



PROJECT MANAGEMENT IN OPENBIM

KLO 3 | Applying scrum and kanban to an openBIM workflow using visual web-based tool

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The mentor

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buildingSMART
Chapter Member



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Key learning objectives #03

- Learn how to apply Scrum and Kanban methods in digital cloud-based boards, as Trello.
- Explore the main features of Scrum and its relation with usual BIM design workflows using Trello boards, triggers and other complementary tools.
- BIM projects use case.

Applying scrum and kanban to an openBIM workflow using visual web-based tool

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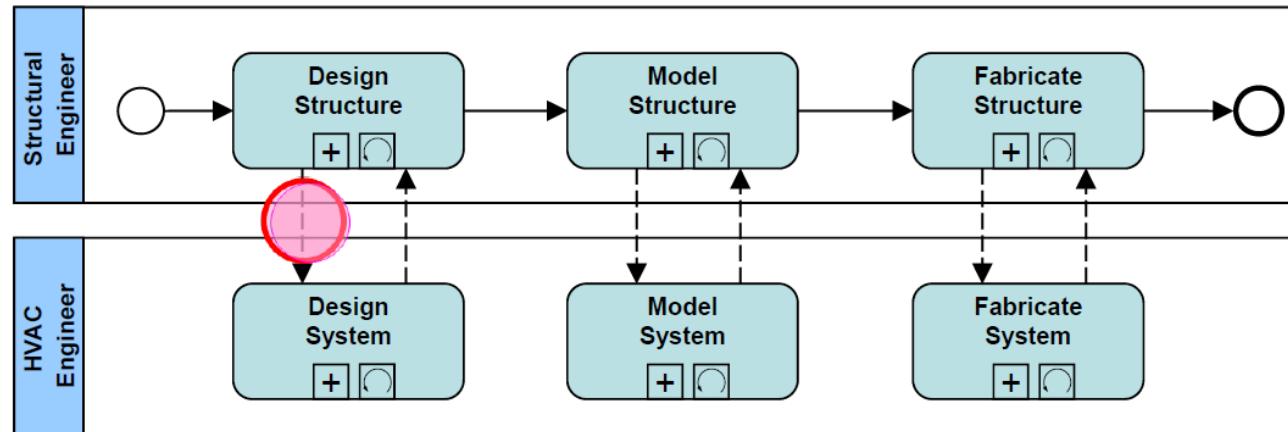
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Requirements definition

Use Case
Model

Process mapping example



Source: Jan Karlshøj, International IDM Coordinator
based on material provided by AEC3.

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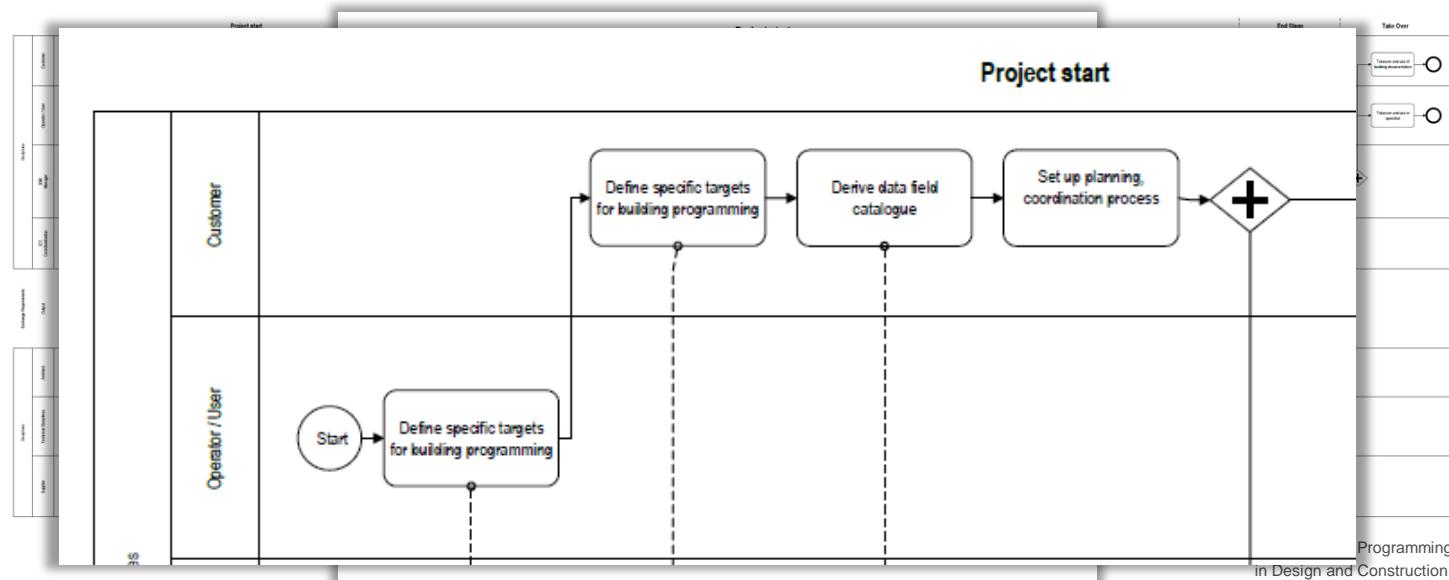
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Requirements definition

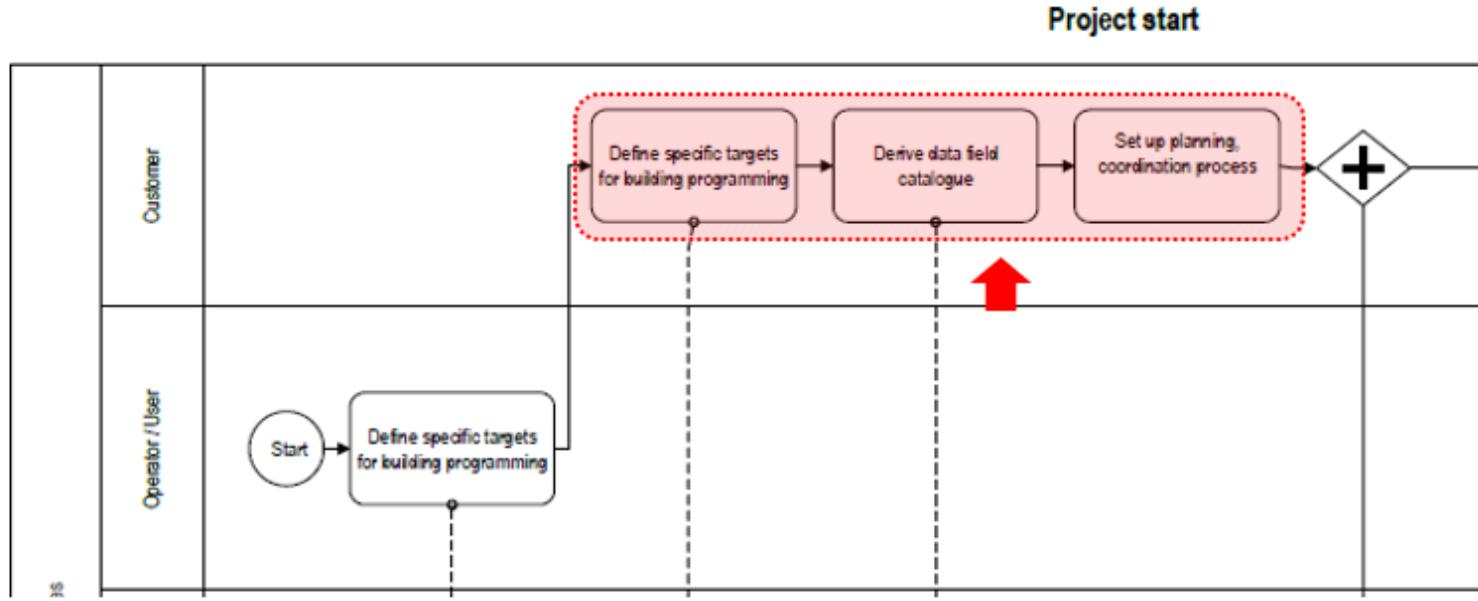
Use Case
Model

Process mapping example



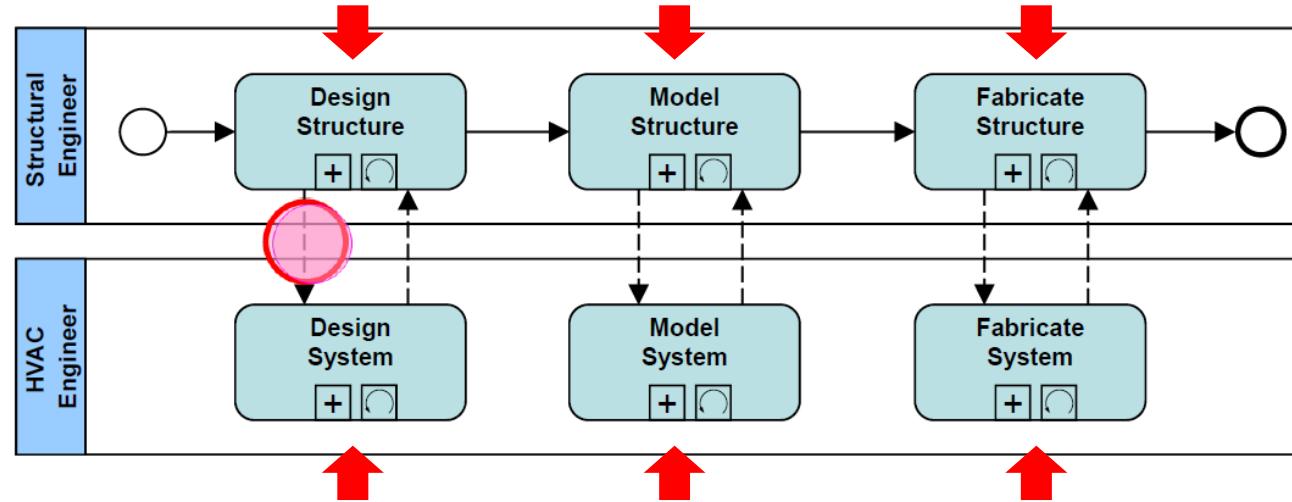
From Process map to User Stories

Use Case
Model



From Process map to User Stories

Use Case
Model



Source: Jan Karlshøj, International IDM Coordinator
based on material provided by AEC3.

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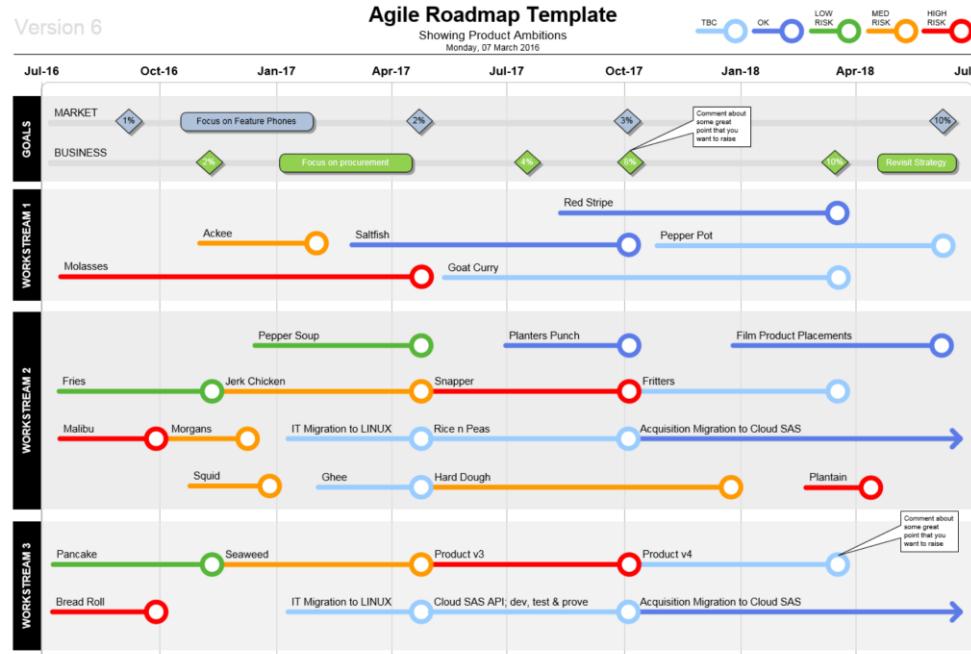
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Roadmap analysis

Roadmap definition

Product Delivery Plan



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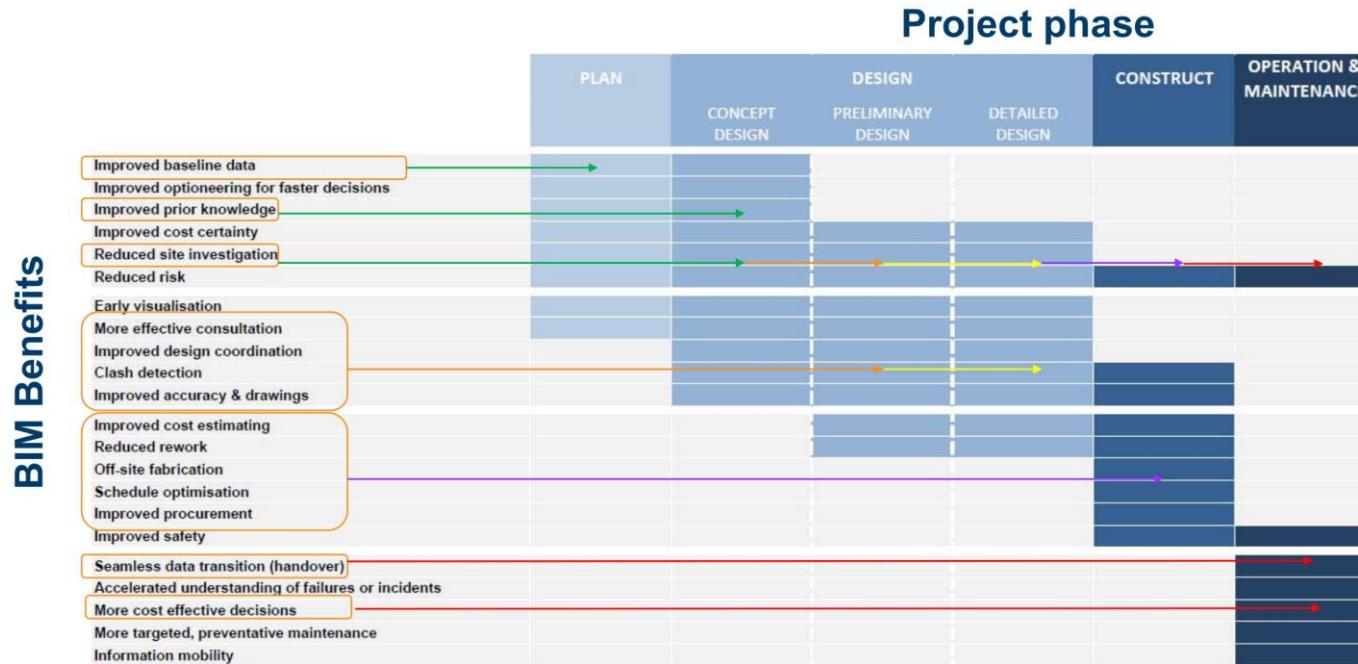
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Roadmap analysis

Roadmap definition



Let's define the **Board Strategy**

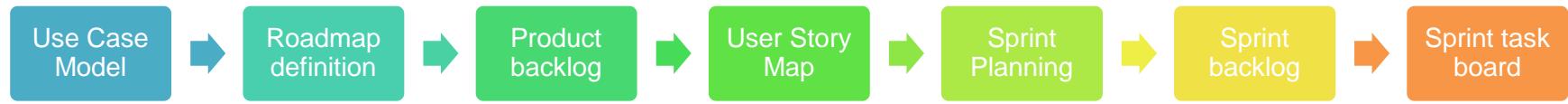
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Board strategy



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Backlogs design

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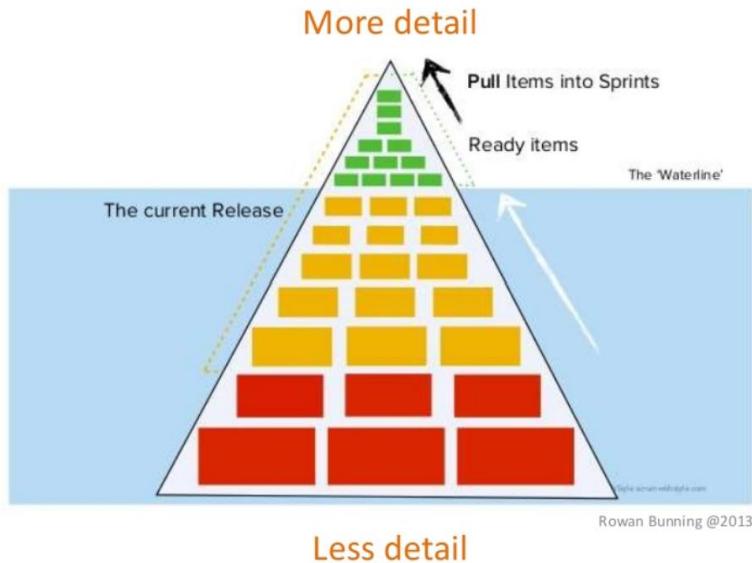
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Product Backlog

Product backlog

- BIM design requirements
- It is a list of **prioritized** user stories or user activities
- A prioritized backlog helps us understand what to do next



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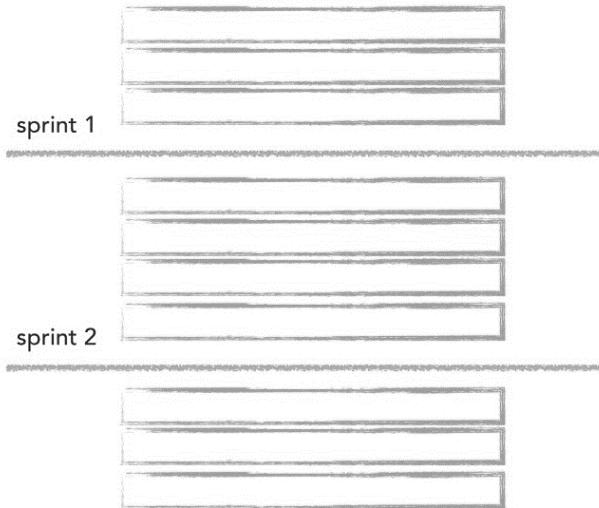


Flat backlog vs User Story map

User Story
Map

- Flat backlog = List of things to be done
- No context or Big Picture about the team work
- Difficult to establish priorities

flat backlog

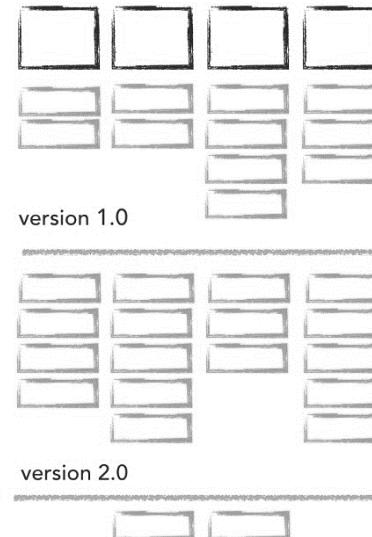


Flat backlog vs User Story map

User Story Map

- Story map = the journey a customer takes with a product
- Shows activities and tasks they complete
- Provides the context for the team Why, Who, What
- Each item is contextualised under a bigger piece of work

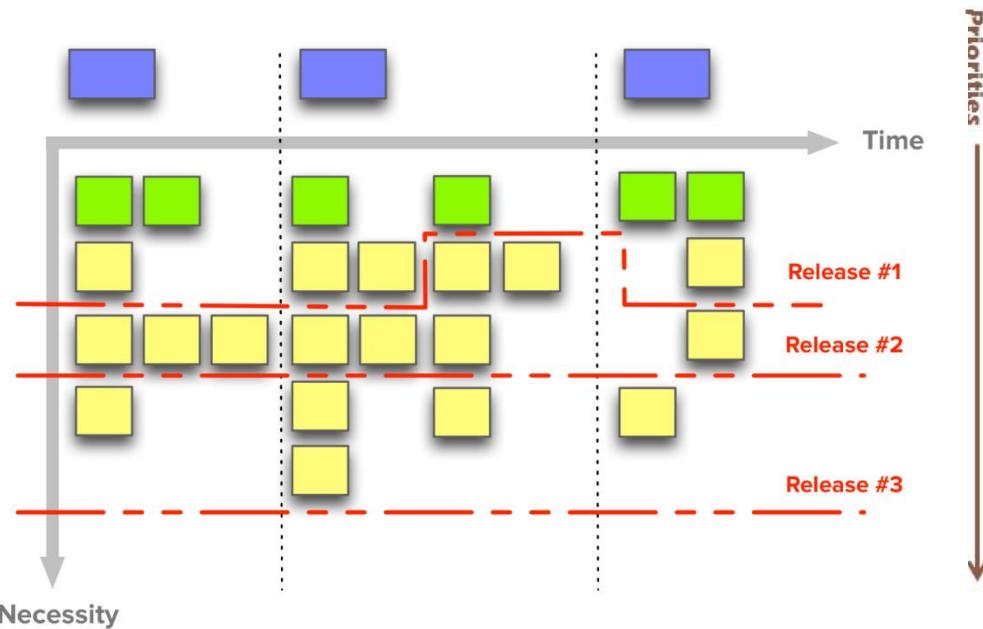
story map



User Story mapping structure

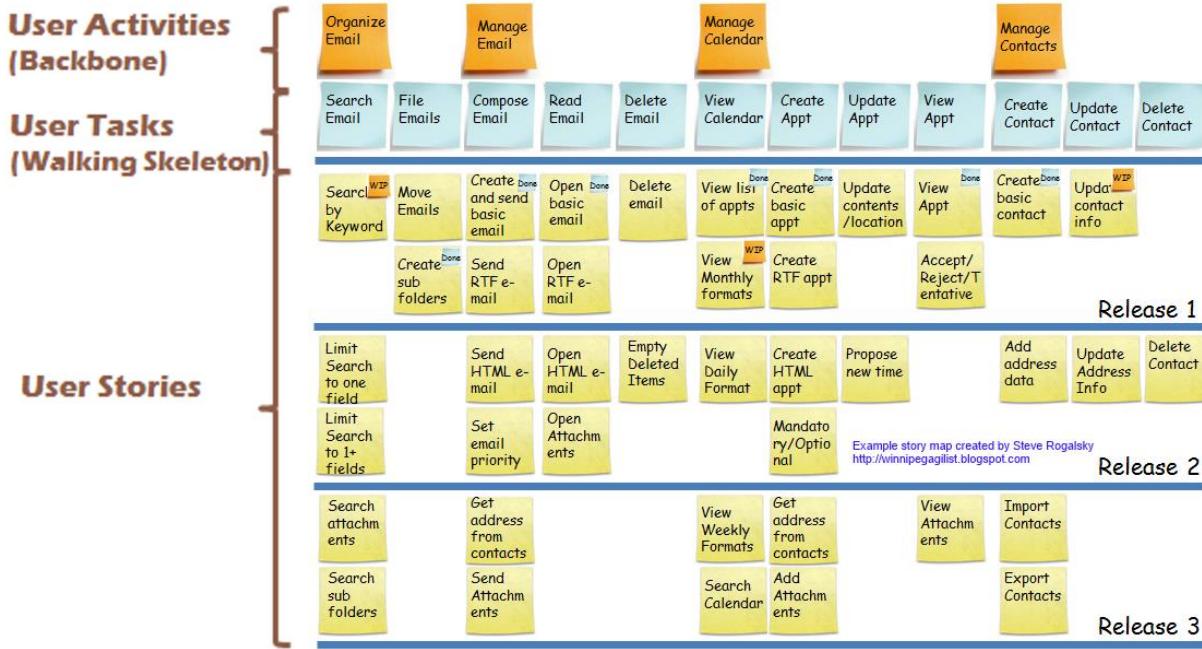
User Story Map

- A linear backlog makes it hard to understand and explain to others what the product does
- Release Planning with a linear backlog is harder
- A story map makes this easier



Story map example

User Story Map



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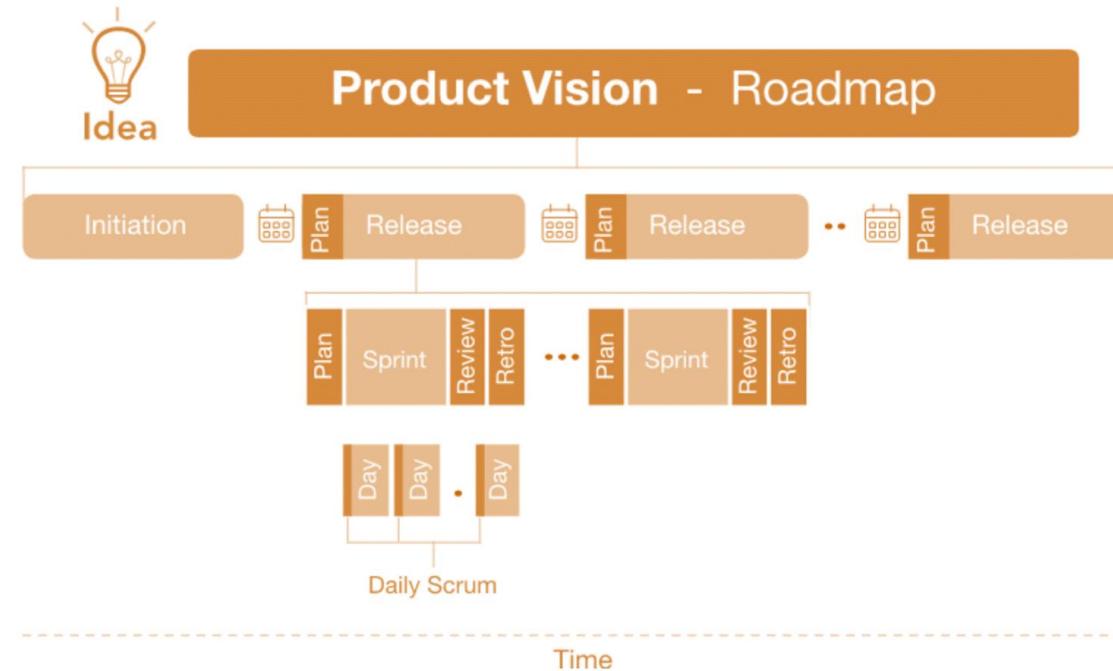
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Roadmap, US Map & Sprint backlog

User Story
Map



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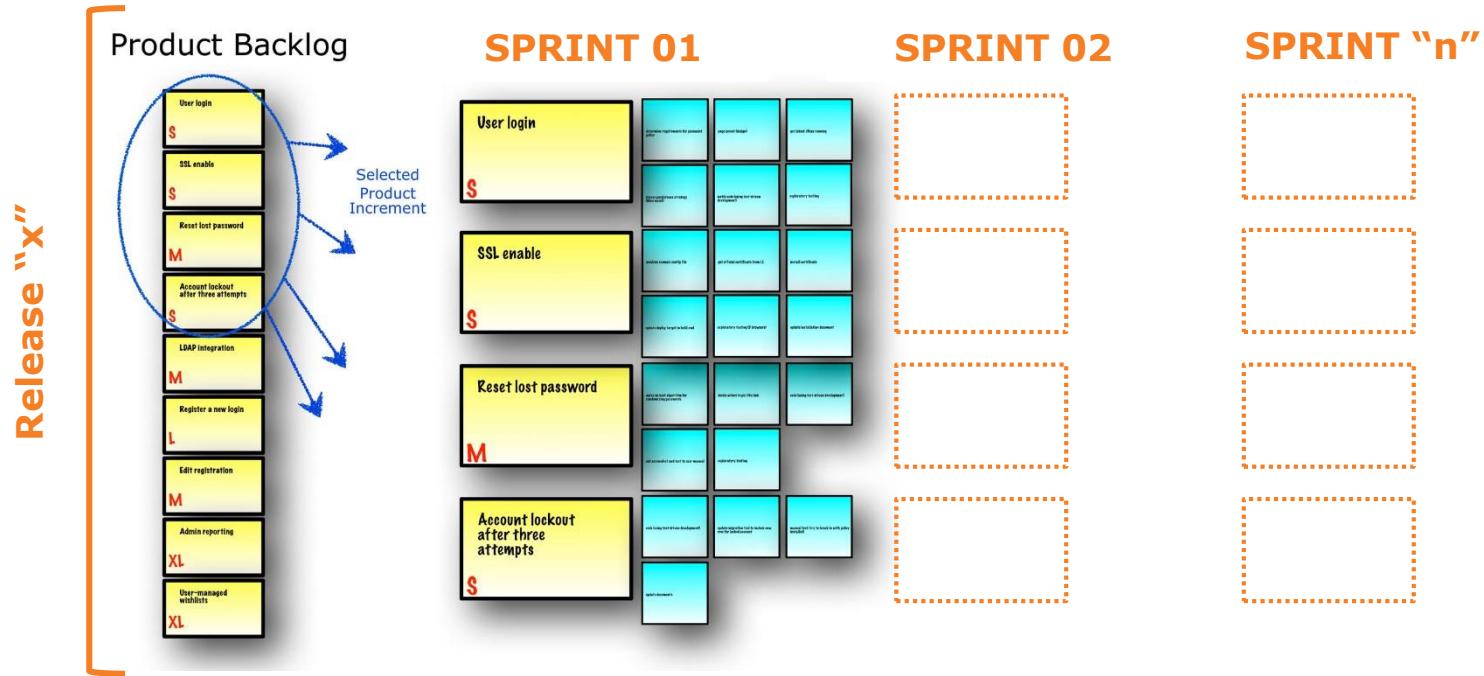
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Sprint Planning board example

Sprint
Planning



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Let's create the Trello boards

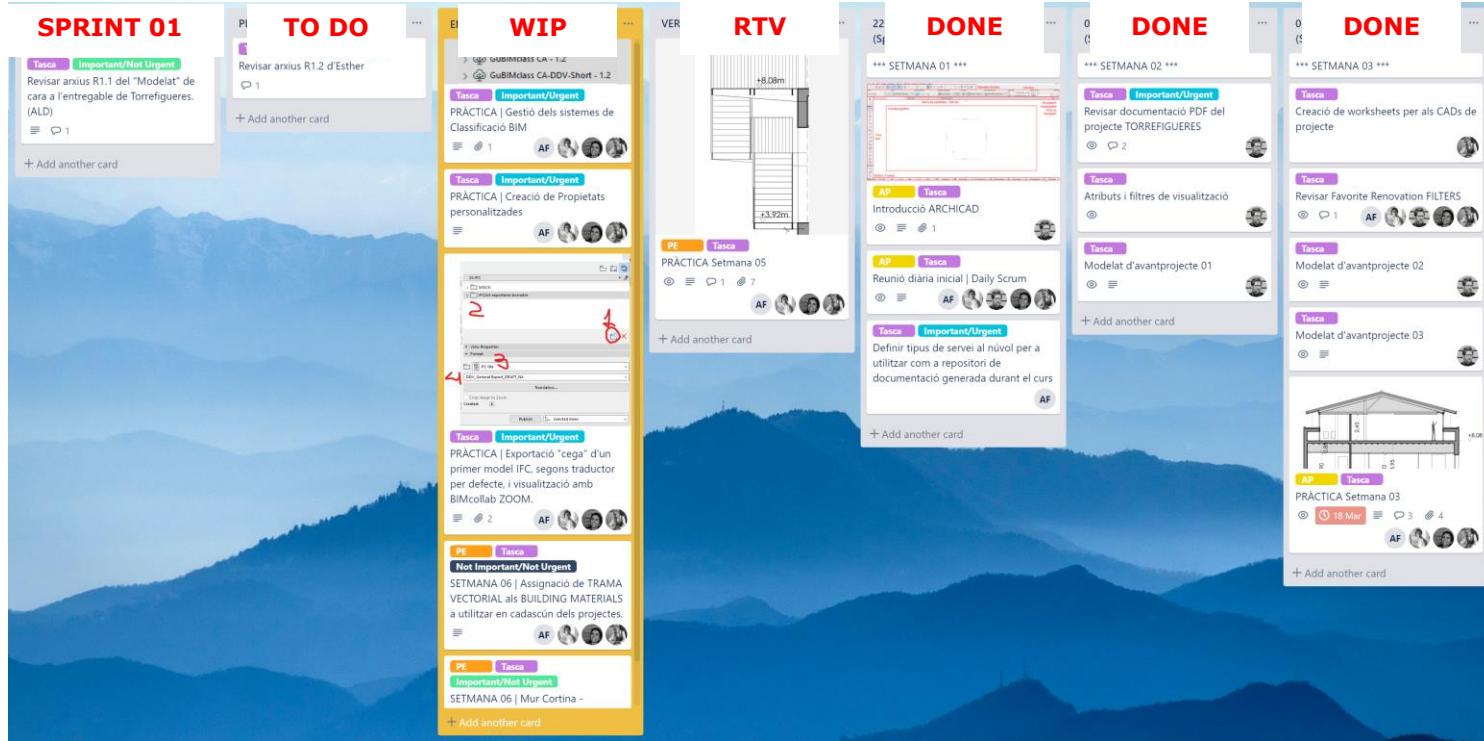
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Sprint backlog board example



Sprint backlog

Sprint task board

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Trello board: the basics



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Tool

board

cards

lists

The image shows a digital tool interface, likely a project management or design platform. At the top, there's a header with the URL '2017030-SB1 | Centre de Serveis' and various status indicators. Below the header, the main area is divided into several columns, each representing a 'list' on a board. The columns are separated by orange dashed lines. The first column contains a card titled 'EN PROGRÈS (In Progress) [5]' with a sub-card 'VERIFICAR | Ready to verify [2]'. The second column contains a card for '08.02.19 | CICLE REALITZAT (Sprint done)' with a sub-card '*** CICLE 01 ***'. The third column contains a card for '15.02.19 | CICLE REALITZAT (Sprint done)' with a sub-card 'Creació d'eixos d'estrucció i arquitectura'. The fourth column contains a card for '22.05.19 | CICLE REALITZAT (Sprint done)' with multiple sub-cards under 'User story' and 'OBJECTIU'. The background of the interface features a scenic image of snow-covered mountains and a frozen lake.

Some useful complements

Chrome Extensions for TRELLO

Kanban WIP for Trello

<https://chrome.google.com/webstore/detail/kanban-wip-for-trello/oekfjibcnongmmmmkdiqfgeppfkmdii?hl=es>

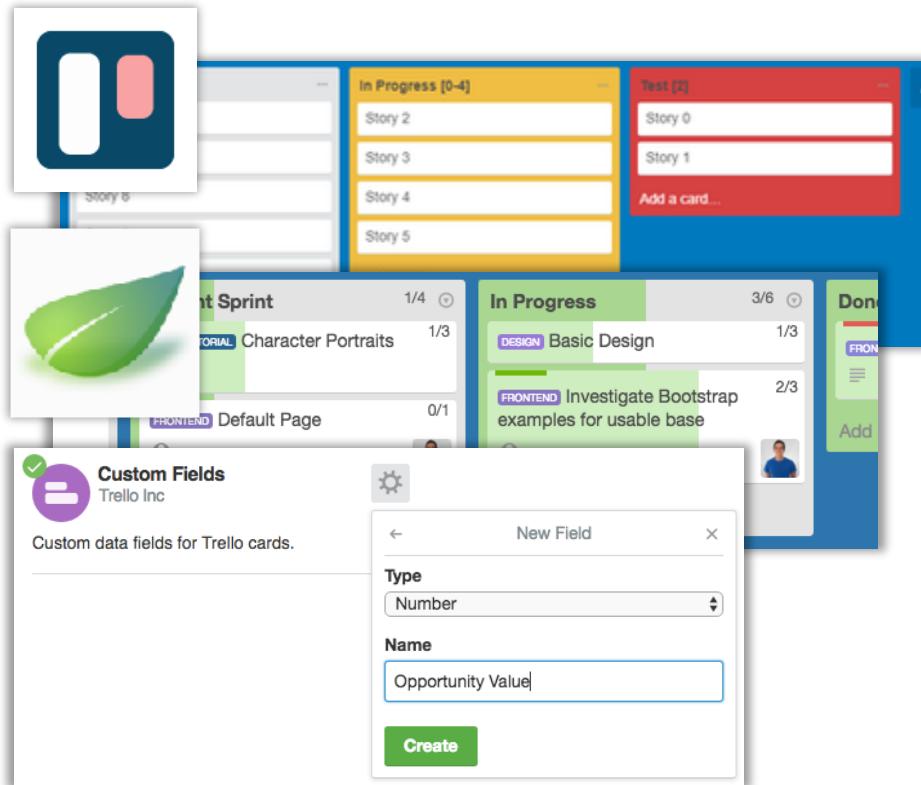
Agile SCRUM for Trello boards

<https://chrome.google.com/webstore/detail/agile-scrum-for-trello-bo/njmflagahqdhopbcdilqahjlfiecakepe>

Trello Power-Up

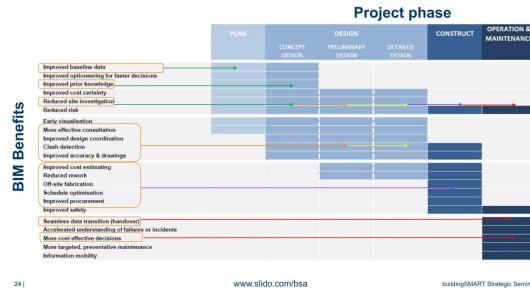
Custom Fields

<https://trello.com/power-ups/56d5e249a98895a9797bebb9/custom-fields>



Roadmap in Trello

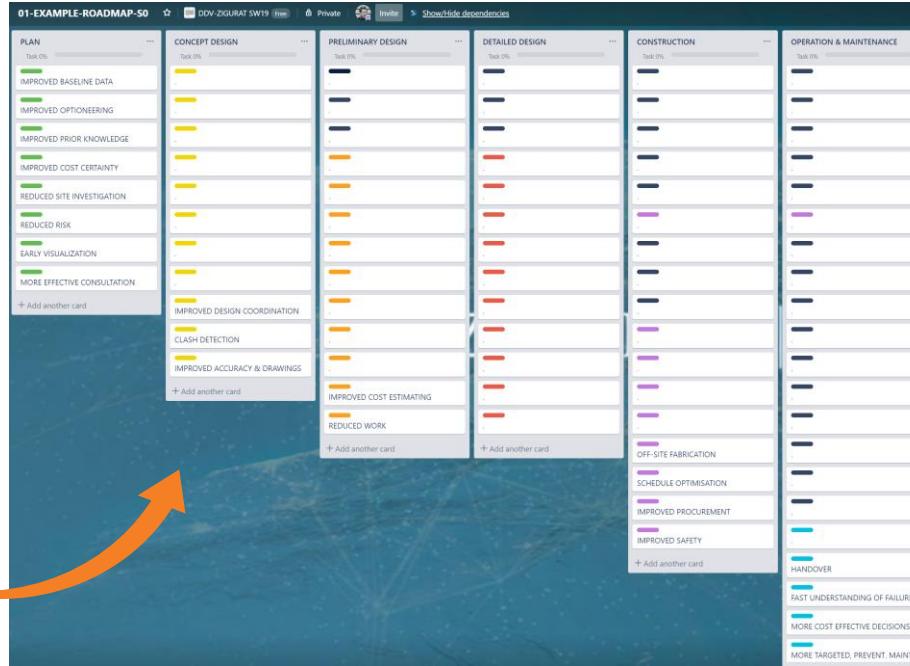
Roadmap definition



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User Story Map in Trello

User Story
Map



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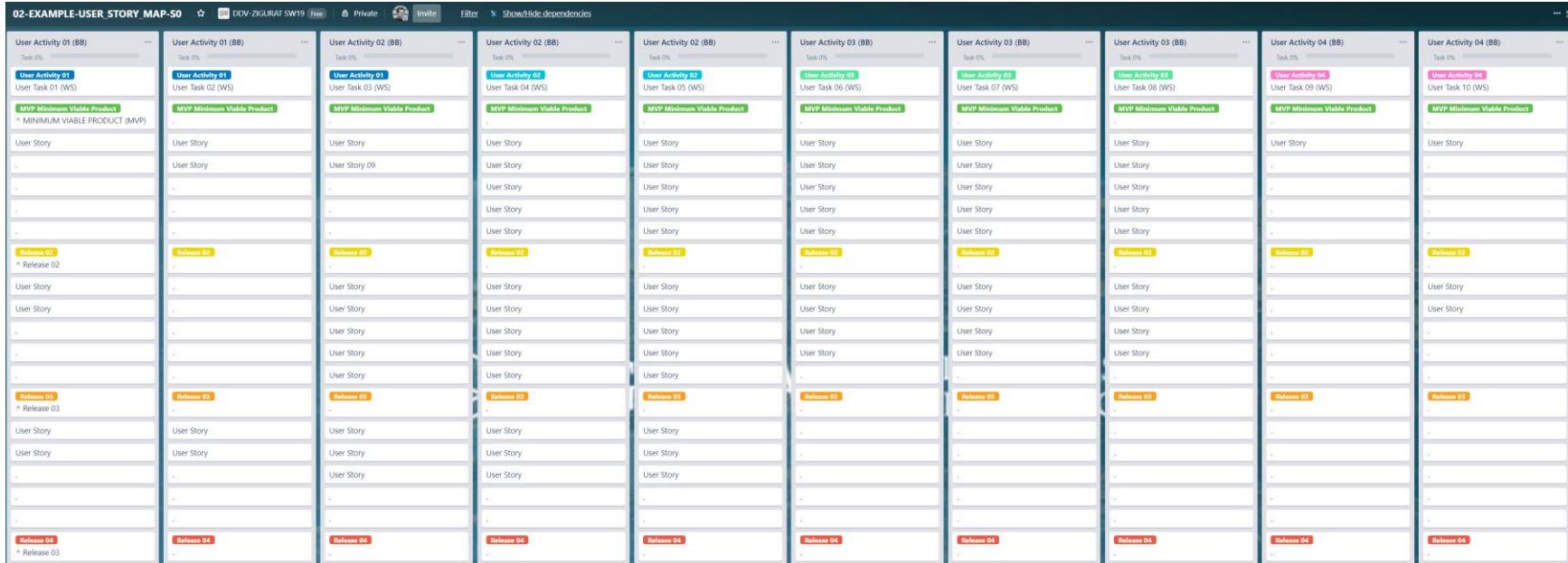
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User Story Map in Trello

User Story Map



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Sprint Planning

Sprint
Planning

03-EXAMPLE-SPRINT_PLANNING-S0

DDV-ZIGURAT SW19 Free Private Invite Filter Show/Hide dependencies

BACKLOG Task 0% **User story Release 04** User Story Card Template 0/6 + Add another card

SPRINT 01 Task 0% **User story Release 02** User Story Card Template 0/6 + Add another card

SPRINT 02 Task 0% **User story Release 02** User Story Card Template 0/6 + Add another card

SPRINT 03 Task 0% **User story Release 01** User Story Card Template 0/6 + Add another card

SPRINT 04 Task 0% **User story Release 04** User Story Card Template 0/6 + Add another card

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Sprint Planning: prioritisation

Sprint
Planning

MoSCoW

- Must
- Should
- Could
- Would
- or Won't

PRIORITYSED PRODUCT BACKLOG

SPRINT 01

SPRINT 02

SPRINT 03

SPRINT 04

User Story Card Template

+ Add another card

+ Add another card

+ Add another card

+ Add another card

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Sprint backlog and task board

04-TP-SPRINT_BACKLOG-S0

DDV-ZIGURAT SW19 Free Private Invite Show/Hide dependencies

Info

Task 0%

When the story is live, Type of user
What is the objective or Goal to achieve ..
Benefit or value to the user
Detailed 'Acceptance Criteria'

User story

User Story Card Tutorial

User story

User Story Card Template

User story

New feature

Issue

Error

Task

Improvement

Labels legend

Eisenhower Matrix | Task Priority

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Sprint backlog

Sprint task board

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Synchronising Trello and Slack



The screenshot shows a Slack interface with a purple sidebar and a white main area. In the sidebar, under the '# trello-progress' channel, there are options like '+ Add a channel', 'Direct Messages', 'Invite people', 'Apps' (with 'trello' selected), and 'Upgrade'. Below the sidebar is a Trello board with several cards. One card is highlighted and shown in detail:

Here is what I found for "GC1".

Card
GC1 | GRUPO CONTEC | MILANO
In list Open Files on **GTD | DDV**
Sep 5 1
[Show in Channel](#)

Card
Modelat capítol 50.70
In list **VERIFICAR IReady to verify [8]** on **2019020-GI2 | Idiada Driving Simulator**
1
Labels: Tasca

A modal window titled 'Create Label' is open, showing a list of label types with checkboxes:
Tasca (checked)
User story
Recursos
Important/Urgent
Important/Not Urgent (checked)
Nou requisit indispensable
Not Important/Not Urgent
Not Important/Urgent
Milers extra
Labels

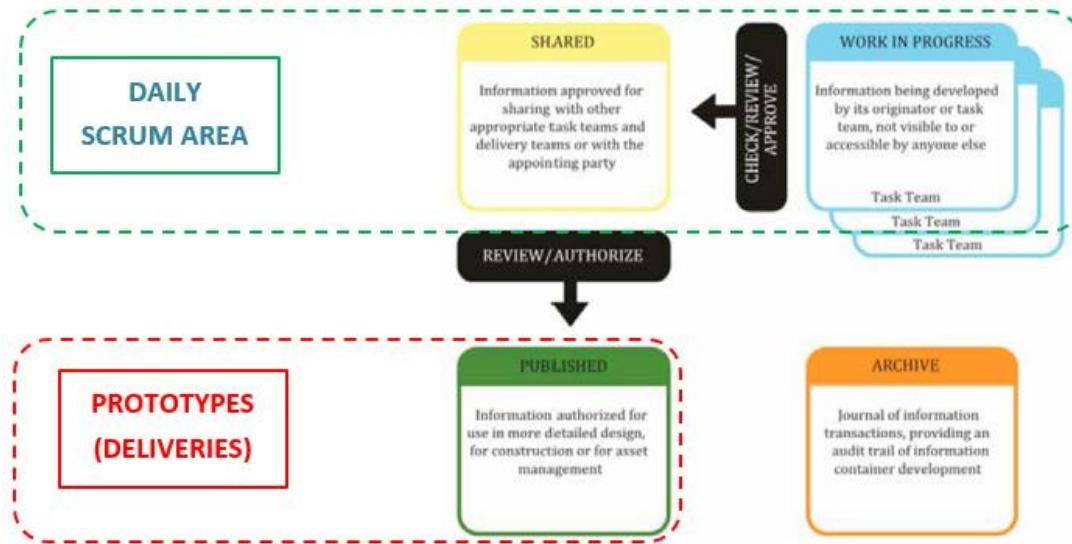
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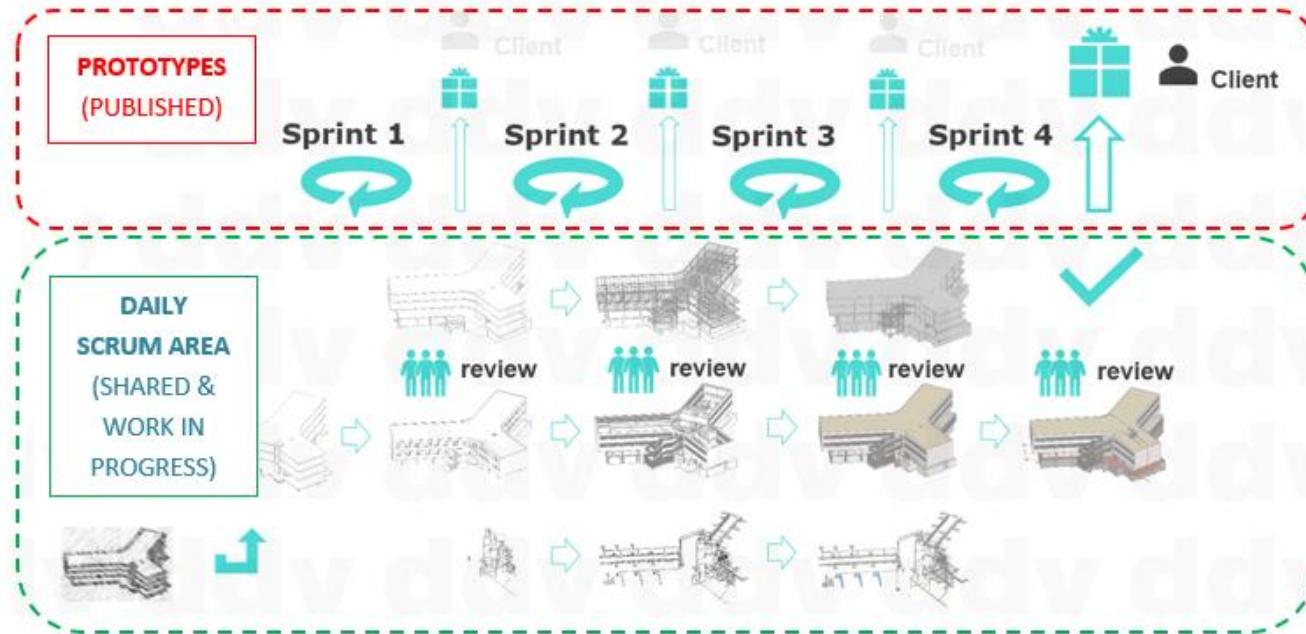


Trello list and BIM Common Data Environment



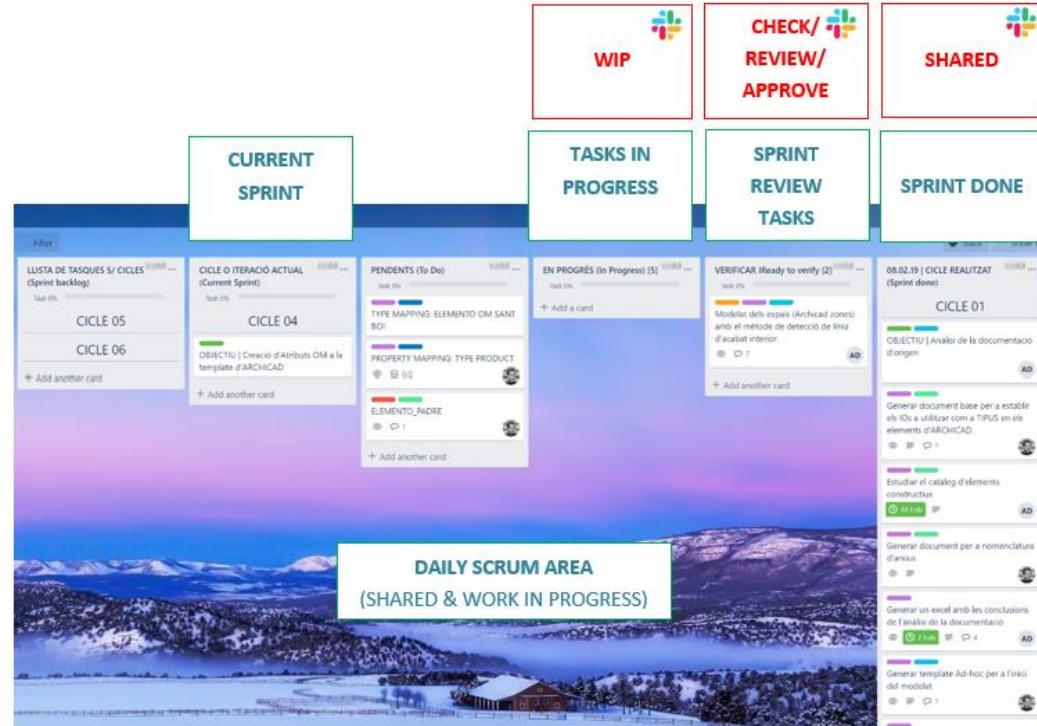
Scrum and the structure of a CDE (according to ISO 19650). DDV

CDE containers and Scrum



BIM Design workflow, CDE containers and Scrum. DDV.

Trello taskboard and CDE containers



Trello Taskboard and CDE containers. DDV.

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An openBIM use case

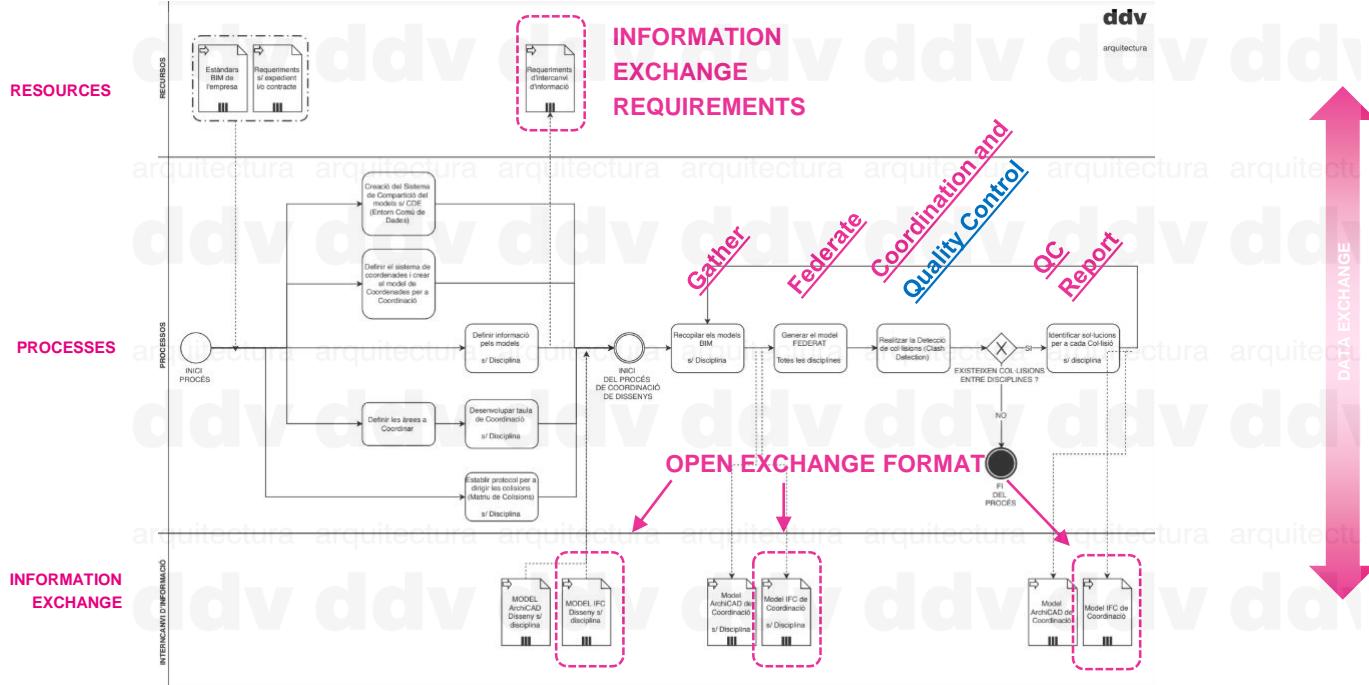
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Coordination and QC process



BIM model coordination process, using native files and IFC as open exchange format

Source: DDV adaptation of Pennstate BIM process

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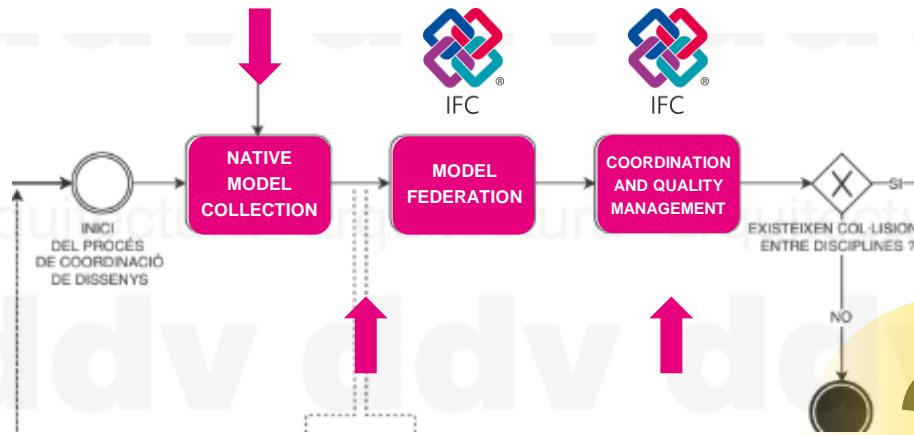
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2 ROUNDS OF QUALITY MANAGEMENT

1

QA: QUALITY ASSURANCE
NATIVE ENVIRONMENT



IFC
PRODUCTION



2

QC: QUALITY CONTROL
OPEN ENVIRONMENT



Openbim eir as a data quality standard

A6. DOCUMENT DE REQUERIMENTS D'INFORMACIÓ DEL CONTRACTE (DRIC)

NOTA: Els camps requerits de forma obligatòria per part d'Infraestructures.cat són els remarcats en vermell

A6-1. INFORMACIÓ DELS MODELS

Nota: a informar de manera general en els models, en l'apartat d'informació de projecte del propi fitxer

	PROPIETAT	PARÀMETRE	FORMAT	IFC 2X3 si/ICAT	IFC_PSet-ICAT (ICAT-Identificació)	PROGRAMARI BIM	REFERÈNCIA
IDENTIFICACIÓ	Projecte	Codi	Text	IfcProject.Name	n/a	Propri d'Infraestructures.cat	
	Empàgament	Descripció	Text	IfcSite.Name			Adreça postal
	Equipament	Descripció	Text	IfcBuilding.Name			Propri d'Infraestructures.cat
	Fase del projecte	Codi	Text	IfcProject.Phase			Propri d'Infraestructures.cat

A6-2. PROPIETATS I ATRIBUTS DELS OBJECTES

Nota: a informar de cada objecte

	PROPIETAT	PARÀMETRE	FORMAT	IFC 2X3 si/ICAT	IFC_PSet-ICAT (ICAT-Identificació)	PROGRAMARI BIM	REFERÈNCIA
IDENTIFICACIÓ	Codi GuBIMclass	Codi	Text	IfcClassificationReference	ICAT_01-02-DescricióGuBIMclass	Propri d'Infraestructures.cat	
	Descripció GuBIMclass	Codi	Text	IfcClassificationName			Propri d'Infraestructures.cat
	Descripció de Tipus (nom)	Descripció	Text	IfcElementType.Name			Especific de projecte
	Descripció extensa	Descripció	Text	IfcDescription			Especific de projecte
	Estatut d'obra	Codi	Text	IfcStatusOfWork			Propri d'Infraestructures.cat

	PROPIETAT	PARÀMETRE	FORMAT	IFC 2X3 si/ICAT	IFC_PSet-ICAT (ICAT-Geometria)	PROGRAMARI BIM	REFERÈNCIA
GEOMETRIA (segons objecte)	Llarg (exemple)	Valor	Longitud (Número)	Pset_BaseQuantities	ICAT-Llarg	Sistema mètric decimal	
	Amplie (exemple)	Valor	Longitud (Número)		ICAT-Ample		Sistema mètric decimal
	Altada (exemple)	Valor	Longitud (Número)		ICAT-Altada		Sistema mètric decimal
	Gruix (exemple)	Valor	Longitud (Número)		ICAT-Gruix		Sistema mètric decimal
	Superficie (exemple)	Valor	Àrea (Número)		ICAT-Superficie		Sistema mètric decimal
	Volum (exemple)	Valor	Volum (Número)		ICAT-Volum		Sistema mètric decimal
	Altres variables segons objecte	Valor	A definir		ICAT-AltresVariables		P. ex. perímetre,

Nota: les propietats geomètriques no s'han marcat en vermell, doncs depenen del tipus d'objecte. En qualsevol cas caldrà definir les propietats necessàries per a la representació de l'objecte

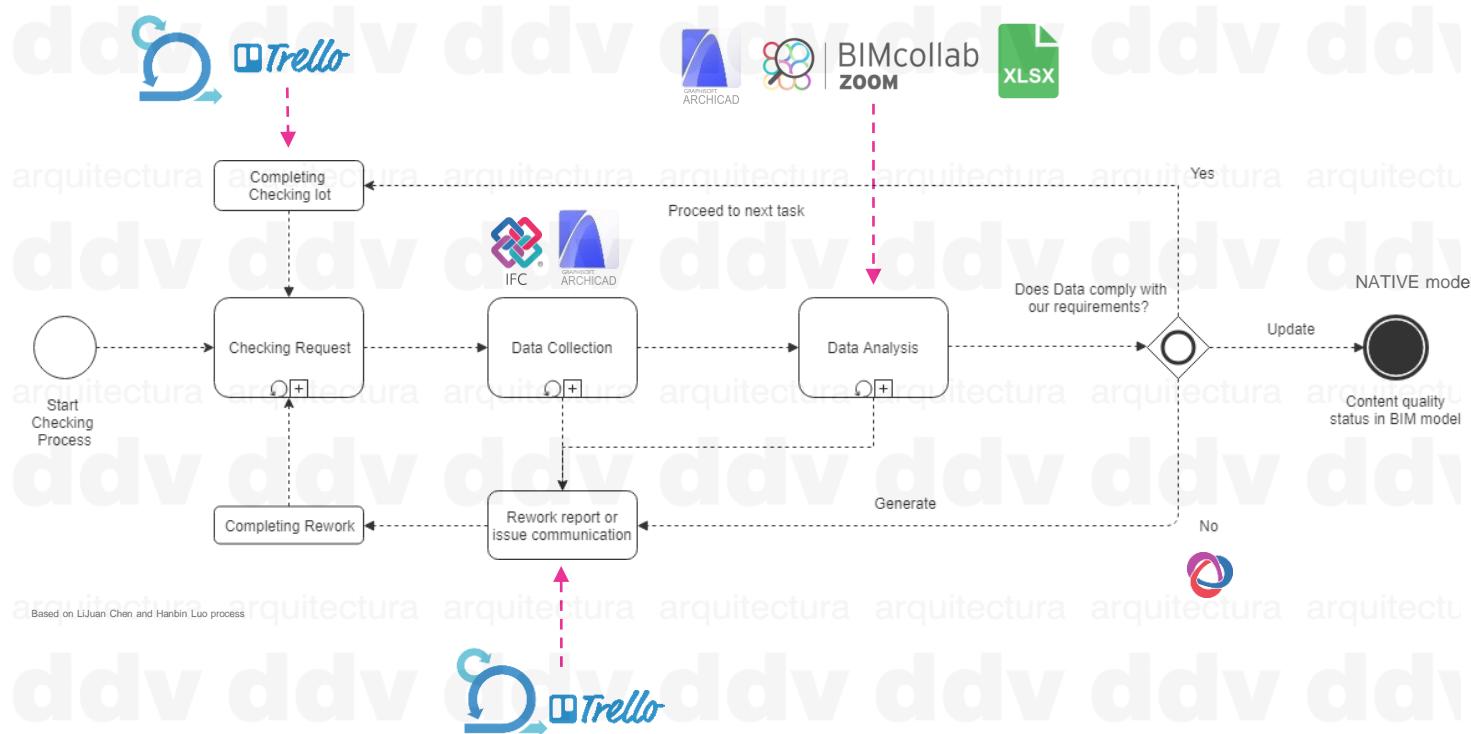
	PROPIETAT	PARÀMETRE	FORMAT	IFC	IFC_PSet-ICAT (ICAT-Localització)	PROGRAMARI BIM	REFERÈNCIA
LOCALITZACIÓ	Codi de localització	Codi	Text	ICAT-CodiLocalitzacio	ICAT-DescripcióLocalitzacio	Especific de projecte	
	Descripció de localització	Descripció	Text				Especific de projecte
	Altres atributs de localització	Codi	Text				Especific de projecte
PRESTACIONS	PROPIETAT	PARÀMETRE	FORMAT	IFC	IFC_PSet-ICAT (ICAT-Especificacions)	PROGRAMARI BIM	REFERÈNCIA
	Material o materials (compostos)	Descripció	Text	IfcMaterial.Name	ICAT-Material (n materials) ICAT-UnitatMesura ICAT_ResistènciaFoc ICAT_AltresPrestacions	Classificació de materials segons origen Sistema Internacional d'Unitats Estandàrd (CTE-DB-SI) P. ex. Color, resistència, etc	
	Unitat de mesura	Codi	Text	IfcUnitOfMeasure			
	Resistència al foc	Valor	Número	IfcFireRating			
	Altres prestacions	A definir	A definir				

Excerpt from Contract Information Requirements of Infraestructures.cat BIM Manual (Public building management company of Catalonia's Government),

based on IFC data structure

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WORKFLOW FOR MODEL CONTENT QC



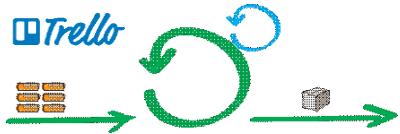
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ITERATIVE PROCESS



The screenshot shows a Trello board with several columns:

- Recursos**: Contains cards for "Trello + Scrum-Kanban Resources" and "Repositori Comú de Dades i DROPPBOX".
- LLISTA D'OBJECTIUS (Product backlog)**: Contains cards for "OBLIGAT AP: INTRODUCCIÓ A L'ENA I ENTORN DE MODELAT" and "OBLIGAT AP: COMPRENDRE L'ENTORN DE MODELAT I L'ESTRUCTURA DE DADES D'ARXIUAD".
- LLISTA DE TASQUES S/ CICLES (Sprint backlog)**: Contains cards for "SETMANA 05", "SETMANA 06", "SETMANA 04", and "SETMANA 03".
- CICLE O ITERACIÓ ACTUAL (Current Sprint)**: Contains cards for "SETMANA 05", "SETMANA 06", and "SETMANA 04".
- PENDENTS (To Do)**: Contains cards for "IFC Georeferenciat del centre de serveis" and "Creada de taules d'auditoria en fase inicial per a control de qualitat".
- EN PROGRESS (In Progress)**: Contains cards for "VERIFICAR I Ready to verify [D]" and "22.02.19 | CICLE REALITZAT [Sprint done]".
- SETMANA 01**: Contains cards for "SETMANA 01" and "01.03.19 | CICLE REALITZAT [Sprint done]".
- SETMANA 02**: Contains cards for "SETMANA 02" and "01.03.19 | CICLE REALITZAT [Sprint done]".
- SETMANA 03**: Contains cards for "SETMANA 03" and "08.03.19 | CICLE REALITZAT [Sprint done]".

The board is overlaid on a background image of a snowy mountain landscape.

BACKLOG (Large white board on the right):

- IN PROGRESS**: Contains several pink horizontal bars.
- DONE**: Contains several green horizontal bars.
- A yellow card labeled "NEED SPEC" is shown in the center.

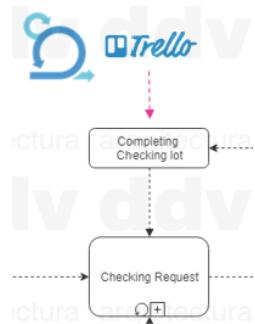
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INFORMATION REQUIREMENTS



OM_SantBoi

REFERENCIA_ZONA
REFERENCIA_OBJETO

REFERENCIA_ZONA

Aquest identifica les Zones de l'edifici, que en aquest contexte, equivalen a les diferents cambres de l'edifici. La estructura d'aquesta codificació es la següent:

[ACTIVO]_[ESPACIO]_[ZONA]

Essent:

- ACTIVO Aquest camp contindrà el codi **193A** en el cas dels elements situats a l'edifici i el codi **193b** en el cas dels elements de la marquesina.
- ESPACIO Correspon a la començalatura dels nivells sense el codi d'Actiu.

Edifici	
Nivell	Codi
Planta Coberta	PCx
Planta Primera	P01
Planta Baixa	PBx
Planta Soterrani	PS1

Marquesina	
Nivell	Codi
Planta Coberta	PCx
Planta Baixa	PBx

- ZONA Es tracta d'una concatenació de cinc caràcters amb la següent estructura:
 BBBXX

Essent:

- BBB és una cadena de text corresponent a les tres primeres lletres que identifiquen la zona en funció del seu ús específic segons la taula següent:

REFERENCIA_USO_ZONA	MOMBRE_ZONA	Codi
SL_90_10_51	Àrea d'Accés Obert	AAA
	Àrea d'Accés Restringit	AAR
SL_90_20_16	Àrea d'Atenció al Pàublic	AAP
	Àrea Oberta de Treball	AOT

Tasks

0% Project info
 Location / Coordinates
 Building Storey
 Building Storey (Allocation of objects)
 Entity (Building Elements) - Visual Check
 Entity (MEP Elements) - Visual Check
 Structure and Naming (Name)
 Structure and Naming (Type)
 Classification System (GuBIMclass, Uniclass, CoClass)
 Material Name
 Property Set (Load Bearing)
 Property Set (Is External)
 Property Set (Fire Rating)
 Property Set (Custom, by PIR or AIR)

BIM BASIC IDM
(based on BIM Loket)

Add an item

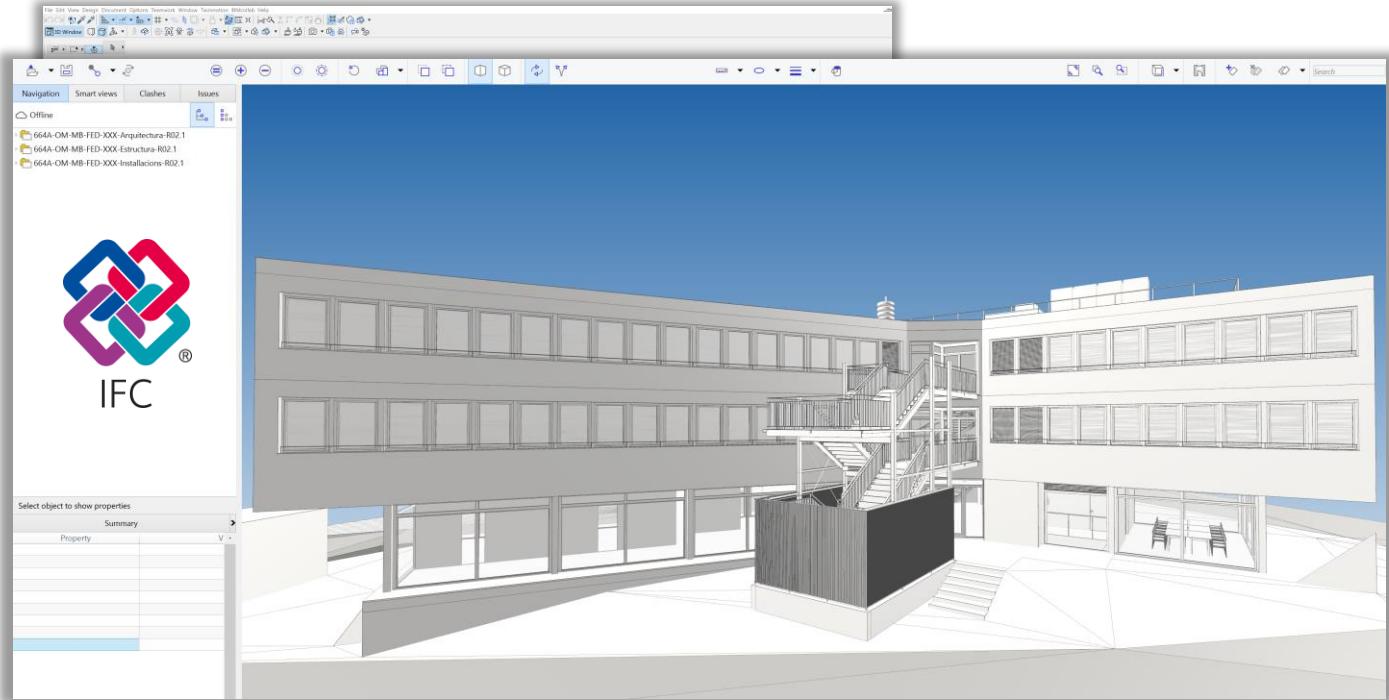
Activity

Show Details

Write a comment...

DATA COLLECTION

arquitectura



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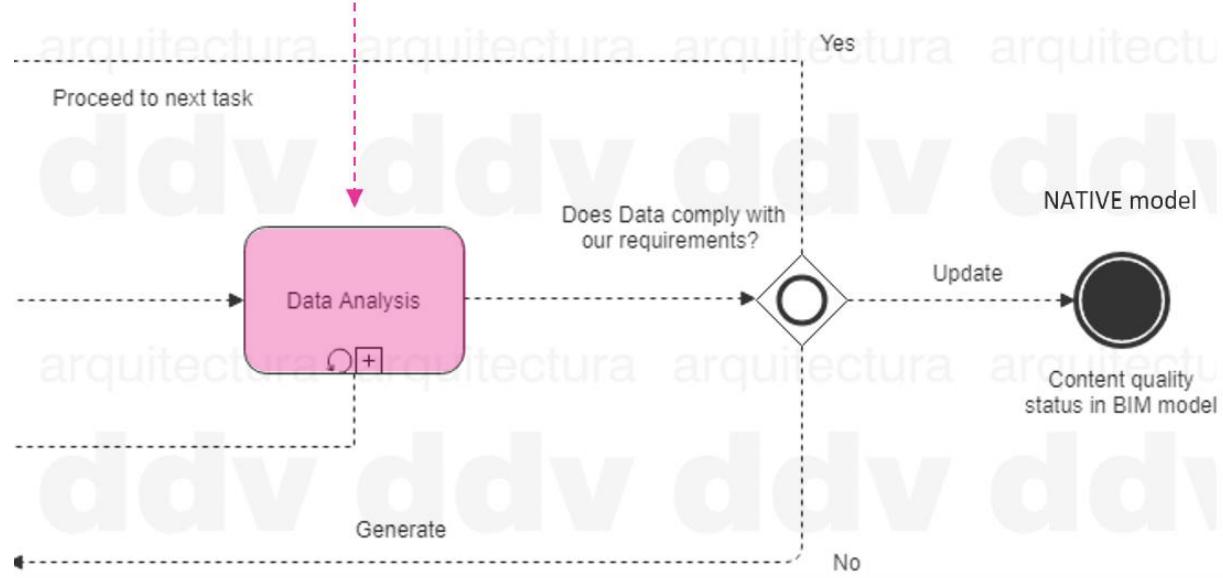
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Basic data checking



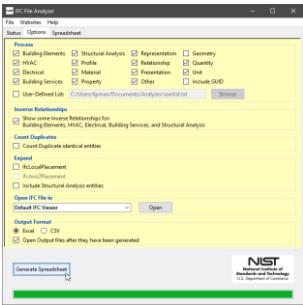
BIMcollab
ZOOM



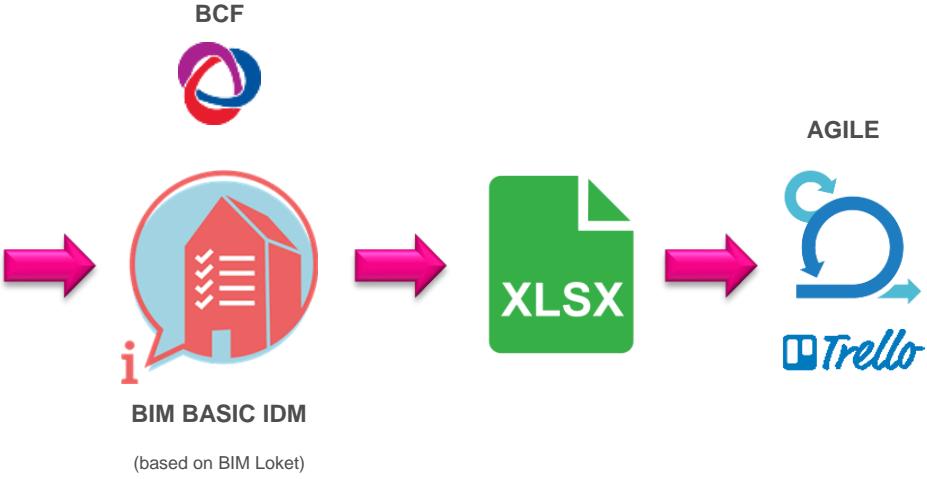
EXTERNAL DATA ANALYSIS



IFC FILE ANALYZER



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Agile trainings



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Questions

Project management in openBIM

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