E-Learning implementation via symbiosis of S6000T and S1000D (SCORM)

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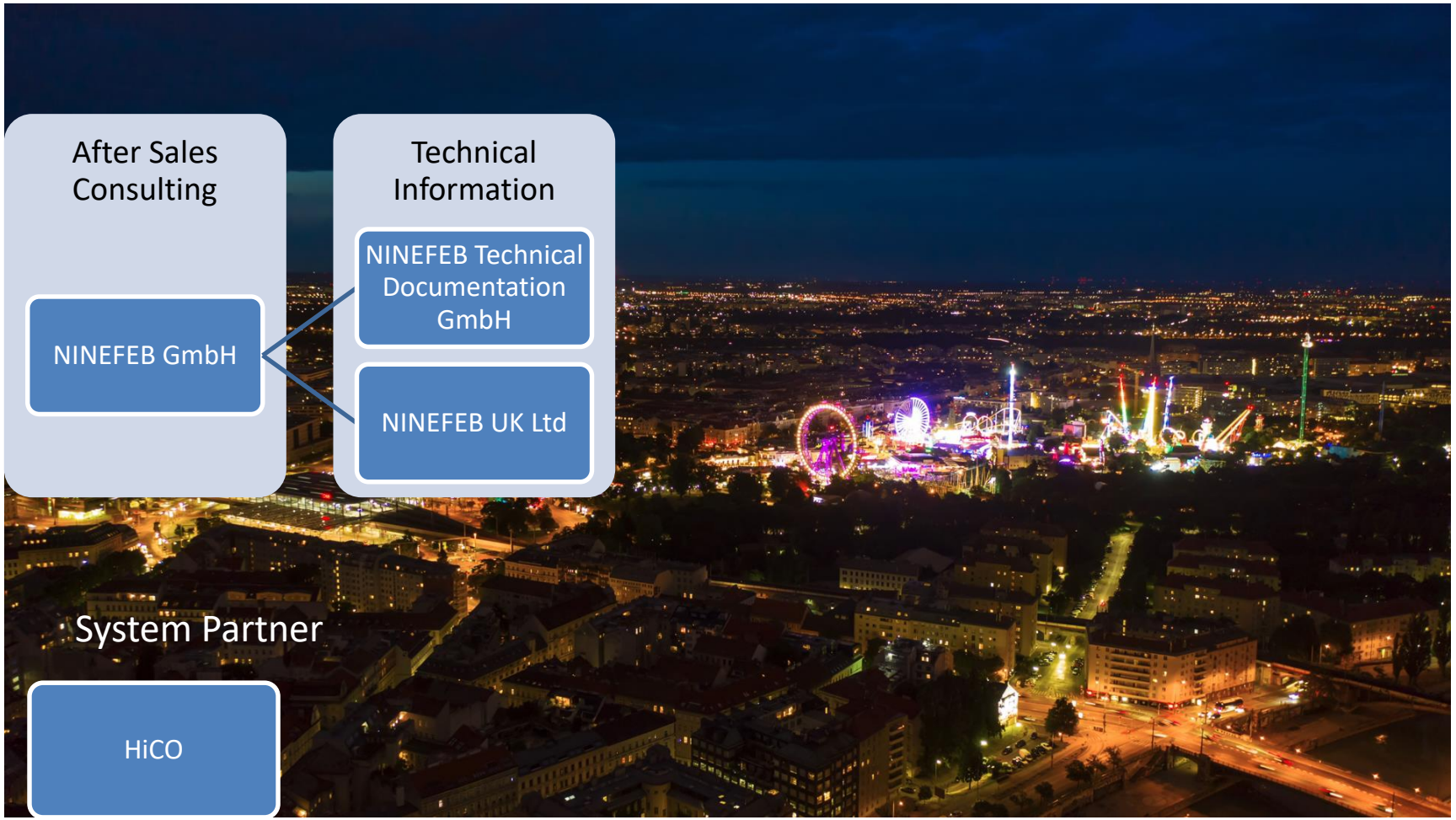
Company/Organization: **NINEFEB Technical Documentation GmbH**

Abstract-No: **A#45**

Who are we


After Sales Consulting
NINEFEB GmbH
Technical Information
NINEFEB Technical Documentation GmbH
NINEFEB UK Ltd
System Partner
HiCO

What do we want head for

- In our mission, we see the following objectives:
  - **Single source of truth (use the Data Modules together with S1000D of the technical documentation)**
  - **Make the modules reusable in case of eLearning**
  - **Create a multimedia based eLearning package**
  - **Create a SCORM or xAPI based package usable for ANY LMS**
  - **Make eLearning AND knowledge trace- and trackable**
  - **Make content granular targeting Learning Objects**

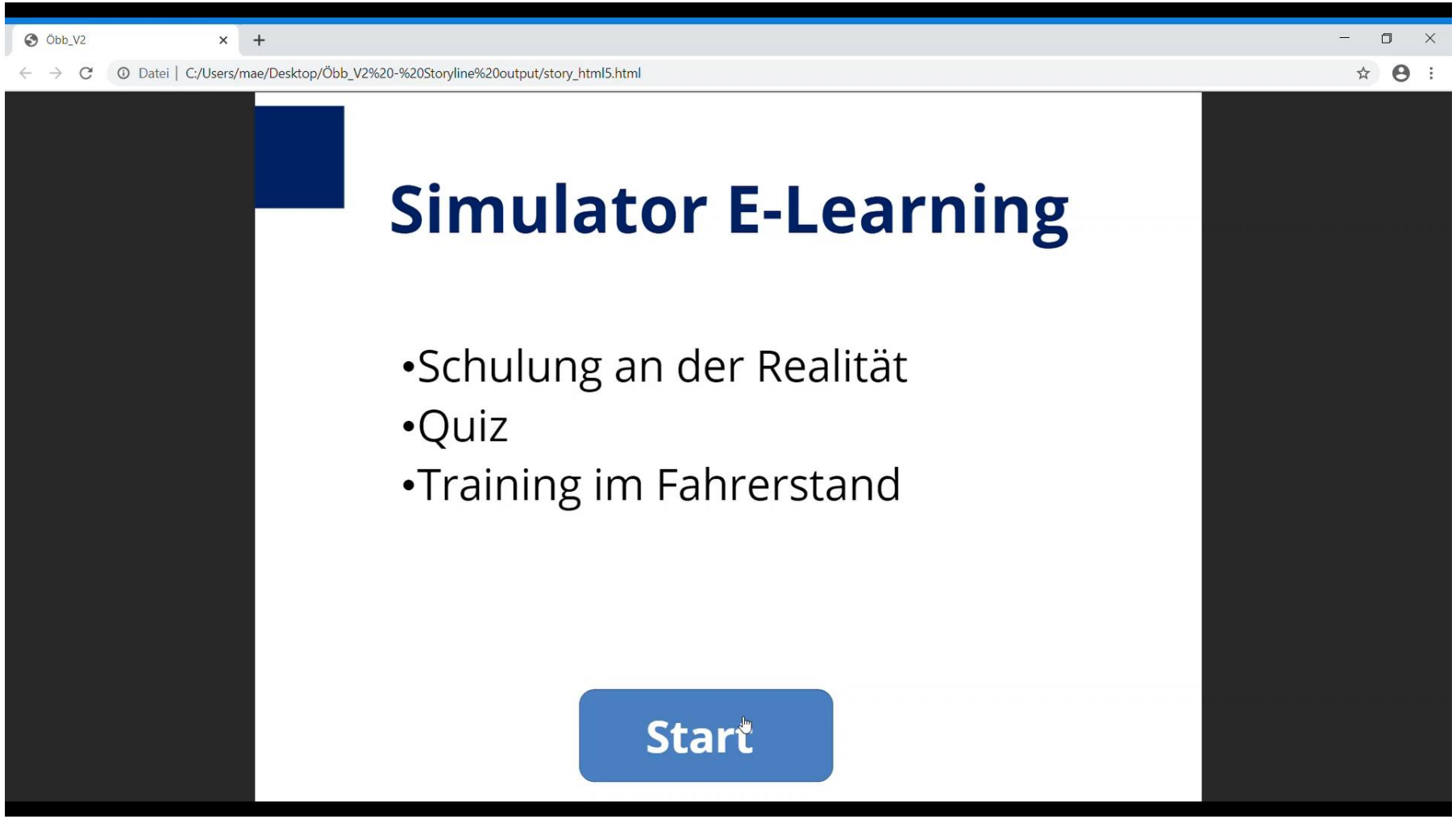
What do we want head for

- In our mission, we see the following INSTRUCTIONAL objectives:
  - **Defining the urgent Training Needs according to the Objectives, the Field Data (S5000F) and the Audience Analysis**
  - **Creating a Training Plan and Sequencing the Learning Objects**
  - **Selecting the right Media**
  - **Crafting the Assessment Strategies**

Do you want to get something like that?

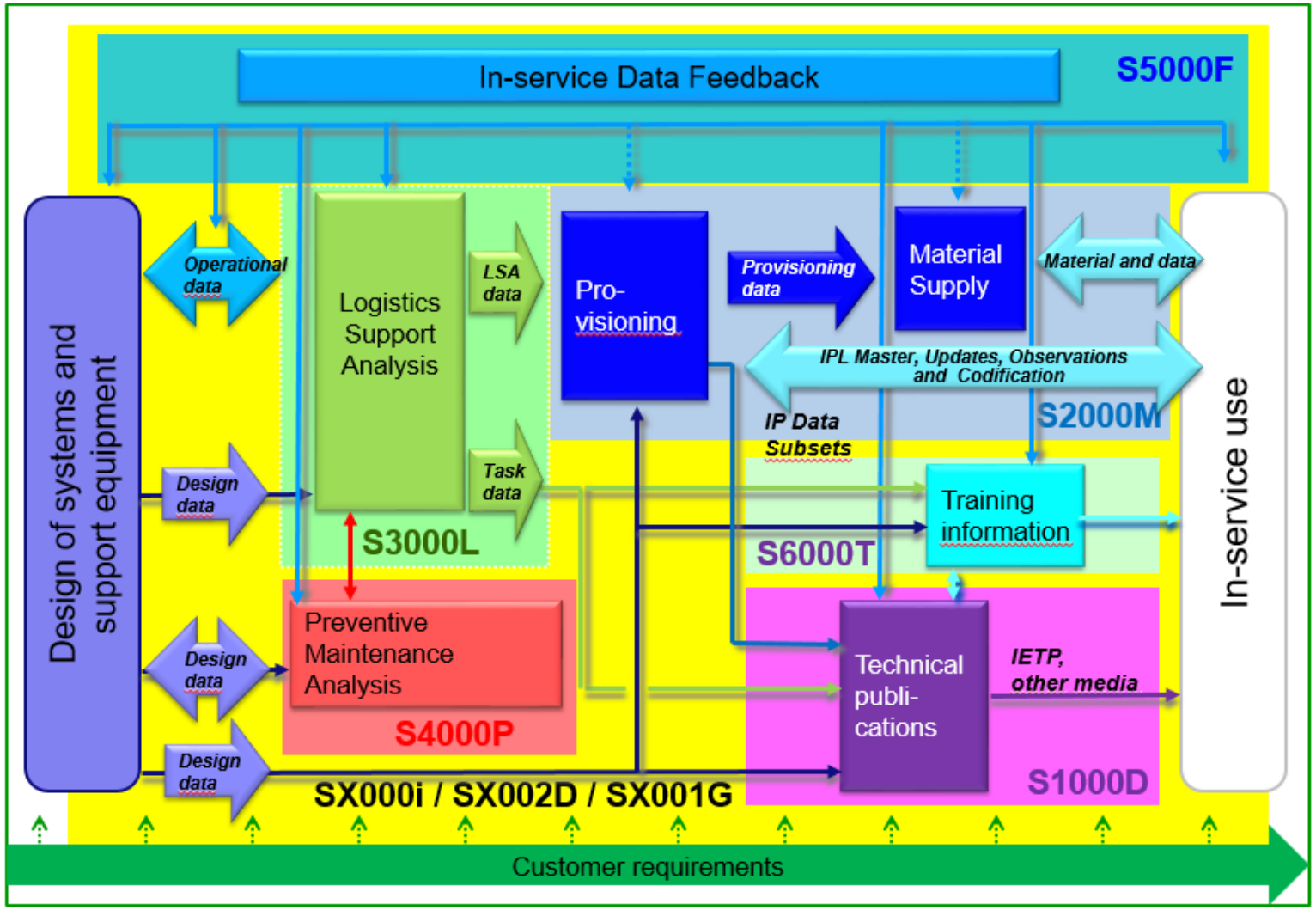
Source: txtomedia

With Interactivity and Assessment like that?



Source: NINEFEB

How is this done and what is the LDM about?



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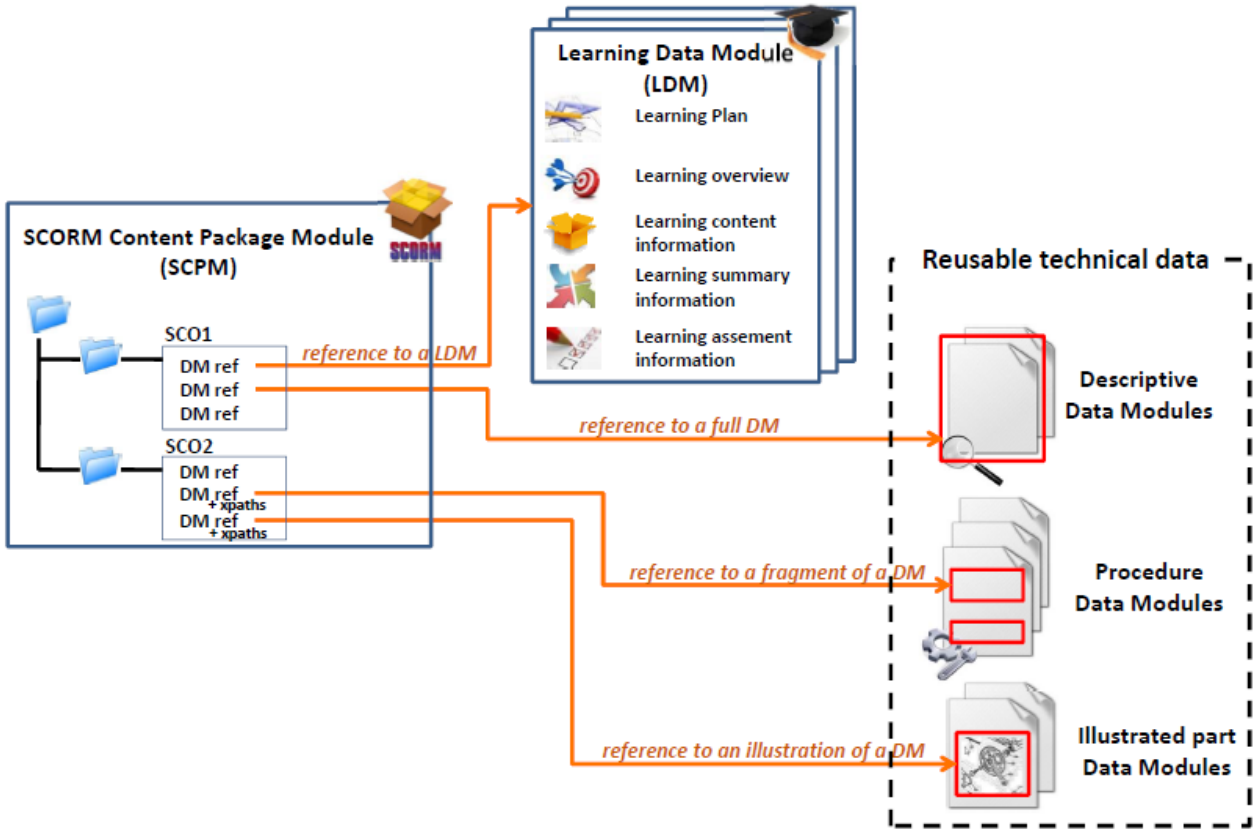
How can I do this?

The central element is the Learning Data Module:

- It is a Learning Object Structure
- It covers the necessary central Instructional topics
- It links to the S1000D Data Modules



S6000T

- Stryker
- Ford fusion
- Pegasus engine
- IPhone 7

S6000T also uses this concept in its processes in order to deliver its training support products.

S6000T adheres to the Instructional Systems Design (ISD) process. The ISD systematic process involves the assessment and development of training solutions, designed specifically for the purpose of formal training delivery, using primarily the ADDIE model, which is the most widely recognized ISD. The ADDIE model is made up of the five phases depicted in its name. Refer to Fig 1.

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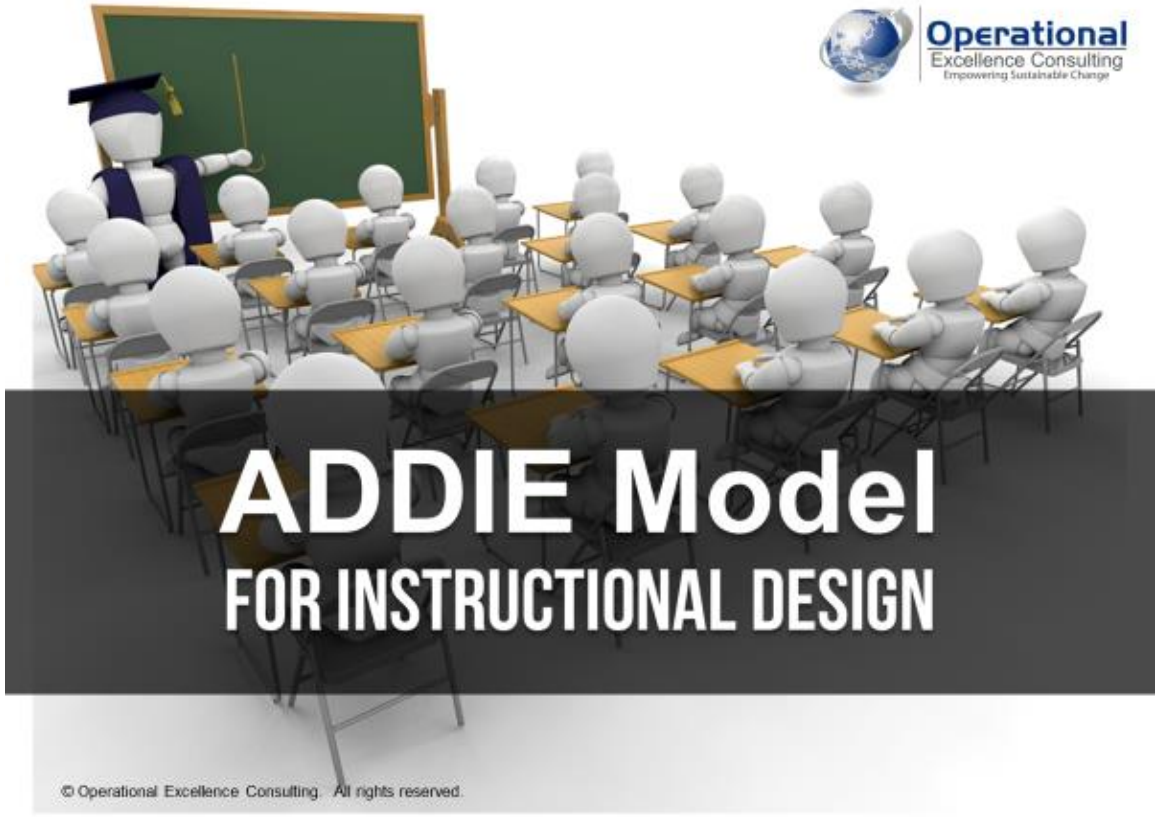
Fig 1 ADDIE model

ADDIE is an acronym for the five phases of this approach to courseware development:

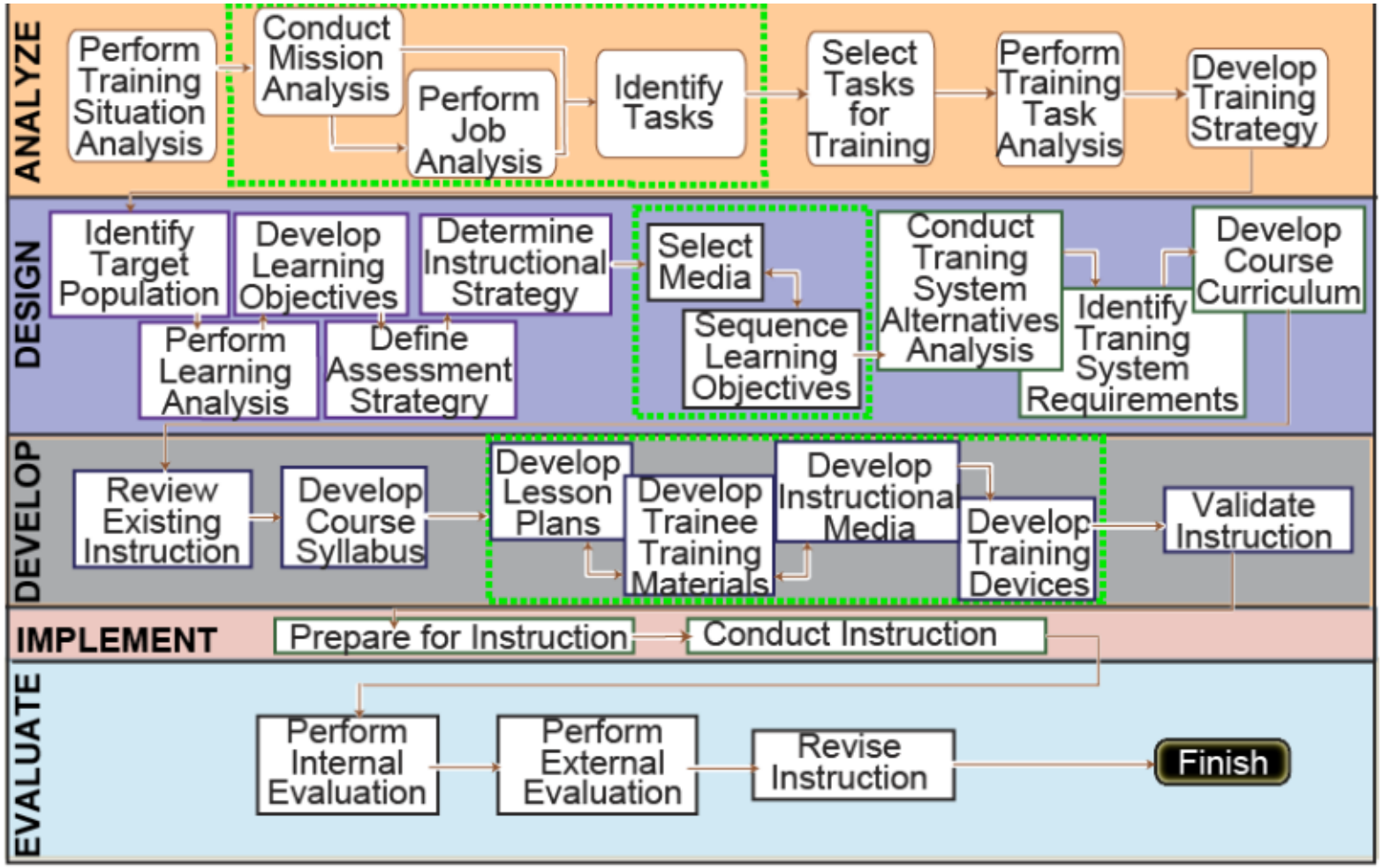
- Analysis Phase - The analysis phase determines what must be trained. The first step is to determine whether a training problem exists and then to identify possible solutions. A sequence of processes and analytical models are then used to identify critical human tasks and to identify the standards, conditions, performance measures, and other criteria needed to perform each task.
- Design phase - The instructional design is based on the analysis phase results. In this phase, the instructional designers also develop Learning Objectives (LO), a test strategy, and test items, as well as design the instruction. The instructional strategies are also developed in this phase and instructional methods and media are selected. The output of the design phase is the Training curriculum.
- Development phase - Instructional development is based on the design phase results. During the development phase, lesson materials, unit exercises, drills, and other instructional materials for both the student and the instructor are developed. Media, selected in the design phase, is produced during this phase.
- Implementation phase - After the instructional system has been designed and developed, and the validation activities of formative and summative evaluation have been completed, the instructional system is implemented. In this phase, the instructional system is fielded.
- Evaluation Phase - Evaluation is a continuous process that starts during the analysis phase and continues throughout the development and life cycle of the instructional system. To ensure continuing quality of the fielded instructional system, internal and external operational evaluations, provide the necessary periodic feedback for the life cycle of the operating system using the concept of In-Service Training Optimization (ISTO). Refer to Chap 5.

The goal of the ISD process is to optimize the training Return on Investment (ROI) by increasing the effectiveness of education and training. Examples of the products of ISD are:

- Instructional systems based on mission, job and performance requirements
- Courses consisting of relevant knowledge and skills instruction



S6000T



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S6000T

Cognitive

Mental skills where the brain must be used to perform intellectual tasks

(Knowledge)

Psychomotor

Physical skills such as movement, coordination, manipulation, dexterity, grace,

actions, etc. **(Skills)**

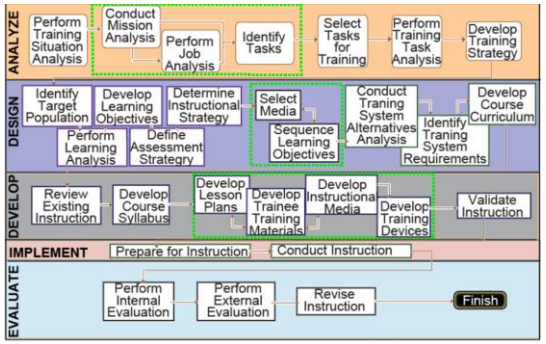
Affective

Described as "coming from the heart," - knowing is nothing if there is no will to act on

it **(Attitude)**

This is ADDIE, the eLearning Expert helping us through the presentation

We will take a look at S6000T, step by step… following all eLearning parameter definition steps:



Explain what that is in ADDIE and why you need this step, what the inputs and the outputs are and what you get out of it. In addition we will show how this contributes to which part of the Learning Data Module (LDM).

And discuss how we can plan and create that; we will use a NINEFEB specific method called iLEARN which we combine with the CHICO system

How would we use S6000T in combination with an eLMS?

How do the topics match?

iLEARN is a planning method, to plan and create the Instructional parts of the eLearning

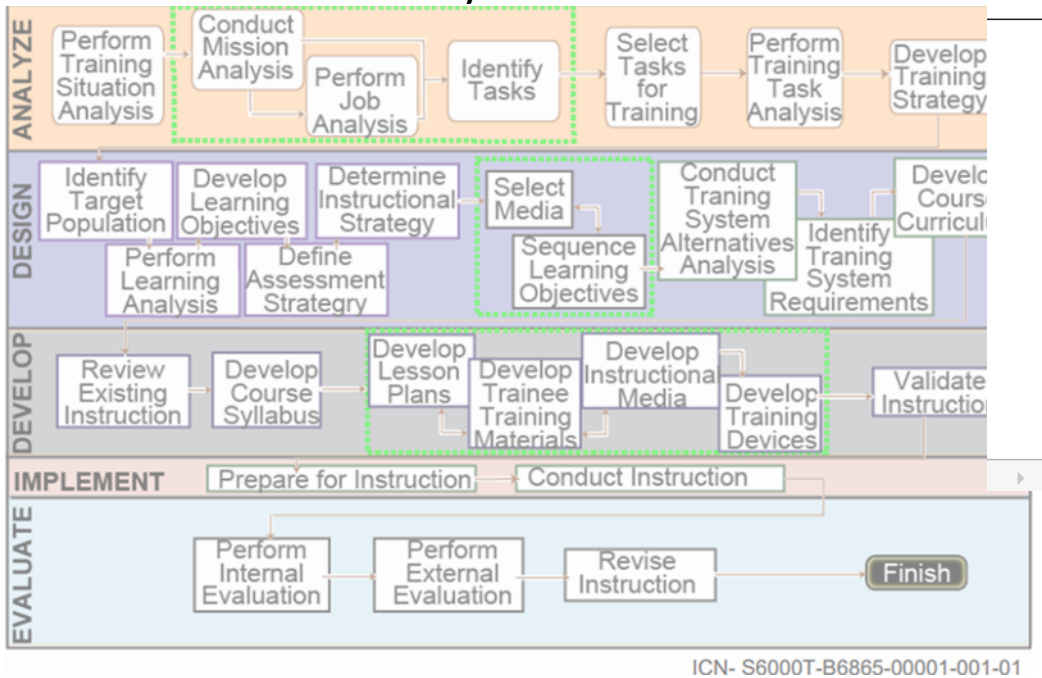
ADDIE	S6000T	iLEARN method
Analyze		
	Mission & Objective	iLEARN OKR
	Job Analysis	iLEARN Prioritization
	Role/Audience Analysis	iLEARN Competency Map
	FMEA, Root-Cause Analysis / Gap Analysis, Needs Assessment	iLEARN A3
	Task Analysis	iLEARN Task Analysis
	Training Needs Analysis	iLEARN TNA
Design		
	Learning Path Design	iLEARN Dependency Matrix
	Learning Course Structure	iLEARN Dependency Matrix
	Learning Objectives detailing	iLEARN OKR
	Instructional Strategy	iLEARN Multidimensional DMM
	Learning Object Design	iLEARN MDM
	Instructional Object Design	iLEARN Method matrix
	Media Selection	iLEARN Media Checklist
	Sequencing of Objectives and Objects to Curriculum	iLEARN Dependency Matrix
	Alternative Learning Matrix	iLEARN Learning Matrix
	Training Systems Selection	iLEARN Learning Matrix

ADDIE	S6000T	iLEARN method
Develop		
	Develop Course structure	iLEARN Topic Breakdown Matrix
	Develop Instructional step	iLEARN Topic Breakdown Matrix
	Develop Assessments	iLEARN Assessment Storyboard
	Develop media	iLEARN Storyboard
	Develop Learning modules	iLEARN Storyboard
	Assemble Training material	iLEARN Learning Path
Implement		
	make instructions	
	create SCORM	
Evaluate		
		iLEARN Gap Analysis
		iLEARN Gap Analysis

ANALYZE

ANALYZE consists of several Analysis steps:

- **Mission / General Objectives**
- Job Analysis
- Audience Analysis



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iLEARN

Business Initiative
ONE FOCUS NORTH STAR

		Objective fulfillment
One Focus Objective North Star	**Metric**	
Key result 1		
Business Objective 1		
Key result 2		
Business Objective 2		

Total fulfillment across objectives	

North Star Objective | Learning OKR's | LO 1 OKR's | Person One OKR's | Person Two OKR's | ⊕

ANALYZE

ANALYZE consists of several Analysis steps:

- **Mission / General Objectives**
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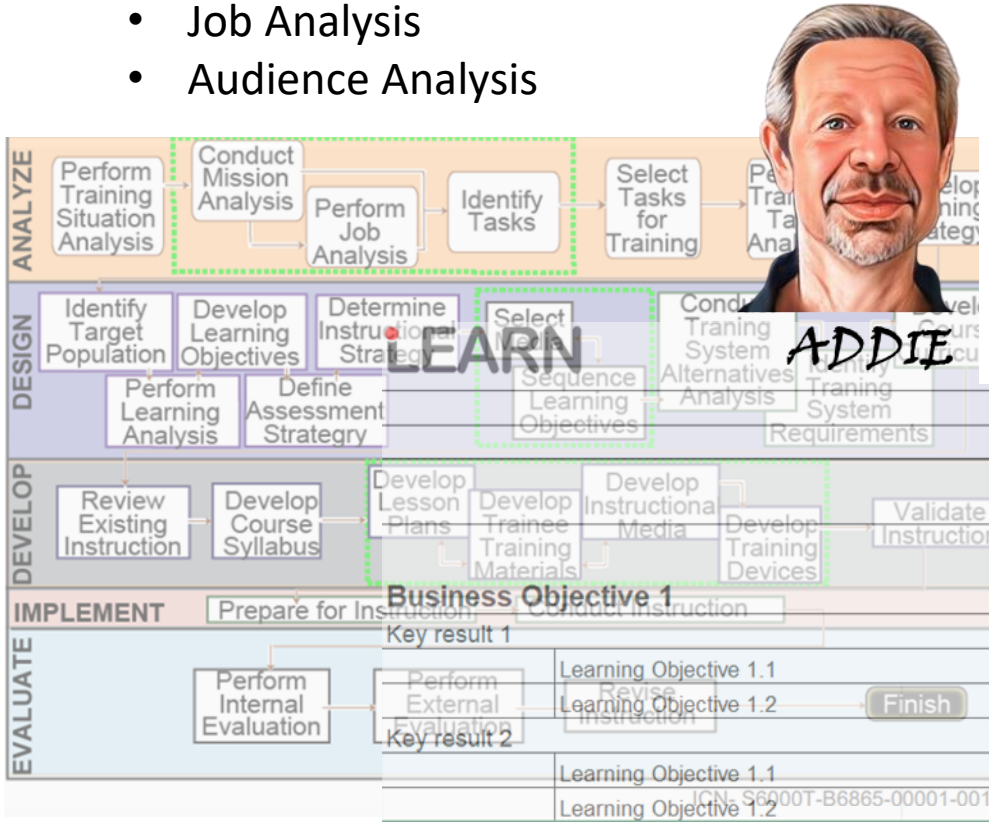
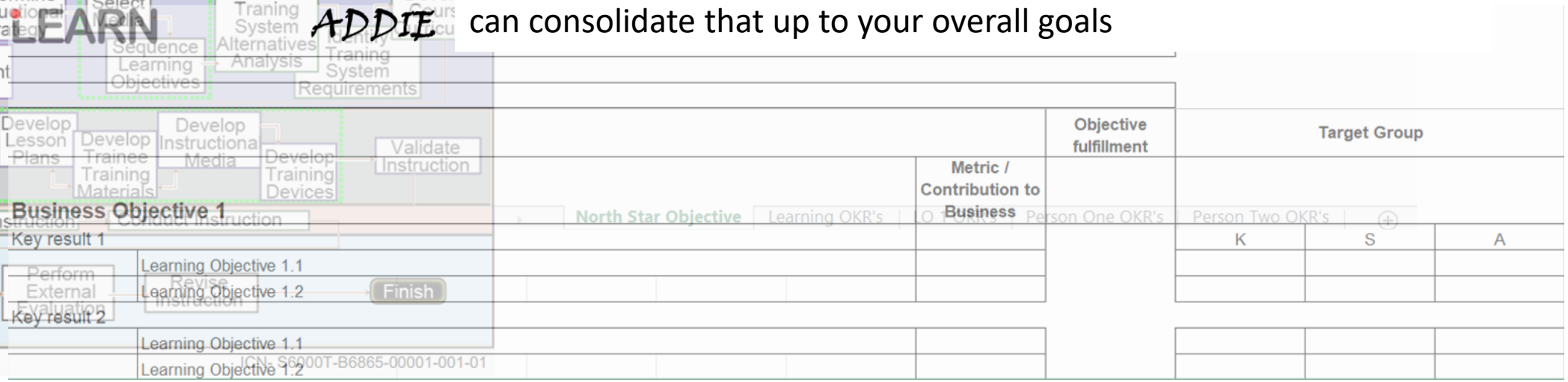
- Audience Analysis



ADDIE says:

- Break down the Business Objectives into Learning Objectives
- Break down the Learning Objectives per Role

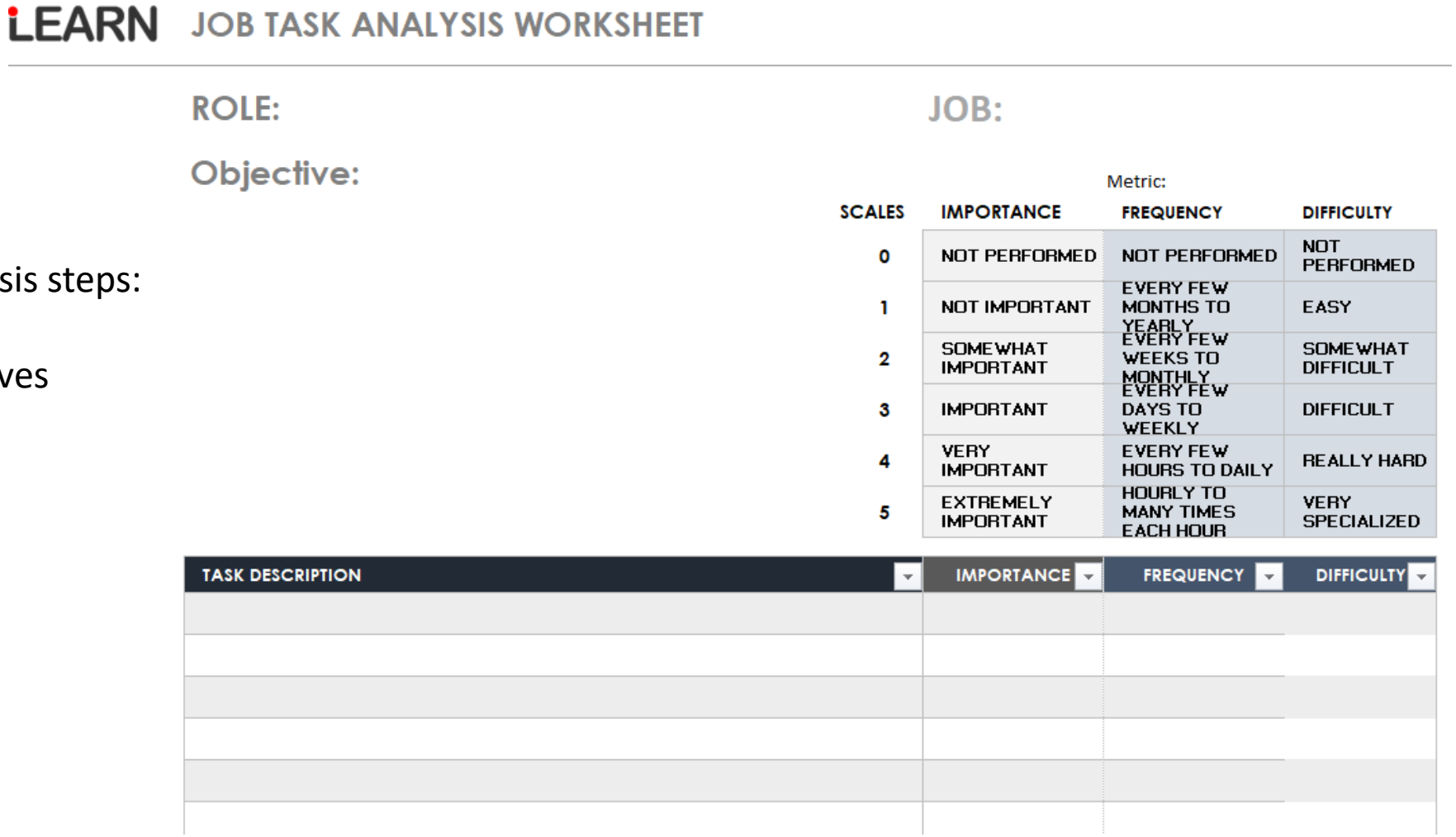
You will then get the Metric associated to assess the results and you can consolidate that up to your overall goals



ANALYZE Job Analysis

ANALYZE consists of several Analysis steps:

- Mission / General Objectives
- **Job Analysis**
- Audience Analysis



iLEARN JOB TASK ANALYSIS WORKSHEET

ROLE:

JOB:

Objective:

Metric:

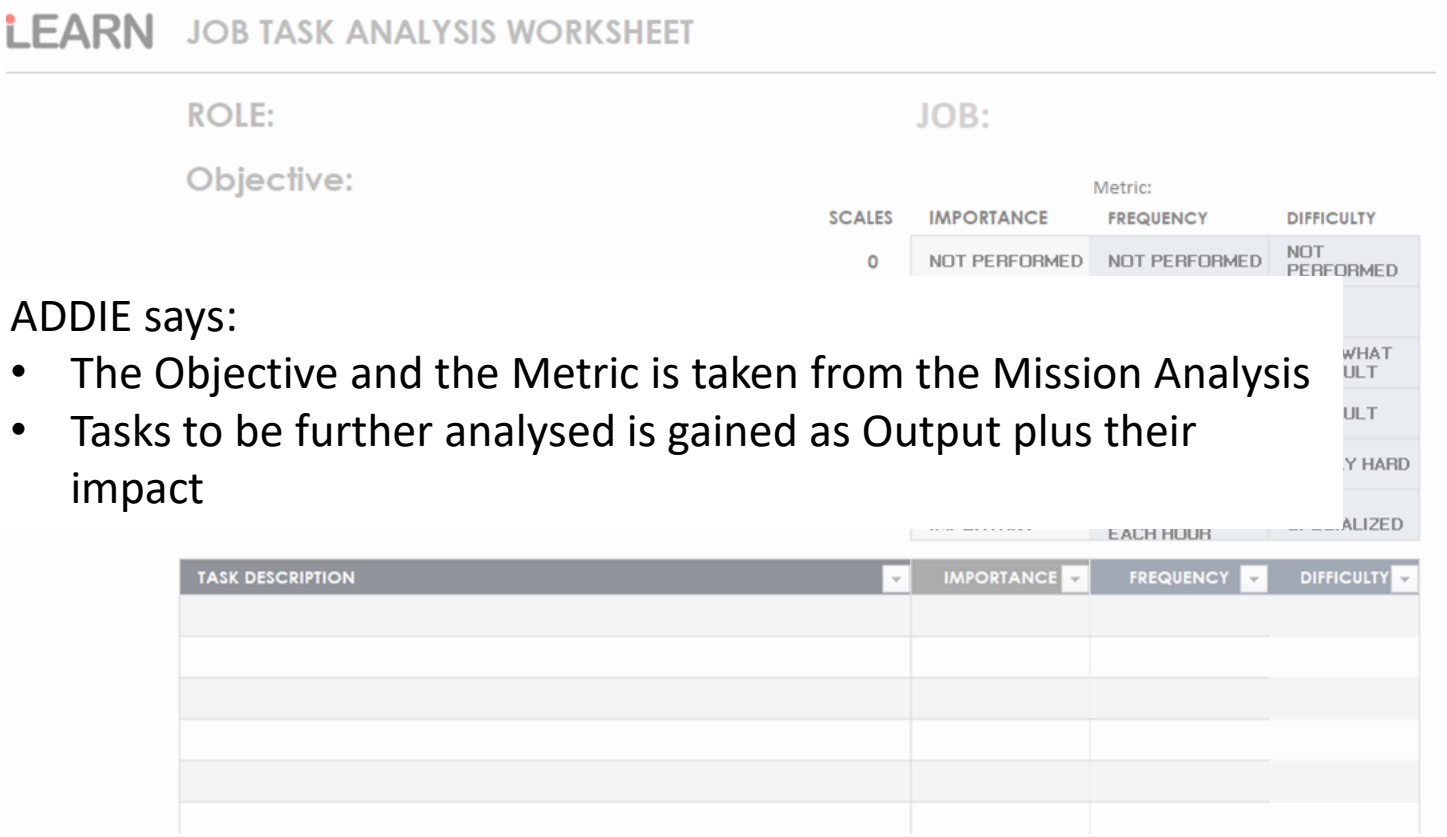
SCALES	IMPORTANCE	FREQUENCY	DIFFICULTY
0	NOT PERFORMED	NOT PERFORMED	NOT PERFORMED
1	NOT IMPORTANT	EVERY FEW MONTHS TO YEARLY	EASY
2	SOMEWHAT IMPORTANT	EVERY FEW WEEKS TO MONTHLY	SOMEWHAT DIFFICULT
3	IMPORTANT	EVERY FEW DAYS TO WEEKLY	DIFFICULT
4	VERY IMPORTANT	EVERY FEW HOURS TO DAILY	REALLY HARD
5	EXTREMELY IMPORTANT	HOURLY TO MANY TIMES EACH HOUR	VERY SPECIALIZED

TASK DESCRIPTION	IMPORTANCE	FREQUENCY	DIFFICULTY

ANALYZE Job Analysis

ANALYZE consists of several Analysis steps:

- Mission / General Objectives
- **Job Analysis**
- Audience Analysis



ADDIE says:

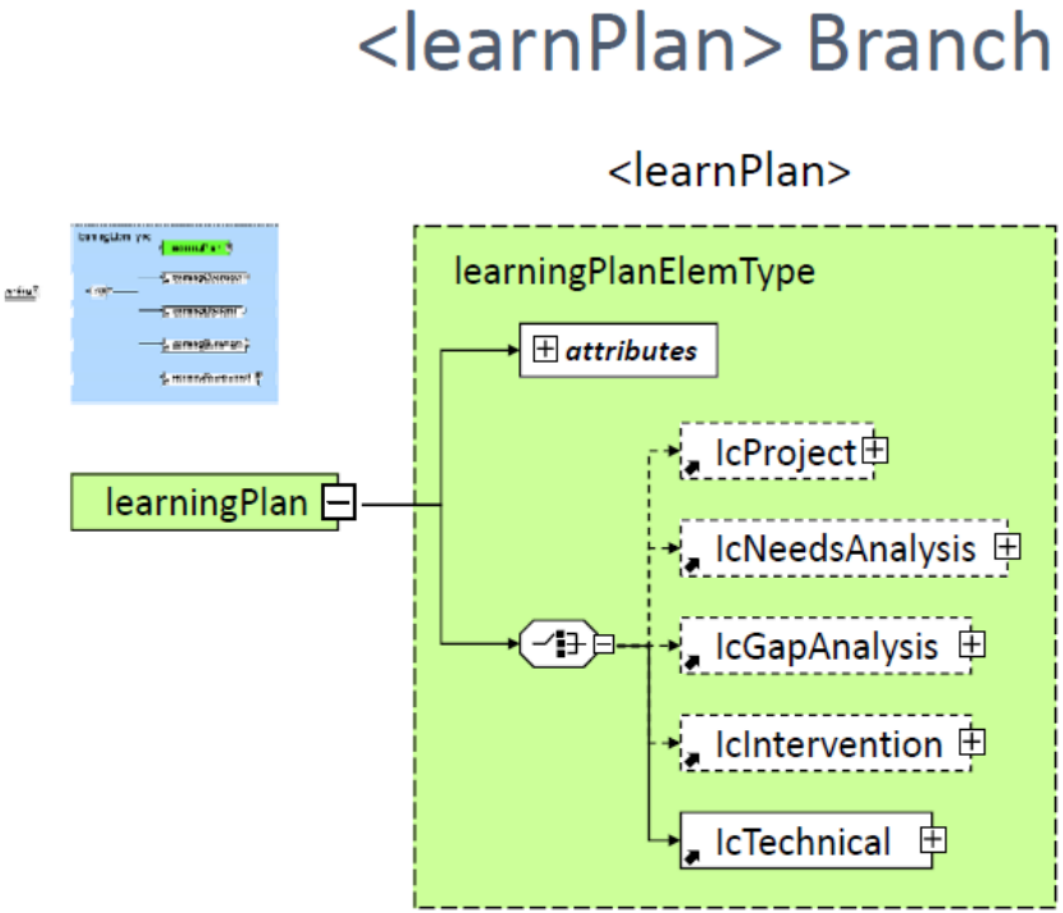
- The Objective and the Metric is taken from the Mission Analysis
- Tasks to be further analysed is gained as Output plus their impact

ANALYZE

ANALYZE consists of some more Analysis steps:

- Training Task Analysis
- Gap Analysis
- Training Needs Analysis

Now, we are getting a direct input for the LDM.

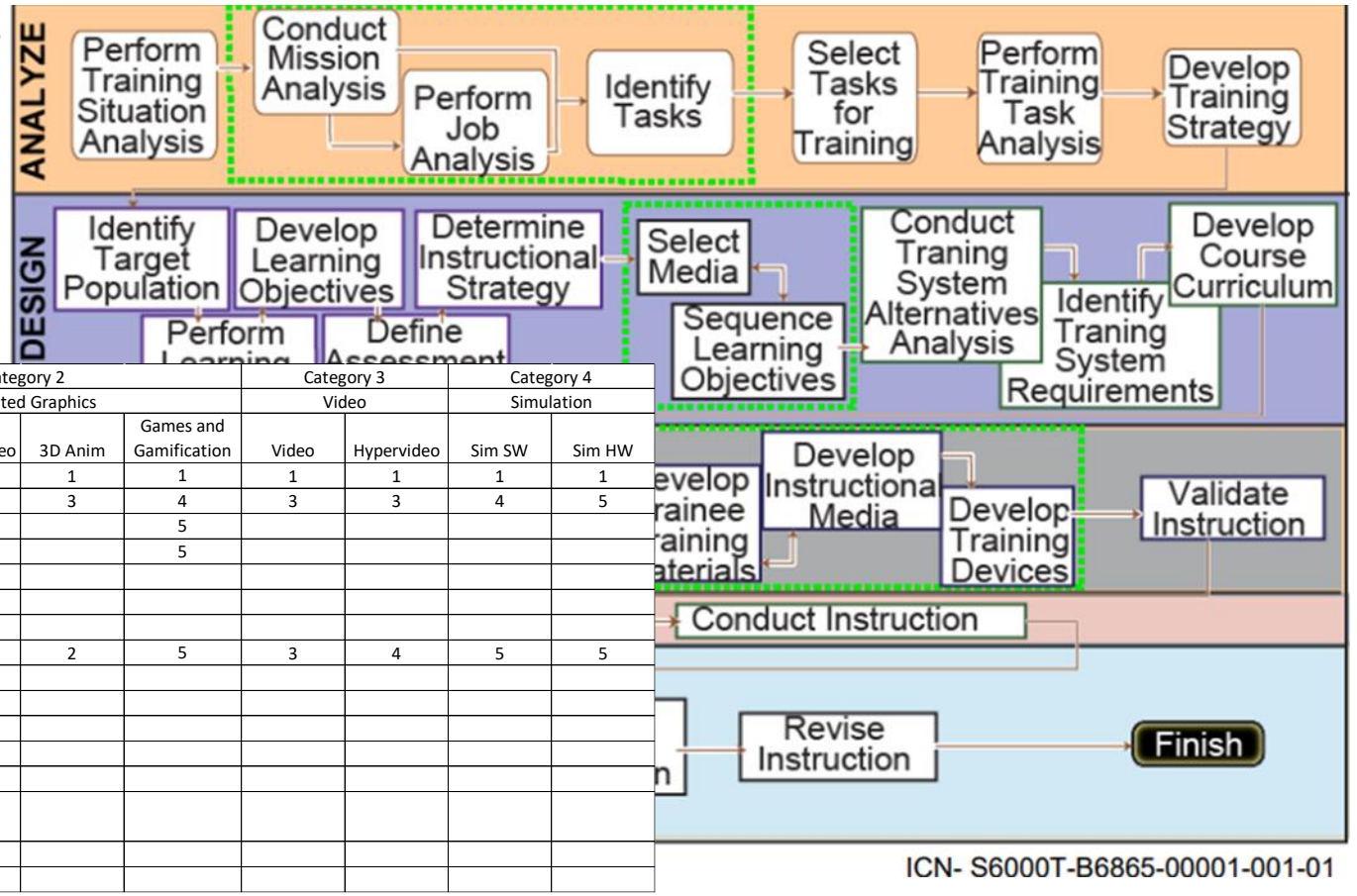


Source: Thales

DESIGN

DESIGN is the activity to create the necessary activities out of the analysis needs.

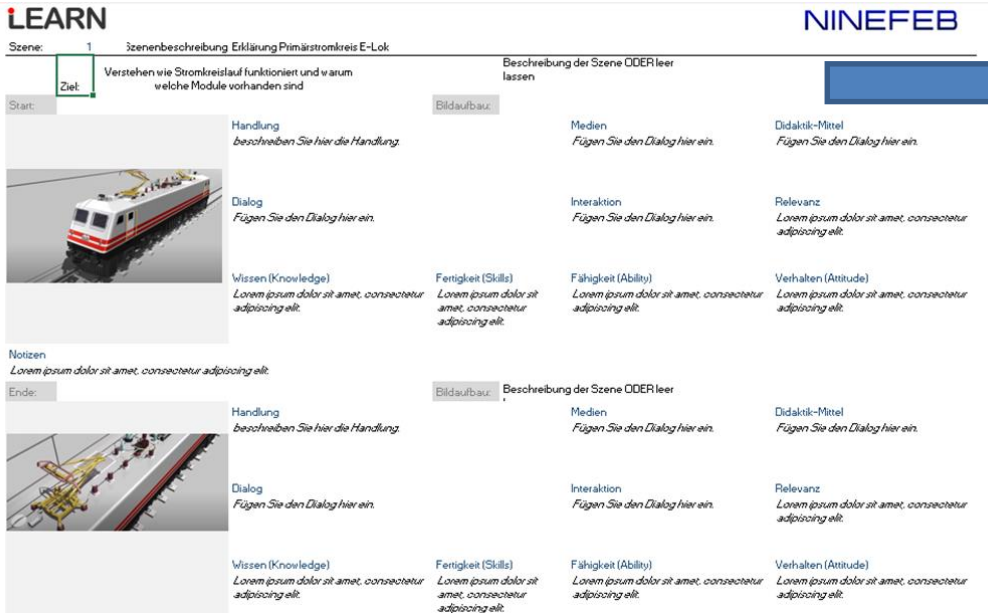
The Training strategy is defined, tasks are selected, tasks are analysed, where training is necessary, and what shall be gained, knowledge or skills or Attitude…

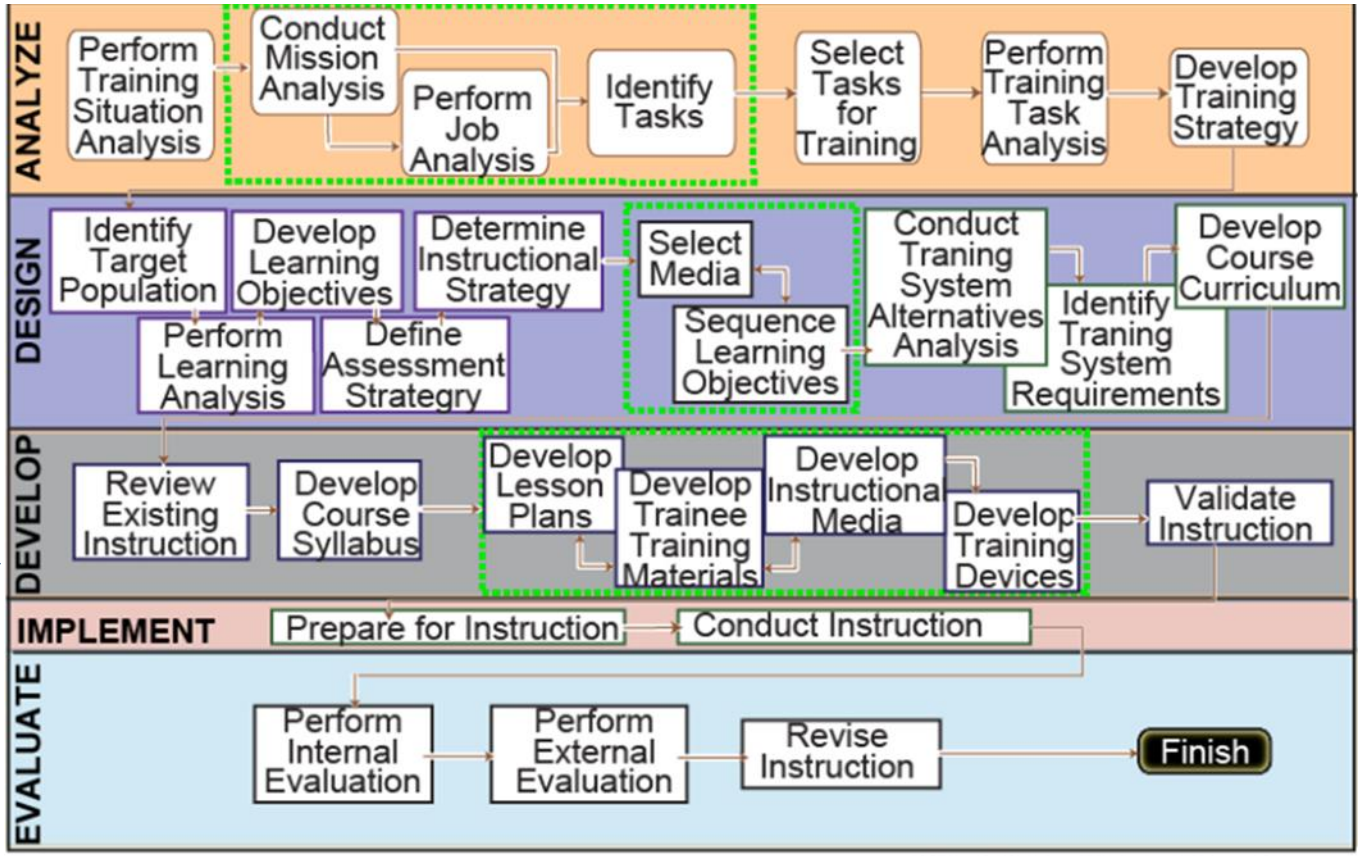


	Importance	Category 0 Documentation		Category 1 Presentation			Category 2 Animated Graphics				Category 3 Video		Category 4 Simulation	
				PPT	Green Room	eLearn	2D Anim	Comics, explain Video	3D Anim	Games and Gamification	Video	Hypervideo	Sim SW	Sim HW
Urgency		5		4	1	2	2	1	1	1	1	1	1	1
Importance									3	4	3	3	4	5
Task Complexity										5				
Mandatory										5				
Knowledge Assurance														
Explanatory Capability														
Self Study possibility														
Engagement		1		1	2	3	2	3	2	5	3	4	5	5
Interactivity														
Check possibility														
Modularity / Scalability														
Hours														
Lead Time for Preparation														
Change Management (Maintenance of Line Costs)														
Infrastructure Costs														
Cost Savings														

DEVELOP

The Training strategy is defined, tasks are selected,
tasks are analysed, where training is necessary,
and what shall be gained, knowledge or skills
or
Attitude…





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Parts of SCORM

SCORM consists of the following parts:

- **The Admin parts:**

  XML Manifest Files:

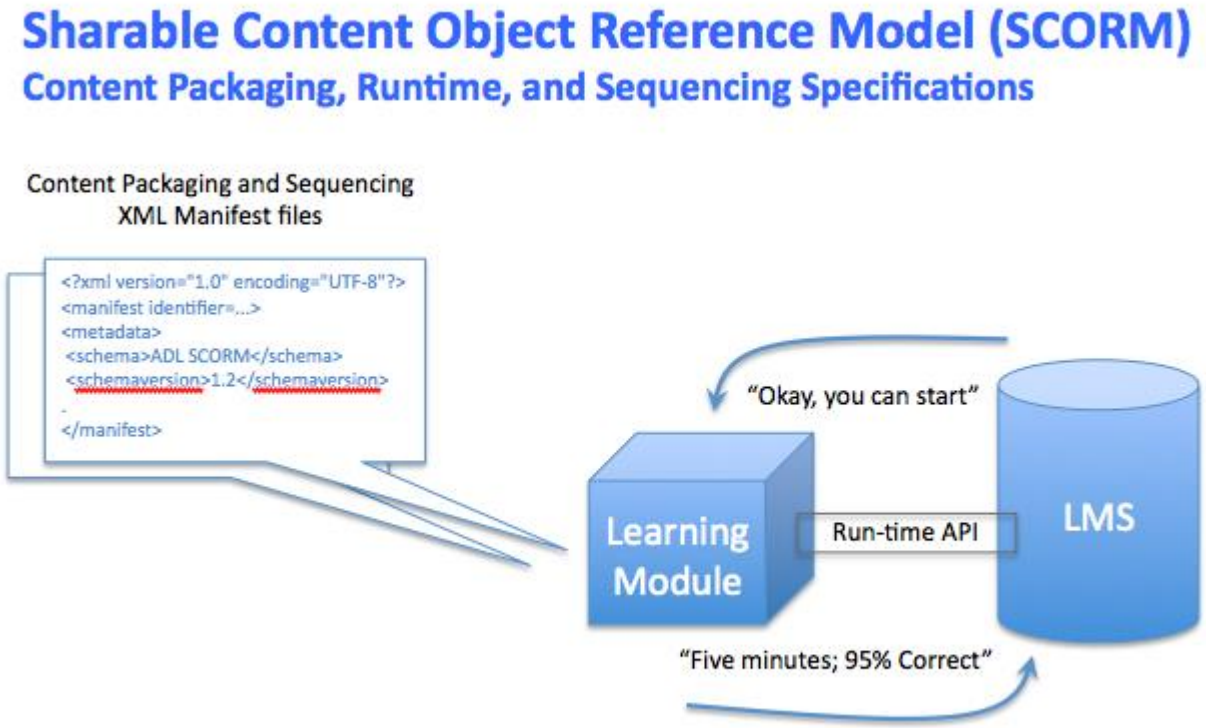
  – **Metadata**

  – **Sequencing**

- **The Content Container (Learning Modules)**

- **The Run-Time API**

Using and reusing content, checking who completed what,

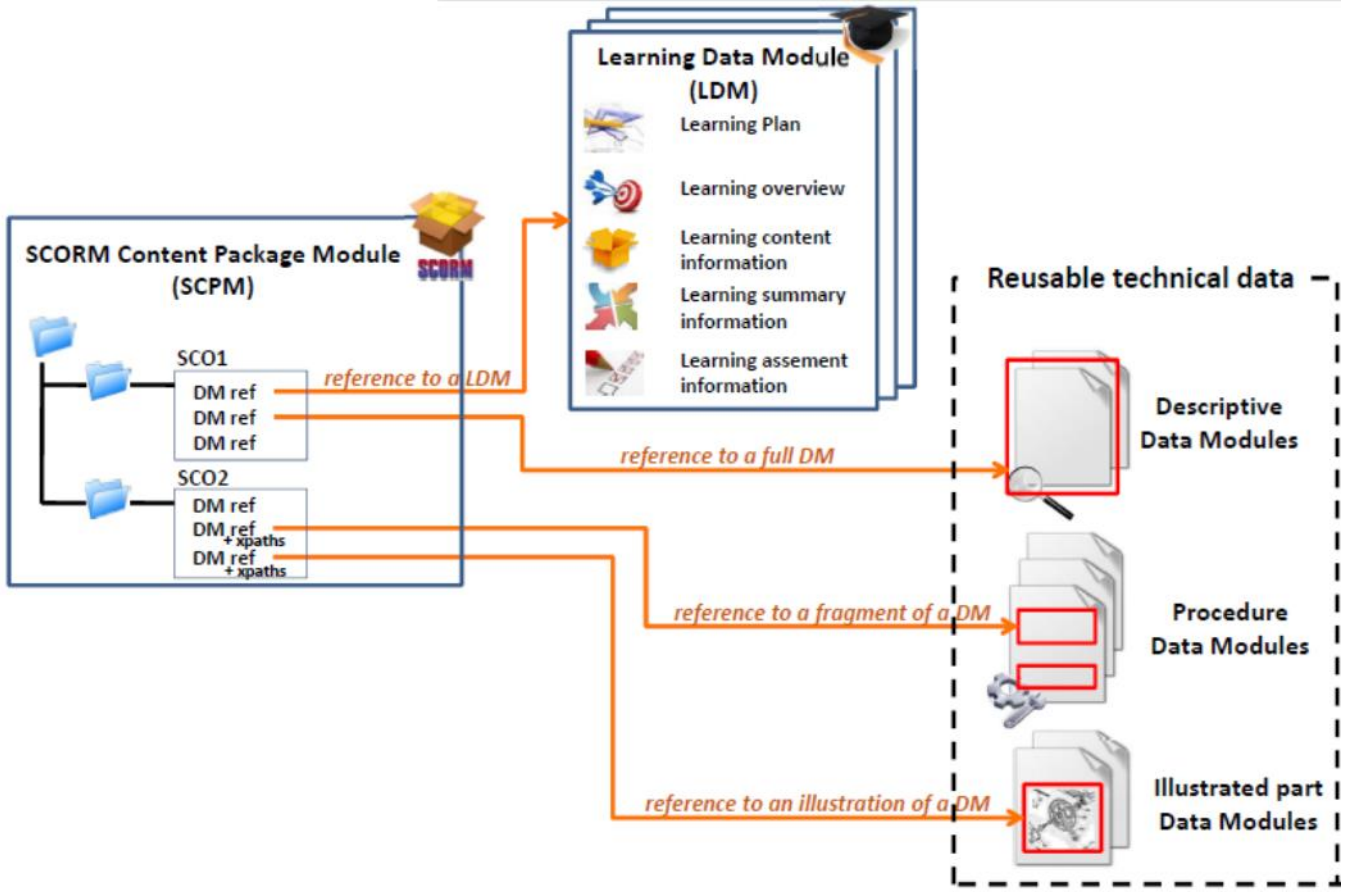


Source: envision group

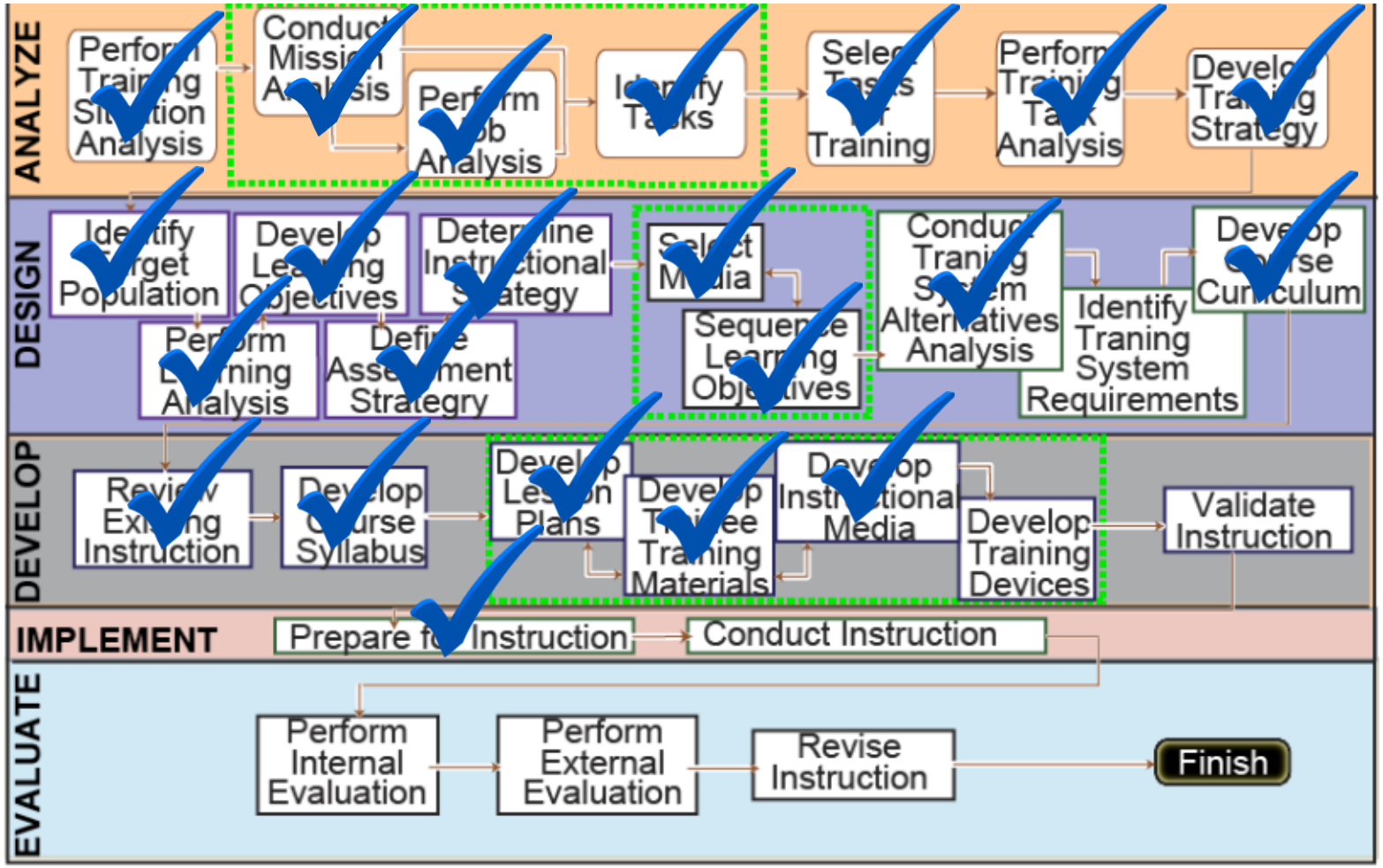
A typical SCORM package

Name	Typ	Komprimierte Größe	Kennwortg...	Größe	Verhältnis	Änderungsdatum
html5	Dateiordner					23.10.2018 14:49
lms	Dateiordner					23.10.2018 14:50
mobile	Dateiordner					23.10.2018 14:50
story_content	Dateiordner					23.10.2018 14:50
adlcp_rootv1p2.xsd	XSD-Datei	1 KB	Nein	5 KB	83%	16.11.2017 16:48
ims_xml.xsd	XSD-Datei	1 KB	Nein	2 KB	60%	16.11.2017 16:48
imscp_rootv1p1p2.xsd	XSD-Datei	3 KB	Nein	15 KB	84%	16.11.2017 16:48
imsmanifest	XML-Dokument	6 KB	Nein	24 KB	76%	23.10.2018 14:50
imsmd_rootv1p2p1.xsd	XSD-Datei	3 KB	Nein	22 KB	89%	16.11.2017 16:48
index_lms	Microsoft Edge HTML Do...	3 KB	Nein	7 KB	71%	23.10.2018 14:50
index_lms_html5	Microsoft Edge HTML Do...	7 KB	Nein	19 KB	68%	23.10.2018 14:50
launcher	Microsoft Edge HTML Do...	2 KB	Nein	3 KB	59%	23.10.2018 14:50
meta	XML-Dokument	1 KB	Nein	1 KB	41%	23.10.2018 14:49
story	Microsoft Edge HTML Do...	3 KB	Nein	12 KB	74%	23.10.2018 14:50
story_html5	Microsoft Edge HTML Do...	6 KB	Nein	19 KB	67%	23.10.2018 14:50

SCORM – LDM - DM


Learning Data Module
(LDM)
Learning Plan
Learning overview
Learning content information
Learning summary information
Learning assement information
SCORM Content Package Module
(SCPM)
SCORM
SCO1
DM ref
DM ref
DM ref
SCO2
DM ref
DM ref
+ xpaths
DM ref
+ xpaths
reference to a LDM
reference to a full DM
reference to a fragment of a DM
reference to an illustration of a DM
Reusable technical data
Descriptive Data Modules
Procedure Data Modules
Illustrated part Data Modules

S6000T Coverage through HiCO iLEARN



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Thank You

for your attention!

Questions?

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