# S1000D for NH90

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# Content

1. Introduction
2. Implementation of S1000D
3. Authoring and Management
4. Publication process
5. Introduction of S1000D within our organisation
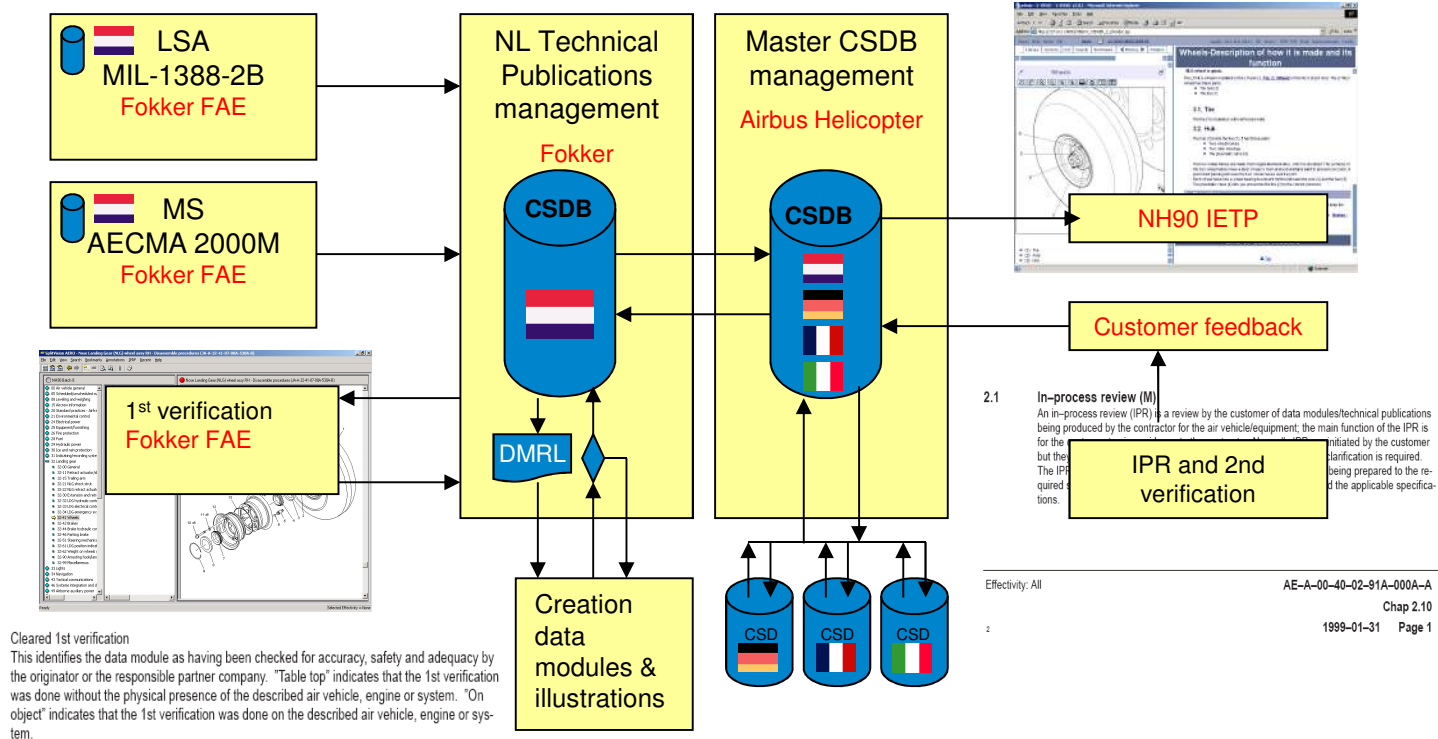6. Do's and don't

# Introduction

- Used for the creation of NH90 S1000D Documentation.

- The old system was installed on a stand alone Notebook, import and export of the DM's was a manual process and fault sensitive.

- In 2016 the existing Acquired system was replaced.

- Within the old system, there was no workflow and "user-defined" checks.

# Introduction



LSA MIL-1388-2B
Fokker FAE

MS AECMA 2000M
Fokker FAE

NL Technical Publications management
Fokker
CSDB
DMRL

Master CSDB management
Airbus Helicopter
CSDB

NH90 IETP

Customer feedback

IPR and 2nd verification

1st verification
Fokker FAE

Creation data modules & illustrations

CSD   CSD   CSD

Cleared 1st verification
This identifies the data module as having been checked for accuracy, safety and adequacy by the originator or the responsible partner company. "Table top" indicates that the 1st verification was done without the physical presence of the described air vehicle, engine or system. "On object" indicates that the 1st verification was done on the described air vehicle, engine or system.

2.1   In–process review (M)
An in–process review (IPR) is a review by the customer of data modules/technical publications being produced by the contractor for the air vehicle/equipment; the main function of the IPR is for the ... IPR ... initiated by the customer but the ... clarification is required. The IPR ... being prepared to the required ... the applicable specifications.

Effectivity: All                                        AE–A–00–40–02–91A–000A–A
                                                                        Chap 2.10
2                                                         1999–01–31    Page 1

# Introduction

- AECMA S1000D change 1.9

- Data modules in SGML format

- DTD's
    - Aircrew
    - Procedural
    - Descriptive
    - IPD
    - Maintenance Planning
    - Fault Isolation

- Information sets

- IETP
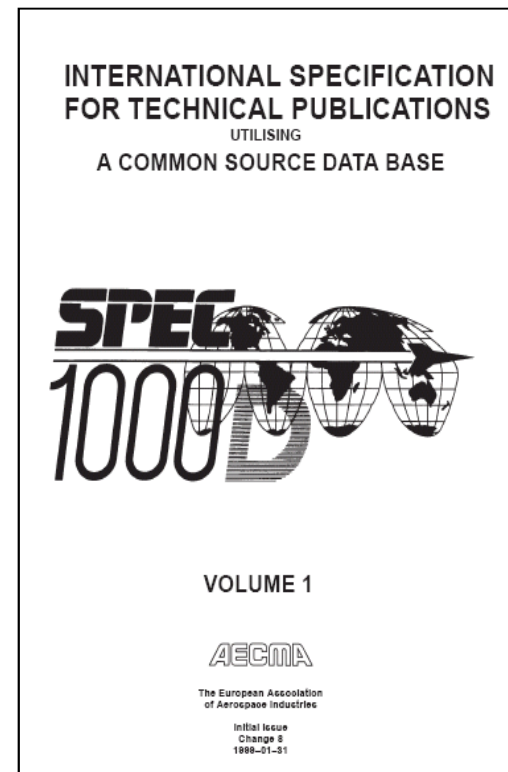
INTERNATIONAL SPECIFICATION
FOR TECHNICAL PUBLICATIONS
UTILISING
A COMMON SOURCE DATA BASE

SPEC
1000D

VOLUME 1

AECMA

The European Association
of Aerospace Industries

Initial Issue
Change 6
1998-01-31

# Introduction

**NH90 Program Tech Pub Standards:**

- **AECMA S1000D**
- **AECMA S2000M**
- **AECMA Simplified English**
- **ILS/LSA Standard MIL-STD 1388**

**NH90 Program Tech Pub Guidelines:**

- **NH90 Guidance Document**
- **NH90 Style Guide**
- **IETP Specification**
- **CSDB Data Exchange Procedures**
- **IETP Verification and Release Procedures**

# Implementation of S1000D

- Define requirements
- Product selection
- Implementation
    - Project management plan
    - Risk assessment and mitigation
    - Project organisation
    - ICT support
- Start with a pilot
- Evaluation
- Implementation

# Implementation of S1000D

## Define requirements

- Commercial off-the-shelf

- IETD suite for the creation of Technical Publications

- Web based - Server/client system

- AECMA S1000D version 1.8 and higher

- Editor for Data Module (DM) creation

- Process for (S2000M) IPL -> (S1000D) IPD data module creation

- Workflow management

- BREX (Business Rules Exchange) support

- Common source DataBase (CSDB) management

- Data Module List (DML) support

- DM transfer package management to NH90 integrator

# Authoring and Management

**HiCo IETD suite selected**

- IETD suite for the creation of Technical Publications

- Web based - Server/client system

- AECMA S1000D version 1.8 and higher

- Data Module (DM) creation using Arbortext Editor

- Automatic IPL -> IPD DM generation

- Workflow management

- History tracking

- Common source DataBase (CSDB) management

- DM transfer package management to NH90 integrator

Fokker

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# Authoring and Management
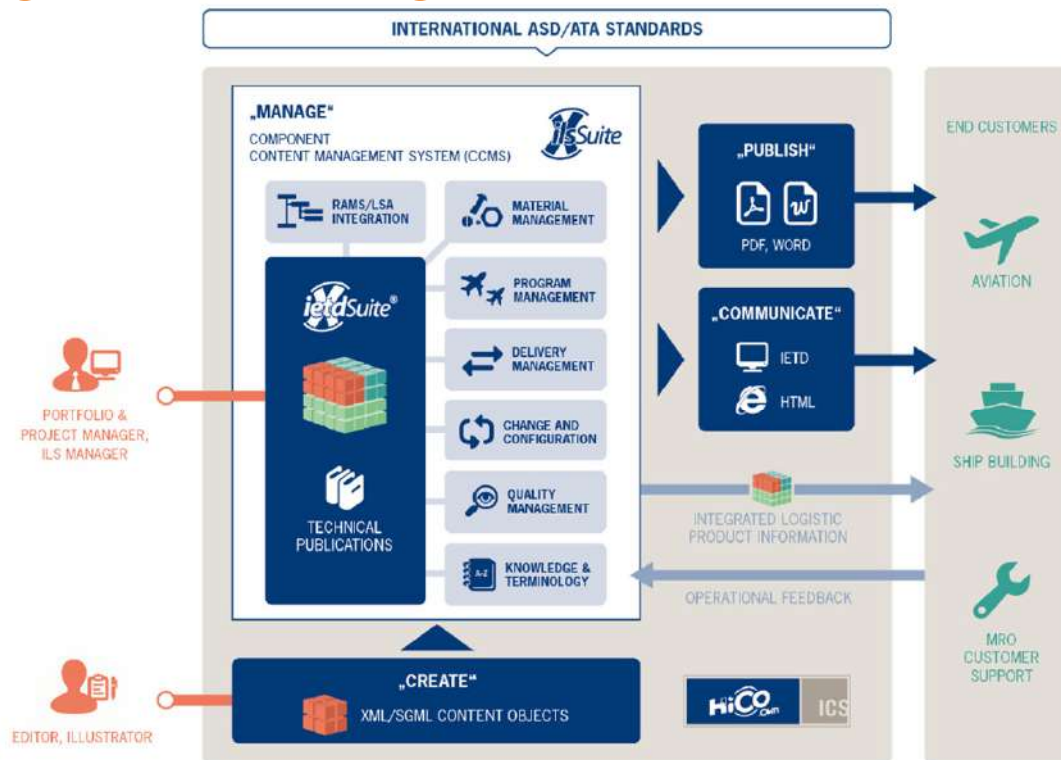


Figure 1 HiCo iLS.Suite™ with the HiCo ietdSuite® as a core system.

# Authoring and Management
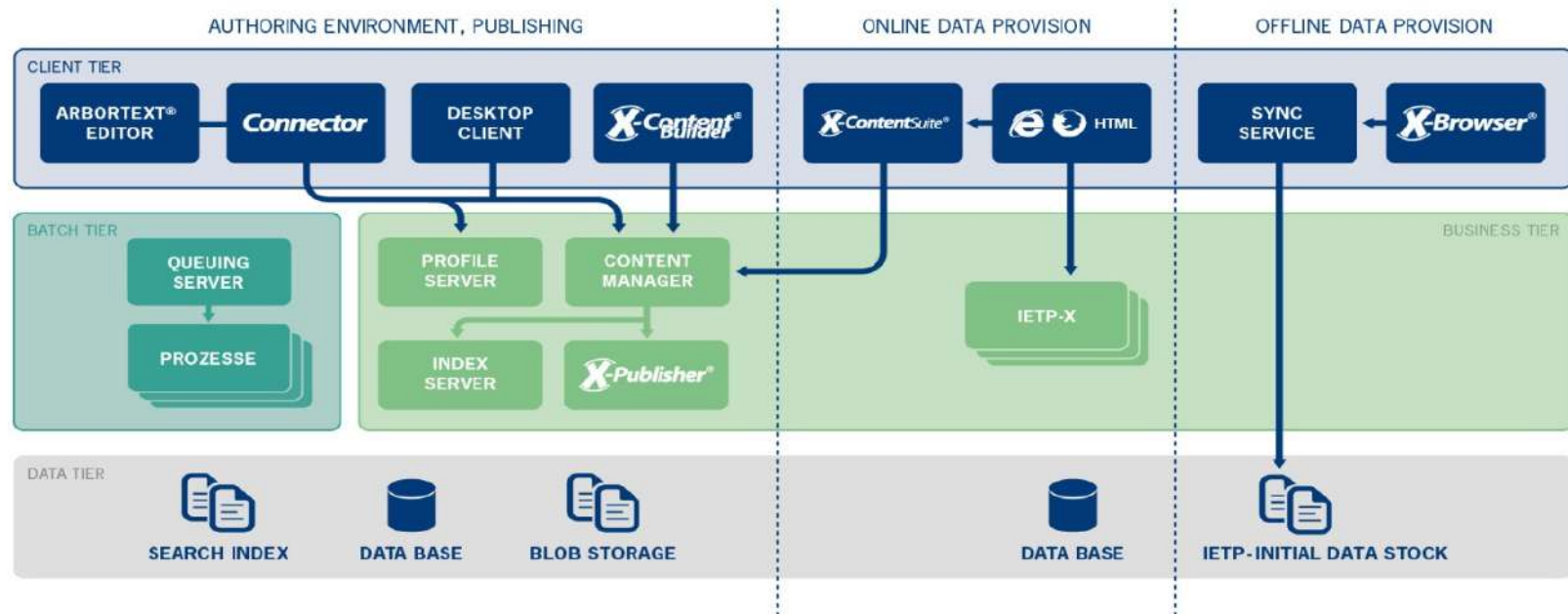


HiCo – System Architecture

# Authoring and Management

Editorial work – Material and Warning Setter

# Authoring and Management

Editorial work – Link-setter and References
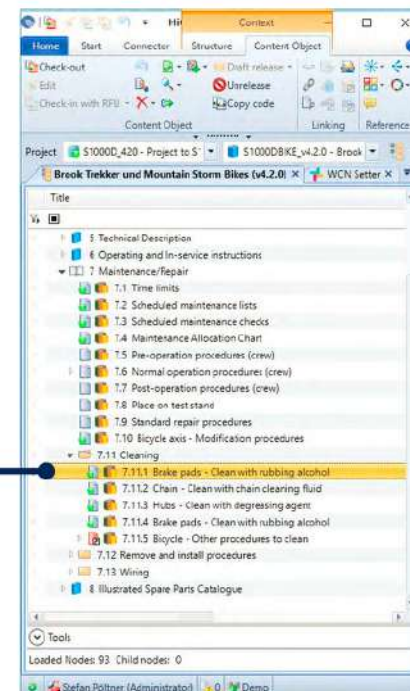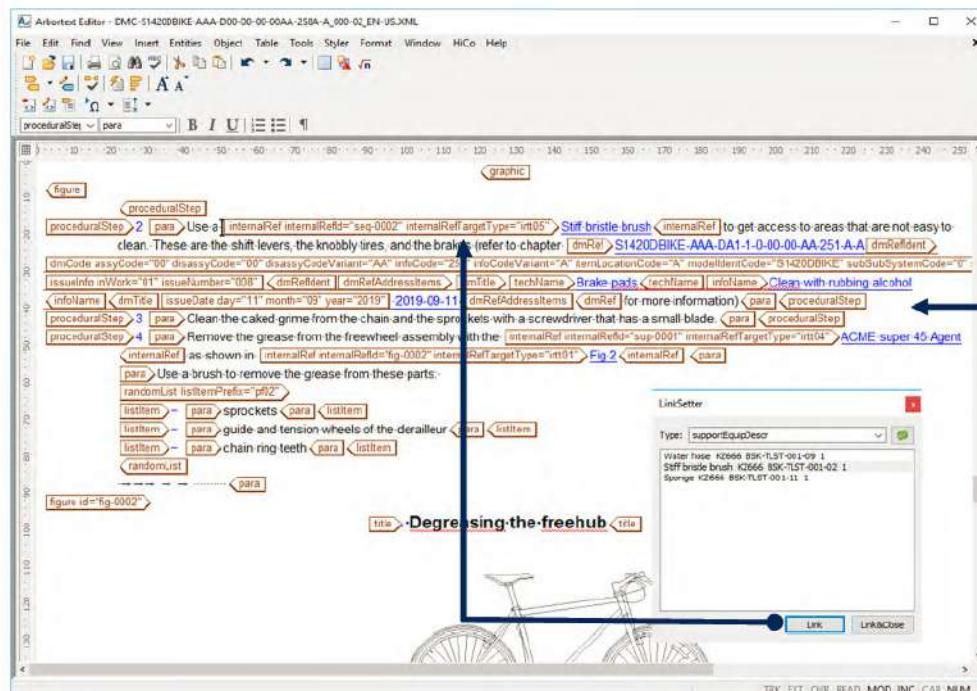
# Authoring and Management

Quality Assurance for Authors:

The following validations are available for authors:

- ● **Single Content Object validations in AE**
  - Schema, Project, Schematron and BREX
  - Arbortext Schematron Validation

**Completeness Check Log**

File   View

**Schematron Warnings**
- WARNING: The Element 'copyright' is used.   copyright
- WARNING: A different Emphasis type than 'em01' was used.   emphasis
- WARNING: A different Emphasis type than 'em01' was used.   emphasis

- ● **Schema Validation**

| | |
|---|---|
| Info | Document DMC-S1420DBIKE-AAA-D00-00-00-00AA-002A-A_002-00_EN-US.XML' is valid regarding schema validation. |
| Error | Document 'DMC-S1420DBIKE-AAA-D00-00-00-00AA-004A-A_002-04_EN-US.XML' is invalid regarding schema validation. |
| Error | Validator message: The 'issueType' attribute is invalid - The value '' is invalid according to its datatype 'issueTypeAttType' - The empty string '' is not a valid name. (at DMC-S1420DBIKE-AAA-D00-00-00-00AA-004A-A_002-04_EN-US.XML:/dmodule[1]/identAndStatusSection[1]/dmStatus[1]/@issueType) |
| Error | Validator message: The element 'listItemDefinition' has invalid child element 'dmRef'. List of possible elements expected: 'para'. (at DMC-S1420DBIKE-AAA-D00-00-00-00AA-004A-A_002-04_EN-US.XML:/dmodule[1]/content[1]/description[1]/leveledPara[1]/para[1]/definitionList[1]/definitionListItem[4]/listItemDefinition[1]/dmRef[1]) |
| Error | Validator message: The element 'dmRef' has incomplete content. List of possible elements expected: 'dmRefIdent'. (at DMC-S1420DBIKE-AAA-D00-00-00-00AA-004A-A_002-04_EN-US.XML:/dmodule[1]/content[1]/description[1]/leveledPara[1]/para[1]/definitionList[1]/definitionListItem[5]/listItemDefinition[1]/para[1]) |

- ●

## Document Links Report

| | | | | |
|---|---|---|---|---|
| Bicycle - Service Bulletin - Replacement of standard forward fork by telescopic fork | DMC-S1420DBIKE-AAA-D00-00-01-00AA-930A-A_002-00_EN-US.XML | | | InProject (S1000D_420) |
| Brake system - Manual test | DMC-S1420DBRAKE-AAA-DA1-00-00-00AA-341A-A_002-00_EN-US.XML | | Document | InPackage (S1000DBIKE_v4.2.0) |
| **Missing Applicability: model: 'Brook trekker\|Mountain storm' (/dmodule/content/refs/dmRef[1]), Target SerialNo: '0111', model: 'SS-11'** | | | | |
| DMC-S1420DBIKE-AAA-D00-00-00-00AA-941A-D | S1420DBIKE-AAA-D00-0-0-00-AA-941-A-D | | Document | Missing (/dmodule/content/refs/dmRef[2]) |
| DMC-S1420DBIKE-AAA-D00-00-01-001A-933A-A | S1420DBIKE-AAA-D00-0-0-01-0-1A-933-A-A | | Document | Missing (/dmodule/content/refs/dmRef[3]) |
| Brake system - Manual test | DMC-S1420DBRAKE-AAA-DA1-00-00-00AA-341A-A_002-00_EN-US.XML | | Document | InPackage (S1000DBIKE_v4.2.0) |
| **Missing Applicability: model: 'Brook trekker\|Mountain storm' (/dmodule/content/sb/sbPlanningInfo/sbTopic[11]/sbTopicContent/para[5]/dmRef), Target SerialNo: '0111', model: 'SS-11'** | | | | |

# Authoring and Management

Quality Assurance for Authors:

# Authoring and Management

## Quality Assurance for Illustrators:

The following validations are available for Illustrators:

### ☛ Validate Hotpsots/Legends (only for CGM/SVG)

| | |
|---|---|
| Info | Processing Content Object 'DMC-S1420DBIKE-AAA-D00-00-00-00AA-041A-A'. |
| Info | * Found 1 figures to validate |
| Info | * Validating Figure 'Complete bicycle' |
| Warning | ** No Hotspot element exists for Illustration Hotspot 'hot001a' (1) in Illustration 'ICN-C0419-S1420D0360' (en-US). |
| Warning | ** The Illustration 'ICN-C0419-S1420D0360' contains '17' hotspots, but the figure has no legend. (hot000/0, hot001/1, hot001a/1 |

### ☛ Validate Illustrations (only for CGM/SVG)

| | |
|---|---|
| Info | Processing Content Object 'ICN-07GB6-BIKECI4201-001-01.CGM'. |
| Warning | Schematron Assert at '/root[1]': '@desc:ProfileId = 'WebCGM'' in '/root': Profile must be WebCGM 2.1 (but ProfileId is '') |
| Warning | Schematron Assert at '/root[1]': '@desc:ProfileEd = '2.1'' in '/root': Profile must be WebCGM 2.1 (but ProfileEd is '') |
| Warning | Schematron Assert at '/root[1]': 'aps[@type = 'layer' and apsattribute[@name = 'layername' and text() = 'ICN']]' in '/root': There is no ICN layer |

### ☛ Invalid Media Containers Report

| | |
|---|---|
| Warning | 1 invalid Media Container references found in 'DMC-S1420DBIKE-AAA-D00-00-00-00AA-121A-A (en-US)' |

# Authoring and Management

## Quality Assurance for QA-Manager:

The following additional validations are available for QA-Manager:

### 🔸 Validate IETD Transfer Packages

| | |
|---|---|
| Info | * Processing Content Object 'DMC-S1420DBIKE-AAA-DA0-00-00-00AA-041A-A_009-00_EN-US'. |
| Info | * OK |
| Warning | TechName must be equal to the SNS node name of DMC. Expected value: 'Bicycle' - Found value: 'Wheels' (Line 25) |
| Warning | InfoName must be equal to the Project-Infocode name of DMC. Expected value:'Description of how it is made' - Found value 'Description of how it is made: Knowledge Check' (Line 25) |
| Warning | IssueType must be filled out. (Line 25) |
| Warning | IssueType '' does not comply to the list of allowed values: deleted, changed, new, rinstate-changed, rinstate-status, rinstate-revised, status, revised. (Line 25) |

### 🔸 Compare data modules

| | |
|---|---|
| Notice | Result for 'DMC-S1420DBIKE-AAA-DA0-30-00-00AA-720A-A_002-00_EN-US', differences: '3' |
| Notice | * XPath: '//displayText/simplePara' , differences: '1' |
| Notice | ** Source[0]: 'Mountain bicycle and (Mountain storm Mk1 or Brook trekker Mk9)' , Target[0]: 'Mountain bicycle and (Mountain storm Mk1 and Brook trekker Mk9)': The Applicability has been changed. |
| Notice | * XPath: '//manufacturerCode' , differences: '1' |
| Notice | ** Source[0]: 'KZ666' , Target[0]: 'KZ233': The Manufactorer has been changed. |
| Notice | * XPath: '//partNumber' , differences: '1' |
| Notice | ** Source[0]: 'BSK-TLST-001' , Target[0]: 'BSK-TLST-001A': The Part number has been changed. |

# Publication Process

- Within the IETD suite met de module "X-Publisher®"

- Preview van DM's in PDF and/or HTML

- Publication of DM's and manuals in PDF, HTML and PDF.

- X-Publisher®, Designer module for creation and configuration of previews and publications.

- Design of title pages, frontmatter, headers and footers.

- For NH90 creation of Transfer Packages including Data Dispatch Note (DDN)

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# Introduction within our organization

- Training for authors, material support, project manager and  administrator.
- On-line access for ILS-team, PDF and HTML view.
- Turn around time for incorporation of changes significantly reduced (CR, ECP, TNs and IPRF's)
- Define work-flow
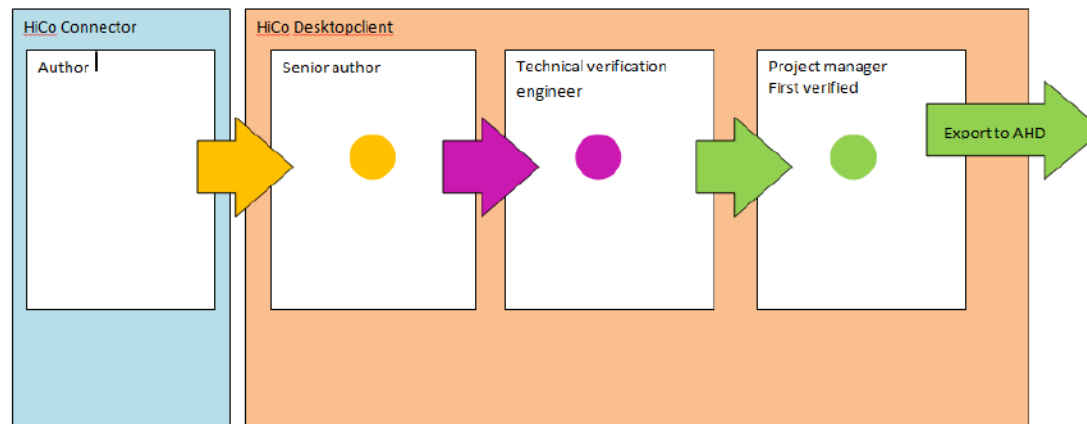
# Do's and don't

- Use a key-user and involve steak-holders
- Start with a pilot project
- Evaluation and lessons learned after pilot
- Training
- Make use of a dedicated test and production environment
- Devine workflow (Supported by DOM and workinstructions)
- Use BREX and Schematron for QA checks

# Thank you for
# Your attention

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