Danish Broadcasting Corporation
Memnon Archiving Services S.A.

Building Workflows For Digitisation and Digital Preservation

Exemplified by the DR & Memnon DAT digitisation project

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Danish Broadcasting Corporation

550.000

hours

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DRs Cultural Heritage Project

USE=VALUE

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The DAT digitization project

The DAT collection was chosen for digitization because:

- The tapes where endangered
- Obsolete technology
- It had massive value in a cultural heritage sense, this summer - Everything we aired since 1989
- We believed the digitization process could be highly industrialized and start a new way of looking at digitization

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Description of the DAT collection

Content:

DR's full broadcast offerings from our FM channels:

P1, P2, and P3 during the years 1989 to 2005.

And P4/Københavns Radio (Copenhagen Radio) from June, 2002 to the year 2005.

Volume:

Anticipated in the RFP:	175,000 DAT tapes/350,000 h.
Actual figures:	180,000 DAT tapes/380,000 h.

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Key steps in planning the project (1/3)

Research and preparation:

- Talk to vendors
- Use your network, talk with colleagues who have practical experiences
- Create/design a strong team with all the needed competences who can secure the complex task ahead
- Make sure you have top-level management support

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Key steps in planning the project (2/3)

Prepare the PQQ and the RFP:

- Select the best suitors
- Prepare the RFP while doing the PQQ – taking too long does not make the task easier…
- Focus the tender on your demands & needs:
  - Demands (Closed): Format, file quality
  - Needs (Open): Process, workflow

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Key steps in planning the project (3/3)

Select a supplier:

- In person presentation of vendors' solutions
- We judged the proposals by analyzing the vendor within 4 fields:
  - Ability to meet our financial framework – target price 1,2 mi. Euros
  - Digitization quality, process & hardware, file quality, quality control etc.
  - Safety, Transportation and handling of materials
  - Service, both the ability to handle a large contract/assignment and to cater for our access need during the digitization process

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MEMNON ARCHIVING SERVICES (1/2)

Memnon specializes for 10 years in long-term preservation of, and access to, audio-visual archives.

- Large scale AV digitization (all formats)
  - Over 700.000 h of AV archive digitized
  - Per month: +/- 30.000 hours
  - Digitization / encoding lines: 98 audio / 56 video
- Solutions for automated and/or assisted enrichment of audiovisual content (IPI©-Solutions); preparing for semantic web and “linked data”
- Outsourced or in-sourced services
- Locations: Brussels & Liège (BE)
  Ånge (SE – ex Swedish TV facility)

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MEMNON ARCHIVING SERVICES (2/2)

An outstanding client portfolio in Europe and Middle-East:

- British Library (UK)
- Bournemouth University (UK)
- Centre National de l'audiovisuel (LX)
- European Parliament (LX)
- SONUMA (RTBF) (BE)
- Biblioteca de Catalunya (ES)
- National Library of Israel (IL)
- Danish Radio (DK)
- Sveriges Television (SE)
- Bibliothèque nationale de France (FR)
- Ville de Paris (FR)
- Cité de la Musique (FR)
- Radio Suisse Romande (CH)

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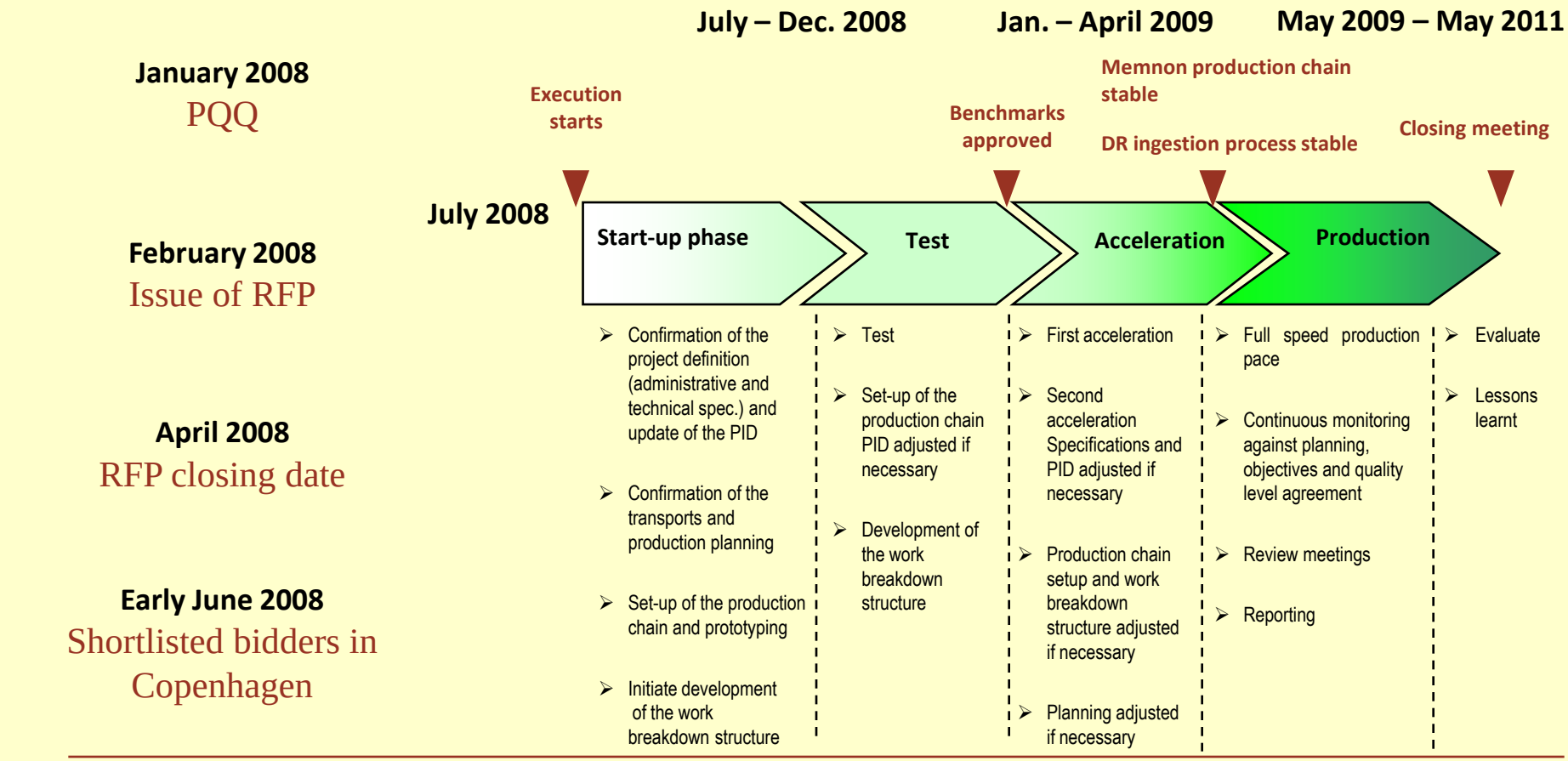
Key steps in planning the project

Life cycle of the DR project as per Memnon standard Project Management methodology



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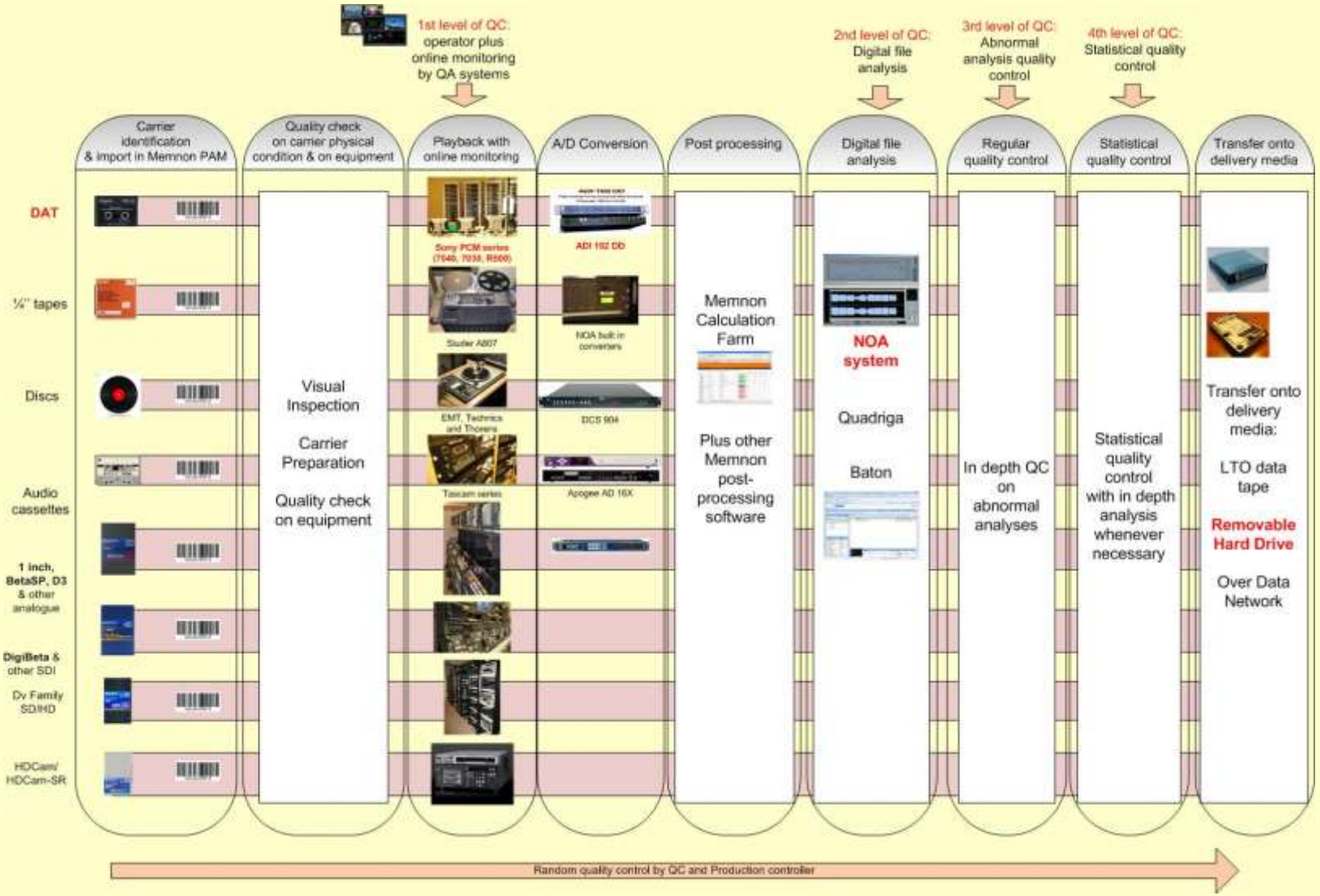
Memnon migration factory set-up (1/4):

Generic functional setup for audio & video



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Memnon migration factory set-up (2/4):

Wall of players

Analysis of robotic solution versus wall of players lead to the “wall of players” approach.

DAT “wall of players” = 40 players in parallel

Capacity per month = **over 7.000 tapes – over 13.000 hours**

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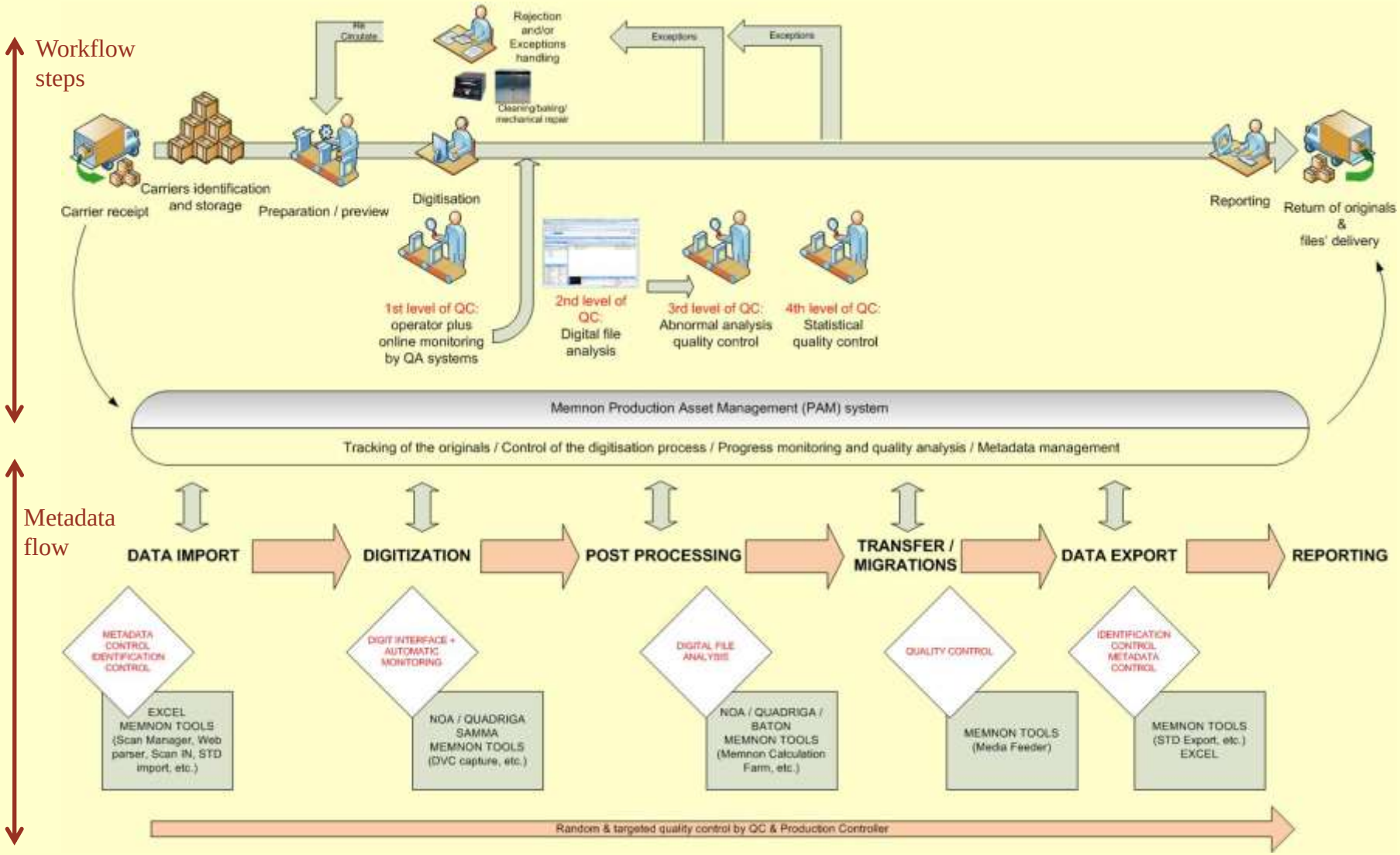
Memnon migration factory setup (3/4):

Management of data flow



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Memnon migration factory set-up (4/4):

Production Asset Management system

- Key component of Memnon overall quality control strategy
- The backbone of all Memnon's operations:
  - Large scale SQL database (total traceability of carriers and digital files)
  - Workflow engine : controls in house developed software and external vendors' software
  - Metadata management

Memnon's successful handling of hundred of thousands carriers and millions of digital files lies in the efficiency and reliability of its home made PAM.

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Carrier preparation, transport, security and non-availability of the tapes

DR Requirements

- Transport: max. 30.000 tapes
- Storage: max. 45.000 tapes
- Return: keep carrier ordering
- Insurance: 6€ /tape
- Bar code stickers: Memnon to supply, DR to apply

memnon ARCHIVING SERVICES Requirements

- A DR contact for logistics
- 1 carrier = 1 bar code / 1 UID
- Carrier list (xml) transmitted ahead of transport
- Packaging: carriers sorted in the same order as they appear on the carrier list
- DR to supply the link carrier ⇔ bar code

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Carrier preparation, transport, security and non-availability of the tapes

Logistic solutions

- Transport: door-to-door, 19°,
  1 prof. driver (sleeps in the truck) +
  1 Memnon co-driver
- Packaging: std containers supplied by Memnon
- Bar codes also on archive boxes
- Specific software to assist carrier ordering for return
- Right to require urgent access to content: upload of the digital file on ftp server within 24h – note: right used once during 3 year life of contract

Perspective on Memnon logistic

- Transport & General handling: Very satisfied with the level of security.
- Excellent work, structures/management and insights on the “tape level”
- Easy access to files, and good service

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Quality Control performed by DR

- Automated quality control while the materials are being digitized serves as the basis for the control
- Manual control of 2 % in DRs production environment
- USE as control – FX. http://www.larm-archive.org/ the entire archive is being made available through a research infrastructure

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Key issues faced by Memnon and solutions (1/2)

- Logistics – Carriers to be returned in the same order as received

- DR supplied 1500 tapes with unreadable bar codes which had to be corrected

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Key issues faced by Memnon and solutions (2/2)

- Players' availability and maintenance:

  =>75 players up to now to maintain 40 in production

  => in house maintenance and outsourcing

- Minor quality control issues during acceleration phase:

  => A defect player detected at DR: DR & Memnon analyzed the incidence and found that 140 files were not good => Memnon re-digitized the tapes

  => Some files found too short: Memnon added additional automated controls on file duration and generation of additional MD5 files were added in the workflow

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Why the DR project worked

DR perspective

A good and professional collaboration where both partners' expertise, knowledge and needs were recognized and used to create the best possible solution.

Courage and dedication!

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Why the DR project worked

Memnon perspective

- Long start up and test phases lead to **increased productivity**:
  - From 13.000 to 15.000 hours/month
  - Project running faster than expected
- Excellent collaboration between DR and Memnon project teams lead to **cost savings**

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How can the customer contribute to success?

- Detailed RFP but including room for suggestions
- Strong project manager and SPOC at customer's side
- Flexibility during start-up phase to cope with unexpected issues
- Acceptance of early payment terms (most of the costs concentrated during start-up and pre industrialization phases)

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Lessons learned (1/4)

- Process industrialization leads to major costs savings :

  3.03 € / hour for 350,000 hours

- Memnon price for 3000 hours DAT in 2005 (also public tender):
  - +/- 55.00 € per hour

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Lessons learned (2/4)

- Detailed preparation of the project is a must ; time spent at the beginning of any digitization project is regained easily afterwards
- Manpower costs for large scale migration projects is very low if the workflow has been optimized !
- Negotiate the project deliverables with your vendor / understand its own requirements and it will save costs

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Lessons learned (3/4)

- **Buy the best make the rest !**

There are no perfect tools ; large effort from Memnon IT team to make the process efficient and integrate various vendors' solutions

- People organization is key for industrial scale digitization:
  - The right skills for the right jobs
  - The right work / shift organization
  - Developing specific skills is a long and complex process : we are in a new industry

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Lessons learned (4/4)

- It is not about archiving, it is about digitization!
- Be open in the “Start-up phase” and commit resources to secure all known open loops are discussed
- Make decisions; And make sure all agreements are honored by both parties.

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