

Advisory Report:
**Project Management
Tools for
Virtual Production (ICVFX)**

FOREWORD

This report presents the project management systems that would meet the needs of a Virtual Production In-Camera Visual Effects projects executed at the XR Stage at Breda University of Applied Sciences.

It is created for the use of Cradle, students, teachers and guests of Breda University of Applied Sciences.

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INTRODUCTION

This advisory report presents project management tools - applications and softwares; that could be used for the Virtual Production In-Camera Visual Effects by Breda University of Applied Sciences.

The report is divided into three parts. The first covers the journey of its creation, beginning with the Virtual Production project that served as the problem definition. The second part explains Virtual Production In-Camera Visual Effects - VP (ICVFX); focusing on the production needs of such a project. The third part presents the criteria for choosing a Project management tool and provides a graded matrix of the suitable choices available for free, provide an educational discount or with an educational license.



THE JOURNEY

Explanation of the process

In order to collect enough theoretical and applicable data to write this report - one qualitative research and three projects using Virtual Production In-Camera Visual Effects were executed.

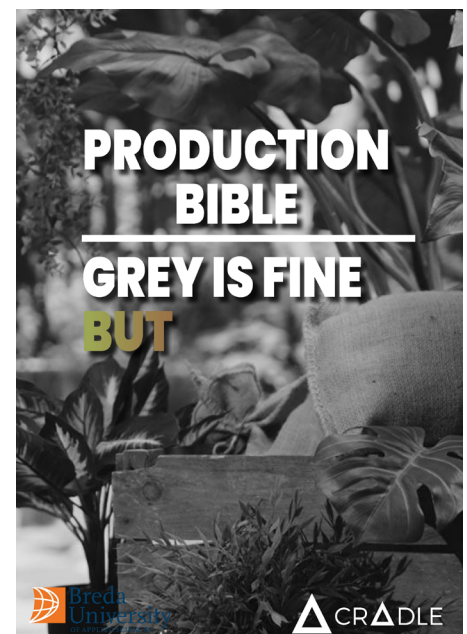
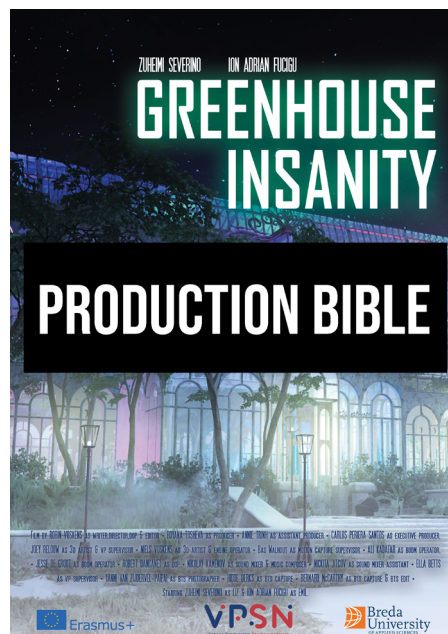
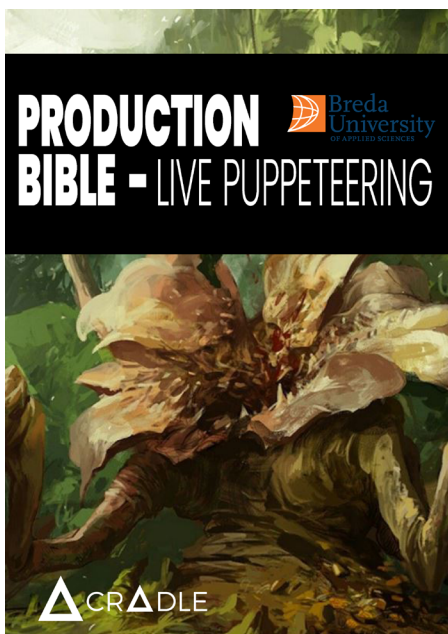
The supportive research can be found here: [Supportive research](#).

The VP (ICVFX) projects will be presented as “case studies”.

Case study 1 - “Live Puppeteering” (8.11.2022 - tbd) serves as the problem definition. It showed that there is a need for more organized and collaborative work and that using a project management system could be the solution for work planning for VP (ICVFX).

Case Study 2 - “Green House Insanity” (20.02.2023 - 30.06.2023) is the first production beginning and ending with a project management system and it serves as the main base for comparison when evaluating the other systems.

Case Study 3 - “Grey is fine but “(05.07.2023 - 12.07.2023) is a smaller production that serves as a limitation of bias and confirmation of the factors that a project management system needs to cover to be usable for VP in a helpful way.



Case Study 1

















The Virtual Production (ICVFX) project titled “Live Puppeteering” is the project which showed the need for this report.

The project was part of a Master student graduation project on the topic of using Motion Capture technology, specifically gloves, to manipulate non-humanoid characters to achieve in-real time actor-character interaction: the actor sees the creature on the screen and the creature is moving.

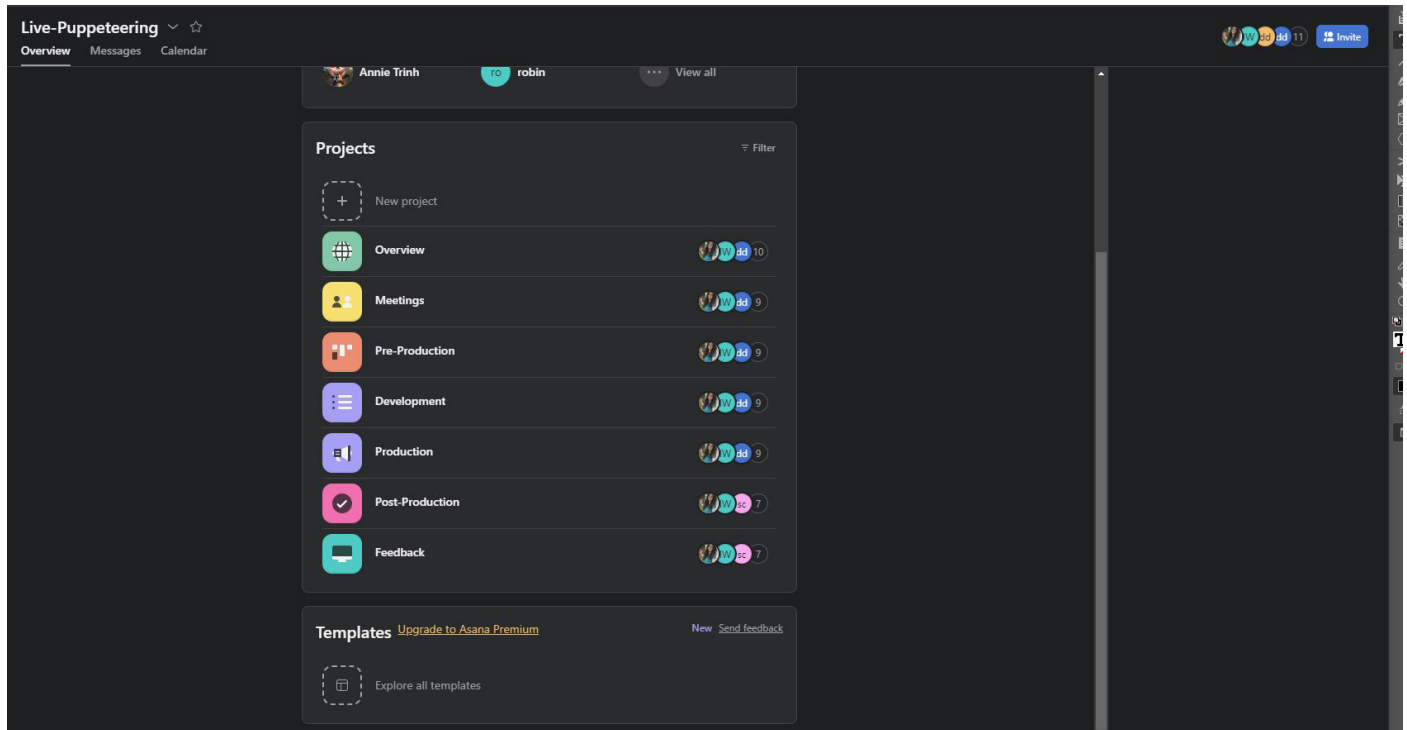
As most VP projects there were a lot of components to take into account when setting up and executing it. For example:

- ▶ **Concept Development**
- ▶ **Setting milestones and deadlines**
- ▶ **Storyboard**
- ▶ **3D Asset Development**
- ▶ **Pre-visualization**
- ▶ **Technical Visualization**
- ▶ **Shotlist**
- ▶ **Floorplan**
- ▶ **Call Sheets**
- ▶ **And others...**

Initially the work began with the use of template documents, provided by previous VP projects done at Breda University of Applied Sciences.

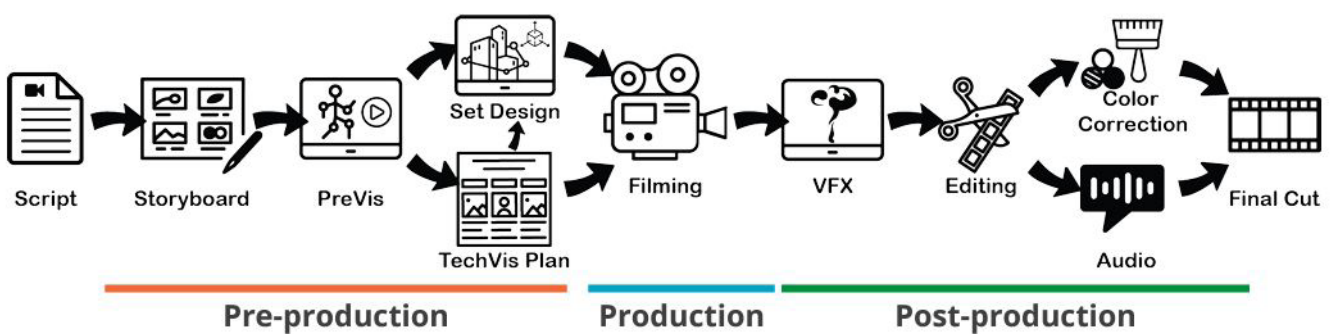
 FloorPlanXRStage.pdf
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 StoryboardTemplate.pdf
 VP_CallSheet.docx
 VP_Floorplan.docx
 VP_FloorplanPrint.pdf
 VP_LocationRelease.docx
 VP_PA_Contract.docx
 VP_QuitclaimBUAS.docx
 VP_ScriptBreakdown.docx
 VP_Shotlist.xlsx
 VP_Stripboard.xlsx
 VP_TalentReleaseForm.docx
 VP_TalentReleaseFormCOVID.docx
 VP_TeamContract.pdf
 VP_TwoColumnScript.docx

Due to the Director and 3D Artist (one person) working mainly remotely, besides a shared OneDrive folder space with a folder structure following the traditional film-making stages: Pre-production, Production, Post-production; Asana was implemented to set deadlines, milestones and a to-do lists. Asana is a project management browser tool that offers, for free, team space with possibility for colour coding, calendar view, interlinking projects, and kanban boards for task management. For this production, I used the "Projects" as pages to provide a more structured way for working.



Snippet: Asana Live-Puppeteering Team Space 2022

As with VP (ICVFX) the main workload is during the pre-production for both the physical stage set-up (acquiring props, finding actors, script reviews, etc) and the 3D environment build (which also included the creature).

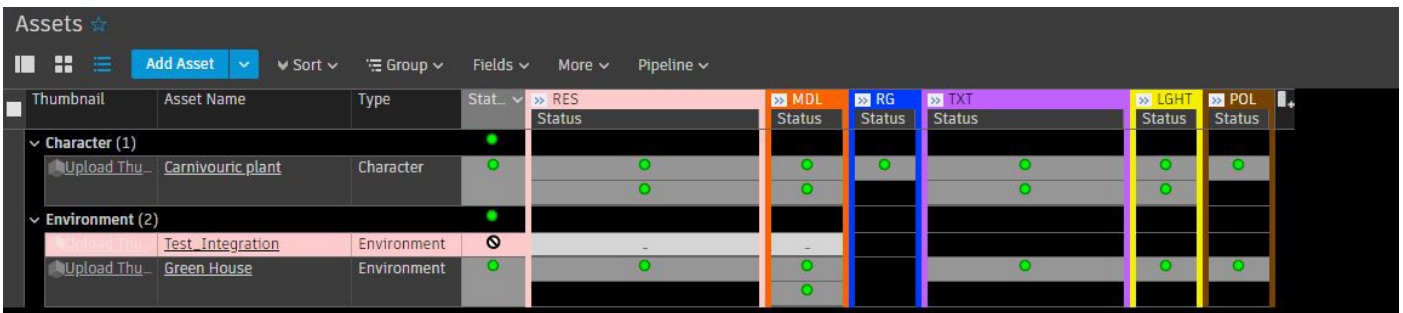
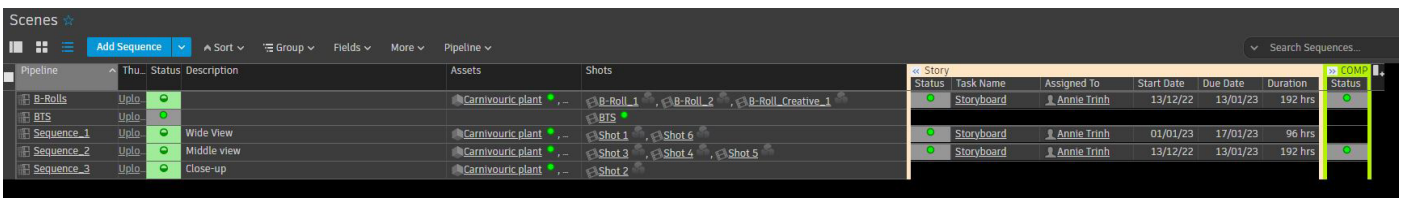
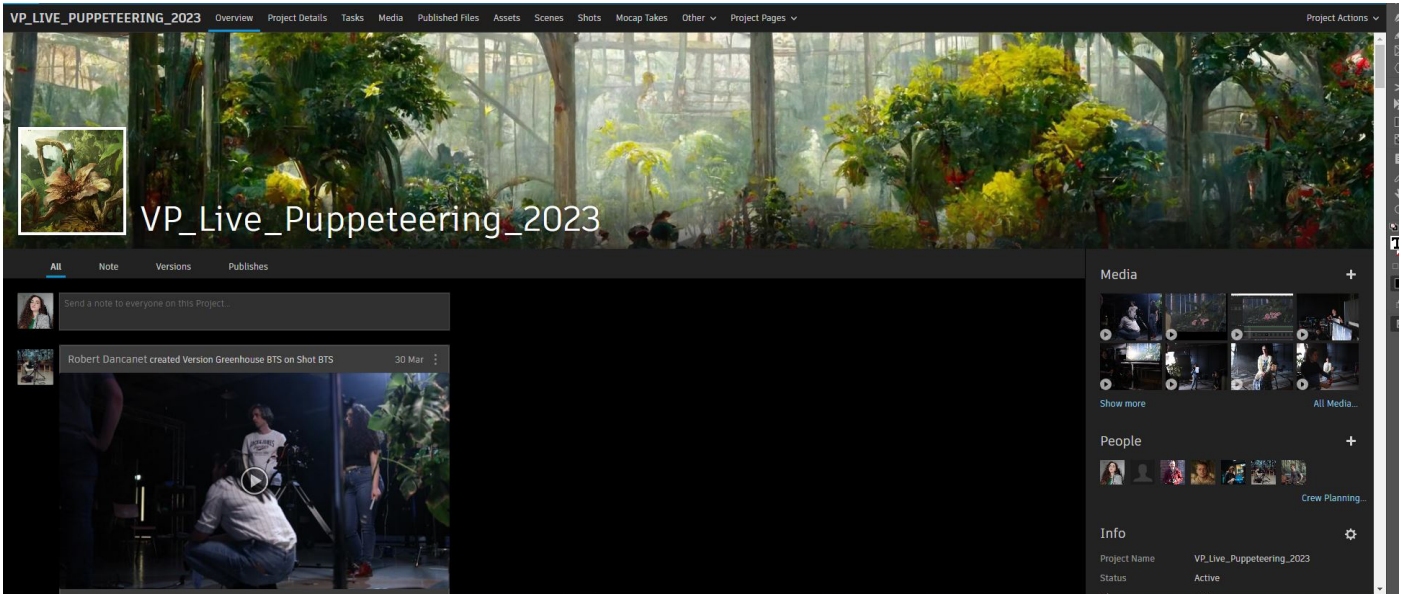


Virtual Production Knowledge Base 2023

Here we also had the new Manus Motion Capture gloves that had to be tested and properly integrated with the Unreal Engine running on the screen through the nDisplay. It quickly started getting chaotic mainly because there was no proper way to keep track of the progress of the 3D development of the Master Student through just Asana. Mainly due to Asana not supporting fbx files.

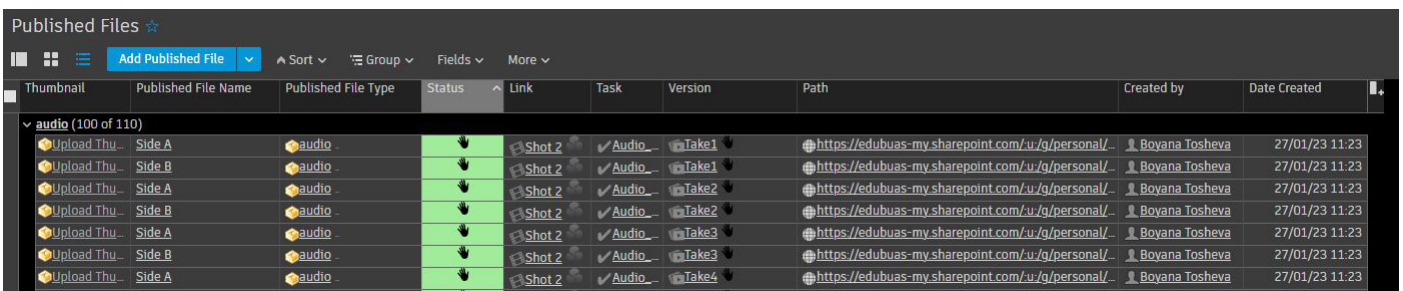
That's why I started looking into Shotgrid, which is a project management software mainly used for game development and 3D. The information from Asana was transferred to a Shotgrid project that was modified to suit the needs of VP.

Shotgrid does not have a pre-made VP template, and the already existing Film or Game Template did not meet all the needs of the VP project “Live Puppeteering”.



Snippet: Shotgrid Live-Puppeteering Project Space 2022

The system was implemented towards the end of the pre-production and the beginning of the production stage but it helped organize the two portions of the project as now we could track not only the tasks statuses but also the versions developed on the 3D side. Additionally, with Shotgrid we got space to organize the video and audio files per shots and review them and access them either through a link leading to the OneDrive location or the local file directory.



Due to external circumstances the project is still in post-production, but the experience gathered while working on it provided a starting point for my work on pipeline development for VP projects at the XR Stage of Breda University of Applied Sciences.

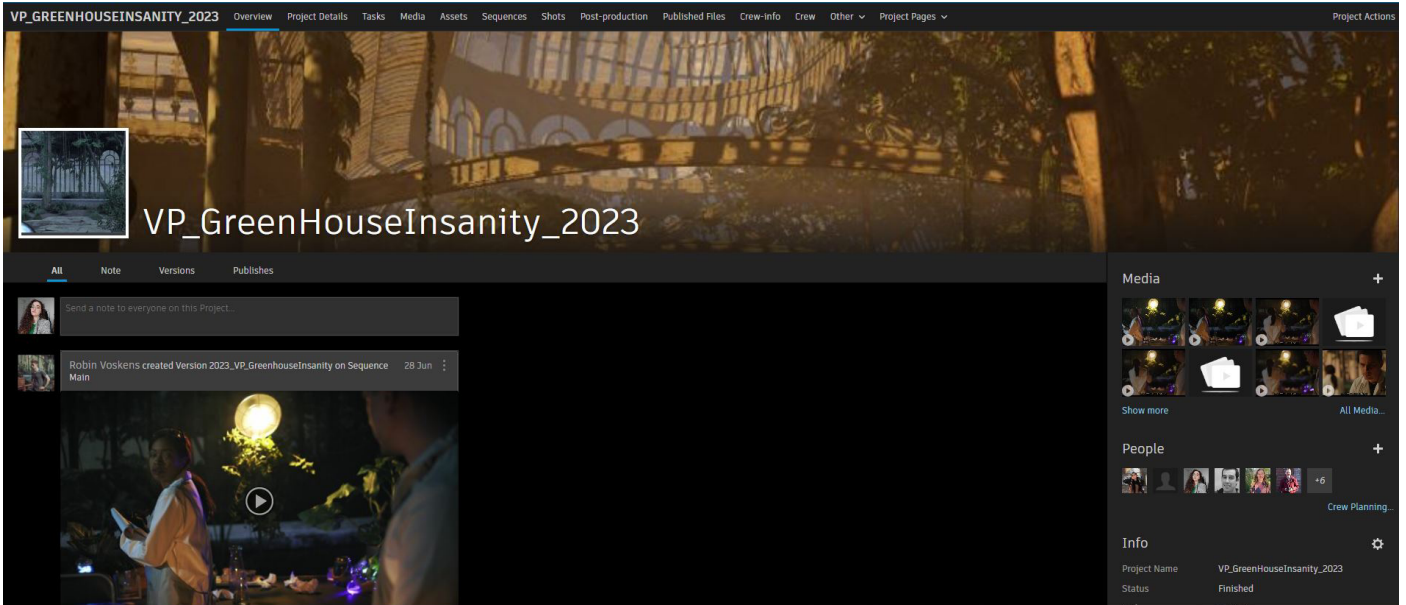
The “Live Puppeteering” VP project presented not only the problem but also the possible solution

when it comes to project management and Virtual Production In-Camera Visual Effects. It showcased how easy it is to lose track of stuff and how useful using a project management tool can be. Additionally, it provided an insight into some of the factors such a tool needed to cover to meet the requirements of Virtual Production (ICVFX) projects.

- ▶ **Modifiability - creating your own project space**
- ▶ **Media File support - specifically fbx**
- ▶ **Task Management - being able to track the statuses of each task and there due dates**
- ▶ **Version Tracking - being able to track down the versions without loosing the previous ones**
- ▶ **Linking - being able to link assets, media files, notes inside the project space**
- ▶ **Local Storage - for inside usage**
- ▶ **Cloud Storage - for external usage**
- ▶ **Colour Coding - Makes it easier to find things at a glance, especially if using calendar view or exporting diagrams, pie charts etc.**

Case Study 2

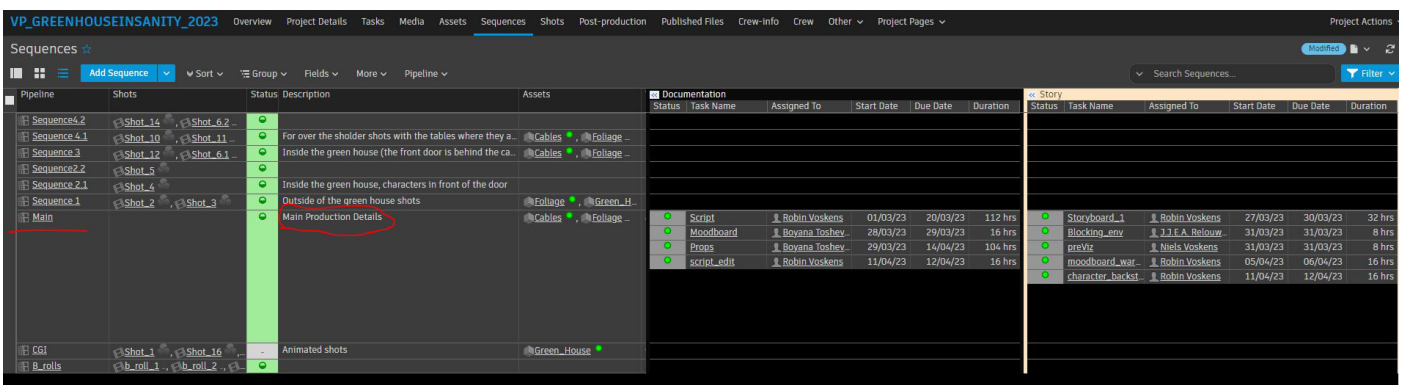
“Greenhouse Insanity” is a production part of an “Erasmus +” project - VPSN (Virtual Production Studio Network). From the beginning of the project until the finalization of the final cut, this VP (ICVFX) project used the project management software Shotgrid.



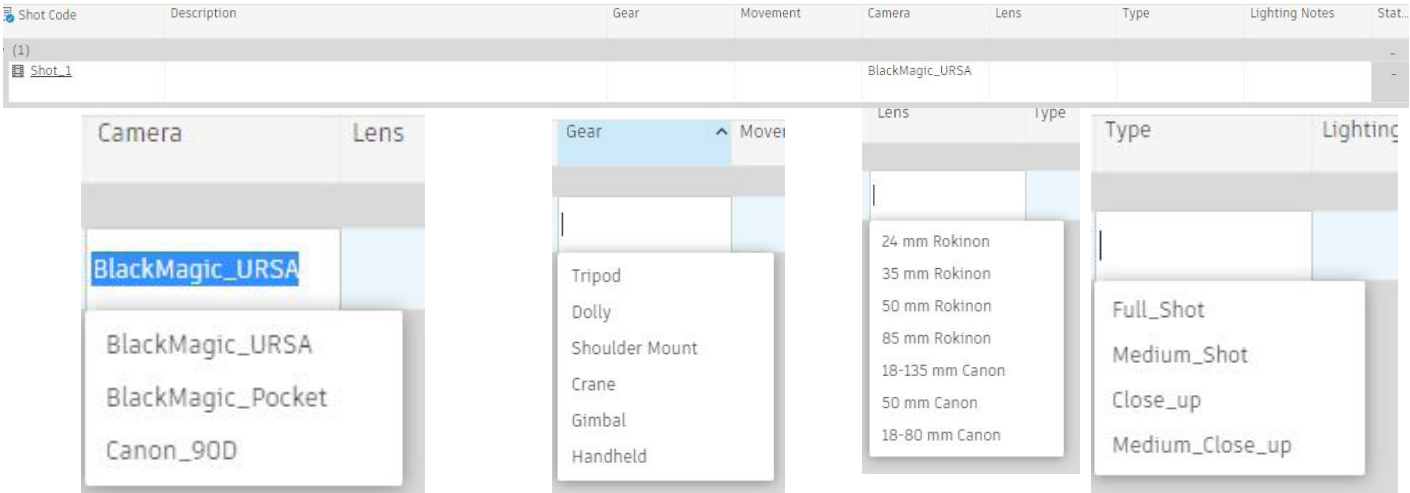
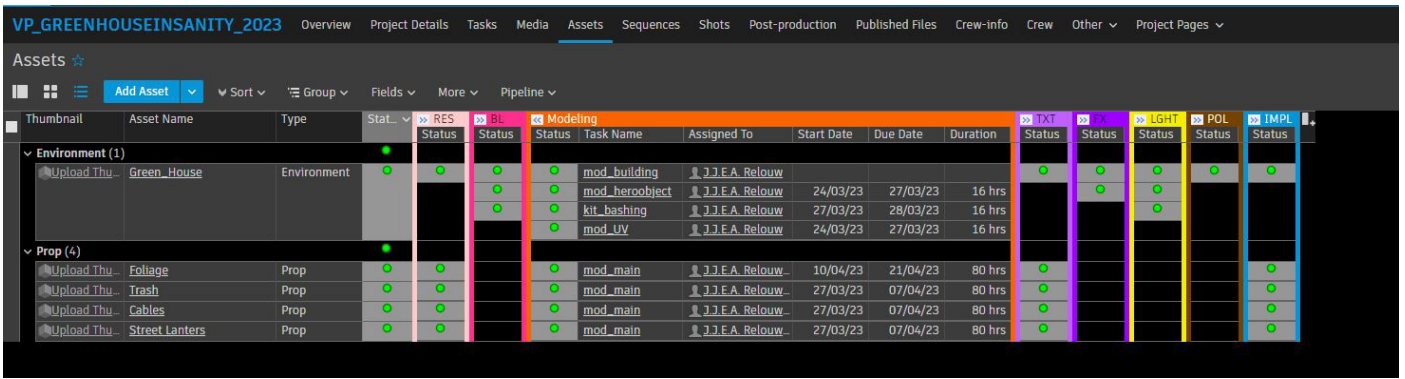
There were two main challenges. One was to improve the started custom project set-up for VP in Shotgrid based on the experience with “Live Puppeteering”. The second - teaching the crew how to use it and ensuring they do.

Main improvements from the start:

One space for all the project details, space that serves as a shotlist but also as an asset tracking (in this case the asset is the shot) and crew info.



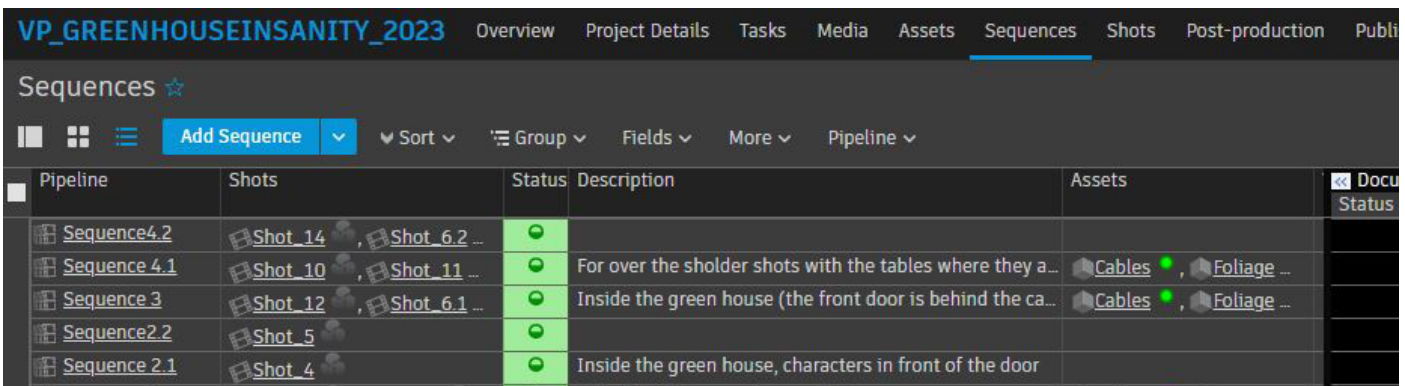
Snippet: Shotgrid Green House Insanity Project Space 2023



Snippet: Shotgrid Green House Insanity Project Space 2023

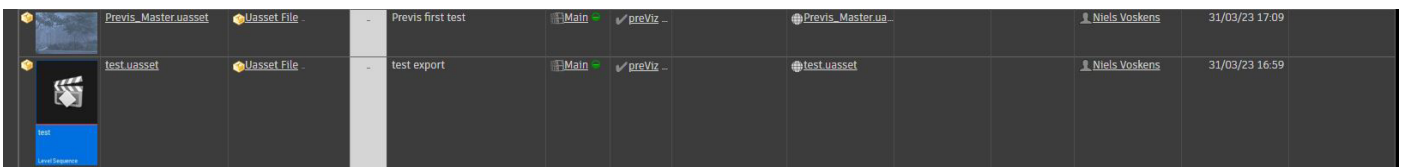
Main Improvements after the Pre-production Phase:

After we had the script, me and the director sat down to make the storyboard and the moodboard. We decided to include the notion of “sequence” in the way we divide the shots as it made more sense than working with “scenes.”



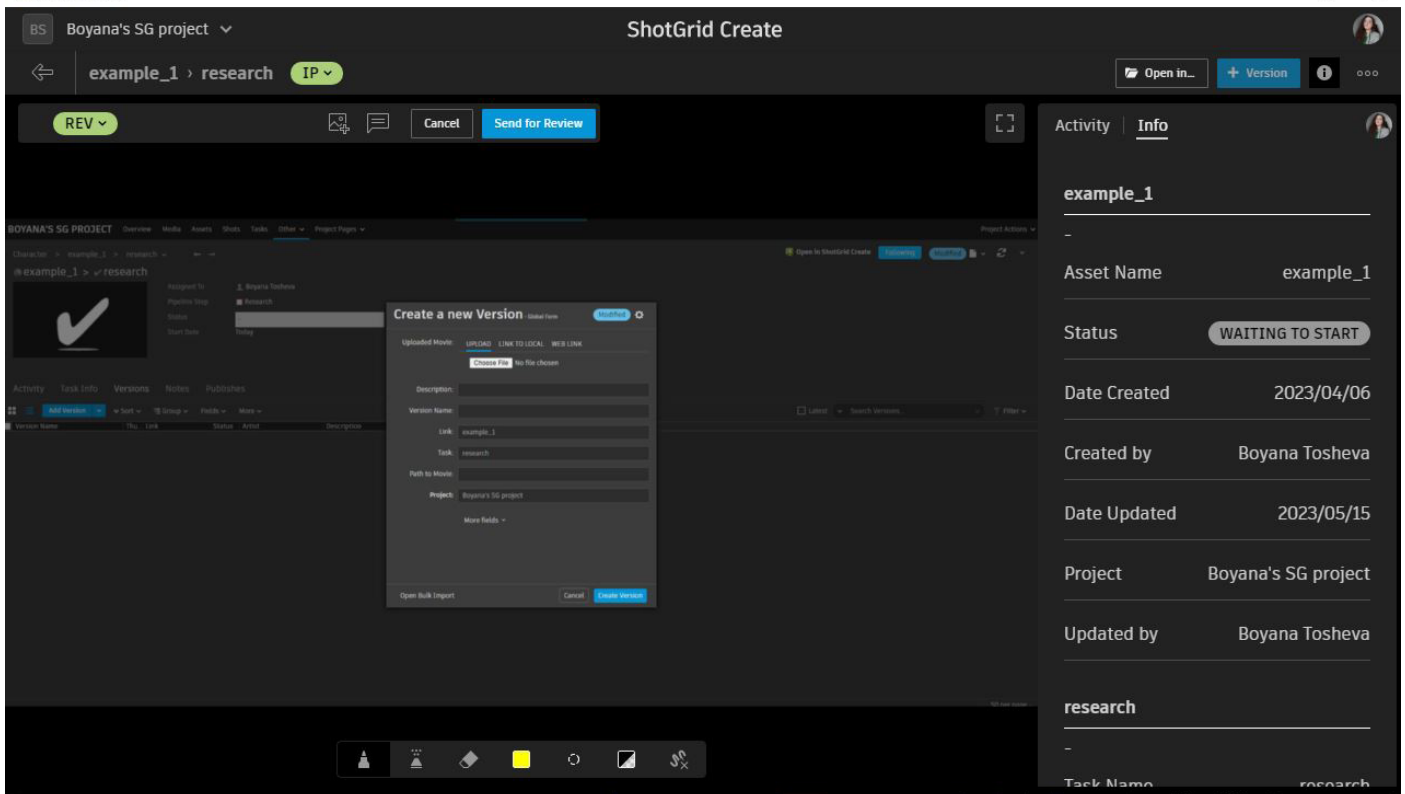
Snippet: Shotgrid Green House Insanity Project Space 2023

Another important moment was trying to see if we can publish the Previs to Shotgrid directly from Unreal Engine.



Snippet: Shotgrid Green House Insanity Project Space 2023

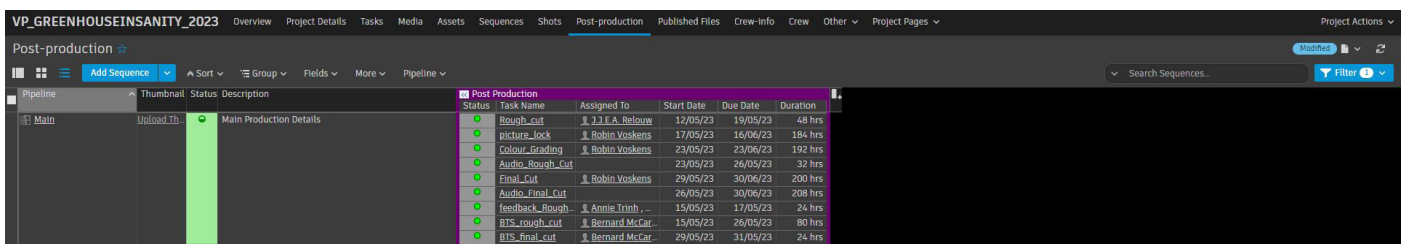
It showed how other softwares can be integrated with Shotgrid to make the work process easier, when it comes to updates. That's when we started using Shotgrid Create.



Snippet: Shotgrid Green House Insanity Create 2023

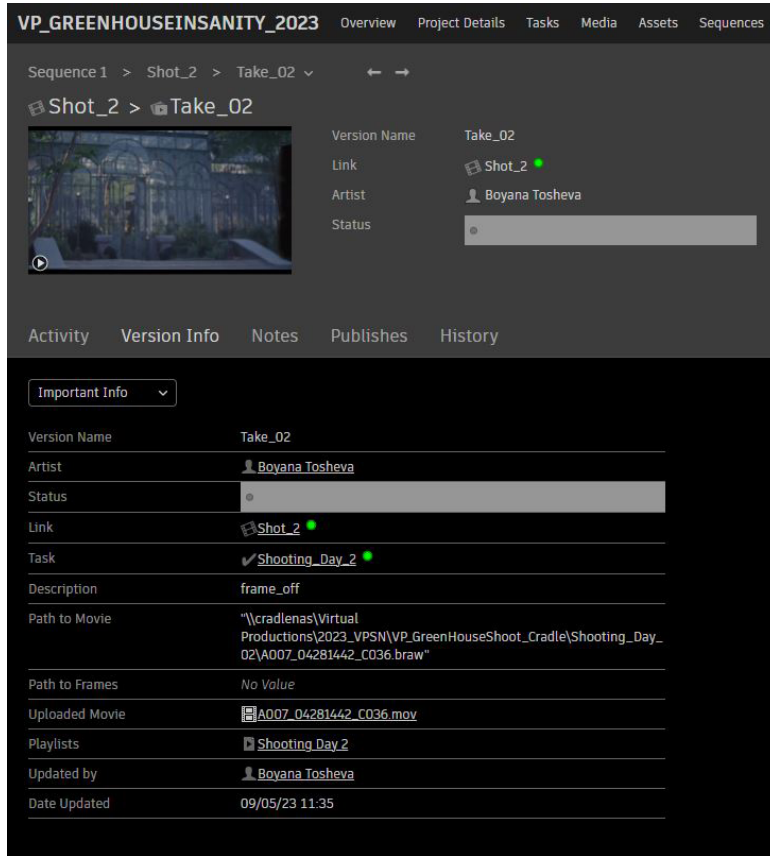
Main Improvements after Production Phase:

The main updates after the production phase, was creating a tab “Post-production” and trying to interlink it with the tasks on the “Main” production details sequence.



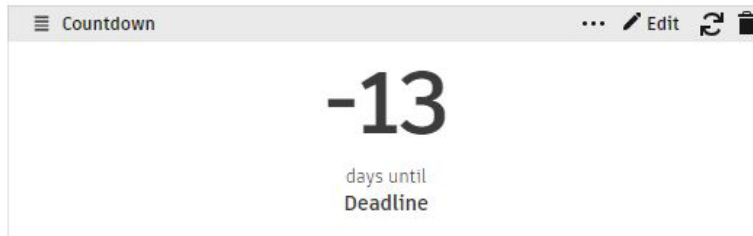
Snippet: Shotgrid Green House Insanity 2023

Moreover, this time, instead of linking the takes of the shots just with a OneDrive url, or local directory, we also added “Path to movie” that can be copied and pasted.



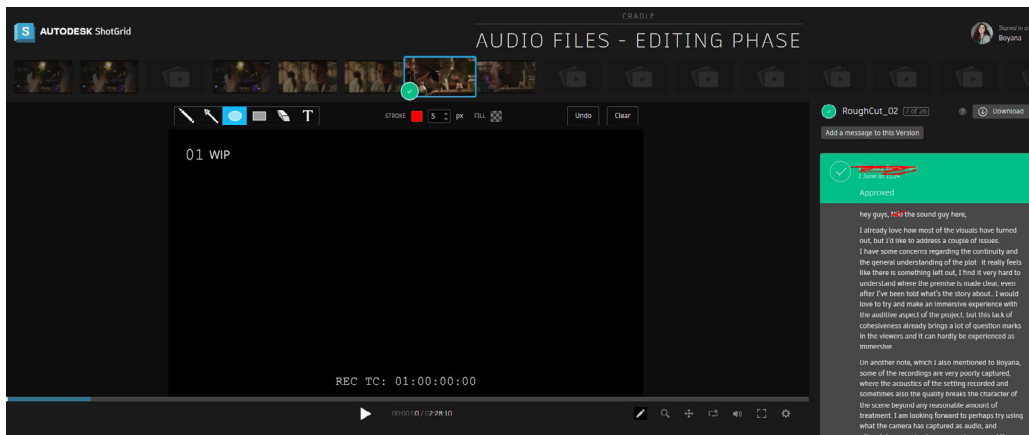
Snippet: Shotgrid Green House Insanity 2023

Another new creation was the update on the widgets - "Deadline clock down" was added.



Snippet: Shotgrid VP Template Draft 2023

We used an external sound mixer and composer, and instead of making a vendor account for them - we made a client user account and placed all the selected audio files and versions of the video edits in a shared playlist, where the sound mixer/composer can provide his feedback on the edit and also upload his work.



Snippet: Shotgrid Green House Insanity 2023

To make sure the editing was on schedule, a widget for “overdue tasks” was added to the “Project Details Tabs”.



Snippet: Shotgrid Green House Insanity 2023

Main Lessons Learned to Improve:

1. **Using color coordination for the different phases.**
2. **Establishing naming conventions for people to use, to avoid chaos.**
3. **Placing a “Step” in the “Main” production details in the “Sequence Tab” for Feedback and assigning tasks to people to give feedback on the different products uploaded - script, storyboard, rough cut etc.**
4. **Having an “at a glance” view of the tasks due date, major milestones and main deadline.**

This production showed how helpful using a project management software is. It made the work more efficient and easier to track.

The production also showcased the following factors a project management tool had to meet:

- ▶ **Milestones & Deadlines - easier view of what is overdue or due today.**
- ▶ **Feedback Space - place for the team provide feedback that is stored and attached to the respective version.**
- ▶ **Integrations - being able to use the project management tool with other programs for a seamless work process.**
- ▶ **Time Logs - as this project was to serve as a base to make a VP template, it was important to track how long tasks would take in comparison to the allocated time.**

Case Study 3

To ensure that there would not be biased when grading the project management tools, I used ftrack, which is a similar software to Shotgrid.

With the short VP project “Grey is fine but”, I also got to confirm the factors (Mentioned in “Case Study 1” and “Case Study 2”) required of a project management tool.

Unfortunately, I could not use the project management software with other people, thus why the production happened in the span of 5 days.

I applied the color coding, used for the VP template in Shotgrid and tried to mimic the structure of the work, but had to re-adjust it.

Tasks ↑	Type	Status	Assignee	Start date	Due date	Bid days	Worked days	+/- days
Count (task) 13		Done % 61.54%		Min 04-07-2023	Max 05-07-2023	Sum 0.0	Sum 0.53	Sum -0.53
1	VP_Grey_Is_nice_but_2023	Project		04-07-2023 1...	12-07-2023 0...	0.00	0.53	-0.53
2	Delivery	Milestone (Post-pro...	Ready to start	Boyana Toshewa	12-07-2023 0...	12-07-2023 0...	0.00	0.00
3	Post-production	Folder	Editors, Producti...			0.00	0.34	-0.34
4	Pre-production	Folder	3D Artist, Produc...	04-07-2023 1...	05-07-2023 1...	0.00	0.20	-0.20
5	Production	Folder	3D Artist, Audio, ...			0.00	0.00	0.00

Snippet: ftrack Grey is fine But Project Space 2023

Instead of tabs, here I could use folders and nest the different types of content in there.

Through this project, I discovered that the base learning of how to adjust a project management tool gained through “Case Study 1” and “Case Study 2” can be applied to other platforms, not just Shotgrid.



VP (ICVFX) PROJECT MANAGEMENT

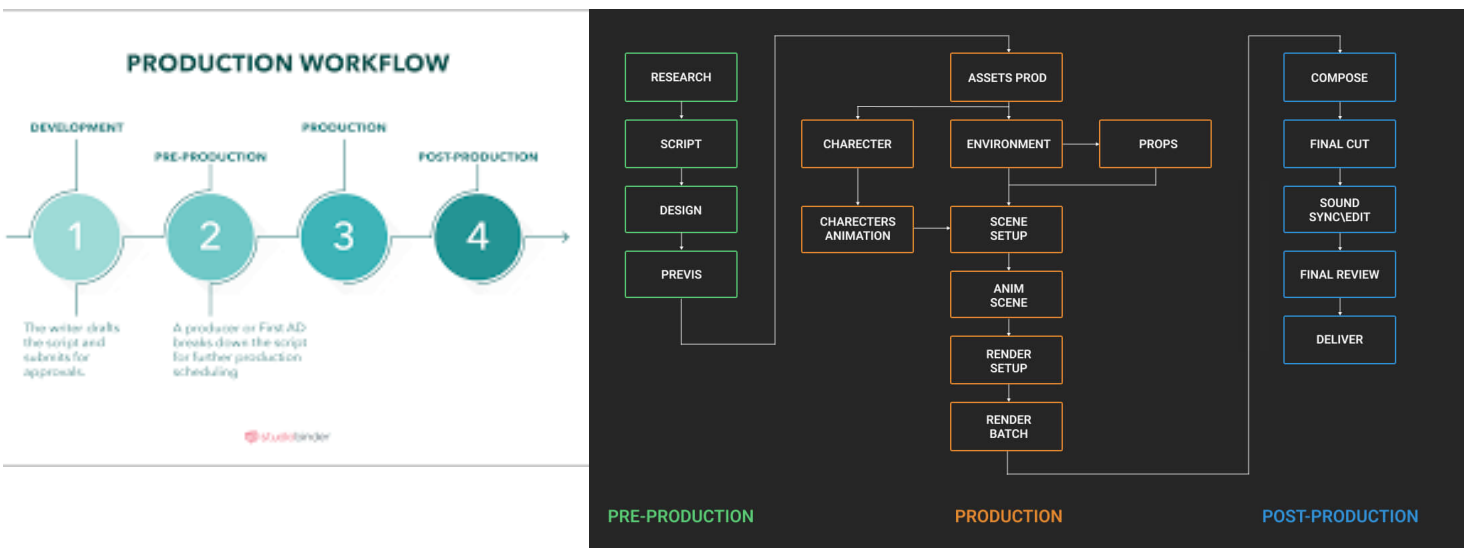
Virtual Production In-Camera Visual Effects

Virtual Production of In-Camera Visual Effects, VP (ICVFX) for short, is a new method of filmmaking. It uses LED volumes, computer-generated imagery (CGI) and real-time camera tracking, to blend the digital and the real set. The most simple explanation is that now instead of shooting in front of a green screen and seeing the final result only during the post-production phase of your project, you see the final scene already in the pre-production and production stages. This method requires a lot of the work to be executed during the pre-production of the project rather than during the post production. Additionally, now the film crew needs to work with the VFX crew from the beginning.

Project Management for VP (ICVFX)

While discussing Virtual Production with experts from the industry, one major point of agreement between everyone was the difficulty of planning the work in effective and understandable for everyone manner.

On one side there are the traditional steps in film-making work planning with the use of a workflow; and on the other the VFX steps of a pipeline.



Virtual Production (ICVFX) requires you, as a producer or a production coordinator, to combine both to ensure effective and smooth work. And as there are a lot of elements to take into account - like ensuring the real props, are also in the 3D scene, or that the 3D scene is built and meets the quality expectations for the screen; using a project management tool aids not only the producer but also the whole team.

Explaining the factors

1. Modifiability - as each project and producer is different it is important for the project management tool to be modifiable. So you can adjust it to your project and not your project to the software you are using.

2. Feedback Space - the tool used for Virtual Production (ICVFX) had to provide with a way to review content and provide feedback and to track down this activity and store it.

3. Version Tracking - keeping the information of the progress of the work was another key element that a project management tool had to provide. Another step above that, was when the tool would give the option for naming conventions and export of the data in tabular form.

4. Media/ File type support - it was important to be able to open content directly on the project management platform and not to have to download it or be redirected.

5. Task Management - the tool is important to provide with a way to not only write the "to do list" but also assign it to someone specifically, give a start and end date and a way to track the status of it.

6. Colour Coding - this provides a more user friendly way to organize the different types of data. It serves as a more efficient way of working.



7. Milestones and Deadlines - having the specific delivery dates for the whole project and the main deadline is something important for all types of projects. Having that information be quickly accessible for everyone is key.

8. Cloud/ Local Storage - knowing where your information goes to and the capacity of storage of what you are using is important. Having the flexibility to choose or use both local and cloud is beneficial for video productions mainly due to privacy, remote work and working with third parties.

9. Interlinking - as Virtual Production (ICVFX) projects are complex, being able to interlink different data entries and associate content through multiple fields provided a nice way of structuring and keeping track of what goes where.

10. Integrations - being able to connect the project management tool with the other platforms or softwares you are using in your project provides a way to centralize the work. This can be taken

a step further if you also can apply “Automation”. For example, you connect your chat space with the tool for project management and make an automation, when there is a new version uploaded, a bot sends out a message notifying about it.



PROJECT MANAGEMENT SYSTEMS

Selecting a Project Management System

When selecting a project management system, studios have two main paths to begin - purchase one or make one from scratch.

In this report I am covering the systems that are already create and available. Some of the options presented in this paper are also used in the industry by Virtual Production Studios.

There are three main points to consider when choosing between the numerous options for planning your project: functionality, budget and feasibility.

Based on those three criteria the following systems are presented and compared in this advisory report:

Asana, Jira, Shotgrid, Ftrack, Kitsu, Openpype, Ayon, Notion, Monday.com.

The report presented visual representation of the comparison and grading of the project management applications and softwares when it comes to the functionality, the budget and the feasibility

What does the industry use?

Every studio, or even every project differs in the way the work is being managed. When it comes to VP (ICVFX) projects this is also the case, and it even goes a step further and actually has producers using one tool for the VFX crew and another for the film crew. During the interviews with experts conducted for the supportive qualitative research the following project management systems were mentioned:

- **Notion;**
- **Ftrack;**
- **Monday.com;**
- **Openpype;**
- **Shotgrid;**
- **Datawrangler.**

Of them, the only one not present in this report is the Datawrangler as it is a software that assists mainly with file and data organization and Cradle has been building one since 2021. However, as Cradle is using Jira for the majority of the project management for the team, the system is included in this paper.

Moreover, in this advisory report, other options that have similar descriptions were taken into account: Asana, Kitsu, Ayon.

Project Management Systems: Functionality

In order to select project management system, the first step was to highlight the key factors that system had to meet to be functional for VP (ICVFX) projects.

Based on the supportive research and the case studies done with “Live Puppeteering”, “Green House Insanity” and “Grey is fine but” the following factors were highlighted:

Modifiability, Feedback Space, Version Tracking, Media format support, File type format support, Task Management, Colour Coding, Milestones & Deadlines, Time Logs, Cloud or/ and Local Storage, Interlinking and Integrations.

The project management tool had to meet those factors, thus provide those functionalities.

Commonalities

All of the softwares this report looks at meet the “Task Management”, “Colour Coding” and “Milestones and Deadlines” in a degree satisfactory to Virtual Production projects executed at the XR Stage of Breda University of Applied Sciences.

Modifiability

Being able to adjust the tool you are using to suit your project and not to adapt the project to fit into your project management tool is crucial.

Only Asana (free version) and Notion are limiting into how modifiable they can be, mainly because they are browser based. Asana more so than Notion, as you have limiting options to how your task list view is presented and you do not have the option to customize much when it comes to size, fonts etc. Notion is limiting to the fonts and sizes but you can freely customize a page and a database if you spent time to do that. The other programs and softwares presented are made so that you can customize databases, layouts in a quick way.

Feedback Space

From the project management systems presented, only Asana, Notion and Jira provided limiting feedback space as they have upload limits when it comes to the content size and the feedback is given as comments. Whereas the other options provide more “free-hand” way of giving a review as you can draw on it, circle, cut from etc.

Version Tracking

When it comes to version tracking, Notion is definitely not the best choice as it does not provide an automated way of tracking the new uploads. Asana offers this functionality to a degree, but manual input is still needed when adjusting names but the programs assist with organizing the uploads by date.

Media & File type format support

VP (ICVFX) projects have content in various formats, from docx to png to mov to fbx. So it is important for a system to allow the import of those formats. Some project management systems allow for you to not only upload the content but also view it directly - which is certainly an advantage.

Time Logs

Except Asana and Notion the other platforms have a way for the team to log the time they have spent on task. This is usable for post-mortem reflection and when using a budget that needs to be properly allocated and tracked for the creation of certain content that is part of the project.

Cloud & Local Storage

When it comes to storage, the ideal case is when the project management tool allows for using cloud and local. When it comes to Asana, the only option is Cloud Storage but it is limited to a specific amount - you cannot upload files larger than 100MB, if it is above then it needs to be uploaded as a link to Dropbox, OneDrive or Google Drive. Notion can handle up to 5 GB (part of the Paid plan features). Jira's file upload limit is 10MB and 2GB for attachments. And Monday.com (only in regards to the cloud storage capabilities) can handle 500MB.

Out of all the project management presented in this report only Asana, Notion and Jira do not have the option for Local Storage.

Interlinking


It is extremely important for complex project such as Virtual Production In-Camera Visual Effects, usually are, to be able to interlink assets shots, descriptions, notes, comments etc. All of the project management tools presented in this report have that option. The open source ones and Monday.com are better than the rest, as they provide for a seamless way of doing so and also between different projects. Asana and Notion do it in a way but when you "interlink" something in something else, you mention it and you cannot seamlessly make it so it updates itself, when it is edited.


Integrations

Each of the applications, programs and softwares part of this report have possibilities of integrated with other programs, applications and softwares, and even some within each other. But there is a difference to the types of other tools they can be connected to. The browser based programs - Asana, Monday.com and Notion can be integrated, some more easier than other, within github, G-Suite, Microsoft Office 365, Slack, Discord, Zoom and other tools that have to do with emails, calendars, documentation, chats etc. Whereas the other platforms are best integrated with tools for editing and creating like Maya, Unreal Engine, Houdini etc. Some can also be integrated also with a chat platform (Discord or Slack) - Kitsu, Ftrack.

Project Management Systems

 Meets the factor

 Meets the factor to a certain point

 Does not meet the factor

Project Management System	Modifiability	Feedback Space	Version Tracking	Media format support	File type format support	Task Management	Colour Coding	Milestones & Deadlines	Time Logs	Cloud Storage	Local Storage	Interlinking	Integrations
Asana	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green	Green	Red	Yellow	Red	Yellow	Yellow
Jira	Green	Yellow	Green	Yellow	Yellow	Green	Green	Green	Green	Green	Red	Green	Green
Shotgrid	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green
FTrack	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Kitsu	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Openpype	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Ayon	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Notion	Yellow	Yellow	Red	Yellow	Green	Green	Green	Green	Red	Green	Red	Yellow	Yellow
Monday.com	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Yellow



Free version (that can still have a whole team working in one space)



Educational license (free)



Educational Discount

Graded matrix showcasing how much a certain system does for the VP factors.

Project Management Systems: Budget

Choosing a project management system that your studio is certain to be able to keep and use until needed is extremely important. That is why the budget is one of the main points being considered. As this report is intended for Cradle: Research Lab and Breda University of Applied Sciences, the pricing options examined are suitable free versions, educational license or educational discounts (this can also be seen on the graded matrix for functionality).

Software	Free	Paid	Educational Plan	Educational Discount
Asana	Basic features for unlimited users, unlimited projects	Premium: €11,99 per user per month, Business: €26,99 per user per month	None in the EU	There is a 50% discount option for educational institution. Contact Asana Support to inquire about educational discounts.
Notion	Unlimited pages and blocks, file uploads, and version history for personal use	Personal Pro: €5,55 per month when billed annually or €6,66 per month when billed monthly, Team: €8,89 per user per month when billed annually or €11,11 per user per month when billed monthly, Enterprise: Contact Notion for pricing	Free Plus plan for students and educators who associate their accounts with their school email addresses. Student organizations at U.S. accredited higher institutions can also apply for a free Plus plan for their entire organization.	None
Monday.com	Basic features for 2 users, unlimited boards, items, and files	Basic: €26,44 per month for 3 users, Standard: €32,40 per month for 3 users, Pro: €52,08 per month for 3 users	Free Monday.com account with specific Pro plan features for students and student organizations.	50% off monthly subscription price for schools, faculty, administrators, and staff members of accredited educational institutions.
Jira	Basic features for 10 users, 2 projects, and 2 GB of storage	Standard: €7,59 per user per month when billed annually or €10,79 per user per month when billed monthly, Premium: €15,19 per user per month when billed annually or €21,59 per user per month when billed monthly	None	Up to 50% discount for qualified educational institutions.
ftrack	Basic features for 5 users, unlimited projects, and 1 GB of storage	Studio: €27,35 per user per month when billed annually or €32,40 per user per month when billed monthly, Production: €54,70 per user per month when billed annually or €64,80 per user per month when billed monthly, Enterprise: Contact ftrack for pricing	None	Up to 50% discount for qualified educational institutions.
Shotgrid	No free version available	Team: €107,90 per month, Studio: €273,50 per month, Enterprise: €547,00 per month	Shotgrid offers a free Educational License for students and universities. The seats are limitless but the software cannot be used for commercial projects that are for external clients and do not have educational purpose.	Contact Shotgrid@edu.com for inquiries.
Kitsu	Basic features for unlimited users and projects	Premium: €54,70 per month when billed annually or €64,80 per month when billed monthly, Enterprise: Contact Kitsu for pricing	None	Contact Kitsu Support to inquire about educational discounts.
OpenPype	All features are free and open-source	Paid: Contact OpenPype for pricing	None	Contact OpenPype Support to inquire about educational discounts.
Ayon	All features are free and open-source	Paid: Contact Ayon for pricing	None	Contact Ayon Support to inquire about educational discounts.

Project Management Systems: Feasibility

Feasibility is the degree to which something can be either easily or difficulty done. The feasibility of the programs and softwares presented in this report concern their user interface,user experience and the time it takes to learn it.

To simplify this criteria, I first divided the project management tools in three groups:

- **Browser based project management programs and applications used for media content creation and project team environment :**

Asana, Notion and Monday.com

- **Open source softwares for project management,used for games and VFX pipelines with a project team environment:**

Shotgrid, ftrack, Kitsu, Openpype and Ayon.

- **Browser based software used for bug tracking and project management of developing projects:**

Jira

The browser based programs and applications are designed to be user friendly and they are. They are easy to navigate - Home Page is the Home Page, calendar will give calendar etc. With that said some of them provide quite the possibility to modify them, Monday.com the most as it can also be used as Open source. Notion is the one in the middle,but still the changes and styling you do of the layout is limited and you cannot change the main layout set up. Due to the easy to orient oneself layout those project management systems are easy to use and learn.

Jira also has an easy to understand layout. But as it is more complex ,there is a bit of time needed to navigate it. But once you do,it's really simple to use. It's UX is quick to grasp and utilize.

The open source ones are probably the most difficult in terms of feasibility. As they offer for a lot of changes to be made to them,they can get even more complex. Out of all the options Kitsu is the one with the most simple user interface as it is close to the set up of Notion or Asana. One main side menu as the general navigation. Clicking on a task,or asset opens it in a new window or a side window.

Then it's ftrack, which is very similar as layout to Monday.com but it has more components from the get go. Additionally creating or saving a project template is way more complex than with Monday or Notion. In terms of learning curve,is quite simple,mainly due to the fact that you already have prepare entities with icons for quick recognition like "folder" or "asset". If you click on folder you know you will be creating a folder.

Shotgrid has an already generally set up on the browser for studios to start with,but as you start to use it and explore it ,you Starr adapting it to your needs - the learning curve on how to do that or how to ensure it is quick to understand by other in the team is quite big due to how customizable it

is.

Ayon and Openpype are not that feasible for studios unless the studio has a programmer and the time to have the person set the software up. But the upside of this is that you can make the layout easy to understand and fitting for your studio exclusively.

CONCLUSION

Virtual production (ICVFX) is a rapidly growing field, and project management tools are essential for ensuring the success of these complex projects. Every project management tool presented in the Matrix can be used for ICVFX, but some are better suited than others.

The open source tools Shotgrid, Kitsu, Ftrack, Ayon, and Openpype offer a wide range of features and flexibility, but they can be challenging to set up and use without technical expertise.

For projects that do not require a lot of 3D development, Notion, Monday.com, and Jira are good options, as they provide good space for team communication, cloud storage of data, and support for most media and file formats.

The use of project management tools like Shotgrid and ftrack can help to make virtual production more efficient and accessible to a wider range of filmmakers. As they provide a way to track the productions and reflect on the experience which is an essential part of education.

In addition, the availability of open source project management tools gives filmmakers more flexibility and control over their projects. For filmmakers with the technical expertise, open source tools can be customized to meet the specific needs of their production.

Overall, Shotgrid and ftrack are the two best project management tools for ICVFX at the XR Stage of Breda University of Applied Science. Both tools are highly customizable and offer a wide range of features, including task management with time logging, version tracking, and integrations with softwares highly used in VP (ICVFX) projects such as Maya and Unreal Engine. Additionally, Shotgrid is free for educational use, while ftrack offers an educational discount.

SPECIAL THANKS

This report presents the project management systems that would meet the needs of a Virtual Production In-Camera Visual Effects projects executed at the XR Stage at Breda University of Applied Sciences.

It is created for the use of Cradle, students, teachers and guests of Breda University of Applied Sciences

SOURCES

VP Knowledge Base Manuals : <https://www.vpstudio.network.com/knowledge/teaching-materials/>

Production Pipeline Fundamentals for Film and Games by Renee Dunlop: https://books.google.nl/books?id=AbvMAgAAQBAJ&printsec=frontcover&redir_esc=y#v=onepage&q&f=false

Notion: <https://www.notion.so/>

Asana: <https://asana.com/>

Kitsu: <https://kitsu.cg-wire.com/#getting-started>

Shotgrid: <https://www.shotgridsoftware.com/>

ftrack: <https://www.ftrack.com/en/>

Ayon: <https://ayon.cloud/>

Openpype: <https://openpype.io/>

Jira: <https://www.atlassian.com/software/jira>