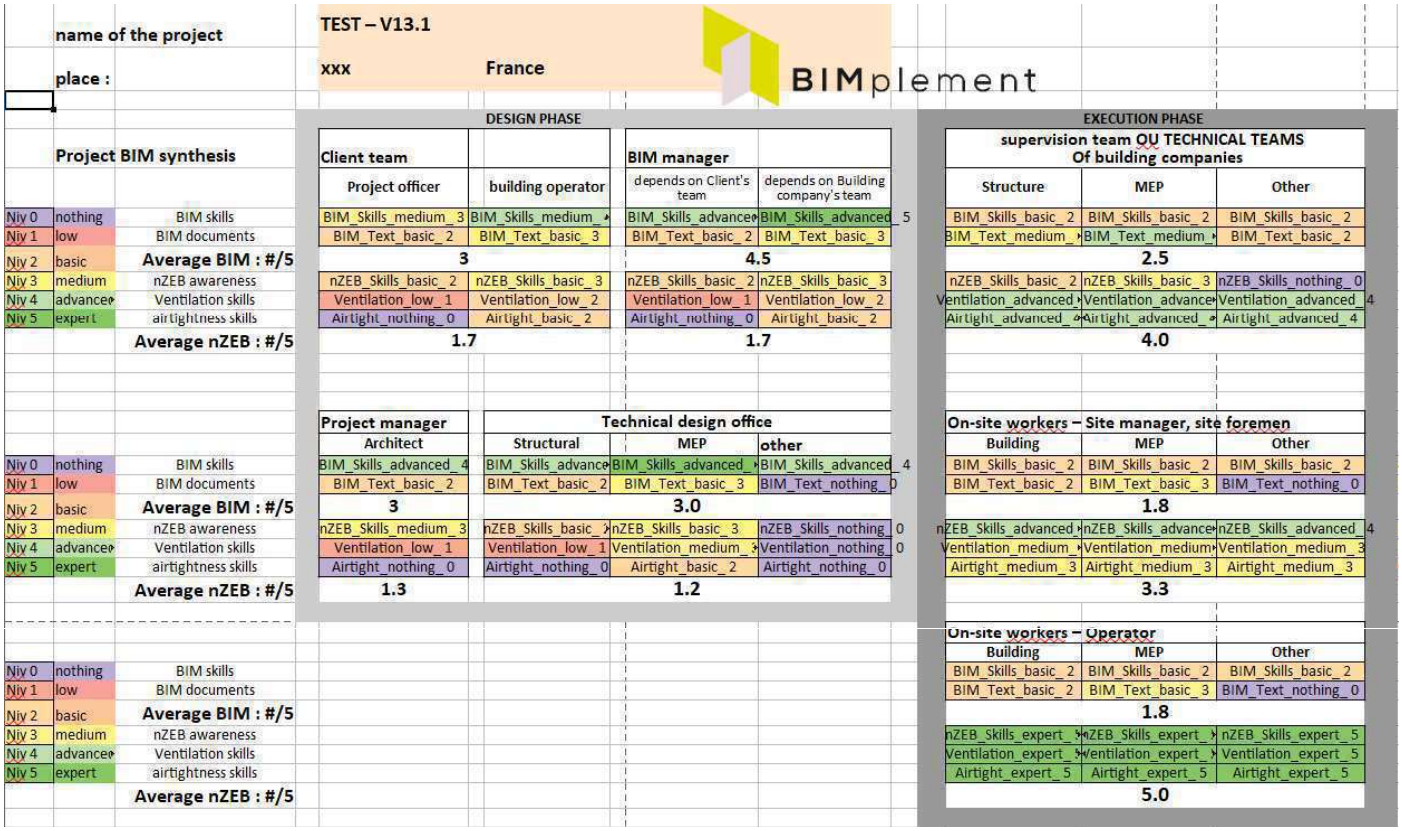
14. Annex 3 : Table for the BIMplement project classifications “maturity scan”

This table is composed of 6 sheets to be filled up by the BIMplement Master trainer.
One is related to the project context and available BIM documents and specifications, the other ones present how to identify the BIM and nZEB stakeholders skills.

Illustration 65: the different sheets of the “project identification and skills table”

The first sheet is a “synthesis” (here below) of all of these sheets. It give a general view of the project. A template of this “maturity scan table” is available on the www.BIMplement-project.eu site, on the PROF/TRAC site, and in D5.5.



	name of the project		TEST – V13.1									
	place :		xxx	France								
			DESIGN PHASE							EXECUTION PHASE		
	Project BIM synthesis		Client team			BIM manager				supervision team QU TECHNICAL TEAMS Of building companies		
			Project officer	building operator		depends on Client's team	depends on Building company's team			Structure	MEP	Other
Niv 0	nothing	BIM skills	BIM_Skills_medium_ 3	BIM_Skills_medium_		BIM_Skills_advance	BIM_Skills_advanced_	5		BIM_Skills_basic_ 2	BIM_Skills_basic_ 2	BIM_Skills_basic_ 2
Niv 1	low	BIM documents	BIM_Text_basic_ 2	BIM_Text_basic_ 3		BIM_Text_basic_ 2	BIM_Text_basic_ 3			BIM_Text_medium_	BIM_Text_medium_	BIM_Text_basic_ 2
Niv 2	basic	Average BIM : #/5	3			4.5				2.5		
Niv 3	medium	nZEB awareness	nZEB_Skills_basic_ 2	nZEB_Skills_basic_ 3		nZEB_Skills_basic_ 2	nZEB_Skills_basic_ 3			nZEB_Skills_basic_ 2	nZEB_Skills_basic_ 3	nZEB_Skills_nothing_ 0
Niv 4	advance	Ventilation skills	Ventilation_low_ 1	Ventilation_low_ 2		Ventilation_low_ 1	Ventilation_low_ 2			Ventilation_advanced_	Ventilation_advance	Ventilation_advanced_ 4
Niv 5	expert	airtightness skills	Airtight_nothing_ 0	Airtight_basic_ 2		Airtight_nothing_ 0	Airtight_basic_ 2			Airtight_advanced_ 4	Airtight_advanced_	Airtight_advanced_ 4
		Average nZEB : #/5	1.7			1.7				4.0		
			Project manager	Technical design office						On-site workers – Site manager, site foremen		
			Architect	Structural	MEP	other				Building	MEP	Other
Niv 0	nothing	BIM skills	BIM_Skills_advanced_ 4	BIM_Skills_advance	BIM_Skills_advanced_	BIM_Skills_advanced_	4			BIM_Skills_basic_ 2	BIM_Skills_basic_ 2	BIM_Skills_basic_ 2
Niv 1	low	BIM documents	BIM_Text_basic_ 2	BIM_Text_basic_ 2	BIM_Text_basic_ 3	BIM_Text_nothing_	0			BIM_Text_basic_ 2	BIM_Text_basic_ 3	BIM_Text_nothing_ 0
Niv 2	basic	Average BIM : #/5	3	3.0						1.8		
Niv 3	medium	nZEB awareness	nZEB_Skills_medium_ 3	nZEB_Skills_basic_	nZEB_Skills_basic_ 3	nZEB_Skills_nothing_	0			nZEB_Skills_advanced	nZEB_Skills_advance	nZEB_Skills_advanced_ 4
Niv 4	advance	Ventilation skills	Ventilation_low_ 1	Ventilation_low_ 1	Ventilation_medium_	Ventilation_nothing_	0			Ventilation_medium_	Ventilation_medium	Ventilation_medium_ 3
Niv 5	expert	airtightness skills	Airtight_nothing_ 0	Airtight_nothing_ 0	Airtight_basic_ 2	Airtight_nothing_ 0				Airtight_medium_ 3	Airtight_medium_ 3	Airtight_medium_ 3
		Average nZEB : #/5	1.3	1.2						3.3		
										On-site workers – Operator		
										Building	MEP	Other
Niv 0	nothing	BIM skills								BIM_Skills_basic_ 2	BIM_Skills_basic_ 2	BIM_Skills_basic_ 2
Niv 1	low	BIM documents								BIM_Text_basic_ 2	BIM_Text_basic_ 3	BIM_Text_nothing_ 0
Niv 2	basic	Average BIM : #/5								1.8		
Niv 3	medium	nZEB awareness								nZEB_Skills_expert_	nZEB_Skills_expert_	nZEB_Skills_expert_ 5
Niv 4	advance	Ventilation skills								Ventilation_expert_	Ventilation_expert_	Ventilation_expert_ 5
Niv 5	expert	airtightness skills								Airtight_expert_ 5	Airtight_expert_ 5	Airtight_expert_ 5
		Average nZEB : #/5								5.0		

Illustration 66: synthesys of project information

Each sheets is a question table that can be filled in easily by the trainers, whose answers are automatically transferred in the above synthesis table.
The original and innovative point in this table is a detailed and precise explanation of what are the skills required by each of the project stakeholders, and what should be the content of BIM specifications and BEP to implement a coherent level of BIM use by all stakeholders, in particular building companies and on-sire workers.

The following illustrations shows the sheet “BIM skills”

Illustration 67: sheet “BIM skills” for all stakeholders

Illustration 68: sheet “BIM documents” for all project phases

What is the real SKILL level of the stakeholders ?

name of project	**ENTER NAME of Project**
place :	**xxx**

enter country

cells to be filled up

	BIM skills	
BIM_Skills_nothing_ 0	you don't have a clear understanding of the concept of "BIM process".	
BIM_Skills_low_ 1	You have been made aware of BIM (knowledge of future issues and uses). You are considering the possibility of implementing BIM in an experimental project.	**Client team**
BIM_Skills_basic_ 2	in your specifications, you ask for a 3D or BIM model to be able to follow the evolution of the project from sketch to call for bid, but do not impose BIM data.	Project officer (service technique) / Building operator (chargé d'opération)
BIM_Skills_medium_ 3	You understand the importance of BIM data related to the objects in the models. You have started to think about the choice of properties for the main objects, with the writing of simple BIM specification.	BIM_Skills_advanced_ 4 / BIM_Skills_expert_ 5
BIM_Skills_advanced_ 4	You have created your table of objects for the different phases (from sketch to as-built phase) that will be the complement to the BIM specification. You have asked for the integration of the companies in the BIM process, execution phase.	
BIM_Skills_expert_ 5	You are using an asset management software and request that the as-built BIM model be integrated into it.	

BIM_Skills_nothing_ 0	This project is your very first BIM project.				
BIM_Skills_low_ 1	You have been trained in the BIM process and are competent in 3D design. You have no BIM experience in a position of responsibility	**BIM manager**	**design phase**	**execution phase**	
BIM_Skills_basic_ 2	You can draft a simple BIM BEP. You know how to check the export/import of a BIM model to collaborate with several trade models (same software family and/or IFC) and check the consistency of the model.	**dépends on :**	Client's team	Building company's team	← choose
BIM_Skills_medium_ 3	You are able to manage the interoperability between the BIM process participants. You know how to use specialized software to search for conflicts between different business models		BIM_Skills_advanced_ 4	BIM_Skills_advanced_ 5	
BIM_Skills_advanced_ 4	You know how to check the conformity of BIM models and their data with the requirements of the project owner's specifications.				
BIM_Skills_expert_ 5	You already have several experiences in BIM project management. You are able to propose the implementation of a BIM methodology adapted to the context of the project and of the actors.				

BIM_Skills_nothing_ 0	You have no understanding of BIM issues and do not work with modeling software.

Illustration 67 : BIM skills

BIM_Skills_low_ 1	You can create a 3D object model with your software.
BIM_Skills_basic_ 2	You can export/import a 3D model to collaborate with several business models (same software family and/or IFC) You create a BIM model that conforms to the data requested in the project owner's specifications. You can manage and use a collaborative platform.
BIM_Skills_medium_ 3	You can participate in the writing of a basic BEP for building companies within the framework of the call for bid, and help them collaborate in a BIM process, even if these companies do not need to design a BIM model and you will assume the execution plans of the BIM models.
BIM_Skills_advanced_ 4	You can draft a detailed BEP for buidling companies that have to design their own BIM models. You can work with the BIM manager to check/modify the different BIM models of the project during the synthesis phase.
BIM_Skills_expert_ 5	You can create complex BIM models for the execution phase, according to client's requirements. You can draft a detailed BEP, including requirements for a as-built BIM model, and verify its quality.

Project manager Ventilation_low_ 2

Architect
BIM_Skills_advanced_ 4

BIM_Skills_nothing_ 0	You only make 2D plans
BIM_Skills_low_ 1	You know how to create a 3D object model with your trade software.
BIM_Skills_basic_ 2	You know how to create a 3D object model with your trade software, using models from project manager stakeholders.
BIM_Skills_medium_ 3	You know how to design a BIM model that conforms to the data requested in the project owner's specifications. You can make changes to the BIM model execution file following companies feedback.
BIM_Skills_advanced_ 4	You know how to work with the BIM manager to check/modify the project different BIM models, during the synthesis phase.
BIM_Skills_expert_ 5	You can create complex BIM models for the execution phase, according to the client's requests. You can draft your own BEP to optimize collaboration within the project manager.

Technical design office

Structural	MEP	other
BIM_Skills_advanced_ 4	BIM_Skills_advanced_ 5	BIM_Skills_advanced_ 4

BIM_Skills_nothing_ 0	You have no knowledge about BIM. You have no software to create 3D models and design only 2D plans
BIM_Skills_low_ 1	You have a general awareness of BIM (knowledge of the stakes and future uses for building companies). You use a viewer only to get a global view of the project
BIM_Skills_basic_ 2	You know how to use viewers to analyze the project manager's BIM models. You can propose a list of documents to be added to the model (by the project manager) You are able to use a viewer and/or a collaborative platform to exchange on the project (BCF or eq. format) with the project manager.
BIM_Skills_medium_ 3	You know how to link technical documents on a BIM model for a better on site implementation.
BIM_Skills_advanced_ 4	You can design your own 3D trade model or a basic BIM model. You are able to participate in a synthesis process

supervision team OU TECHNICAL TEAMS Of building companies

Structure, exterior joinery	MEP	Other/interior work
BIM_Skills_basic_ 2	BIM_Skills_basic_ 2	BIM_Skills_basic_ 2

Illustration 67 : BIM skills

BIM_Skills_expert_ 5	You are able to design a BIM model that meets the requirements of the BEP (geometry, properties, documents), including the as-built BIM model.

BIM_Skills_nothing_ 0	You don't have any BIM practice. You only use 2D drawings
BIM_Skills_low_ 1	You are able to visualize a project with a viewer, in order to understand the whole project
BIM_Skills_basic_ 2	You have an active practice of viewers or a collaborative platform, and know how to read and use documents linked to BIM model objects.
BIM_Skills_medium_ 3	You are able to use viewers or a collaborative platform for collaboration via notes or BCF files. You are able to export BIM data for use in a spreadsheet application. You are able to use the link between models and planning (4D planning).
BIM_Skills_advanced_ 4	You are able to identify the weak points in the model and organise them to highlight them and link them to quality sheets.
BIM_Skills_expert_ 5	you are able to use all the BIM tools that can be used in a BIM process for the execution phase of the process

On-site workers – Site manager, site foremen		
Structure, exterior joinery	MEP	Other/interior work
BIM_Skills_basic_ 2	BIM_Skills_medium_ 3	BIM_Skills_basic_ 2

Illustration 67 : BIM skills

What type of BIM documents/tools will be/have been (correctly) drafted/used by the stakeholders?
(these data should be coherent with the BIM skills sheet)

name of project	**ENTER NAME of Project**
place :	**xxx**

enter country

BIMplement

cells to be filled up

	BIM documents/tools
BIM_Text_nothing_ 0	no request to use 3D models or BIM tools
BIM_Text_low_ 1	BIM specification requires a 3D model, no data specification is required
BIM_Text_basic_ 2	The BIM specification integrates the writing of a generalist BIM specification
BIM_Text_medium_ 3	The BIM specification includes an array of BIM objects
BIM_Text_advanced_ 4	The BIM specification calls for the use of professional BIM software, such as pattern checkers.
BIM_Text_expert_ 5	BIM requests are linked to the use of a property management software (CMMS - Computerized Maintenance Management System, CTM - Centralized Technical Management).

Client team	
Project officer	building operator
BIM_Text_basic_ 2	BIM_Text_low_ 1

BIM_Text_nothing_ 0	There are no BIM specifications from the client, and there is no need for a BIM manager on the project manager's side.
BIM_Text_low_ 1	There are no BIM specifications from the client, but the project manager can ask a BIM manager to manage the different trade models made by the construction companies.
BIM_Text_basic_ 2	The project owner's BIM specifications are simple and require a BIM manager to set up a basic collaboration between all stakeholders and check the models in the viewers.
BIM_Text_medium_ 3	The client's BIM specification requires a BIM manager to implement a basic BIM process and collaboration between all stakeholders, especially for batches that are required to produce a BIM model and to check the models in the viewers to ensure compliance with the client's specification.
BIM_Text_advanced_ 4	The project owner's BIM specifications require a BIM manager - to ensure the implementation of a BIM process - to use BIM software to check the geometric consistency between the different models (check for geometric conflicts) - to check the data quality of the BIM objects, as requested by the project owner's object table
BIM_Text_expert_ 5	the project owner's BIM specifications require a BIM manager - to check the as-built model, - to check that the properties of the BIM object meet the project owner's specifications

BIM manager	**design phase**	**execution phase**	
dépends on :	Client's team	Building company's team	← choose
	BIM_Text_medium_ 3	BIM_Text_basic_ 2	

BIM_Text_nothing_ 0	the client's specifications only require the design of 2D plans

Illustration 68 : BIM documents & tools

BIM_Text_low_ 1	the client's BIM specifications only require the design of a 3D architectural model; But some building companies can propose a 3D-trade or BIM model	**Project manager Ventilation_low_ 2**			
BIM_Text_basic_ 2	the client's BIM specifications - request to export 3D model(s) in ifc format for collaboration, and export of 2D plan - require the filling of properties with a table of basic BIM objects	Architect			
BIM_Text_medium_ 3	the project owner's BIM specification - requests the export of 3D models in the ifc format, used for exporting 2D drawings, or for BIM-trade models - requires the filling of properties according to a basic table of BIM objects the project manager implements a BIM process described in a basic BIM BEP	BIM_Text_basic_ 2			
BIM_Text_advanced_ 4	Owner's BIM specification - specifies the batches that must have a BIM model - requests export of 3D models in ifc format used for exporting 2D drawings or for commercial BIM models - requires filling in properties with a basic BIM object table The project manager - implements a BIM process described in a specific BIM BEP, including a specific BIM object table - works closely with a BIM manager to check for conflicts				
BIM_Text_expert_ 5	The client's BIM specifications contain specific requirements - for the construction phase (BIM object data, BIM processes, collaboration, quality control, commissioning, etc.). - and for the digital as-built model: BIM object tables, attached documents, ...)				
BIM_Text_nothing_ 0	The BIM specification only requires the design of 2D drawings.				
BIM_Text_low_ 1	The BIM specification only requires the design of a 3D architectural model, but some building companies may offer a trade 3D or BIM model.	**Technical design office**			
BIM_Text_basic_ 2	the customer's BIM specification - request to export 3D model(s) in ifc format for collaboration, and export 2D plan - requires the filling of properties with a table of basic BIM objects	Structural	MEP	other	
BIM_Text_medium_ 3	the customer's BIM specification - requires the export of 3D models in the ifc format used for exporting 2D drawings, or for the creation of business BIM models - imposes the filling of properties with a basic table of BIM objects The project manager implements a BIM process described in a basic BEP	BIM_Text_basic_ 2	BIM_Text_basic_ 3	BIM_Text_nothing_ 0	
BIM_Text_advanced_ 4	the customer's BIM specification - specifies the batches that must have a BIM model - requests the export of 3D models in the ifc format used for exporting 2D drawings, or for commercial BIM models - requires the filling of properties with a basic BIM object table the project manager - implements a BIM process described in a specific convention, including a specific BIM object table - works closely with a BIM manager to check conflicts				

Illustration 68 : BIM documents & tools

BIM_Text_expert_ 5	client's BIM specification contains precise requests both - for the construction phase (BIM object data, BIM process, collaboration, quality control , commissioning …) - and for the as-built model : BIM object tables, attached documents, …)

BIM_Text_nothing_ 0	Contract ask for 2D plans & drawings only			
BIM_Text_low_ 1	BIM BEP ask for architecture 3D model design, No requests for involvement from the building companies, but - the project manager is requested to show his 3D model - some companies can produce a 3D/BIM model for their proper use .	**supervision team OU TECHNICAL TEAMS Of building companies**		
BIM_Text_basic_ 2	BEP ask building companies , including for on-site workers -to visualize the project manager ifc model viewer with a freeware viewer -and to read attached documents (instruction guides, technical details, - possibly, they can propose additional documents to be attached to the model	Structure, exterior joinery	MEP	Other/interior work
BIM_Text_medium_ 3	Building companies collaborate with the project manager and BIM manager - to check compatibility with other BIM models - to train his own blue collar workers on BIM use on site - to add all necessary technical documents to the model for better on-site implementation	BIM_Text_medium_	BIM_Text_medium_ 4	BIM_Text_basic_ 2
BIM_Text_advanced_ 4	BEP ask the specified companies to create their own trade 3D or basic BIM model, and to include in it all required basic BIM object data, as required in the BEP All companies have - to participate in the collaboration (cross level, cross trade) BIM and synthesis process - to transfer to the project manager any updated BIM object data that has been changed during implementation			
BIM_Text_expert_ 5	BEP ask the specified companies - to create their on trade BIM model, - to include in it all required BIM object data, as required in the BEP - to create a as-built model, similar to execution, along with the BEP specifications All companies have - to participate in the collaboration (cross level, cross trade) synthesis process - to transfer to the project manager any updated any BIM object data that has been changed during implementation, for the as built model design			

BIM_Text_nothing_ 0	The contract requires only 2D plans and drawings.			
BIM_Text_low_ 1	The workers of the building site will be able to get acquainted with the project through a digital model: - that of the project manager - or the one created by a company for the manufacturing	**On-site workers – Site manager, site foremen**		
BIM_Text_basic_ 2	The main workers of the construction site must have the means - to visualize all the models of the operation - and to read the attached documents (installation guides, technical details, ...).	Structure, exterior joinery	MEP	Other/interior work

Illustration 68 : BIM documents & tools

BIM_Text_medium_ 3	The site managers of each company must have the means - to visualize all the models of the operation and in particular, to check the compatibility with other BIM models, - to read the attached documents (installation guides, technical details, - and to be able to propose additional documents to be attached to the model, - to train all the workers to use BIM on the site, - thanks to the training feedback, understand what must be added to the models to optimize the implementation on the site	BIM_Text_basic_ 2	BIM_Text_basic_ 3	BIM_Text_nothing_ 0	
BIM_Text_advanced_ 4	The BIM protocol requires companies identified in the BIM protocol to create their own 3D business model or simple BIM. Each company's site managers are actively involved - in drafting the necessary list of data per BIM objects, as required by the BIM BEP - in the BIM collaboration process (inter- and intra-company) and in the synthesis - communicate directly with their design office to modify or add information to the models via a collaborative platform All of the site actors must have access, via digital tools, to the project models and must be able to communicate via a collaborative platform.				
BIM_Text_expert_ 5	The BIM BEP requires from companies identified in the BIM BEP to create their own 3D business model or simple BIM. Each company's site managers are actively involved - in drafting the necessary list of data per BIM objects, as required by the BIM BEP - in the BIM collaboration process (inter- and intra-company) and in the synthesis All site actors must have access to the project models via digital tools and must be able to communicate via a collaborative platform - transfer to the project manager all updated data of BIM objects that have been modified during the implementation - and be a driving force to establish and improve the digital as-built model.				

Illustration 68 : BIM documents & tools

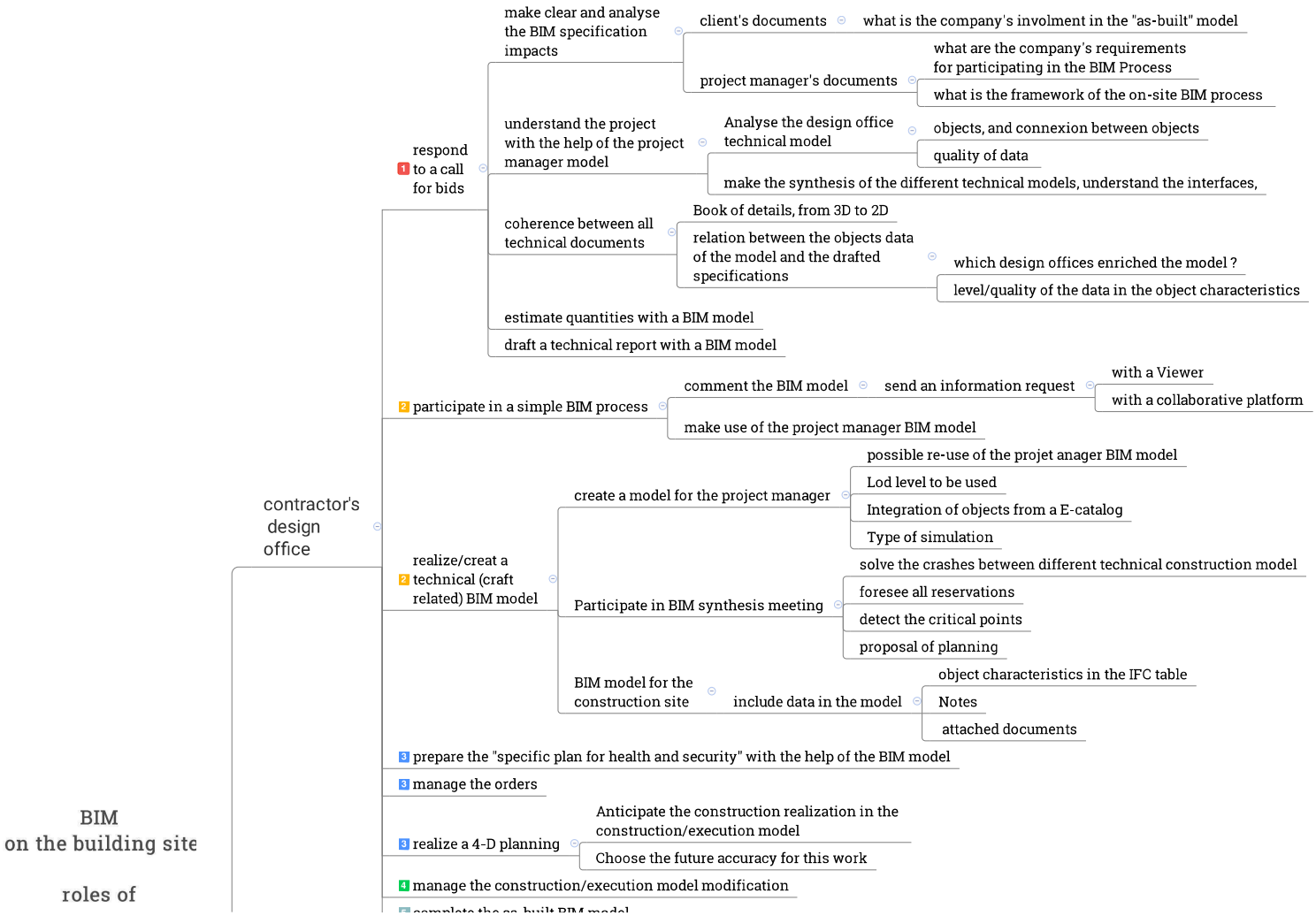
15. Annex 4 : BIM and building companies

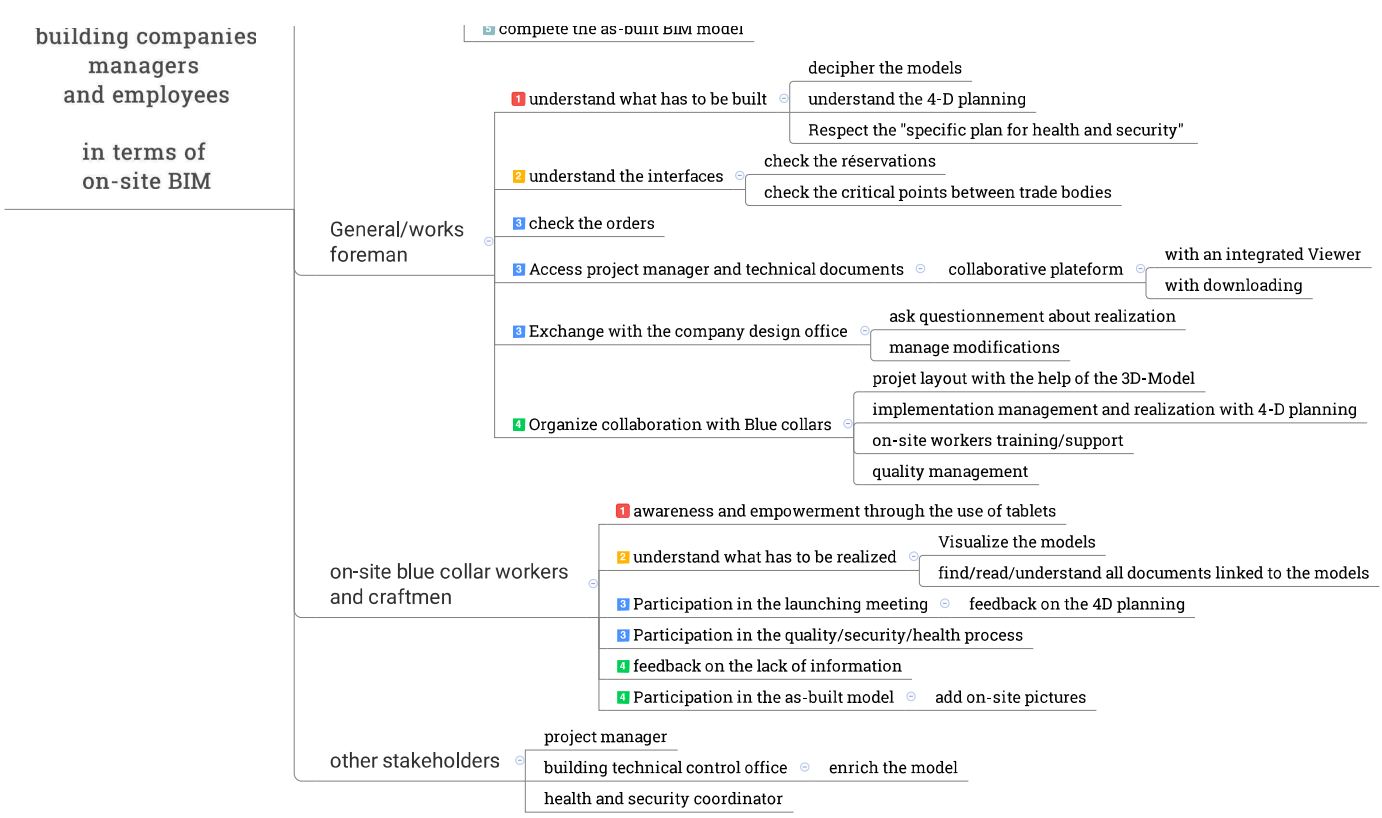
Mind Map 1 : BIM on the building site - roles of building companies managers and employees in terms of on-site BIM (2 pages)
This mind map give a detailed view of what the different building companies employees have to care about in terms of BIM for a construction project. These details are given for :

- the contractor's design office
- the General/works foreman
- the on-site blue collar workers and craftsmen
- and other stakeholders working on site

The following illustration presents priority markers, ranging from 1 to 4, which correspond to the different levels companies may reach : level 1 is the minimum first acces to BIM , and level 2 corresponds to the BIM skills level 2 of the maturity scan.
Markers 3 and 4 shows the kind of evolution building companies may have within BIM processes.

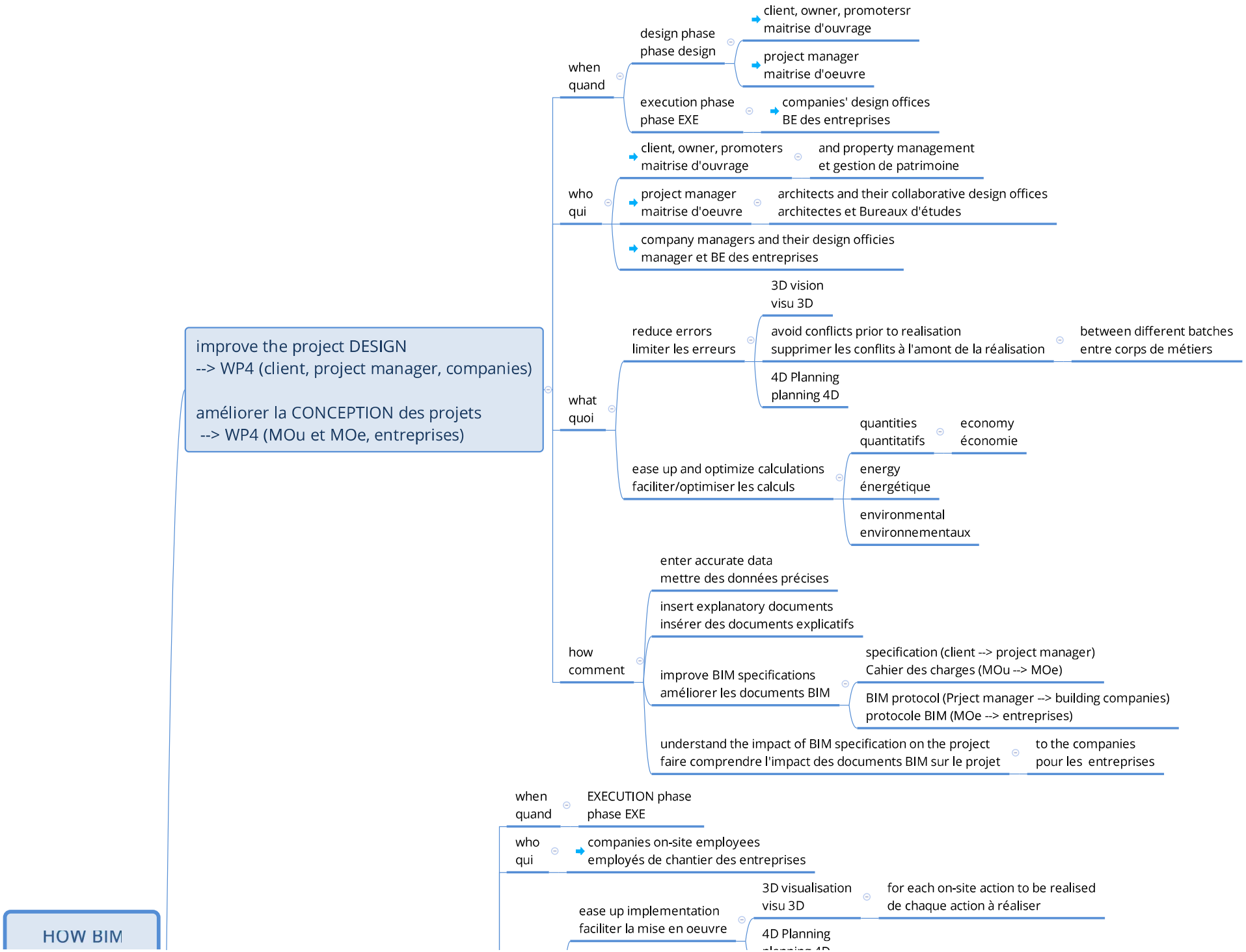
Illustration 69: BIM process ans BIM use for building companies

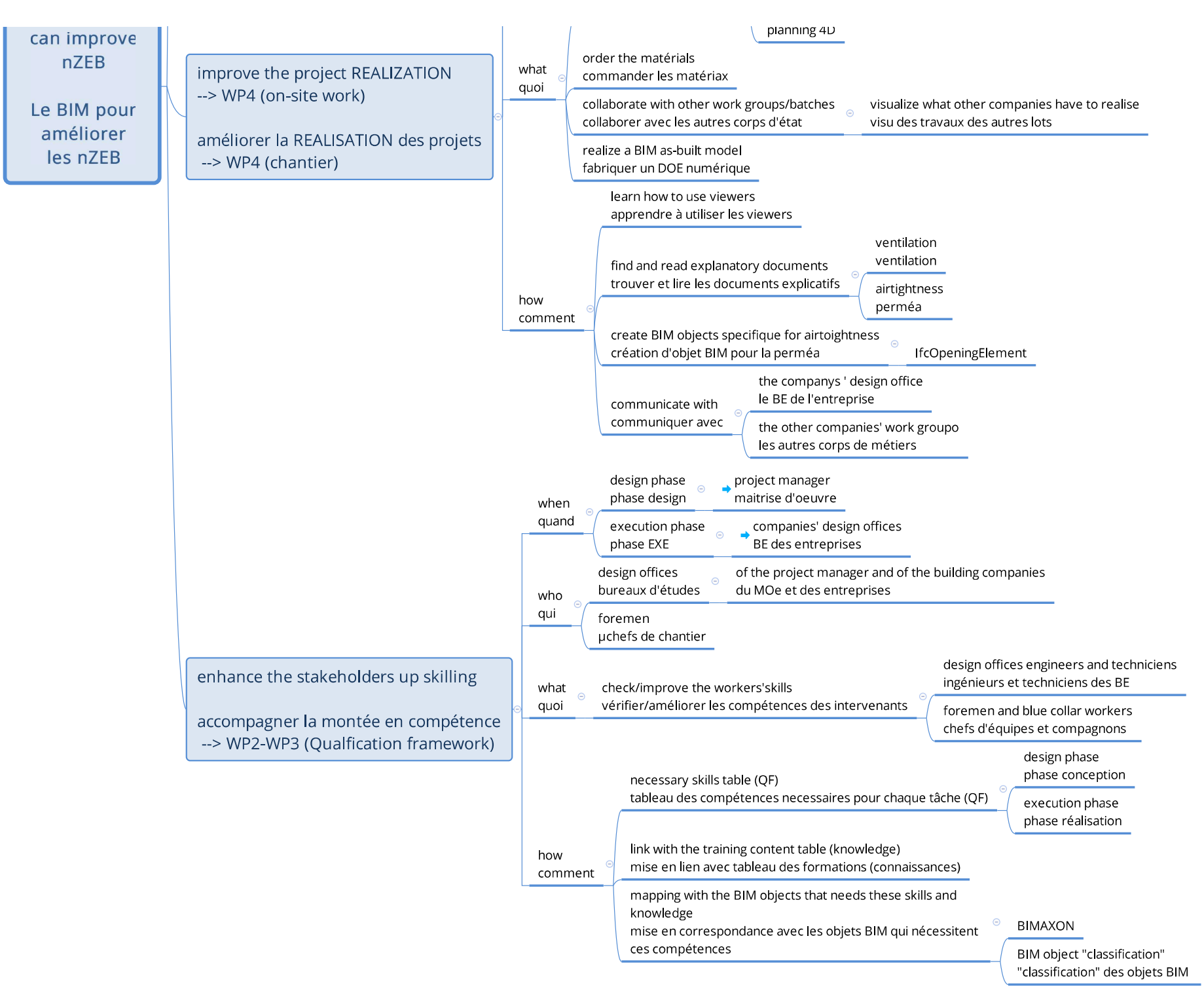

BIM
on the building site
roles of
contractor's
design
office
respond
to a call
for bids
make clear and analyse
the BIM specification
impacts
client's documents
what is the company's involment in the "as-built" model
project manager's documents
what are the company's requirements
for participating in the BIM Process
what is the framework of the on-site BIM process
understand the project
with the help of the project
manager model
Analyse the design office
technical model
objects, and connexion between objects
quality of data
make the synthesis of the different technical models, understand the interfaces,
coherence between all
technical documents
Book of details, from 3D to 2D
relation between the objects data
of the model and the drafted
specifications
which design offices enriched the model ?
level/quality of the data in the object characteristics
estimate quantities with a BIM model
draft a technical report with a BIM model
participate in a simple BIM process
comment the BIM model
send an information request
with a Viewer
with a collaborative platform
make use of the project manager BIM model
realize/creat a
technical (craft
related) BIM model
create a model for the project manager
possible re-use of the projet anager BIM model
Lod level to be used
Integration of objects from a E-catalog
Type of simulation
Participate in BIM synthesis meeting
solve the crashes between different technical construction model
foresee all reservations
detect the critical points
proposal of planning
BIM model for the
construction site
include data in the model
object characteristics in the IFC table
Notes
attached documents
prepare the "specific plan for health and security" with the help of the BIM model
manage the orders
realize a 4-D planning
Anticipate the construction realization in the
construction/execution model
Choose the future accuracy for this work
manage the construction/execution model modification


building companies managers and employees
in terms of on-site BIM
complete the as-built BIM model
General/works foreman
1 understand what has to be built
decipher the models
understand the 4-D planning
Respect the "specific plan for health and security"
2 understand the interfaces
check the réservations
check the critical points between trade bodies
3 check the orders
3 Access project manager and technical documents
collaborative plateform
with an integrated Viewer
with downloading
3 Exchange with the company design office
ask questionnement about realization
manage modifications
4 Organize collaboration with Blue collars
projet layout with the help of the 3D-Model
implementation management and realization with 4-D planning
on-site workers training/support
quality management
on-site blue collar workers and craftmen
1 awareness and empowerment through the use of tablets
2 understand what has to be realized
Visualize the models
find/read/understand all documents linked to the models
3 Participation in the launching meeting
feedback on the 4D planning
3 Participation in the quality/security/health process
4 feedback on the lack of information
4 Participation in the as-built model
add on-site pictures
other stakeholders
project manager
building technical control office
enrich the model
health and security coordinator

16. Annex 5 : how BIM can improve nZEB

Illustration 70: Project phases - where and how BIM will improve project quality


HOW BIM
improve the project DESIGN
--> WP4 (client, project manager, companies)
améliorer la CONCEPTION des projets
--> WP4 (MOu et MOe, entreprises)
when
quand
design phase
phase design
client, owner, promotersr
maitrise d'ouvrage
project manager
maitrise d'oeuvre
execution phase
phase EXE
companies' design offices
BE des entreprises
who
qui
client, owner, promoters
maitrise d'ouvrage
and property management
et gestion de patrimoine
project manager
maitrise d'oeuvre
architects and their collaborative design offices
architectes et Bureaux d'études
company managers and their design officies
manager et BE des entreprises
what
quoi
reduce errors
limiter les erreurs
3D vision
visu 3D
avoid conflicts prior to realisation
supprimer les conflits à l'amont de la réalisation
between different batches
entre corps de métiers
4D Planning
planning 4D
ease up and optimize calculations
faciliter/optimiser les calculs
quantities
quantitatifs
economy
économie
energy
énergétique
environmental
environnementaux
how
comment
enter accurate data
mettre des données précises
insert explanatory documents
insérer des documents explicatifs
improve BIM specifications
améliorer les documents BIM
specification (client --> project manager)
Cahier des charges (MOu --> MOe)
BIM protocol (Prject manager --> building companies)
protocole BIM (MOe --> entreprises)
understand the impact of BIM specification on the project
faire comprendre l'impact des documents BIM sur le projet
to the companies
pour les entreprises
when
quand
EXECUTION phase
phase EXE
who
qui
companies on-site employees
employés de chantier des entreprises
ease up implementation
faciliter la mise en oeuvre
3D visualisation
visu 3D
for each on-site action to be realised
de chaque action à réaliser
4D Planning

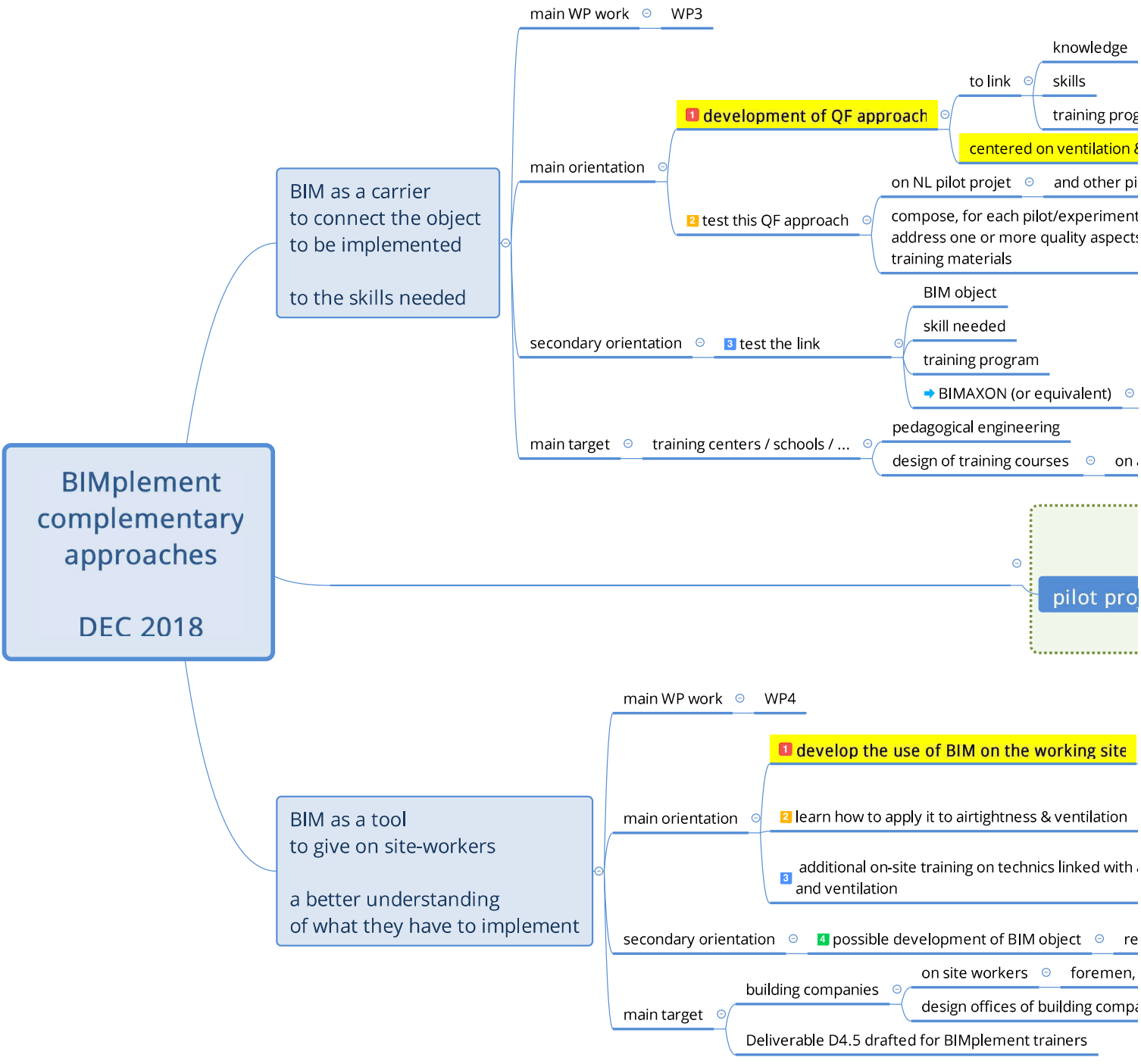

can improve nZEB
Le BIM pour améliorer les nZEB
improve the project REALIZATION
--> WP4 (on-site work)
améliorer la REALISATION des projets
--> WP4 (chantier)
what
quoi
planning 4D
order the matérials
commander les matériax
collaborate with other work groups/batches
collaborer avec les autres corps d'état
visualize what other companies have to realise
visu des travaux des autres lots
realize a BIM as-built model
fabriquer un DOE numérique
how
comment
learn how to use viewers
apprendre à utiliser les viewers
find and read explanatory documents
trouver et lire les documents explicatifs
ventilation
ventilation
airtightness
perméa
create BIM objects specifique for airtoightness
création d'objet BIM pour la perméa
IfcOpeningElement
communicate with
communiquer avec
the companys ' design office
le BE de l'entreprise
the other companies' work groupo
les autres corps de métiers
enhance the stakeholders up skilling
accompagner la montée en compétence
--> WP2-WP3 (Qualfication framework)
when
quand
design phase
phase design
project manager
maitrise d'oeuvre
execution phase
phase EXE
companies' design offices
BE des entreprises
who
qui
design offices
bureaux d'études
of the project manager and of the building companies
du MOe et des entreprises
foremen
µchefs de chantier
what
quoi
check/improve the workers'skills
vérifier/améliorer les compétences des intervenants
design offices engineers and techniciens
ingénieurs et techniciens des BE
foremen and blue collar workers
chefs d'équipes et compagnons
how
comment
necessary skills table (QF)
tableau des compétences necessaires pour chaque tâche (QF)
design phase
phase conception
execution phase
phase réalisation
link with the training content table (knowledge)
mise en lien avec tableau des formations (connaissances)
mapping with the BIM objects that needs these skills and knowledge
mise en correspondance avec les objets BIM qui nécessitent ces compétences
BIMAXON
BIM object "classification"
"classification" des objets BIM

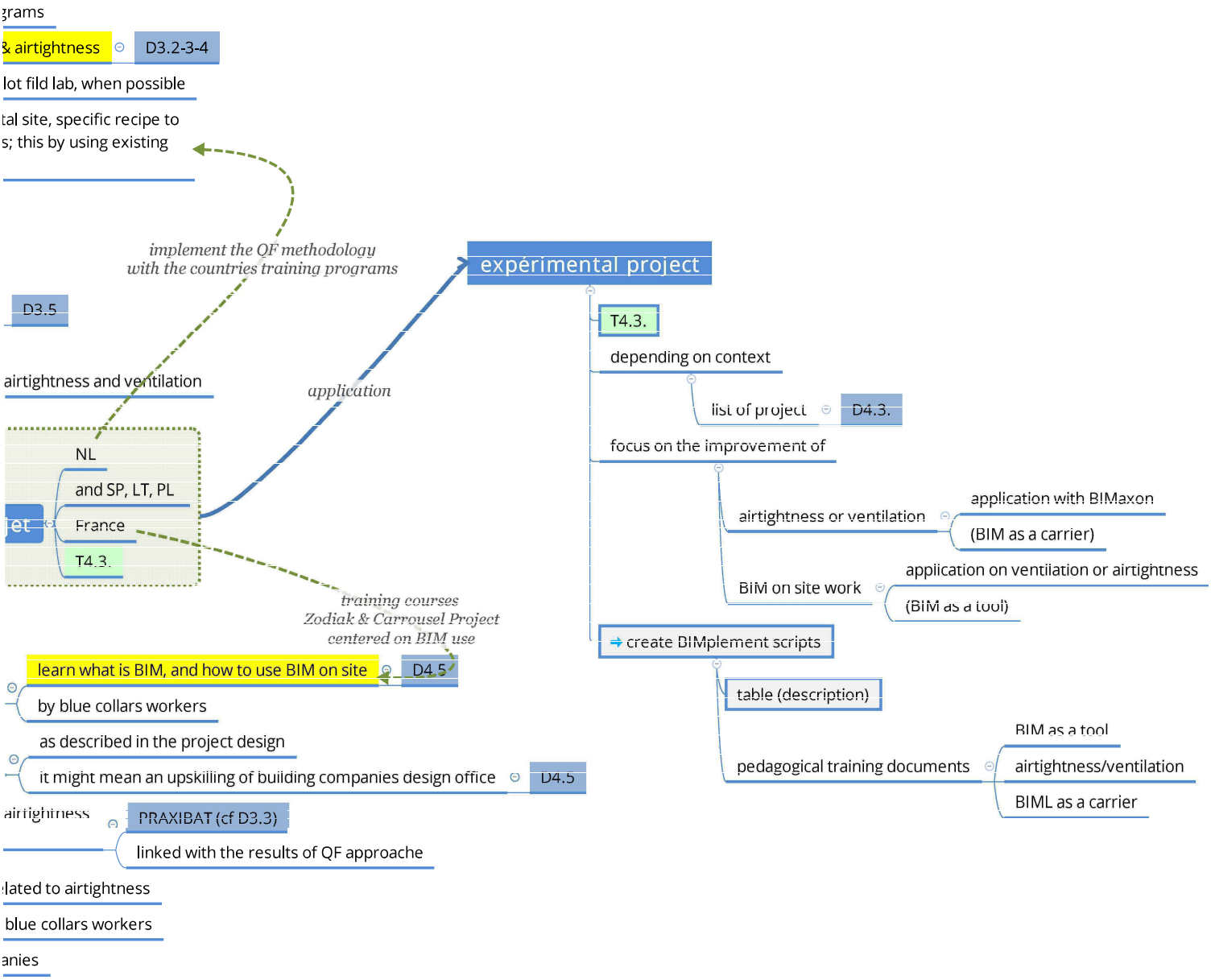
17. Annex 6 : BIMplement approaches on BIM

Presentation of the 2 complementary BIMplement approaches on BIM, as accepted and of 20018:
- BIM as a carrier
- and BIM as a tool to enhance nZEB quality

It shows also how the pilot field labs and experimental sites are related with BIM as a carrier and a tool.

Illustration 71: Presentation of the 2 complementary BIMplement approaches on BIM


BIMplement complementary approaches
DEC 2018
BIM as a carrier
to connect the object
to be implemented
to the skills needed
main WP work
WP3
main orientation
1 development of QF approach
to link
knowledge
skills
training prog
centered on ventilation &
2 test this QF approach
on NL pilot projet
and other pi
compose, for each pilot/experiment
address one or more quality aspects
training materials
secondary orientation
3 test the link
BIM object
skill needed
training program
BIMAXON (or equivalent)
main target
training centers / schools / ...
pedagogical engineering
design of training courses
on
pilot pro
BIM as a tool
to give on site-workers
a better understanding
of what they have to implement
main WP work
WP4
main orientation
1 develop the use of BIM on the working site
2 learn how to apply it to airtightness & ventilation
3 additional on-site training on technics linked with
and ventilation
secondary orientation
4 possible development of BIM object
re
main target
building companies
on site workers
foremen,
design offices of building compa
Deliverable D4.5 drafted for BIMplement trainers


grams
& airtightness
D3.2-3-4
lot fild lab, when possible
tal site, specific recipe to
s; this by using existing
implement the QF methodology
with the countries training programs
D3.5
airtightness and ventilation
application
NL
and SP, LT, PL
France
T4.3.
training courses
Zodiak & Carrousel Project
centered on BIM use
learn what is BIM, and how to use BIM on site
D4.5
by blue collars workers
as described in the project design
it might mean an upskilling of building companies design office
D4.5
airtightness
PRAXIBAT (cf D3.3)
linked with the results of QF approache
lated to airtightness
blue collars workers
anies
expérimental project
T4.3.
depending on context
list of project
D4.3.
focus on the improvement of
airtightness or ventilation
application with BIMaxon
(BIM as a carrier)
BIM on site work
application on ventilation or airtightness
(BIM as a tool)
create BIMplement scripts
table (description)
pedagogical training documents
BIM as a tool
airtightness/ventilation
BIML as a carrier

COLOFON

BIMplement

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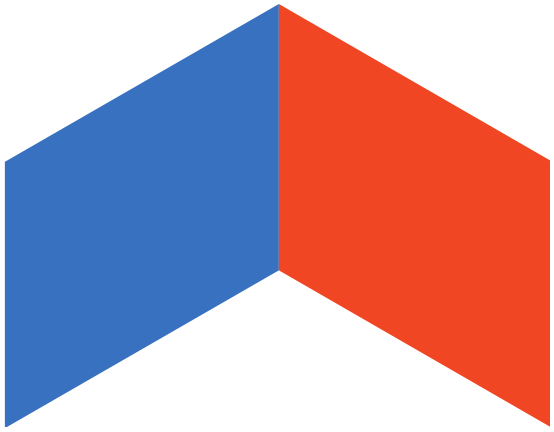
The information in this publication does not necessarily represent the view of the European Commission.

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