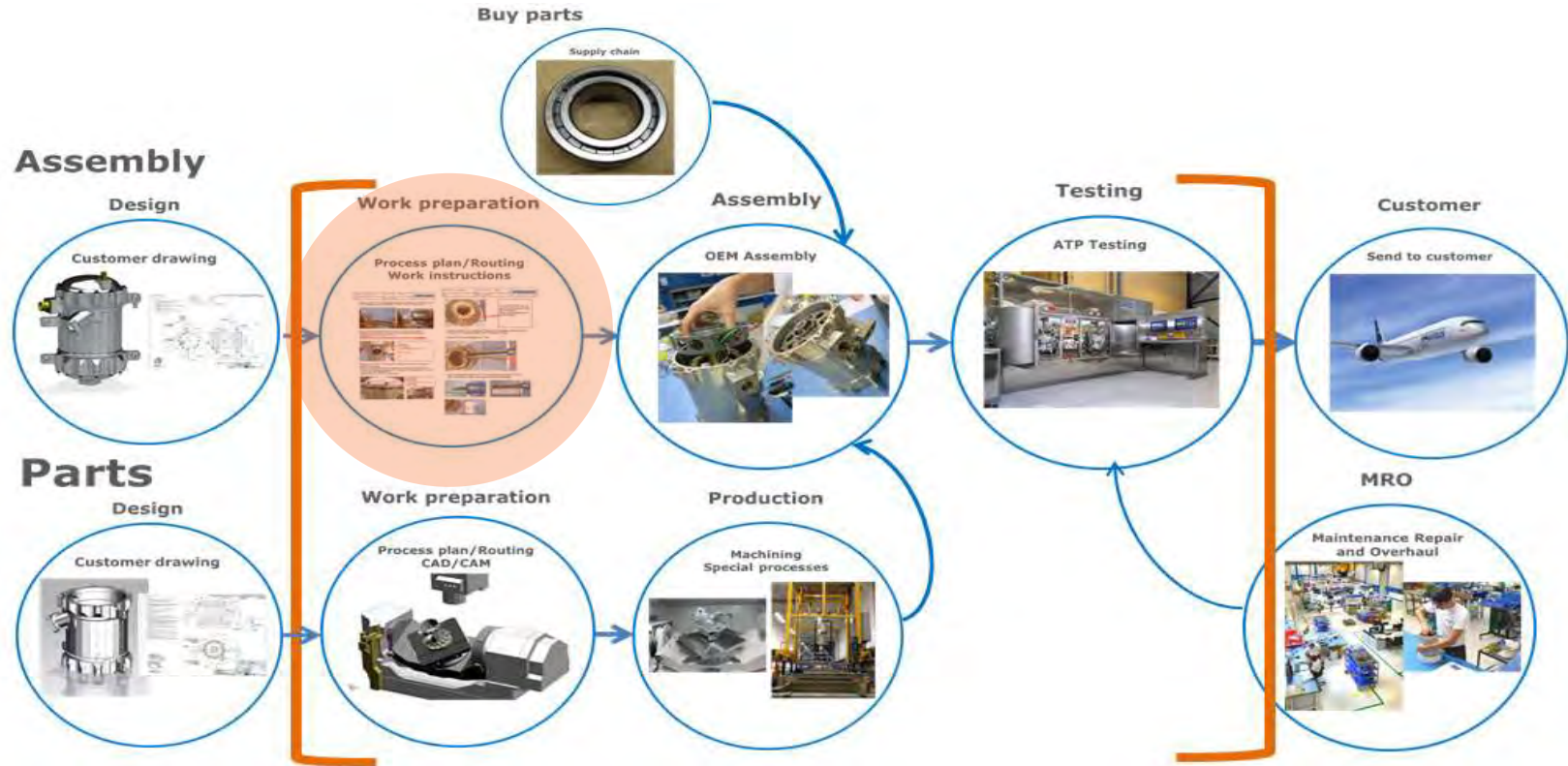




# ARAS PLM ↔ ISAH ERP – AS PLANNED (PROCESS PLAN)



# LIFE OF A MANUFACTURING PART



# ARAS MPP IN WORK PREPARATION

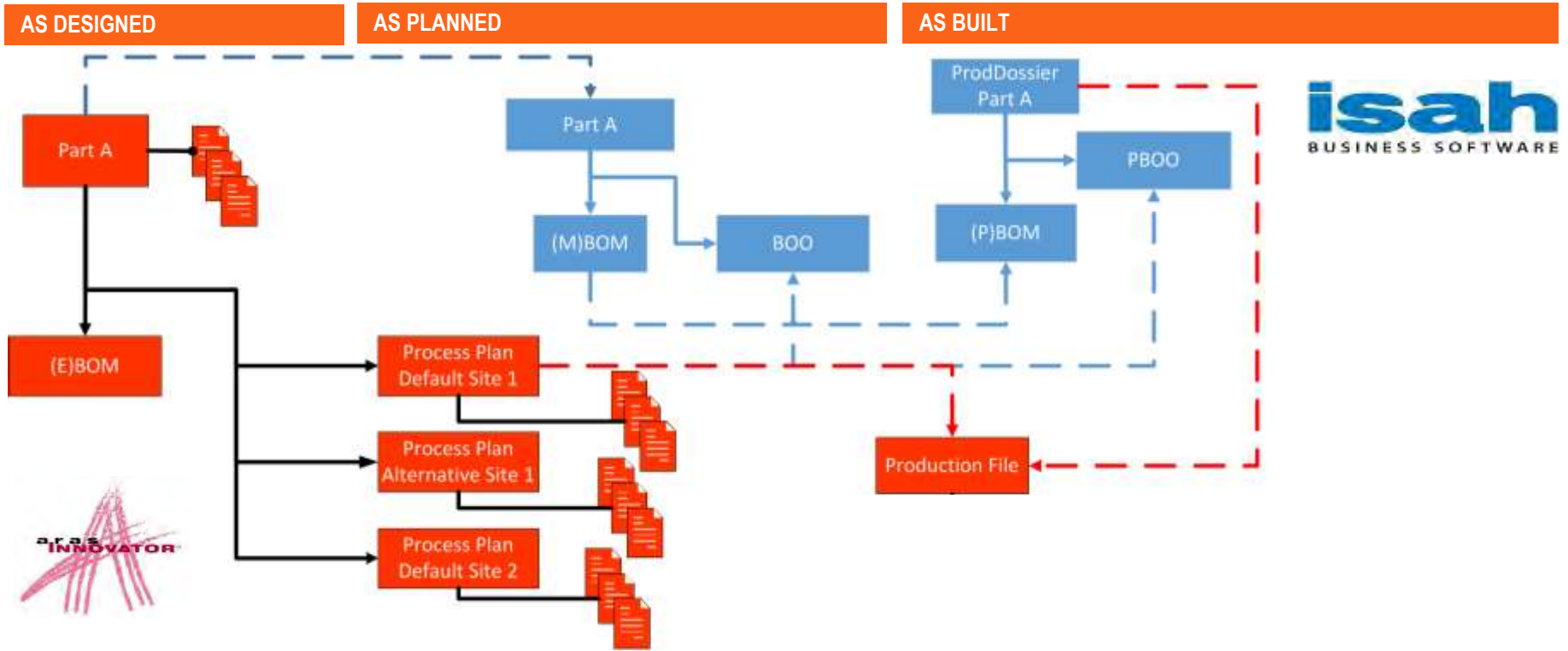
The screenshot displays the AERONAMIC PLM software interface. The main window shows a Process Plan for 'Air Turbine Starter, outline - 35'. The process plan is a list of operations:

- 10 : Controleer en l
- 20 : Merk de ident p
- 30 : Starter montere
- 40 : Starter testen
- 50 : Monteer het Exh
- 55 : Final out inspe
- 60 : Als alle voorga
- 70 : Product verzend

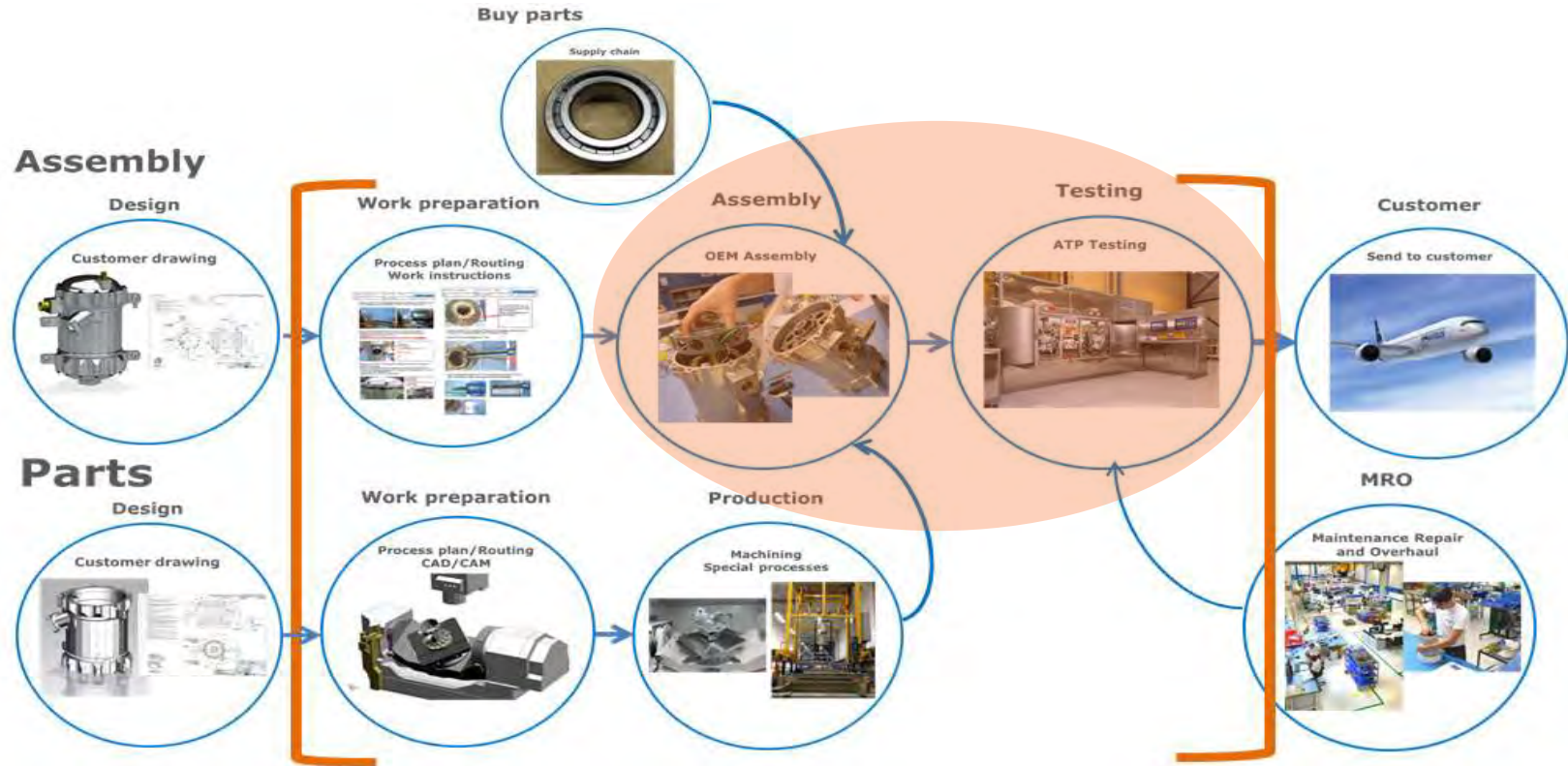
The detailed view of 'Operation 10: Controleer en l' is shown on the right. It includes the following information:

- Operation Number: 10
- Capacity Group: 1030 - Unzermeren
- Name: Merk de ident p
- Operation Intent: Merk de ident p's in overhu met Aerospace montage, niet vgl. spec.
- Machine Setup Time: 10
- Machine Cycle Time: 1
- Labour Setup Time: 10
- Labour Cycle Time: 1

# ARAS PLM ↔ ISAH ERP – AS BUILT



# LIFE OF A MANUFACTURING PART

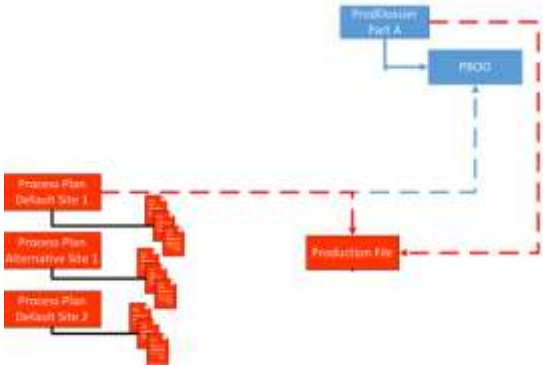


# ARAS IN PRODUCTION

PRODUCTION FILE  
CONNECTION

ISAH ERP  
TO  
ARAS MPP

1. Create production order number in Isah
2. Select Aras Process plan and pull operations from Aras into Isah
3. Production File in Aras auto-created
4. Determine documents from Aras



The screenshots show the Isah ERP interface. The top screenshot displays the 'Production File' details for 'Production Order: P004001001 (Prod only)'. The bottom screenshot shows a table of 'Production Lines' with columns for Process ID, Process Description, Operation Description, Generation, Major Part, and Production Order.

Process ID	Process Description	Operation Description	Generation	Major Part	Production Order
30	Mant de klant v	A1500011	1	30	012307
20	Mant de klant p	02000020	2	00	012307
00	Starte machine	A1500000	4	01	012307
20	Starte machine	A1500000	2	01	012307
40	Starte machine	A1500000	5	02	012307
30	Monteer het Est	A1500000	8	03	012307
00	Monteer het Est	A1500000	2	00	012307
30	Monteer het Est	A1500000	2	01	012307
00	Alle site verva	A1500000	2	01	012307
70	Product verva	A1500000	2	02	012307

# ARAS ON SHOPFLOOR

## ASSEMBLY OF AN AIR TURBINE STARTER



**AERONAMIC PLM** Aras

Workcenter:

PartCode: 3507934-8  
Description: Air Turbine Starter, outline  
Productionorder: 022510  
Operation: 30

Type	Document	Revision	File
Process Document	A15000277	28	A15000277_28_301.pdf
Process Document	A15000278	06	A15000278_06_301.pdf

**Document type:** BEWERKINGSVOORSCHRIFT

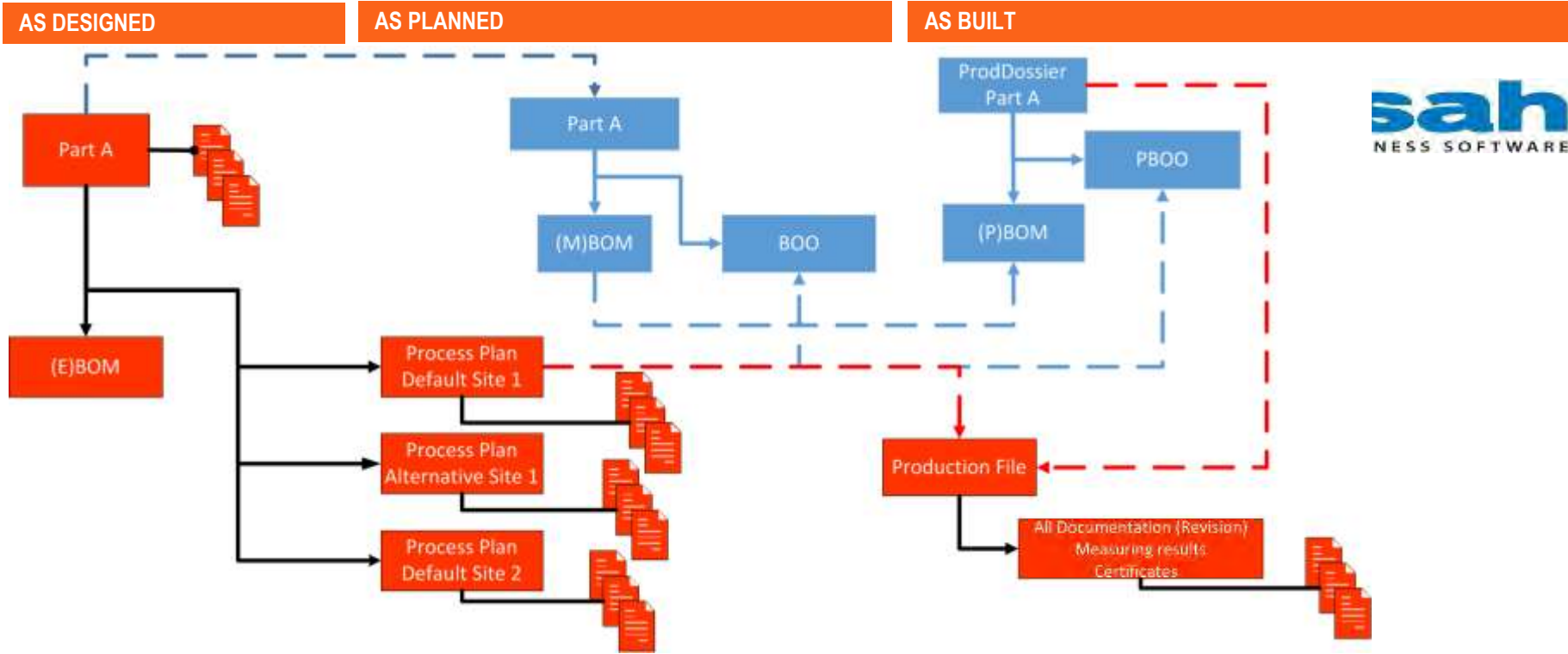
**Form:** 3.106 | **Documenttypecode:** BV-1000

**Titel:** Markering luchtvaart eind-item

**Classificatie:**

Wijzigingsnr.	Datum van wijziging	Oude naam	Nieuwe naam	Veranderder	Beschrijving
22	18.03.08	DEKA	DEKA		Contract nummer aangepast: MK205479-1
23	29.10.08	ANKRE	DEKA		Aanpassing markering en PN aansluit van BK700 (bush 8 starter, Ref. ECO 0033478
24	07.09.10	DEKA	ANKRE		Alle ID-Plates van producten die niet meer geleverd worden zijn verwijderd. En vendor codes aangepast.
25	28.09.12	DEKA	ANKRE		MHR102180 vervangen naar H1023
26	29.03.13	SICHEA	DEKA		Identificatie plaat LC400, pagina 13 artikelnummer veranderd naar 5063-101-010-02-5. En algemeen identificatie plaat aangepast naar actual gegevens.
27	03.04.14	DEKA	ANKRE		Update LC350 identificatie plaat
28	28.08.16	DEKA	ANKRE		Instructie NDC 3215850-4 rev. C

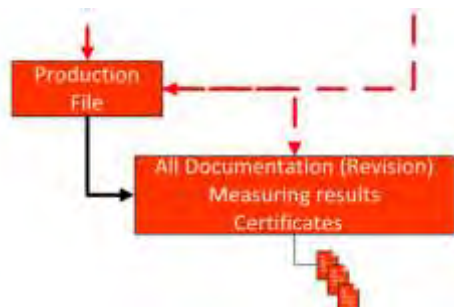
# ARAS PLM ↔ ISAH ERP – AS BUILT (PRODUCTION FILE)





# PRODUCTION FILE IN ARAS

CREATE HISTORY OF EXACT CONFIGURATION (DIGITALLY)



The screenshot shows the ARAS Production File interface in Internet Explorer. The browser address bar displays 'http://arasg01/ntstn-tabi/20en / Production File - PO0461969 (read only) - Internet Explorer'. The page title is 'Production File'. The interface includes a menu bar (File, Edit, Views, Search, Actions, Reports, Tools, Help) and a toolbar. The main content area is divided into sections for 'Production Lines', 'Production Documents', 'Documents', and 'External Documents'. The 'Production Lines' section is active, displaying a table with columns: Process ID, Process Desch..., Operation Doc..., and Generation.

Process ID	Process Desch...	Operation Doc...	Generation
20	Merk de ident o	413000223	2
20	Merk de ident o	413000223	2
20	Starte montage	413000224	4
20	Starte montage	413000224	2
40	Starte testen	413000225	5
50	Montage met Ech	413000226	4
50	Montage met Ech	413000226	2
50	Montage met Ech	413000226	2
60	Alle alle voorge	413000227	2
70	Product verzend	413000228	2

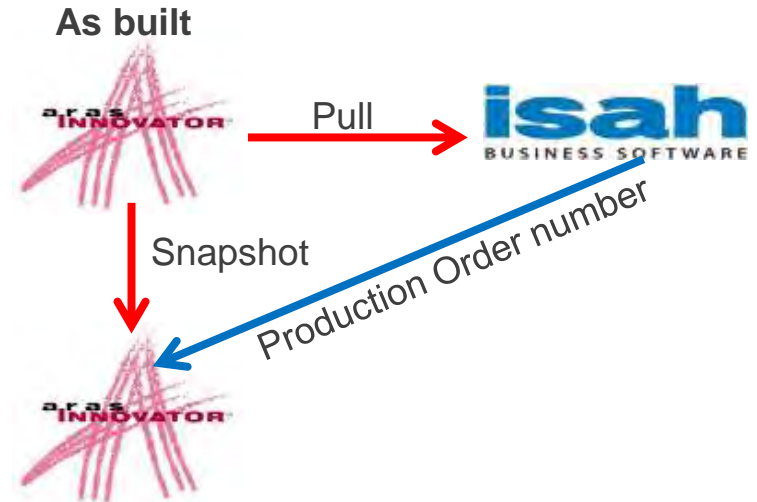
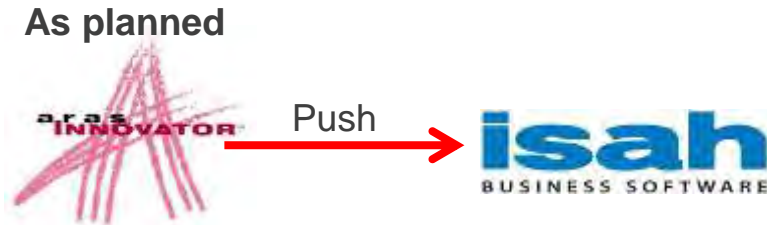
The screenshot shows the ARAS Production File interface in Internet Explorer, displaying the 'Production Documents' section. The browser address bar displays 'http://arasg01/ntstn-tabi/20en / Production File - PO0461969 (read only) - Internet Explorer'. The page title is 'Production File'. The interface includes a menu bar (File, Edit, Views, Search, Actions, Reports, Tools, Help) and a toolbar. The main content area is divided into sections for 'Production Lines', 'Production Documents', 'Documents', and 'External Documents'. The 'Production Documents' section is active, displaying a table with columns: Operation Name, Capacity Group, External Opera..., Machine Setup..., Labour Setup T..., Machine Cycle..., and Labour T...

Operation Name	Capacity Group	External Opera...	Machine Setup...	Labour Setup T...	Machine Cycle...	Labour T...
00	Commissie ec...	2012	0	0	0	0
00	Merk de ident o	1025	10	10	5	5
00	Starte montage	2007	0	0	180	180
00	Starte testen	2008	0	0	0	0
30	Montage met Ech	2007	0	0	0	0
35	Montage met Ech	2007	0	0	15	15
40	Alle alle voorge	2007	0	0	0	0
70	Product verzend	2011	0	0	0	0

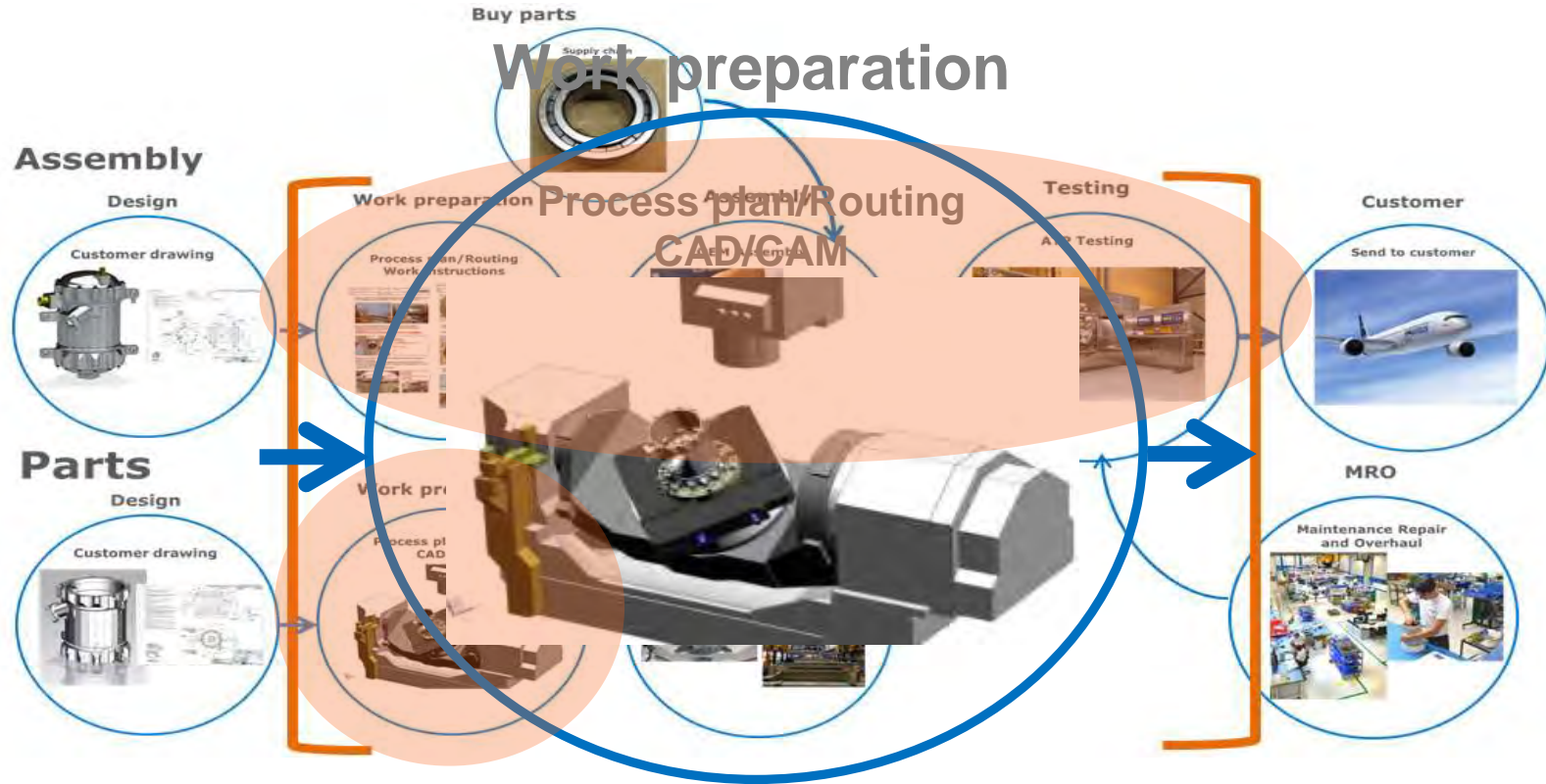
# SUMMARY PROCESS PLANNING

## IMPROVEMENTS

- A paperless factory
- In control of all data
- Using workflows to improve processes
- Full Traceability

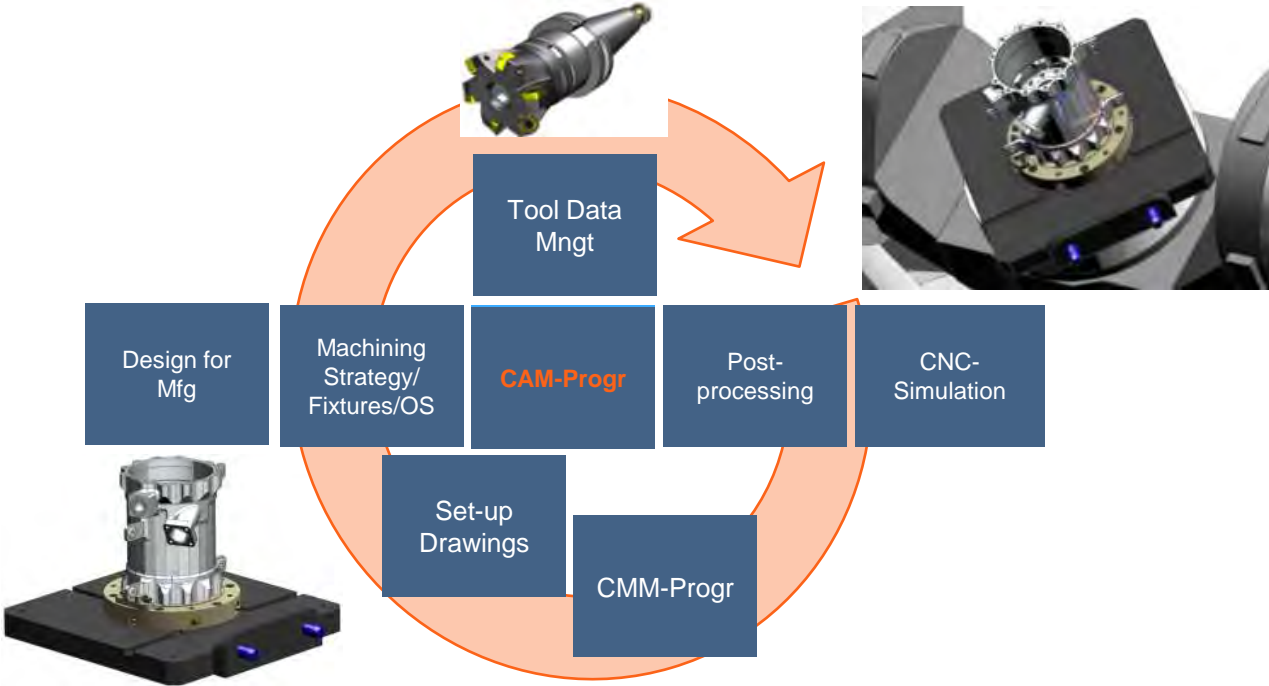


# LIFE OF A MANUFACTURING PART

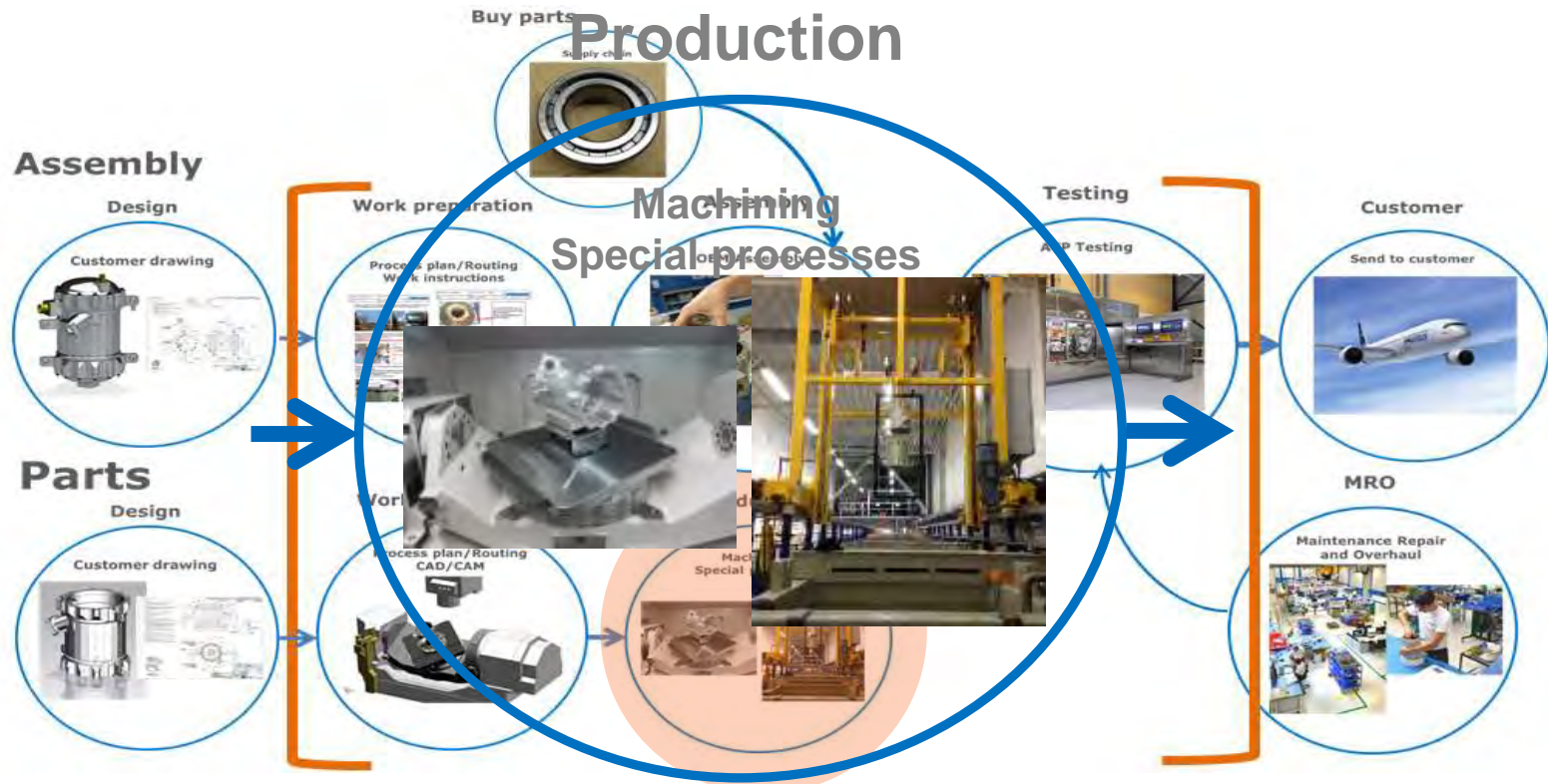


# CAD/CAM REQUIRES DATA MANAGEMENT

ONE SOURCE AND MANAGED

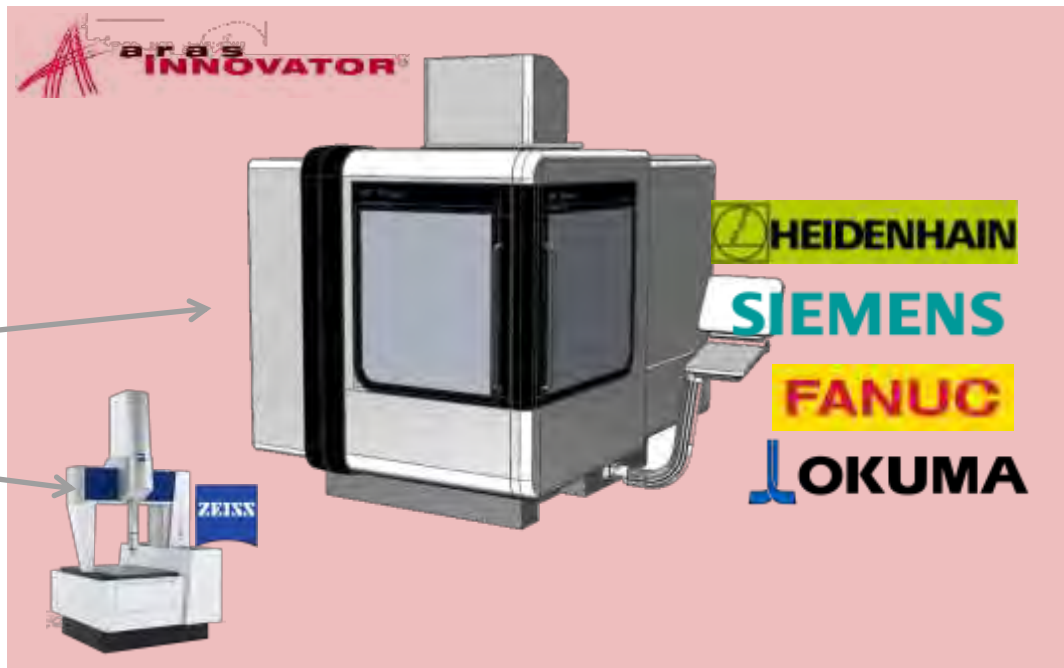


# LIFE OF A MANUFACTURING PART



# MACHINING

## CONNECT ARAS TO CNC



# MEASURING DATA

FROM PAPER TO  
STATISTICAL PROCESS  
CONTROL



## πWEB LINKED TO ARAS NCR-MODULE



# SPECIAL PROCESSES

SKILLS...FROM EXCEL TO  
ARAS MANAGED



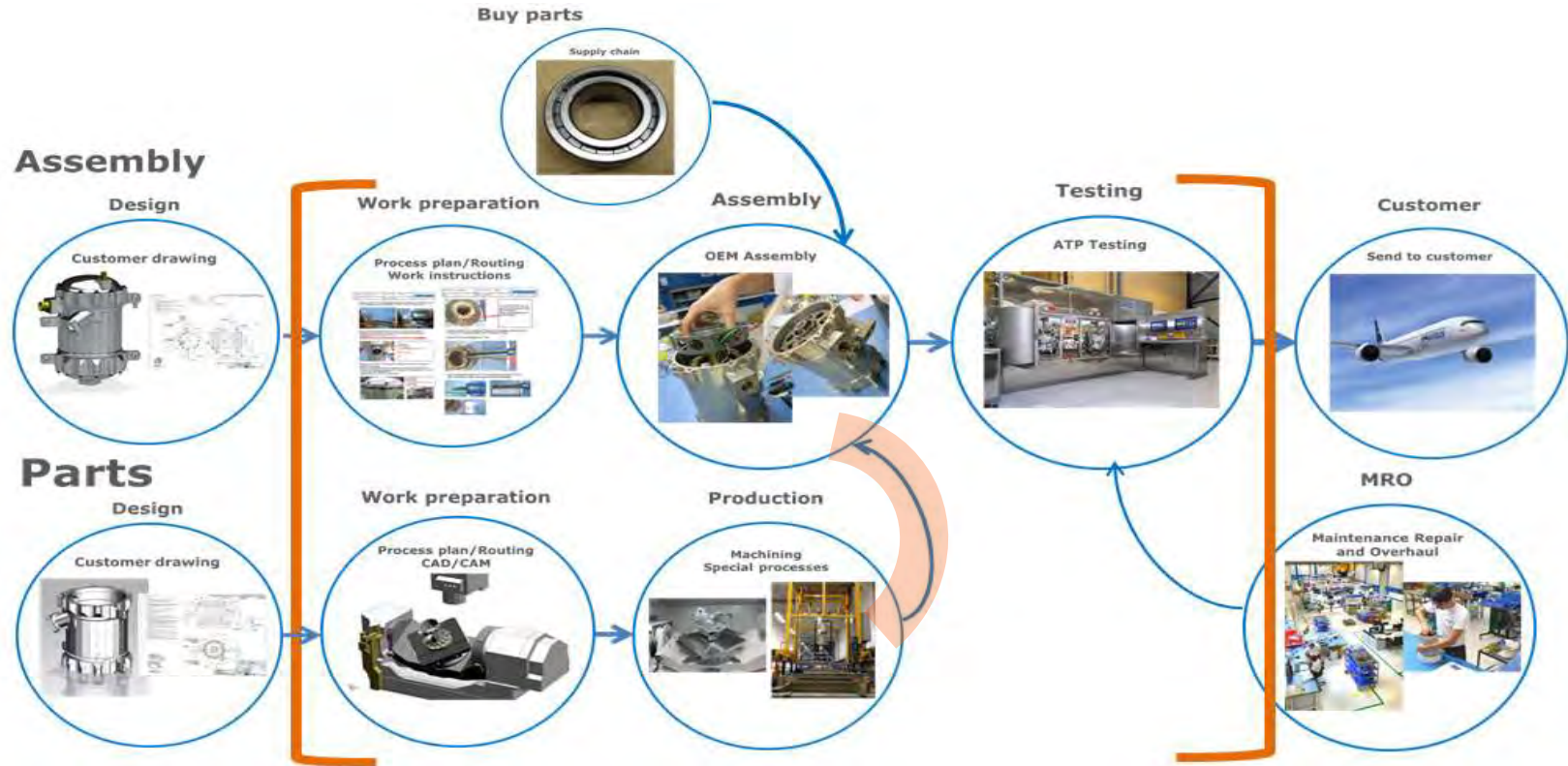
## PCS PERSONNEL COMPETENCE SYSTEM

The screenshot displays the PCS Personnel Competence System interface. It features a navigation pane on the left with categories like Administration, Change Management, Cloud Services, Design, Documents, Issue Management, Library, My Innovator, Process, and Skills Management. The Skills Management section is expanded, showing Approvals, Certifications, Training / Test Con..., and Training / Test Date. The main area shows an 'Approval' card with details: Created By: Odette Pelage, Created On: 7/1/2015, Modified By: Odette Pelage, Modified On: 7/1/2015, Locked By: (blank), Generation: 1, and State: Approved. Below this is a table of approved personnel.

state	Identity [...]	User Disabled	Cert ID [...]	Cert Name
Approved*		...	...	
Approved	<a href="#">Robbert Emmenik van</a>	<input type="checkbox"/>	<a href="#">cert000008</a>	Final Out Inspection (U)
Approved	<a href="#">Guido Bragel</a>	<input type="checkbox"/>	<a href="#">cert000041</a>	FOD Prevention - SHE (G1)
Approved	<a href="#">Jon Wisman</a>	<input type="checkbox"/>	<a href="#">cert000006</a>	G0.4 Vision Examinations
Approved	<a href="#">Guido Pelage</a>	<input type="checkbox"/>	<a href="#">cert000006</a>	G0.4 Vision Examinations
Approved	<a href="#">Godert Kemmeris</a>	<input type="checkbox"/>	<a href="#">cert000006</a>	G0.4 Vision Examinations
Approved	<a href="#">Osama Mamad</a>	<input type="checkbox"/>	<a href="#">cert000006</a>	G0.4 Vision Examinations
Approved	<a href="#">Erwin Anker van den</a>	<input type="checkbox"/>	<a href="#">cert000006</a>	G0.4 Vision Examinations
Approved	<a href="#">John Linnewelder</a>	<input type="checkbox"/>	<a href="#">cert000021</a>	Penetrant - NDT (01.2)
Approved	<a href="#">Mark Mollenhorst</a>	<input type="checkbox"/>	<a href="#">cert000006</a>	G0.4 Vision Examinations
Approved	<a href="#">Han Klasan</a>	<input type="checkbox"/>	<a href="#">cert000041</a>	FOD Prevention - SHE (G1)
Approved	<a href="#">Wouter Monstman</a>	<input type="checkbox"/>	<a href="#">cert000034</a>	CCB/MRB Logistics (U)
Approved	<a href="#">Patrick Roelofs van</a>	<input type="checkbox"/>	<a href="#">cert000006</a>	G0.4 Vision Examinations
Approved	<a href="#">Fred Hoopars</a>	<input type="checkbox"/>	<a href="#">cert000006</a>	G0.4 Vision Examinations



# LIFE OF A MANUFACTURING PART





# AERONAMIC

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THANK YOU FOR YOUR ATTENTION!

