

Autodesk University | AutoCAD Civil 3D Integration Requirements: BIM Process Optimization for Infrastructure

NICOLAS RAGEUL: Hello, and welcome to this presentation, the first in AU here. It's Integration Requirement: BIM Process Optimization for Infrastructure. So my name is Nicolas. I am French. And I am a BIM Infrastructure Implementation Manager in EGIS.

So, as you can see, in Autodesk University internet, here is my class summary. How to manage a collaborative standardization for infrastructure BIM project by integrating requirements of a company, customer, and users, and application with AutoCAD Civil 3D. So if you are here to see Revit, it's not here, because infrastructure, we ask also about BIM.

Here is the key learning objectives. So I will show you how we define and manage AutoCAD Civil 3D standardization in a BIM process for infrastructure design. And how we deploy and maintain a flexible company standardization-- it's very important in our project. And I will focus on, at the end, of Sub-Assembly Composer and its limitations on projects.

So-- Introduction. Who we are. So I am Nicolas Rageul. I am a [INAUDIBLE] survey engineer and a master of geomatic science. I have been working in the Technical and Innovation department since 2011. And I am in charge of benchmarking softwares-- of benchmarking softwares, and deployment, and create some guides, and so on. Lionel Fabre-- he is--

LIONEL FABRE: I can introduce myself.

NICOLAS RAGEUL: Yeah.

RAGEUL:

LIONEL FABRE: So I'm BIM Infrastructure Implementation Consultant. I've been working at Autodesk for two years now. And before-- this is why I am co-speaker with Nicolas-- before I worked at EGIS with Nicolas.

NICOLAS RAGEUL: In the same division. And Bruno? The time controller.

RAGEUL:

BRUNO LAUMONDAIS: Bruno Laumondais, [INAUDIBLE] at Autodesk since 2013.

LAUMONDAIS:

NICOLAS RAGEUL: So, it's who we are. EGIS-- EGIS, an international group offering different services--

RAGEUL:

engineering, project manager, and [INAUDIBLE] services. As you can see, we have a lot of disciplines, such as road, buildings, aviation and so on. 70% of our work is about engineering and 22% operation and mobile services. Even if you are French company, we don't work only in French-- in France. So we-- Our activities 60% outside France. And, as you can see, our group generated a managed turnover of, in 2015, nearly \$1 billion.

So, the title of my presentation is a little [INAUDIBLE]. I was talking about BIM. But, I hope, that when I finish, you will have encountered some new ideas-- maybe you can implement it in your work in your company. Today, everyone is talking about IBM BIM. And there is a wide variety of private organization or public organization proposing their own definition of what is BIM. For us, it's not a revolution-- it's the evolution of our processes, as well as the evolution from the draft board to computer-aided design. The definition that I prefer is the following-- improving the processes by a concurrent engineering approach and a model centred vision. That concerns also, some different concepts, such as design, collaboration, management. And also other concepts such as interoperability, review, and coordination. And the entire process-- this is what is the BIM.

So there is other terms gravitate around this little drawing. It's communication, 3D coordination, drawing production, level of detail of development, projects stages, for example, classification. It's not an exhaustive list, and I will not present on that-- so, sorry, if you are coming to see that-- because it's not the purpose of my presentation.

So you're asking why I am talking about. It's a presentation with one objective-- to implement BIM now, in project. So we are focused on the first element-- what are the requirements of the project. So here is a list of requirements. We have the client requirements, the owner or the end user. There is some requirement could be very specific to a project-- the only one you can do. You have also the discipline-- the road designer and the [? rural ?] engineer or the structural engineer do not have the same constraints. The country where you are working on-- for example, here in the US, you have [INAUDIBLE] in UK, you could have the DMRB. In France, we have also our standards. So it's a project requirement. And also the company. EGIS-- we are 13,000 people. We couldn't have 13,000 methods. So we have to-- the company has its own signature, its own methods, and we have to-- it's also a requirement for the project.

So, if you wish to respond to all these project requirements, you need to enter into the process that is BIM and to also use technology standardization to be politically cooperate-- Civil 3D,

Revit, and so on. But there is a world outside of Autodesk. And this standardization technology you have to focus on processes to write some guides, manuals, workflows. And also the resources-- the data you would like to share to other people. If I focus on Civil 3D, because it's in the title of my presentation.

So we have the first requirements-- its client, owner, and specific. For each project, you have new requirements. And for the other- discipline, country, and company-- all the projects, you have the same requirements. If I had also the technology requirements, because we use 2016 [INAUDIBLE] You have the objective of my presentation is to show you our solution to manage the collaborative standardization using the AutoCAD Civil 3D Platform.

So this is the summary of my presentation. I spoke about integration requirements-- what is requirements, what it's talking about. So I will present it. After, how to manage these requirements. And I would like to focus on the project, because we have to also not speak about standards [? ISCN ?] [INAUDIBLE] and so on, for tomorrow. And, at the end, the conclusion.

So this is-- our requirements is not out of a hat. It's a big process. We had a lot of projects we are working on. So I will present you the most significant project. The first one, it's not-- [INAUDIBLE]. So I have to-- don't want to-- This one. We tested before, but without-- OK, it's good on my computer, but not on the screen.

[SPEAKING FRENCH]

Sorry. The director-- I am the first one here, so--

So I would like to present on some projects-- we have the African project, we have Middle East project.

[SPEAKING FRENCH]

OK. So I [INAUDIBLE] some parts of projects. The first one is Barrack Road in the Republic of Congo. It was a road project. The second one was in Ivory Coast. We have a municipality project, because there is a lot of interchange and a big bridge to Ivory Coast. The third one was [INAUDIBLE] project with King Khalid International Airport. So we are talking about airport, taxiways, and buildings.

The last one was in the Middle East also. It was Qatar economic zone project-- 44 square kilometers of projects, nearly 120 kilometers of roads, including the drainage, including also the road part.

I have also [INAUDIBLE] Airport. It was an airport project, a municipality project with the airport. So it concerns buildings, drainage, taxiways, and road to access to the airport. After, we had [INAUDIBLE] Road project-- 500 kilometers of road. 500 kilometers of road and speak [INAUDIBLE]-- you understand why. And the last one was [? Aten ?] project-- one wing of an existing road. And it was a [? two-per-three ?] lanes past [? two-per-four ?] lanes, with two big interchange. And we change also the [INAUDIBLE]. So sorry-- it's not succeeding.

So to answer this project, here is our production team. So it's purely a coincidence if you are someone [INAUDIBLE] like that. So for to answer to this, this is a production team. And to answer it, we would like access to the common company resources, such as naming convention, signature, drawing production, and management.

And there is five different projects-- 1, 2, 3, 4, 5. Take a look in the icon-- it's very important. You have three types of icon here. The road, the bridge, and the airport. So to answer this project, this team is split in different disciplines. Because if you want to be more efficient, you couldn't do everything. So you have-- the first team was road infrastructure team. The second one is a bridge, and the last one the airport. And each team answer to the project [INAUDIBLE] concerns.

So I just would like to focus on three projects-- 1, 3, and 5. And especially take into account of project 3, because it's [INAUDIBLE] a concurrent engineering. Airport and road design.

So what are the requirements? The first requirements is concerned with human resources. You need-- you don't start your project at the beginning to the end with the same team. Maybe you start with two, three people, and at the end you are 100, maybe. So one requirement is to change technical person. And it's not only change because, maybe, he is sick or he is on vacation or whatever. Maybe you can have one person-- you'd like to have add person in your team. And the most issue is this person asked to be all the information like it was at the beginning of the project.

The second requirement is access-- anywhere, anytime-- to the common resources. The third requirement is update resources. If I add new resources-- update, modify, or delete. The other team has to have the right information at the right moment. And the third requirement concern

the project requirements. So it concerns access and also a date of that task.

So to answer these requirements, take a look in the technical part.

PRESENTER:

OK. So this is my part. So when you install Civil 3D 2013, you have to install engineer, you have to install the country kit. This country kit include some specifications. [INAUDIBLE]

So [INAUDIBLE] you have to install-- you have some dedicated styles, labels, sub-assemblies, reports, and specific developments. This is installed for a country in general. In the US, you have a specific template with the standards. For France, we have different styles, label, and so on. So it's very specific to the country. And this is not specific to the company, in general. So it has been developed, adapted, modified. So and we have also Layer Naming convention included in the template of each different country kit. OK. And we have some standards based on the country.

So we have a country kit for France. We have also country kit for UK, for instance. And another country kit-- for each country we have a country kit.

NICOLAS

So, EGIS-- our first [INAUDIBLE] is based on the same country kit of that we have proposed.

RAGEUL:

It's called our company kit EGIS. So, for us, we worked first on our processes. It's not included-- company kit in a country kit [INAUDIBLE]. But, for us, we have to deliver some-- and create some guides, some manuals, some workflows about that. And we worked on our resources. So EGIS also creates its own styles, labels, sub-assemblies, reports, specific development, and also our layer naming convention. It's kind of [INAUDIBLE] British Standards 1192, but adapted to [INAUDIBLE].

So we asked several questions. The first one is how to install. We use Autodesk country kit tool-- Autodesk [INAUDIBLE] One tool, one method to force the user to install-- to install it. The second question is how to deploy. We use ProjectWise as a data management system, where we can share the company kit EGIS. And we write also-- we can send it also by email. How to maintain?

For [INAUDIBLE] you have the different directory of the country kit, company kit is the same now. And you change information, add new elements, and it will become the new version. And the last question is how to adapt. So it is different because how to adapt is also to delete and to [INAUDIBLE] requirements of the project. And now I ask you a question-- I am not the only one, you are to be here and very active. I ask you the question-- who usually use Civil 3D,

except [INAUDIBLE] 2017, so 2016, 2017-- who used Civil 3D? OK.

So you used or saw the country kit or not? No? You built your own country kit-- your own standardization. So if you used the country kit or the [INAUDIBLE] country kit and use the same method that address propose, you have different problems. The first one is, have you ever tried to properly [? dis-install ?] a country kit with Civil 3D 2013? But it's the same with '14, '17, or '16.

So the second question is, have you ever tried to adapt a country kit in more than one way? So you have-- for a year, I think, there was DOT, [INAUDIBLE] a company, an engineering company. You'd like to answer to two DOT with not the same requirements. You'd like to use a company kit or, [INAUDIBLE], a country kit, you have to adapt in two ways. And the last question, is do you know which version is in a computer? Because there is a lot of things [INAUDIBLE] set up in the computer and in a single user session. For now, there is two answer-- complexity and time-consuming.

So we thought about a new solution. We don't stop-- we couldn't stop here. So I said, in my introduction, all requirements-- all projects, same requirements, new project, new requirements. Our concept at the end of the presentation is we keep the name of company kit - or maybe it could be better, I could say discipline kit. But EGIS [INAUDIBLE] despite discipline. And so we keep the name of company kit. And also we have the name of project kit. Keep in mind the abbreviation, because we have to see up to the end of the project-- the presentation.

So to answer this question, we reword some requirements. We had to [INAUDIBLE] some requirements. And we work with Autodesk Consulting to help us to solve these requirements.

**NICOLAS
RAGEUL:**

OK. So yes, when we define the specification, we have different [INAUDIBLE], different with EGIS. OK? So the first one was the installation of multiple country kit and project kit on the same computer, because, in general, this is the complexity of different installation in the same computer. When you have a country kit, you have to [INAUDIBLE] the same computer in each - when you have two different projects [INAUDIBLE], it is different. And it is complicated to install, so this is one of the requirements. The second was versioning of the country kit and the project kit. So be able to control the version of the files installed in the computer. Installer kit dependency-- OK. But [INAUDIBLE] a specific kit for the installation.

Handling of user conflicts. This was the tricky part, to be able to manage on the same

computer two different users. It was really-- in general, it is the most complicated, because, as you may know, we have some difficulty [INAUDIBLE] because when you install you, you have the general files, and you have some user files. This part was not [INAUDIBLE].

Proper deinstallation. So this one, this is also a requirement, to be able to [INAUDIBLE] clearly to the computer, all the files for all the users. And different responsibilities.

That doesn't mean that-- it's not the same person who manages the company kit and who manages a project kit. The company kit, for example, is, in my division, technical innovation department. But all the project has to have its own responsibility to [INAUDIBLE] modified on its project. And you see [INAUDIBLE] the product depends on the company kit. You are in your company [? kit road, ?] and you have answer to a project with a project [? kit ?] [? road ?] one, and so on, that I will focus on.

So our initial solution I proposed, for example, for the company kit like the country kit, it's also very bad to [? all these ?] questions. What is the criteria scored between one to five. And one is the lowest score, and five's the highest.

So to improve the initial solution, we propose a different solution. The first one is to improve the profile. So the solution was to work on the user profile on the computer. So as you can see, the different criteria are not reached here. We have different criteria. The deinstallation was good, but the handling of user conflict was not good. OK, so the effort. OK, so you can see it's not a lot of effort. But [INAUDIBLE] it's not good for the expectation.

The [INAUDIBLE]. Solution is improve. I may say that means that we develop something based on the MSI. OK, so it was better. The effort, [INAUDIBLE] the specification and the implementation, it's much better. And testing as well, but it was not the best solution.

So we can change our point of view and say, OK, we have an existing solution. And maybe we can change, and to have this requirement and to create a new solution. So the requirement is [? also ?] the requirement-- it's [? answered very well. ?] But for the effort we have to develop everything. So it's a lot of time consuming. And because Egis loves the challenge, we choose the third solution.

OK, mutual new concept. What is this new solution? On one side we have our common resources. These can be stored either in the cloud, in a local network, or in this kind of computer, in the same path. In the common resources I have my company kit, for example,

road and airport. And I have also the project kit of each project. I can add also the project kit 2 and project kit 4 in the company common resources. And on the other side I have the users. Just one user for each project, for 1, 2, 3, and 4, and also there is a discipline of people. OK?

So in the middle, we have our Egis Civil 3D Launcher-- very [INAUDIBLE] name, but very efficient-- which control everything. So this tool install-- a company kit required by the discipline and also the project kit. If I look on my different requirements, for example, if user 5, whatever is reason, we're on open space, maybe the project 3 and the project 1, [? they are ?] [? neighbor. ?] If the user 5, which work on the airport project, we like to log-on to user 1 computer.

Because user 1 is not here-- vacation or whatever. The Egis Civil 3D Launcher install the company kit airport, the project kit for the project 3, and ensure that there is no conflict between the users. And also, ensure that when you have evolution of common resources, automatically as a different user the local and [INAUDIBLE] directory are automatically updated.

If, for example, user 1 work also in project 2-- so the Launcher set up everything regarding the project 2, and ensure that there is no conflict of parameters and datas, especially for the evolution. Set-up 1 is very easy. Modify the data, ensure that you have the right data in the right moment is very difficult.

So let us go into a little detail. What are the common resources? So I explained that you can store in different element. And it's like a Windows classic tree. For example, you have company kit road. And inside we have six folder. Like the country kit, we have six folders. Maybe you are familiar with that. We have the folder where you store, for example, the imported tools folder where you have your [? assemblies, ?] you have the user [? remodel ?] for the [INAUDIBLE], for example as a profile. The user local where you have the template of the [INAUDIBLE], and so on.

And we add also an XML file. This XML file contains the name of the company kit, and also the version of the company kit. We can add also some registry key, because we can add some information to CAD users. So for example, to have automatic logging onto a good template when I open Civil 3D.

And the kit-- I said in my requirements, and I said that to have a dependency between the company kit and the project kit. And we can see it in the Windows classic tree. So inside is a

company controlled, we have one folder per project kit. And each folder contained only three subdirectories. It's like a company kit light. Because for us, we just would like to focus on where our [INAUDIBLE], where are my two palettes, for example, and where I can share my templates. The [INAUDIBLE] is not efficient. It's just for the company kit.

And we add [INAUDIBLE] file with the name of the project kit and the version of the project kit. So now if I show you the Windows classic trees, I'll show you-- before I think I lose a lot of people. So now I think it's easy to understand where are the company kit and where are the project kit.

So here's my command resources. Let's take a look at my Egis Civil 3D Launcher. So we have an icon on the computer, which is called Egis Civil 3D 2016 Launcher. And when I click on it, it appears the interface. So in France you use only metric. But I know here you use imperial. So I could imagine that we can launch both. But we simplify for users.

So this first interface creates the link between the users and Civil 3D. And if the user clicks on Modify Kit, it appear an image of windows that creates a link between our resources and Civil 3D and the users. Concretely, if user 1, because you work on project 1 and project 2, click on Modify Kit-- so you click on Modify Kit and click on Project 1 and Project 2. For your information, if you click on just only Project 1, automatically is the company kit selected. Because there is a dependency. We couldn't choose a project kit alone.

And when I click on Apply Change-- just, I will check, because after I [INAUDIBLE] So I hope it succeeds well. So automatically also resources is set up on the user's session. And the interface automatically is updated. So now the user has this one. And you keep the last use. If you work a lot with Project 1, you don't have to select all the time. It keeps in memory the last used. So I click on Project 1. And when I click on Launch Civil 3D 2016, it opens Civil 3D with the Project 1 parameters.

So here is the easiest part. Now the most important is the update data. So the update is automatic. The user can send an email and I say, OK, now we passed to 1.7 to 1.8. Everyone has to modify. This could be the first solution. But imagine the user, oh my god, I receive a mail. I have again to modify my resources. And I don't know if you have the same person in your company. So for us, we like to implement an automatic update.

If I check before the great it was here, 1.7 information. [INAUDIBLE] 1.8. But for the users, you

only have to continue to click on Launch Civil 3D, and automatically the resources will be updated due to the XML file.

We'll check. We have two seconds to be sure that it [? succeeded. ?] Because I think that I [INAUDIBLE] everyone. And you like to see live what is the solution, I pray.

AUDIENCE: Are you kidding?

NICOLAS [LAUGHS] [INAUDIBLE]

RAGEUL:

[WHISPERING]

I finish before the time. It's good. Ah. Ah, perfect. So at the end I could show you the project. Because I'm sure that we want to see it. So if you can come back-- OK. Play and pause. Yes. After. Pause.

So here is the two icons on my computer. On the right side-- on the top left side I have the local user folders. On the bottom left side I have my share folders. And here are the two icons, a Civil 3D metric by default and my Launcher. So if I open my Launcher, it say, oh, no you couldn't. You have to set up first Civil 3D. Because if [INAUDIBLE] set up all parameters in the user localisation. So there's a reason why we keep the Civil 3D metric default in the desktop. Because I need this one here to appear like magic [INAUDIBLE]. Civil 3D 2016. I need that.

So install everything. I open Civil 3D and see usually I can close it after. When Civil 3D is set up once, I can delete after. I don't need Civil 3D by default. Only user is a profile, is a [INAUDIBLE]. And I can close now.

So if I open up my Launcher, it's OK, don't say no. You have to open [? Civil 3D ?] once. Here is my interface. And now I would like to focus on different shared folder. It's my command resources. When I click on Modify Kit I have my company kit road and my project kit here. So I will focus first on my company kit.

I open with [INAUDIBLE] because it's an XML file. I have the name and the version. I can show you here, the 3.0. And I can do the same for the project kit. It's a folder inside the company kit. And I have also the name and the version.

So I've got-- I do two exercise. The first one, install the company kit, show you. Install the

project kit, show you, and delete everything. So for that, I go into a local folder you know, everyone, I think, I hope. It's a template folder. But be confident that it's worked fine for the entire resources of the company kit. And the project kit.

So here when I click on Apply Change Automatically, the resources is installing the computer, the [INAUDIBLE] station. And now I can launch Civil 3D with these parameters. So its [? concern ?] is a toolbox, for example, a specific toolbox, and also specific tool palettes, for example. And the templates too.

Now I would like to set up also the project kit data. So I go to the project kit. I go to show you. So I go to the local template. There's two files that [INAUDIBLE] back. I click Apply Change, and automatically the two files here. Even if you have [INAUDIBLE] files, it's very quickly the update. It's transparency for the user installation and the date.

When I launch Civil 3D, it's very important to have the company kit information. Because you don't want to create again the [INAUDIBLE] and so on. So you have on the right side, and on the left side, your two [INAUDIBLE] and your two [INAUDIBLE]. And we have a new layer of information just specific for your project. So here I also the company kit information, and [INAUDIBLE] the project kit information. I can manage in two ways separately.

If I open the template-- it's not-- I'm not-- I didn't apply. So here. So if I know how to delete, I know how to update. So I will show you how to delete. And I just delete the company kit. And because there is a dependency, automatically the project kit is delete. So I just select the box company kit and automatically information is deleted. It's like the company kit and project kit never be set up in your computer. There is no more information. We check all the boxes, all the folders, everything.

And what is important, it's set up information. You do not get administrator rights. So for company you sometimes have some IT department, very stressful with administration. For as the user it can add everything you want, we have no problem for that. You should come back to slide-- I don't remember which one. [INAUDIBLE] I have just only two videos, so. OK.

So if I summarize the situation, what do we have? In the top, our project requirements. In the bottom, AutoCAD Civil 3D, and our tool Egis Civil 3D Launcher 2016. So I explain in my introduction there is some requirement that it's the same for all my project and is managed with my company kit, my discipline kit. And there are some requirements which is new for all my projects. It's managed with my project kit.

And now we ask one question. How many times? Oh, I can update and manage my company kit and my project kit. It's easy for my company kit, update the company kit one or twice per year, depending on the project kit. Because it's a project kit, some evolution we have-- we have 10 project kits with the same information. Maybe you can set up on the company kit. It's better. And whoever saw the project kit.

So oh, now I have a question we have to answer here-- all to manage in real time, because we like to manage not one or twice a year. We like to manage in real time your project kit [INAUDIBLE] or requirements on the project, with an efficient prediction. So we ask one question. What of the object are concerns to this update?

The first one is a signature. It's very easy. It's a template, for example. So we like to manage [INAUDIBLE] of Civil 3D you can manage very well your template for the doing and the design part. So it could be OK. [INAUDIBLE] your assemblies. So I think a lot of people raise their hand when I ask the question, [INAUDIBLE]. So I think you know there was assembly. Is the information right to manage a new project?

And the airport doesn't know this is about assemblies. Everyone knows [INAUDIBLE]. No one is perfect. So because my presentation is record, I have a little feedback of assemblies, and to show the [INAUDIBLE] in deliverables. So you have an [INAUDIBLE], an existing one. You create the profile. And you have the assembly with its characteristic, vertical and horizontal characteristic.

You create your corridor with two parameters, the frequency and the target. Because no one [INAUDIBLE] I think it's in evidence and benefits for most of you. We have also deliverables-- the profile view, the plain view, the 3D models, the cross sections, and the quantities report. So I would like to explain to you that assembly control, except one, the [INAUDIBLE] deliverables.

And the first element you have to add in your assemblies some codes. The first is a shape code. The shape code-- you can add some [INAUDIBLE] in your cross section. I'll go faster, because knows what I think about that. The second importance of the shape code is to create quantities with the sample lines. And the last is the ability to create or to get to [INAUDIBLE].

So just-- Lucy was not here, but she would like to ask you one requirement. It's do not-- don't think that you succeed well what you did in your 2015, for example. And [INAUDIBLE]

extractor. It's not succeed where you have to test it once. Because it's not the same object. You don't use a shape code. You create an AutoCAD code. So just she would like to add a 1 here.

The point, imagine a concrete [INAUDIBLE] that was at the beginning up to the end, the point in the [INAUDIBLE] assembly became a free line. Up the free line for the [INAUDIBLE]. We can add with the point code a block to the cross section. And the point code is used for this quantity takeoff, to have the linear quantities.

I will also have some [INAUDIBLE] The first one is a [INAUDIBLE] [? phase. ?] Because a [INAUDIBLE] [? phase, ?] I need it for if I compare the existing one to [INAUDIBLE] And it's not the only one. The [INAUDIBLE] phase with the [INAUDIBLE] [? phase, ?] I could add the [INAUDIBLE] to have the good information for the cross section. And the [INAUDIBLE] [? phase, ?] I need it for the 3D models.

I can also add some link code to add some hatch in my Chrome view. And also the link code and the point code for my rendering view, with using [INAUDIBLE] for example. The link code is also important for quantity code, for [INAUDIBLE] [? phase ?] information on my quantities. And also to have [INAUDIBLE] on my cross section. I think I don't forget something. I don't forget anything.

So here is-- so you see that the only one information is profile view. So the assemblies, there is [INAUDIBLE] but for other deliverables. So for that we use subassembly composer. So I don't ask the question who uses a subassembly composer. I think every-- it's an [INAUDIBLE], so I think everyone. So there is some different element. I go faster. Flowchart, some properties, and you have your preview. When the subassembly composer came with Civil 3D-- like a revolution, not an evolution.

And here's some input and output parameters and [INAUDIBLE] you can have here. So it's very important to think that subassembly composer, it's a professional job. Everyone couldn't go to the subassemblies and create his own subassemblies.

So this, for example once we create [INAUDIBLE] here. So it's not-- it's not a little--. So those are what we use Civil 3D and subassembly. Who used-- could you hands up-- who used subassembly composer on project? Perfect. Did you use on project, and you change all the time on your project, went [INAUDIBLE] some modification? [INAUDIBLE]. For you? Less developer on your projects, the more profitable the project. So it's the opposite of-- but we did

the same mistake, too.

So why? Because we have no time, due to development work on project. The subassemblies are tested and approved in advance. And what is very, very important, the one who develops the subassemblies, that's the one who applies the assemblies. So if you use the same subassembly we developed [INAUDIBLE] creator, I explain after, so many months you can apply, apply again. Again You have no time for training and for this user to don't make a mistake [INAUDIBLE] the assemblies.

And the second rule is the more liberty that is given in using/adapting the standardized subassembly, less the temptations to create the subassembly from scratch. So it's very, very, very important. Because if not, we have to teach users that they could make a lot of mistakes. And it's-- so the last one is anything that go wrong will go wrong. It's, for the assemblies, very--

If you have an assembly you deliver to people or a subassembly you deliver to a technician, and you're not comfortable with the subassembly, you don't deliver to the technician. It's better to deliver something you're sure is OK before using something and deliver something which could be wrong, or there is something with mistakes. So a stitch in time save nine. It's OK? [INAUDIBLE]. OK.

So I said, like us, like Egis, we use Civil 3D, you use subassemblies. We use on project, and I said, no, no, don't use in [INAUDIBLE]. What are our solution? So I start my presentation now. No. I continue it to the end.

Here is a cross-section. I think of-- it's like in US. It has its own parameters. I define some targets I would like to have. And I speak in different element I would like to manage. Emergency line, [INAUDIBLE]. I would like to manage the existing lane and the new lane, for example. So I speak my cross section in different lane.

So to answer this cross-section, to become an assembly, I don't create one, a big one. Autodesk opens the door with generic assemblies. But [INAUDIBLE] so little and it's not-- there's not a lot of information in it at all. We continue to that element. And you create generic subassemblies too, but with more condition like we want, and we like to adapt it every time.

So here is, for example, a [INAUDIBLE] subassemblies with this input and output parameters, for example. Is a true one to five layers. I have like a list of [INAUDIBLE] layers I would like to have, and [INAUDIBLE] my shape code and my all my code. It's not five layers and I put 0 on

one layer. It's very user-friendly for the user.

Here is a [INAUDIBLE] for the measure [INAUDIBLE], one to five layers. And also the last one is the [INAUDIBLE] with a [INAUDIBLE]. And the condition for [INAUDIBLE]. So just with four elements I can build the entire subassembly-- the entire assembly.

So it's the same. And I can imagine I use the same for all my projects. So I didn't say that you don't use subassemblies under a project. But you are just focused on the special one you like to answer to the project. But create all the time one to five layers. You don't want the user to apply it again and again, and to make some mistakes. And one arrow is to say, OK, I have this one here. I catch just only one with all these parameters. It's not good. So here.

And we use input and output parameters. So it's not succeed well in 2013. Does not succeed. But in 2016 it succeed well. You can create the link between-- from element you create from subassembly composer. So the element you create from Civil 3D is working fine, but not in Civil 3D, with subassembly composer in 2013, in 2016 and 2015 no problem for that.

So we create a link between input and output parameters. So if I have to change one slope, for example or this slope here, there is a link. So if I have a target it's the same. So users, only focus on apply the element. But it's good. If you make a mistake, it's his fault. It's not mine. It's not mine, because if I develop a wrong subassembly composer, subassemblies.

So in conclusion, I come back to my introduction. Is the project requirement, Egis Civil 3D Launcher, and AutoCAD Civil 3D, on the one part, I have the company kit. On the other part, I have my project kit. I update the company kit one or twice per year, depending on the project. And I update my project kit in real time with this signature. And the worst strategy is to manage generic subassemblies in the company kit, and to create just one or two and focus on this element.

Oops. So here is a curve, it is a graph of the time. Horizontally you have the project. It's not the end of the project, it's the end of a stage of a project you start on to-- it's a time where you will like to make some deliverables. And here is the effort. You have to answer the deliverables.

Here is the comfort zone. You don't make a lot of effort to-- in the project. Here is the risk zone. You generate so much effort to answer the deliverables. And if you don't have a standard edition or a tool to manage [INAUDIBLE], the more the project go up to the end, the

more it become complex. And the more you have some requirements [INAUDIBLE] to integrate your requirements and you add a lot of effort to answer, here my deliverables. If I am preliminary design, the detailed design, and come back and I start again.

Or the strategy is to decrease the curve. In the middle is like a no-man's-land zone. It's not good to be in the no-man's-land zone. It's better to be in the comfort zone. But I lied, because all the time you are not like that, you go to the weak zone. Because you see you're on delay, you like to have a lot of-- you have to deliver on time. [INAUDIBLE]. So you go to your management. Give us a lot of resources to answer and to deliver on time. And you come to the risk zone to be paid with a delay on it.

So if you want to answer and to [INAUDIBLE] this problem, you create a standardization at one moment. And we [INAUDIBLE] that there is a lag time between when you finish your standardization and when you have the efficiency of your standardization. So I guess you know what I wanted to say, is to create the standardization as soon as possible. And the Egis Civil 3D Launcher is a tool that helps us to manage our standardization. I don't say that we don't modify your standardization up to the end. But you have to then make some effort to maintain your standardization.

And so as soon as possible, contact the client. Contact the end users. Write some instruction report. Maintain it and use, for Egis our Civil if 3D Launcher, to manage our data resources. Even if it's a little project, we have to manage at the same times in the same [INAUDIBLE] that a big project. And at the end you are always in the comfort zone and technician will be happy to work with you. Thanks for your attention.

[APPPLAUSE]

You have some question? Yeah?

AUDIENCE: We have a very similar method, but we use ProjectWise to manage country kit and company kit and the project kits. One thing I'm having problems with is sharing [INAUDIBLE]. How are you managing that successfully?

**NICOLAS
RAGEUL:** We manage our PKT file in our project kit. We are--

AUDIENCE: I guess I should say-- because can push out the PKT files, but then do you have the user

install [INAUDIBLE] file? Or is that--

NICOLAS We install the-- we didn't send the PKT file. We send, in the PKT, the one manager project kit,
RAGEUL: install in one palettes, the different file that the PKT file go to Imported Tools. [INAUDIBLE]
Imported Tools. And we give to everyone work on the project this project kit. We add this
palette, and the user adjust to-- I agree, sharing PKT file is horrible, and you don't know which
version you are on your PKT. So one method is to use-- we used a two palette, and we share
the two palettes in our project. We do not send any PKT file.

AUDIENCE: Yeah, there was a [INAUDIBLE]. Yeah, there was a key [INAUDIBLE] lock directly to the PKT
file [INAUDIBLE] in the package, deployment package. And this deployment package is
provided to the users at the end. They just have to install this one, and automatically the
imported folder is copied on the computer directly with the DLL file and so on.

AUDIENCE: So when you run your Launcher-- when you run your Launcher, it's installing it outside of
those folders into the imported folders tool for the PKT files? Is that correct?

NICOLAS It's installing everything, yeah.

RAGEUL:

AUDIENCE: But it's not-- in that folder structure you're showing, there's stuff going on outside of those
folders?

NICOLAS Yeah.

RAGEUL:

AUDIENCE: OK.

NICOLAS But you're right, the subassemblies, [? share ?] [? of the ?] subassemblies is hard work.

RAGEUL:

AUDIENCE: Especially burning them. Sometimes you have to purge them from the cache.

NICOLAS And if you don't have the same version, maybe you can lose your target. If you are working on
RAGEUL: a [INAUDIBLE] project and you have 1,000 of-- I don't know how many targets you can have.
You want to start again. And say, OK, I made a mistake. I forget one thing in my
subassemblies. You have to repeat everything. You go once in the office, not twice. So there's
a reason why we developed this restructure.

AUDIENCE: How many [INAUDIBLE]

NICOLAS How many users?

RAGEUL:

AUDIENCE: How many [INAUDIBLE] do you install--?

NICOLAS Yeah, it was installed with Civil 3D, even if you're--

RAGEUL:

AUDIENCE: How many? [INAUDIBLE]

NICOLAS International we are 100 person, but for road, but [INAUDIBLE] also for airport, buildings, rail.

RAGEUL:

AUDIENCE: [INAUDIBLE]

NICOLAS On the computer we have--

RAGEUL:

AUDIENCE: [INAUDIBLE]

NICOLAS Yeah. Automatic is--

RAGEUL:

AUDIENCE: [INAUDIBLE]

NICOLAS Yeah. And we are so out of community in Egis. We have-- like my Egis community, we have a

RAGEUL: lot of information for users. If someone would like to adjust Civil 3D as information, [INAUDIBLE] Civil 3D use and Egis Launcher. We add a community to help users to understand what is this element and so on.

[SPEAKING FRENCH]

You had some question?

AUDIENCE: What's the cost?

NICOLAS The cost? A lot of time.

RAGEUL:

[LAUGHTER]

Time-- it's \$1 billion. No, no, it's--

AUDIENCE: [INAUDIBLE].

NICOLAS RAGEUL: For us it's time consuming to develop it. So it's the cost of-- it's our product, so it's time-consuming.

AUDIENCE: How long did you [INAUDIBLE]?

NICOLAS RAGEUL: We took one year to develop it. [INAUDIBLE] the requirements, to define all our requirements, to specify the developers, to develop it, to test it, to test it, to test it, and to test it. And to apply up to the deployment of Civil 3D on each computers. But it's not [INAUDIBLE], this project. We have also all our processes. And it's included our processes or our standard edition is three years. And we're not finished yet. Three years of project, three or five years-- four years of project. And it's one of our conclusion that I have also other things. I am not [INAUDIBLE] on it. But one year to do that.

AUDIENCE: When you have a new project, how much time do you have to calculate to make your project get ready for use?

NICOLAS RAGEUL: 15 minutes.

AUDIENCE:

AUDIENCE: 15 minutes.

NICOLAS RAGEUL: You have a [INAUDIBLE]. [INAUDIBLE] to follow. And I check before here to [INAUDIBLE]. And it didn't do before. It [INAUDIBLE] before. You follow the steps-- 15 minutes to do that.

AUDIENCE: Yeah, on your computer. But I mean the [? think ?] space for it, for your project.

NICOLAS RAGEUL: [INAUDIBLE] it depends on the project. If you have to create a new subassemblies, because it varies-- it depends on your efficiency and subassemblies. But if you like to start your project, we have nothing information, and you have to have all this Egis Civil 3D Launcher operational, to have the project kit with the XML file and so on, 15 minutes to prepare it. And after all it's a project [INAUDIBLE].

AUDIENCE: [INAUDIBLE]

NICOLAS It's 10 minute for that. [CHUCKLES]

RAGEUL:

AUDIENCE: [INAUDIBLE]

AUDIENCE: Yeah, it's the context you have to define.

NICOLAS [INAUDIBLE]. It depends on your project. A question?

RAGEUL:

AUDIENCE: I got in a little bit late, but how do I get this program?

NICOLAS Oh, I-- oh.

RAGEUL:

AUDIENCE: How do I get this [INAUDIBLE]? Do I download it? Do I purchase [INAUDIBLE]?

NICOLAS Ah, this program is internal program. It's internal. What do you want, the presentation or our

RAGEUL: software?

[LAUGHTER]

No, I'll show you what we did, but it's an internal development.

AUDIENCE: [INAUDIBLE]

NICOLAS [INAUDIBLE] [? enough. ?] And we did everything to have the property and copyright for that.

RAGEUL:

Thank you.

[APPLAUSE]