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## Fusion Lifecycle and Vault: The Synergy

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### Learning Objectives

- Learn how to develop an environment where Fusion Lifecycle and Vault work as complementary tools.
- Learn how to employ Fusion Lifecycle to follow up on your projects and product lifecycle, and use Vault as the project-related document management platform.
- Learn how to create methods and best practices to link both Fusion 360 and Vault, to use workflows, ECOs, and more.
- Learn how to transfer this knowledge and experience to your own working environment.

### Description

Learn how to increase efficiency in your development process by implementing Vault software and Fusion Lifecycle software. In this class, you will hear about the journey Reynaers Aluminium took to move from its old product data management (PDM) system to a fully integrated solution: CAD, PDM, PLM (product lifecycle management), and enterprise resource planning (ERP). You will learn about the how and why behind our architecture and the lessons learned during implementation. Get insight into the place PDM and PLM have in our organization today, how they are connected with other core databases, and what our further digitalization road map looks like. Also discover how Fusion Lifecycle offers article lifecycle management as well as full project management by streamlining our NPI (new product introduction) flow. All project phases are implemented into Fusion Lifecycle, including a customized project management tab to enable real project planning. Integrating Fusion Lifecycle with Vault creates one common platform, resulting in an efficient way of collaboration as well as a single source of truth across the company.

## Speaker(s)

### **Dimitri Van Nuland | Automation Manager – Industry 4.0**

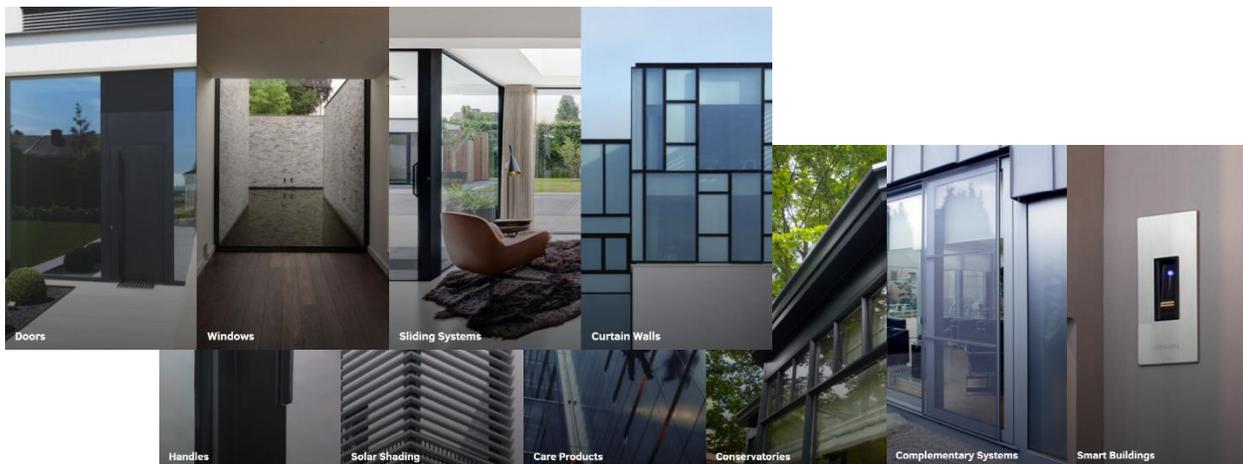
Dimitri Van Nuland has been active in R&D in many different industries and roles since the end of the 1990's. After obtaining 2 master degrees at the University of Antwerp, one in electro-mechanical engineering, a second in Industrial Entrepreneurship, his life has been centred around design & developing new machines, laboratory equipment for the ISS, and new processes within different industries. Roles in this have varied from designer, innovation consultant, maintenance engineer, system architect, until the last 8 years Development Manager at Reynaers Aluminium. Also with respect to industries, the landscape has been very diverse with aluminium manufacture, space engineering, pharmaceuticals, telecom, lighting, windmills. His objective always being, challenging the status quo, and see what can be better, more efficient. He recently accepted responsibility within Reynaers for a new role, Manager Industry 4.0. The focus of this teams lies on the development of the different software & machine solutions for the Reynaers' customers, as well as on the different digital transformation tracks inside R&D.

### **Carl Schelfhout | PDM PLM Manager**

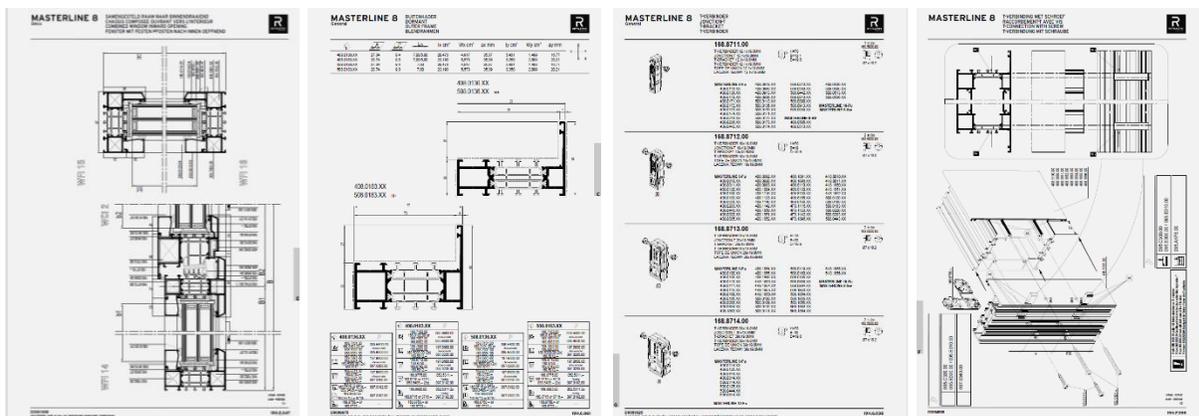
Carl Schelfhout has been active within the Development Team for already 25 years at Reynaers. After obtaining masters of electro-mechanical engineering and a MBA, he recently obtained his degree as interior designer and started his own interior design company. He introduced PDM in 2000 in order to structure all Product Data and files. The PDM system is now fully customized in order to automate and digitalize our workflows. Being responsible for the migration towards Vault in 2018, he also implemented Fusion in 2019. Both software's are now combined and linked to ERP and different websites. The “synergy” is on-going.

## NO AUTOMATED PROCESSES WITHOUT PDM

Our product portfolio consists of several product groups like Windows & Doors, Sliding Systems and Curtain Walls. We have more than 80 product lines to cover all these groups. For W&D, we have +20 product lines. These product lines are related to design, thermal performance as well as special safety features (burglar, fire, bullet, bombblast – proof), and of course each product line has common but also specific articles.



So they all require a fully detailed manual or documentation to show our fabricators how to make f.i a window , a door or a sliding element. And I always make the comparison with LEGO to best explain this. At LEGO they have also developed a large set of building blocks. When you buy a product they provide the customer with the components and a plan of how to build a house, a truck or a spaceship. Our challenge lies in the fact that our customers must be able to make any type of window and door type and this results in the fact that these manuals per product line count today on average 500 up to 1000 pages. Generating and updating these manuals has been THE TRIGGER in 2000 to start with PDM.



## Metadata and files

Just a little more than 20 years ago, at Reynaers Aluminium all files were stored in Microsoft Windows explorer folders, revisions were overwritten and older revisions were only stored on paper. The article data was only present in the technical (AutoCAD) drawing. Showing these data in our technical documentation, it was just copied from the technical CAD drawing to the documentation drawing. No update mechanism was in place and you were lucky if someone of the development department informed you about changes which were needed on the drawings.

## PDM needed? YES please!

With PDM, we were able to store all technical data in a database and revision management was possible in a digital way. Very quick, we noticed that, besides technical data, we could store much more article info in the PDM system. It became the single source of “article” information.

We started in 2000 with Smarteam, from Dassault as PDM software and were supported by our CAD-supplier Arkance.

After 6 months of using PDM, we were able to automate already 30% of the documentation preparation. When the required data is in a database, you can use the data for scripting and automating the generation of these documentation pages.

## PDM, the holy grail of information?

It was clear that more and more article data was stored in PDM. Extra information required by Purchase or Logistics was asked to store in in PDM. Releasing new articles, all the necessary info was exported to create new articles in the ERP system. In case released articles were modified in PDM, info text files were generated for the ERP Data Management Team to update the ERP system. Nowadays this runs fully automatically. Also the change to development from Autocad to Inventor was seamlessly integrated.

## CHOOSING A NEW PDM SYSTEM

In 2017, we received the news that Dassault would stop supporting Smarteam around 2020-2025. The exact date was not communicated but we did not want to take the risk of ending up with an unsupported PDM system on which more than 100 users were counting.

### Analyzing the alternatives

An analysis was performed on what were the main players on the European market for PDM PLM market: Ennovia from Dassault (replacer of Smarteam), Teamcenter from Siemens, Windchill from PTC and the combi Vault-Fusion from Autodesk. Except from Vault and Fusion, the other software solutions had PDM/PLM integrated. Also other alternatives exist, but we also focused on these 4 since the integration with CAD is so crucial, and they are still today the main providers of CAD software across the globe.



Switching from Smarteam to Ennovia would have been perhaps the most logic choice but because Ennovia was so different from Smarteam, we decided to have a detailed analysis of these four alternatives. Since change over from one PDM system to a PDM/PLM system is not something one does regularly, an external, objective and experienced consultant from ATOS was engaged to help setting up this process.

It started from defining more than 500 criteria within 13 domains, like one can see on the image below. This information was shared to the different providers, including a demo session to show actual operations and setup. All providers had to provide answers to these criteria, and also based on a proof of concept or demo show the actual behavior/working of this criteria.

If we look f.i. at the domain of CAD Data management. The criteria focuses on topics like handling native autocad and inventor files, and is a mapping possible between the dwg attributes or inventor i-properties and the PDM system. These are all simple questions but some alternatives claimed they were 100% compatible with Autodesk products, when in fact based on our requirements this was not always the case.

Based on their feedback and evaluation of the demos by the team, an evaluation was performed. And so final choice hung between the Autodesk and the Siemens solution. So some more testing, but also financial and contract discussion was performed to come to a final decision.

GLOBAL SCORE	Vault-Fusion	Ennovia	Teamcenter	Windchill
CAD Data Management	98.0	84.3	99.0	92.8
Document Management	95.3			
Item Management	95.3			
User Experience	92.0			
Lifecycle & workflow	96.9			
Release & change	97.4			
Attribute and classification	90.7			
Integrations	96.4			
Collaboration	96.3			
Project Management	97.0			
Migration	100.0			
Non-functional requirements	97.8			
Vendor requirements	99.8			
<b>TOTAL</b>	<b>96.4</b>			

ID	Criteria	Reason / comment
CA061	Does the application support an integration with Autocad?	If supported, please indicate the supported versions
CA062	Does the application support an integration with Autocad Electrical?	If supported, please indicate the supported versions
CA063	Does the application support an integration with Inventor?	If supported, please indicate the supported versions
CA064	Does the application support an integration with Inventor iBOM?	If supported, please indicate the supported versions
CA065	Does the application support an integration with Ansys?	If supported, please indicate the supported versions
CA066	Does the application support an integration with Altium Designer?	If supported, please indicate the supported versions
CA067	Does the application support an integration with Elance?	If supported, please indicate the supported versions
CA068	Does the application support an integration with Ruid?	If supported, please indicate the supported versions
CA069	Does the application support an integration with ArchiCAD?	If supported, please indicate the supported versions
CA010	Does the application support an integration with Solidchug?	If supported, please indicate the supported versions
CA011	Does the application support an integration with Vectorworks?	If supported, please indicate the supported versions
CA012	Does the application support an integration with GHDLB ?	If supported, please indicate the supported versions
CA013	Does the application launch the correct CAD software when opening a file from within the PLM application?	If linking the formats to a specific CAD software is supported, please indicate if this is automatically done or through configuration
CA014	Does the application support the native CAD icons for each file format?	If linking the CAD file format icon is supported, please indicate if this is automatically done or through configuration
CA015	Does the application support bidirectional attribute updates?	Update in Autocad passed on to the PLM application

## Decision : Autodesk VAULT and FUSION Lifecycle



Tipping point for the Autodesk platform:

- the strong & up-to-date integration with Autocad, Inventor and Revit. Vault is 100% compatible with these software and they always get a joint revision.
- the PLM part Fusion Lifecycle was cloud based so easy accessible for everybody without any client installation necessary, and also held the promise of easy tunable using Java scripting.
- Another crucial factor was the fact that we worked more than 20 years with our CAD partner Arkance who was responsible for all our customizations so they knew the ins and outs at Reynaers and our business.

With respect to architecture, we also made the clear decision the to use VAULT to store all the Reynaers knowledge & data and FUSION Lifecycle to manage the lifecycle of our NPI projects, products/articles, and other processes in R&D. This will not be for all cases the logical setup, so everyone should make his proper evaluation on this and also align with Autodesk experts or organisations having the experience with a certain setup to evaluate pro's and con's of setup.

## VAULT MIGRATION 2018

Because Smarteam was fully customized and linked to ERP and different websites, this became an inter-departmental project: R&D (initial users of PDM), ICT, ERP-team, Arkance,...they all were involved in this migration project.

We decided to do the migration from Smarteam to Vault in one GO! So no overlap period using two PDM systems: Stop Smarteam 20-12-2017 and start Vault 01-01-2018!

It was a huge migration. In order to have a clear view of the whole migration process, the whole project was split-up in different work packages and sub-work packages and defined who was responsible and when it had to be ready. Because many departments were involved, we hired an external project manager to manage all these work packages and to follow-up the different departments. We believe this also was beneficial for the roll-out of the project. Below a view at one of the status reports.

WORK PACKAGES   status PDM phase 1								
WP #	Work packages	Sub packages	Analysed / agreed	Implemented / configured	Tested / Reviewed	Validated by Carl	Comment	Key
100	CAD DATA MANAGEMENT	Integration autocad	ok	ok	ok			Andries
		Title link autocad / inventor	ok	ok	ok			Andries
		Fill in & check	ok	27/10/2017	10/11/2017		Not all checks integrated by Carl	Andries
		Release checks	ok	27/10/2017	10/11/2017		Not all checks integrated by Carl	Andries
		Fill in BOM	ok	ok	ok			Andries
		Tab access tooling application	ok	ok	ok			Andries
110	SPECIFIC SOFTWARE CAD	Reynaers toolbar	ok	17/11/2017	24/11/2017		lx calc missing autocad	Frank
		Generate catalogi	ok	10/11/2017	17/11/2017		Possible delay ? Change prio ?	Frank
		Block to xref	ok	24/11/2017	01/12/2017			Frank
		Generate symbols Inventor	ok	08/12/2017	15/12/2017		No problem for training	Frank
120	PART MANAGEMENT / CLASSIFICATION	Classification prof/acc/tooling	ok	ok	ok			Andries
		Classificatie (level2)	ok	ok	ok			Andries
		Mixed classification	ok	ok	ok			Andries
		Items for cat pages, libraries ...	ok	ok	ok		Covered by WP 110 gen catalogi	Andries
130	DOCUMENT MANAGEMENT	Manage CAD	ok	ok	ok			Andries
		Manage non-CAD	ok	ok	ok			Andries
		Manage project related docs	ok	ok	ok			Andries
		Manage green books	ok	ok	ok		Control on Fusion deployment	Andries
		Index on text & figures	ok	ok	17/11/2017			Andries
		clean-up/detach xref	ok	29/09/2017			Connected with migration test	Frank
140	CHANGE MANAGEMENT	Index change Revision control	ok	ok	ok		Define group & routings @ 2/1	Andries
		Index change ChangeOrder	ok	ok	ok		ECO process (+jobserver)	Andries
150	CONFIGURATION MANAGEMENT	Product group/system structure	ok	ok	ok			Andries
		System variants	ok	ok	ok			Andries

We did the final migration in the Christmas period and on Jan the 1st 2018 Vault was up-and-running. We had to succeed because the Christmas period is the only period that is Reynaers is closed.

We did several migration tests before to validate all preparations, and as a result with the last test we knew the complete & official migration would take about 2 to 3 days. So in case of problems, we had enough time to try 2 times again.

Key learning: be aware for Microsoft updates & other unexpected events. The 1st final migration was blocked at a certain moment because of these updates. So we had to restart the final migration a second time which succeeded in the end. As a fail safe, we had even foreseen we could still use the old setup, and than reschedule the migration if required.

### Facing a big change

Working with Autodesk Vault is very different from working with Smarteam from Dassault. And in general people don't like change, so users were informed months in advance about this big change, also what would stay the same for them on a daily basis and trained 3 weeks before the final migration.

Key learning: From early on, we also identified, and involved key-users in the migration setup, so they would become the early adopters and later-on also provided support on the floor. If you know certain users will be difficult to convince, already involve them early-on as key-user, so that they are a part of the changes which are made and even become promoters of the transition.

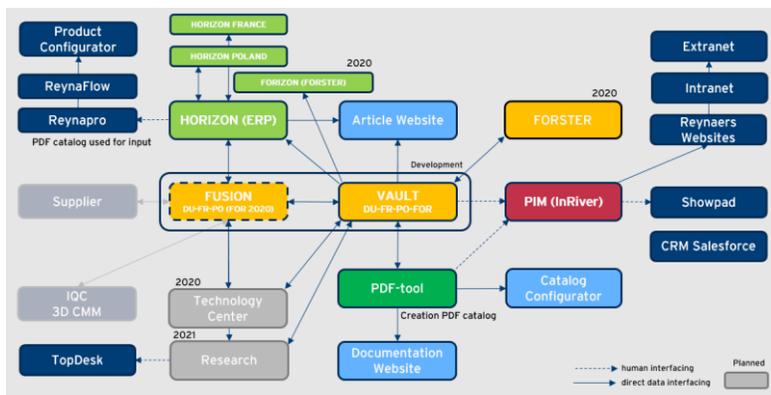
We showed also a promotion video for Vault in the months before the final migration so that people were aware of the big change.

The biggest struggle for our users was the use of items. With smarteam, BOM relations were created by linking the drawings/files to each other. With Vault, relations were managed by using ITEMS instead of files. Therefore, this was a 2-level environment. Understanding the implications and workings of this both for the people setting-up the platform, as for the final users took some time, and should be considered as a key point to take with in the transition.

## OUR VAULT-FUSION ROADMAP 2021

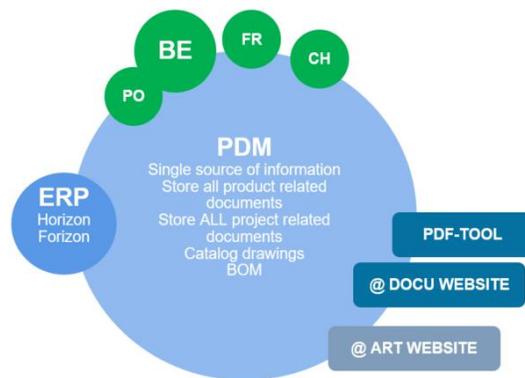
It's important when implementing PDM and PLM to have your roadmap ready for the next years! As within Reynaers, it was very clear that the initial CAD-user teams (development teams) would switch first to Vault (and Fusion Lifecycle). But there was no doubt about it that you have also to define your goals for the next month's/years: Which departments need to be migrated? Communication needed with other software(s)? Because from this roadmap, one can also get critical info, or requirements for setting up naming conventions, metadata which will become much harder to change when not considered from the beginning.

We have current 4 goals for 2021: Link to our PIM system | Migrate Research Department to Fusion Lifecycle/Vault | Improved communication with suppliers using shared views Vault | Integration of BIM models.



## ACTUAL USE OF VAULT

Vault is now used in our four DVPT centers (Belgium, France, Poland and Switzerland Forster) and the most important thing is that they now use all the **SAME** workflows! The Integrating of other departments as Research is planned begin 2021 as mentioned in our roadmap. Vault is linked to our ERP system and linked to several websites.



### Single source of information

At Reynaers, each project, big or small, gets a unique project nr. This number is available in Vault, ERP and Fusion. In vault, we have a project folder for each project and sub-folders for each phase of the project. Purpose of this is to be sure that all project related documents are stored in Vault and not on a personal drive or in SharePoint. Vault is the **SINGLE SOURCE OF INFORMATION**.

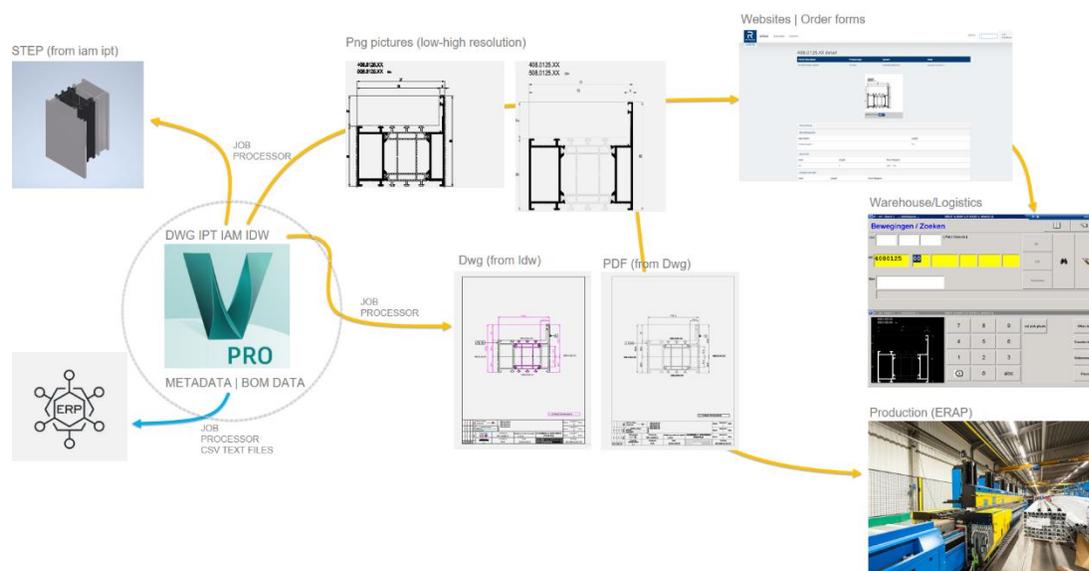
These project sub-folders are used by different departments: Research can store the project related thermal calculations in the RESEARCH folder and Product management can store their commercial product presentations in the LAUNCH sub-folder of the project.

## Vault output files

In vault, we manage all **original** drawings and documents. However, within Reynaers, we need other output formats like Pdf's, png's from our CAD drawings. These are generated by our JOB processor BUT placed outside Vault.

Why ??

This enables an easier access to the files by our in-house developed ERP system without using the API (similar to Smarteam). Info about new articles, updates of metadata, update of drawings is all communicated to the ERP by using csv files. In the meanwhile we build-up experience with the Vault API and is already used now the visualize Vault data and files in different website.



## IMPLEMENTING FUSION

We decided to implement Fusion as PLM because there was an Urgent NEED for one centralized tool to manage projects and to manage the product life cycle of our new articles.

People are constantly overloaded with e-mails, or telephone calls, and nevertheless they want to have a clear view on what is happening inside the R&D organisation. Managers and team leaders spend hours to search for article life cycle information in different environments as ERP, Vault, SharePoint, MS project,... and to gather all info to make a descent report of the status of an NPI project. Like: Was a request placed for a new development, was it accepted and why, who will or is managing the project, what is the timeline of the project and which milestone is already reached, were all test done for validation, etc. So our need was clear for a centralized tool to manage projects as well as the lifecycle of articles. Main elements which are key in Fusion Lifecycle:

For us Fusion Lifecycle held, and holds that promise, both due to the fact that it is cloud based so you can reach it from anywhere, as well as the fact it is highly flexible. Let me briefly highlight some of these elements that were crucial for us.

#### User access rights

- By which you allow to view, read and edit. Although setup looks complex at first, it allows for a lot of freedom & possibilities, for instance => you standard get a sandbox environment to develop and experiment, and even release to test users

#### Workflows

- Easily define own workflows, and adapt these on the spot, based on the need of a changing organization. You can also indicate instructions for all to see, so they can see what step is coming, and what is required. Also a straight forward setup for validations, with possible extensions using .... Java scripting  
Key learning there: don't overcomplicate in one workspace, which will make it more complex for managing, on the other hand also think about later dashboard and/or reporting, since today you cannot easily extract data across workspaces.

#### Javascripting

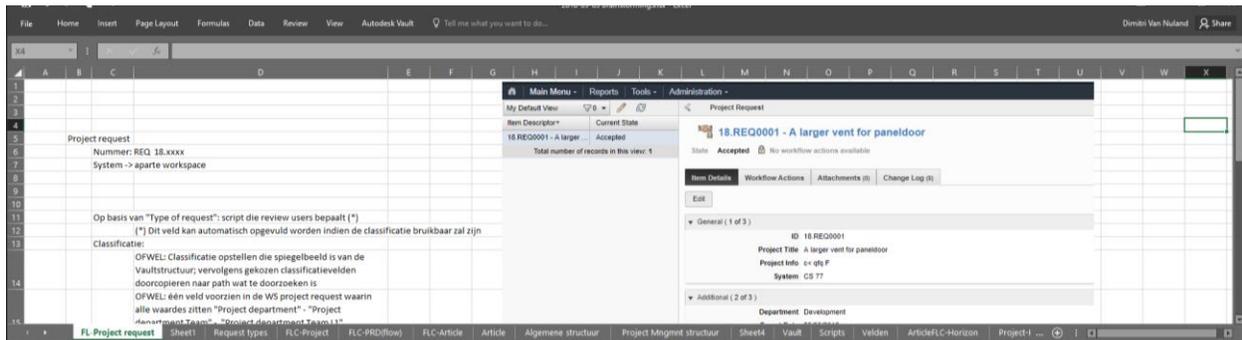
- Possibility to program and automate a lot of things yourself. This is something we are developing more and more inside our own organization, and where the Autodesk forums are also very helpful to find already prepared solutions, or consult with other organizations experts. This is also crucial towards integration with other software (in our case Vault and our ERP); but for this last also good commercial solutions are available (look CoolOrange); To be honest, something we weren't aware of when we started and could have simplified our life.

#### Project Management

- This not only gathers a lot of information together but also visualizes it. There are still some limitations on what it can do today, like missing update link between tasks, but we are working closely together with Autodesk to get it to the next level. Because we believe its better to have one source of information of your projects, than have to combine a lot of data together, and as such have a scattered and possibly not up-to-date view.

There is a clear difference in implementing Vault and Fusion Lifecycle, since for the first a lot of preparation and testing is required, and then you make a calculated switch, whereas Fusion Lifecycle is more something that grows organically. This is due to the nature of the beast, being cloud, flexible, but also more easy to roll out to users.

It still remains critical to have a view of what you want to accomplish, and also which roadmap you have in mind; because this will influence the setup of the architecture of workspaces, metadata and links, but the process to get to an implemented solution is much more iterative. So once Vault was implemented, everyone was solidly working with it, and the small bugs we had to fix were behind us, we refreshed our view on what we wanted to have in our PLM. Together with our Autodesk partner Arkance we set-up a standard rhythm of 1 workshop per week. This was followed by building the discussed setup in Fusion Lifecycle, and then validating/updating the concept a week later. Some of you will recognize this process as agile, which is mostly used in the context of SW development, but this approach with sprints is also highly efficient to grow your Fusion Lifecycle PLM solution. The image here shows simply the Excel file we used as basis to specify and review our sprints, but there are of course many other tools that can suit this need.

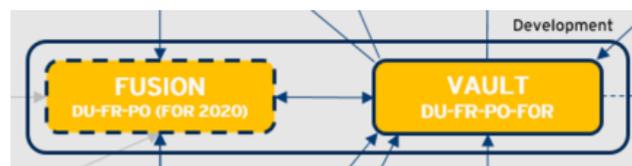


Just one note of caution. Although this flexibility is good, data by itself isn't always that flexible. So this is something as key learning to keep in mind, as soon as you start with real data, this may sometimes hinder upgrades and or modifications. Now let us have a look at some of the solutions we implemented into Fusion Lifecycle.

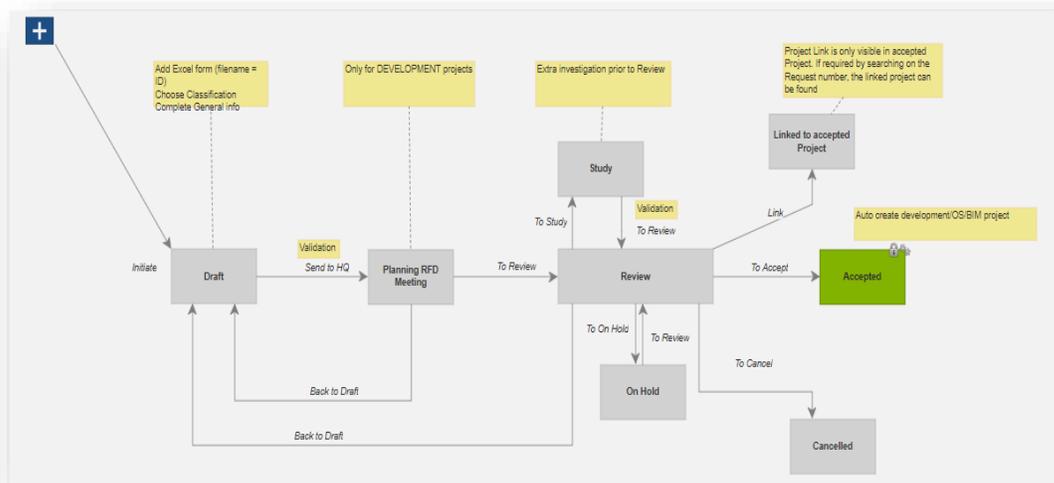
## Use of Fusion

### Requests:

Reynaers works 100% project-based. This means that ALL projects that people are working on must have been reviewed and accepted, upon which they receive a UNIQUE project nr. This happens today in Fusion, where sales representatives around the globe can place a request. These project requests get a random nr 20.REQxxxx and are evaluated by a team of technical & market experts. If the request is accepted, an unique project nr is generated. This project number as well as the related project structure is also created in Vault to keep the **SYNERGY** between Vault and Fusion, as well as in our ERP to communicate commercialisation date of an NPI, and also make the financial link between the project and the articles that will be developed.



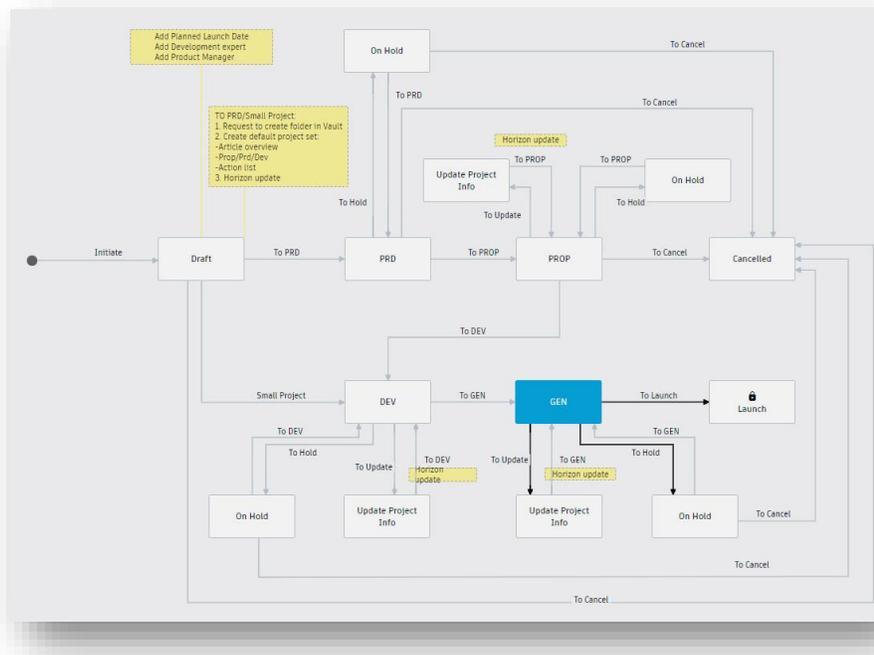
The advantage of Fusion is of course that also the workflows are visualised, including instructions (see yellow boxes), which helps for people who are not often using these flows. Aspects we have learned in this sense, is to also include data validation, to make sure proper information is transmitted to the next step, and these are things that can grow in Fusion, and depending on the needs can be tuned on the spot. Also only flows are visible to people for which they have the rights.



### Manage Project Status

As soon as a project is created, the stage gate of the project gets assigned (this is customized for each type of project; again showing the flexibility of Fusion Lifecycle). Each project has a specific Reynaers workflow with different phases like PRD, Proposal, Development (real drawings). For instance types of projects can be completely new systems, extensions, upgrades. One can also see here in which country the project is foreseen, as well as to which platform and people it is linked; But this is of course customizable by yourself.

The workflow you see now is one of our more elaborate, since it shows the stage gate of complete new system development. But like mentioned previously, this is for us key since we want to be able within one workspace to report the relevant data of a project or a multitude.

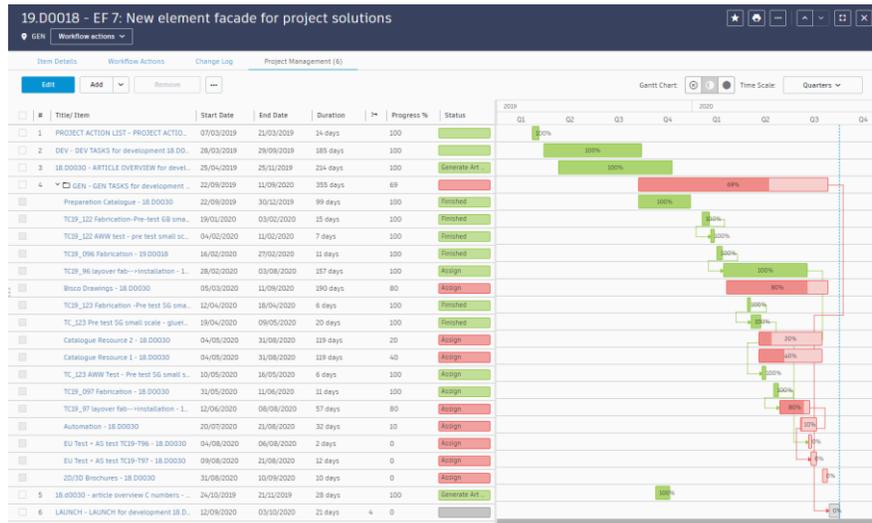


### Plan our projects

The project management tab was of key importance when introducing Fusion Lifecycle in R&D. It provides us with the ability to quickly look at singular projects, or even projects accross teams and see how they have evolved. In order to facilitate usage for the project managers, depending on the project date, and launch date, project tasks and timings are populated when a project gets people assigned and is initiated. This lowers the engagement, and allows transfers planning knowledge between teams.

Although very simple as idea, in the project management tab, you can link any project or tasks or subproject and subtask to eachother. Especially with interconnected projects, and different points of view, everyone can create his own unique view at progress, and the relevant topics. This is also relevant from the point of view of the latest information; since different workspaces managed by different people, become visible in one location. On this level we also intergated the interconnectivity with our ERP, so life-cycle status of the articles under development also get visualised in this central view.

Key learning here, although not specifically linked to the specific tab in Fusion Lifecycle, making a planning is key, but this means also it needs to be manageable. So workpackages shouldn't be too detailed, because from our point of view, this planning then looses its relevance, and to much time gets spend on updating it, instead of getting the project to a successful completion.



### Follow-up article status/Lifecycle

We use the Fusion bill of material to create an overview of ALL new articles BUT also the metadata of these articles. This info is necessary for the technical drawer in Vault to create the correct article assembly and linked metadata.

The screenshot shows a Bill of Materials (BOM) view for article 18.D0030. The table lists various components and their associated data.

#	Descriptor	Article Nr	Description	Article Type	Article Category	Status	Quantity	RFIBT	Estimated die cost	Actual die cost	Article cost col or 00 L1	Article cost col or 00 L2	Prognose L1	Prognose L2	Proto L1 Requ red	Proto L2 red
0.0	18.D0030 - ARTICLE OVERVIEW for development 18.D0030 -	18.D0030	ARTICLE OVERVIEW for development 18.D0030 -	OVERVIEW	-	Generate Article Number	-	-	-	-	-	-	-	-	-	-
+ 1.1	107.0210.xx - FRAME PROFILE - 18.D0030	107.0210.xx	FRAME PROFILE	MAIN	Profile	Serie 1st Control Quality	1.0	2BF 6511	-	-	-	-	2570 / 3140 / 3715	-	-	-
+ 1.2	107.0211.xx - FRAME - 18.D0030	107.0211.xx	FRAME	MAIN	Profile	Release TD	1.0	-	-	-	-	-	-	-	-	-
+ 1.3	107.0212.xx - FRAME - 18.D0030	107.0212.xx	FRAME	MAIN	Profile	Serie In Reception	1.0	2BF 6517	-	-	-	-	-	-	-	-
+ 1.5	107.0220.xx - FRAME PROFILE - 18.D0030	107.0220.xx	FRAME PROFILE	MAIN	Profile	Serie Approved	1.0	-	-	-	-	-	-	-	-	-
+ 1.6	107.0420.xx - FRAME PROFILE - 18.D0030	107.0420.xx	FRAME PROFILE	MAIN	Profile	Serie 1st Control Quality	1.0	2BF 6519	-	-	-	-	-	-	-	-
+ 1.7	107.0421.xx - FRAME - 18.D0030	107.0421.xx	FRAME	MAIN	Profile	Serie Approved	1.0	2BF 6522	-	-	-	-	-	-	-	-
+ 1.8	107.0422.xx - FRAME PROFILE - 18.D0030	107.0422.xx	FRAME PROFILE	MAIN	Profile	Serie Approved	1.0	2BF 6523	-	-	-	-	-	-	-	-

The status of the articles is a true synergy between Fusion Lifecycle, Vault & our ERP. Article metadata gets first created in Fusion Lifecycle at the start of a project (which new articles will we develop, what are sales prognoses, material, etc.) Today this info is then transferred manually to Vault. This will in the future be further automated.

In the BOM can see the article reference; which includes also one of the challenges of Fusion Lifecycle; (**Key Learning**) if you like to follow-up date between different workspaces, one should include this data link on best in the descriptor, here in this case the project reference.

As soon as a drawing gets initiated in Vault, the projectmanager or manager can see this in Fusion Lifecycle, as well as which ones are ready for review by ECO. No need to go into Vault, so when multiple drawers & engineers are working on a project, you still have an easy overview. Then as soon as articles get released and data and drawings are transferred to the ERP, the remaining lifecycle with price discussions with supplier, tooling startup, fots, as well as stock built-

up become visible in Fusion Lifecycle. Given the different BOM views possible in Fusion Lifecycle, this allows also for different focus depending on who wants to review the information (purchase, Product manager, so Fusion starts as data creator, but as the lifecycle of projects and articles progresses become the reporter and visualizer.

### Project reporting

**Project : 19.D0096 MasterLine 8 PVC Balcony Door - Strategy 2020** (Project Request: 19.RBQ0139 - MasterLine 8 PVC Balcony Door - Strategy 2020)

Project MasterLine 8 PVC Balcony Door - Strategy 2020, with number 19.D0096 is currently in phase **On Hold**.  
**Original planned launch week was foreseen week 2019-52. To date, the launch is currently foreseen week .** The project is executed at DU, by Katinka - De Bruyn, with Product Manager Arend - Jespers.  
 Following actions were realised in May 2020  
 Prototypes double casement pieces received.  
 No further actions to prepare documentation planned due to COVID-19.

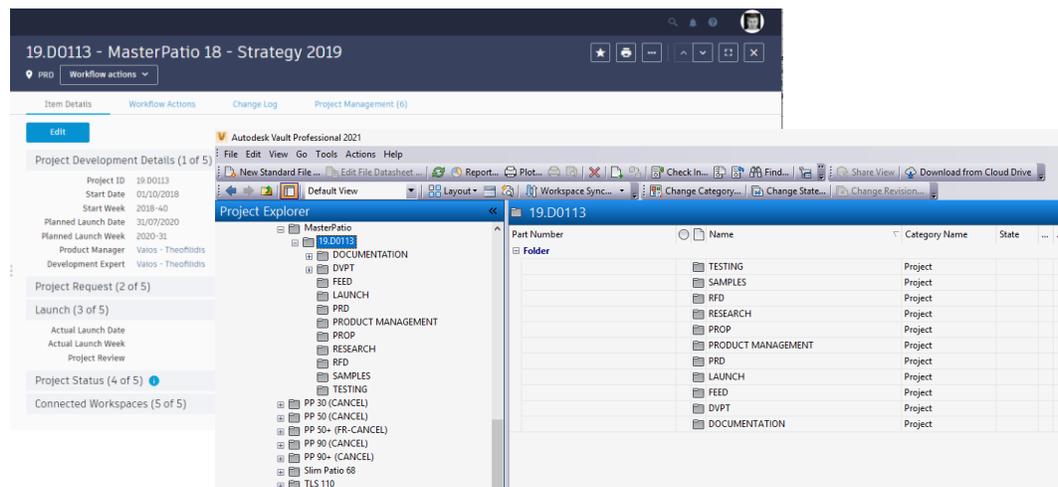
Planning Status							Timeline				
#	Title/Item	Start	End	Duration	Status	% Complete	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3
1	PRD - 19.D0096	19/08/2019	19/09/2019	31d	Late	0%					
2	PROJECT ACTION LIST - PROJECT ACTION LIST for development 19.D0096 - 19.D0096	19/08/2019	02/09/2019	14d	Late	0%					
3	PRD TASKS - PRD TASKS for development 19.D0096 - 19.D0096	02/09/2019	16/09/2019	14d	Late	0%					
4	PROP - 19.D0096	16/09/2019	27/12/2019	102d	Late	0%					
5	19.D0096 - ARTICLE OVERVIEW for development 19.D0096 -	10/11/2019	10/06/2020	213d	Late	0%					
6	DEV - DEV TASKS for development 19.D0096 - 19.D0096	19/03/2020	01/03/2020	43d	Late	0%					
7	DEV - DEV TASKS for development 19.D0096 - 19.D0096	01/03/2020	19/07/2020	140d	Late	0%					
8	LAUNCH - LAUNCH for development 19.D0096 - 19.D0096	01/09/2020	22/09/2020	21d	Late	0%					
Project Summary		19/08/2019	22/09/2020	406d		0%					

**Project history:**  
 Apr 2020: No change  
 Mar 20: No actions  
 Oct 2019: Double casement pieces are developed and sent to Horizon. Price requests are ongoing.  
 Date Report: 2020-08-03

Project managers have the responsibility to inform our markets about the progress of the project. This information is also managed in Fusion in order to have an easy way of reporting. Advanced print views are a very helpful feature in Fusion lifecycle to address this need, as they can group different information of one workspace together. Although as administrators they require some experience, and sometimes frustrates to get to work properly; as soon as you have created these views, you can immediately make these accessible for people to use, and can provide more information than a Fusion Lifecycle report.

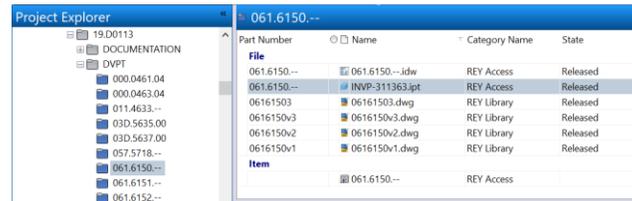
## VAULT-FUSION, THE SYNERGY

As mentioned before, from the moment a project is accepted in Fusion, the same project is also created in Vault. All involved project participants/departments have now ONE common environment to work in and to store their documents. Sub-folders per project phase are automatically created. Information from Vault and ERP are visible in Fusion in order to enable a detailed article follow-up.



The screenshot displays the Autodesk Vault Professional 2021 interface. At the top, the title bar reads "19.D0113 - MasterPatio 18 - Strategy 2019". Below the title bar, there are tabs for "Item Details", "Workflow Actions", "Change Log", and "Project Management (6)". The main interface is divided into several sections:

- Project Development Details (1 of 5):** Lists project ID (19.D0113), start date (01/20/2018), planned launch date (30/07/2020), product manager (Valois - Theofilidis), and development expert (Valois - Theofilidis).
- Project Request (2 of 5):** Lists actual launch date, actual launch week, and project review.
- Launch (3 of 5):** Lists project status (4 of 5) and connected workspaces (5 of 5).
- Project Explorer:** A tree view showing the project structure:
  - MasterPatio
    - 19.D0113
      - DOCUMENTATION
      - DVP
      - FEED
      - LAUNCH
      - PRD
      - PRODUCT MANAGEMENT
      - PROP
      - RESEARCH
      - RFD
      - SAMPLES
      - TESTING
      - PP 30 (CANCEL)
      - PP 50 (CANCEL)
      - PP 54 (FR-CANCEL)
      - PP 90 (CANCEL)
      - PP 90- (CANCEL)
      - Stim Patio 68
      - TLS 110
- Part List:** A table with columns: Part Number, Name, Category Name, and State. It lists various folders and their categories, such as TESTING, SAMPLES, RFD, RESEARCH, PROP, PRODUCT MANAGEMENT, PRD, LAUNCH, FEED, DVP, and DOCUMENTATION, all categorized as "Project".



## Bill of Material 2021

The composition of the new articles (BOM) is already defined in Fusion in order to enable the follow-up. In 2021, this BOM will be used to prepare article folders, templates, compositions in Vault automatically.

## RESUME of major KEY LEARNINGS

**Prepare a roadmap, but implement in steps:** We have found it very helpful to prepare a roadmap of features, departments to involve in advance. Otherwise you risk setting up a structure and data focused on just one department. Also people require time to adapt to ways of working, and you also need time to evaluate how implemented solutions work out. So although you are very enthusiastic and want to do all, implement in steps, especially with Fusion Lifecycle. With experience comes better insights.

**Change management:** Since you always are working with people, change management is key. Most people simply don't like change, so involve them early, also emphasize what will stay the same, and have them experiment when something is at a correct level. (see for some extra tips earlier in this handout)

**Migration of PDM database:** Even if you have tested everything properly a hidden enemy, like an update of Microsoft Windows can mess up plans. So still be prepared for the unexpected and have a contingency plan. Especially when a PDM is linked to an ERP, you cannot afford these two to not communicate anymore.

**Availability of customized tools:** For data exchange between Vault and Fusion lifecycle as well as data import into Vault and/or Fusion Lifecycle, everything can be programmed, but there are good commercial solutions available that may as well suit your purpose. So we can just recommend to also talk to people from [CoolOrange](#) or Jitterbit, but also look further since this is a constantly growing market.

**Project Management and Fusion Lifecycle:** One of the things we didn't fully test in the screening, and where we were a bit disappointed was the Project management tab in Fusion Lifecycle; however working closely with FLC product manager Jeremy Lambert, we hope to shortly have the solution we are looking for. Issues we faced was that with reporting you cannot get the data out, and the predecessor links cannot be used to update your planning logic. For the reporting, advanced printviews can be a good option. (see example in our presentation)

**Fusion Lifecycle, the promise of the platform:** Fusion Lifecycle cloud's aspect, flexibility and possibility to program yourself is a huge advantage. And don't forget to consult the forums

and experts! There is truly a lot of people developing and investing on using the backbone of Fusion Lifecycle to best suit their needs.

**Fusion Lifecycle's security feature:** Although it requires some getting used to; the security features in Fusion Lifecycle are very powerful, and can be tuned up to the parameter you want to view, modify or create.

**Defining data architecture and your future roadmap:** Especially for Vault, please put enough time in defining data architecture, and going into all the details. An external expert help/expert can be a real asset there, if they understand your business. And also prepare a roadmap in advance, since you will need to challenge your decisions along the way with this plan.

**The Synergy:** Vault and Fusion Lifecycle combined create a strong and yet flexible solution, where you both have the advantage of a cloud based lifecycle management and information platform, and the strong on premise data infrastructure of Vault in relation to your CAD software and technical data.