**[HVT][WS-05] Software Variant Management-20250505\_093324-Meeting Recording**

0:08  
So today workshop is about variant management.

0:16  
So we are referring in our side about this tool my Ms which is an on top on dimension.

0:28  
Here we select what we want to include in the software in terms of modules and basic software interfaces, safety models and so on.

0:44  
And today we have some users, some key users that are doing this on their job.

0:58  
So yeah, I will let them to to show you how how they work.

1:07  
And in case I have remarks, I will intervene.

1:17  
Yeah, yeah, sure.

1:21  
Thanks Stephen.

1:22  
So hello everyone.

1:24  
I'm Jaydeep Parakhi and I'm working as a, as a project director for Tata Technologies in the area of A and model based systems in generic.

1:37  
So as Stephen mentioned that we are going to discuss discuss variance Management Today.

1:44  
And basically I would, I would like all of you to participate to interact and give as much as possible information to us so that you know we'll get we will get the overall idea of how horse is managing the variants today.

2:08  
And if you can give us some kind of highlights how the variants are defined at the top level and how it is connected with with the software layer variants.

2:20  
I think that will be really helpful for us to understand end to end process of managing the variants.

2:26  
And we have also floated a few questionnaires Steven will share with you, all of you and maybe you can go through it, you can provide your response to that particular questionnaire and today, not today, but whenever you will get time in next 23 days.

2:50  
And apart from that, if you have something to show up that how you are managing it today, whether it is in the Excel sheet or whether it is in any any tool, variance management tool.

3:04  
And if you are able to if you are able to show that operational walkthrough to all of us, I think that will be really helpful and that will give us a kind of good information in terms of managing the variance.

3:20  
So maybe I will OK, so, so if and if you want to start, I think that will be good.

3:26  
I can see something on the screen, yes.

3:28  
So for AJT build this this diagram that I shown to DASO.

3:39  
So basically in the first column is the what we are calling CRS files.

3:48  
There are interfaces between applicate applicative software and basic software.

3:57  
This files contains even elect contains the electrical characteristics of each pin in the ECU.

4:19  
So based on what we have on the shelf, we select them and we create using my Ms tool we select and build one SOF MW.

4:35  
So for each function we we select we build this SOF.

4:43  
Then we create an SOF project which contains all the all the all the SOF functions.

4:57  
So this is the project.

4:59  
Then we select the safety modules.

5:02  
So we include the safety specs inside it.

5:07  
And then we proceed with the selection of the software modules of the applicative software.

5:15  
Then after after this is built on a safe supplier, it's built by RNTBCA.

5:25  
So our jobs basically ends here at at this moment and the SF supplier is done by RNTBCA.

5:34  
So Stefan, what is that N Tbci RNTBCA is the Renault Nissan technical.

5:49  
I don't remember all the OR the World Business Center, Business Center in India.

5:56  
Yeah, I think, I think it's a before separating out NTB SAYA used to give you a support right entire Reno and Nissan.

6:08  
Now they're continuing the same support to you.

6:10  
There is some dedicated team for horse if I am correct Yeah.

6:19  
And if we start up from this particular diagram, So here what my understanding is the mainly you have the SRS file for each function and these functional functions are defined at a system level, right.

6:35  
So those functions get cascaded and it's software level further that CRS files got created for each function.

6:43  
So those files mainly contain your ECU related input, our output parameters.

6:50  
So those that you are fading into my MES.

6:55  
So once those files are available in my MES, then you are creating software order form, right?

7:03  
And what is that MW?

7:06  
So hello, Hello guys.

7:08  
So the middle wire, it's basically our connection to the pin out of the supplier pin out.

7:14  
Yeah.

7:17  
If you want, I can share a little bit so I can show share you the Excel spreadsheet which we delivered to RNTBCI so you have a better understanding.

7:27  
Yeah, Yeah, that will be really Stefan.

7:29  
I'll take the the presentation a little bit.

7:32  
Yeah, Yeah.

7:34  
Let me know when when you see my screen, please.

7:38  
Yes, it's visible.

7:39  
So basically this is an SOF generated, this is manually generated, Yeah, because there is a now because of the split, we are horse and per we have some restrictions regarding the specifications.

7:55  
Yeah, there are some functions which are exclude exclusive and we don't have ownership over them and we cannot access them.

8:09  
Yeah.

8:10  
So that's why me and other my other of my colleagues which are working on hybrid projects, we are working on manual Excel spreadsheet.

8:20  
Yeah.

8:22  
As Stefan said, our software is is splitted in functions.

8:27  
Yeah.

8:28  
Each function, it's then splitted in sub, sub functions.

8:33  
Yeah.

8:34  
And each sub function is splitted in in modules.

8:38  
Yeah.

8:39  
For example, let's take a sub function and each module has several specs associated to to them.

8:49  
Yeah.

8:52  
For example, when we create the content in my Ms, we as I said in the meeting when the SALT team was here, we are taking the module in our SOF.

9:10  
Yeah, this is what we had in, in my Ms.

9:15  
For example, I'm going to show you now what my Ms is creating.

9:20  
So this is the the swift created by the my Ms tool.

9:24  
Yeah, in which we provide some, some information when it's created.

9:31  
Well, not by us by Amper, because I don't have we as hybrid projects, we don't have access to Amper specification.

9:40  
And if you go over here, the module is automatically created.

9:47  
Yeah, it's given here the content the and rntbci is using this to download the code which we are delivering to the supplier.

10:00  
Yeah, from M set or dimension.

10:02  
Correct me Sebastian, if I'm wrong.

10:04  
The codes are stored in dimension, if I'm not wrong.

10:09  
Yeah, or the code package.

10:10  
Yeah.

10:10  
So basically when my project request this module, rntbci is creating the full package based on what input I'm creating.

10:22  
And they are creating a list of codes and downloading them from from dimension.

10:28  
Yeah, OK.

10:32  
The middle wire you're, you were asking about middle wire MW P1 moment.

10:42  
In order to connect our specification to to the supplier basic software, we need to have some interfaces and we are doing this by CRS.

10:55  
Yeah, each CRS has information regarding the technical specification of the variable and also the hardware.

11:06  
So the range on which we, I don't have, I don't think I have a CRS file to show you, but let me see if I have.

11:17  
I have one stored in my ECU.

11:25  
Basically the CRS is it's an Excel spreadsheet in which we have, for example, this is a coolant temperature sensor, Yeah, in which we have some conditions when it should be active.

11:40  
The functionality of this, this pin and of course applicative software side, basic software failures.

11:49  
Yeah, those are basic software failures.

11:54  
We have the range, min, Max, the period.

11:58  
So we have several information which are linked here.

12:02  
And basically with this file we are interacting, we are connecting our our requirements to the supplier pin, ECU pin, Yeah.

12:23  
But for us, it's very important to understand how in the future with the the future tool, how is this content created?

12:35  
Yeah, because it's not very well understood how we are going to create it.

12:41  
Are we going to link this tool, new tool to dimension in order to to have this module information or how how are we supposed to to do it?

12:54  
This is our question.

12:56  
We basically yeah.

12:57  
So Andrew for right now we are just understanding this as this process.

13:02  
So the way you mentioned that yes, so you have this SOF the CRS files got created and we are collecting this specific requirements and based on that the ALM tool evaluation or assessment that we are going to have, we will see whether the that particular tools are supporting this particular functionality to manage this all directly within a tool.

13:26  
Is that option or commands are there or is there any maybe kind of some script or something need to be created to handle this.

13:35  
So that is what the first intention of this particular project.

13:39  
So yeah, based on that we will able to recommend or comment.

13:46  
So yeah, basically those are the steps which Stefan was saying to you.

13:50  
So first of all, you need to create the middle wire interaction between the \*\*\* and the supplier ECU.

13:58  
Yeah, then the Swfs which contains the Crss and the safety specs and then the SWF which create have has all the modules integrated.

14:11  
Afterwards it's the full SWF supplier which has all other files which are needed by the supplier in order to to better create the our software.

14:22  
So the task or the build up the event list, the did list the read list.

14:27  
It's a full package which the Spire needs in order to create our software.

14:34  
Yeah, OK.

14:35  
And and you in this particular view or do you have any other Excel sheet or any view where you can simply see the how the variants or the configurations are listed out?

14:48  
So let's say what do you mean by configuration?

14:51  
That's my question.

14:52  
Because OK, so let's say like mainly the we can say the variant.

14:56  
So you have the function.

14:58  
So that particular function is used in specific software.

15:04  
So that the say, but that same function is not used in another software.

15:10  
So you have that metrics.

15:12  
Uh, I think you're, I understand your question, So let's go, let's see if I can give you an example.

15:20  
For example, let's take this, like I said, I said at the beginning, I'm working on a project on which I don't have access to the information.

15:30  
Yeah, correct.

15:31  
So that's why I'm using this Excel spreadsheet.

15:34  
Yeah, let's take this module as an example.

15:37  
Yeah, I'm gonna filter this out in my SUF and I think I understood your question.

15:45  
For example, in my, as you see here, this module which is 24th version of this module has in my manual SUF has only 2 specs.

15:55  
Yeah, correct.

15:58  
But this module is common for all projects.

16:02  
Let's see if I can find the information here.

16:07  
No, not here.

16:10  
So this module 24th version is common for all projects.

16:17  
HCM, PCM, gasoline, diesel, hybrid, HCM, ECM.

16:23  
Yeah, and as you see, this module has more than 2 specs.

16:28  
Yeah, correct.

16:31  
Using this tags the tool my Ms, it's able to filter out the other specs.

16:38  
Yeah, For example, I'm gonna show you the this is the Excel generated automatic by my Ms tool.

16:49  
Yeah.

16:50  
And you will see here that it's filtered by only 2 specifications which are specific for HVC, OK.

17:00  
And and when when this module is created and when the spec is created, each spec is created with associated tag.

17:08  
Yeah.

17:10  
And when you generate the script to my Ms tool, you are introducing this tags when you are generating your Sofs.

17:22  
Yeah, for example here those are my tags which are used by my project.

17:30  
Yeah.

17:31  
And when my Ms tool is requested to create the SOF content, I'm adding the tags.

17:40  
Each specification has A tag associated to to them in order for the user to know.

17:47  
For example, let's take this first spec here.

17:52  
As you see this first spec, it's used on HCM ECM, but not for hybrid or for EV vehicles.

17:59  
Yeah.

18:00  
And this automatically won't show up in my SUF content for hybrid.

18:06  
I'm working on hybrid HVC, not HCM.

18:09  
Yeah.

18:11  
So this is the way the tool, it's disabling the specs which are not needed.

18:17  
If this was very this, I think that was your question.

18:21  
Yes, Yes, that was my question.

18:22  
And here I just want to understand that version like zero or 2 dash 0A or 5 dash zero so that numbers are given to that.

18:32  
So how you are reading that or is that a versions or how is it?

18:37  
No, it's version of the spec.

18:38  
So basically this each spec starts from zero, zero.

18:42  
And with each correction, well, I don't have access to full access.

18:47  
So like I said, unfortunately I don't have full access on amper.

18:51  
And by each correction we are incrementing this version.

18:55  
Yeah.

18:56  
OK.

18:57  
Can you go to that Excel sheet maybe there just let me confirm my understanding.

19:01  
Where here the official one or the manual one?

19:06  
Which one?

19:07  
Yeah, anyone.

19:08  
Yeah, this is also fine.

19:09  
So here I can see you have that on the specification that CL with that column D So that is your the specification, right?

19:20  
Yeah, this is specification, this is a module name.

19:22  
Yeah.

19:23  
OK, top one is a module name and below is the specification.

19:26  
Yeah, this is and in front of that it's a module.

19:31  
So we have the M win oil.

19:33  
This is a module of the sub function.

19:36  
Yeah.

19:37  
OK.

19:37  
And if we see that column WXYZ, so that is a version is mentioned like 4 dash, 05 dash.

19:45  
Yeah, yeah.

19:46  
So how we can read that That above is the SOF.

19:49  
So that is the for example, this is a 50 CR one, this is a 60.

19:55  
So the next software yeah, mm hmm.

19:59  
It's a increment of what I'm working on yeah.

20:01  
So that is a software version on top SOF Yeah, this is yeah, this is the software version.

20:07  
But like I said, this file which I'm showing you, it's only sketch.

20:14  
It's my current, let's say, working Excel sheet.

20:19  
So it's not an official version.

20:21  
It's.

20:22  
The way I'm using, I'm tracking my my updates, my corrections of the on the software.

20:28  
Like I said, I don't have full access to the specification and this is the way I I follow up all the modifications.

20:36  
Yeah, usually you should in our official, in our official process, we should use this one.

20:47  
OK, so, but, but because I don't have full access to, I cannot generate it.

20:54  
We can generate only ECM related specs with my Ms, I don't have access to to those specs.

21:03  
Maybe a colleague which has access to to my Ms and with working on an ECM project can show you directly how is is he generating the the the content.

21:17  
Yeah, yeah.

21:18  
Because in variant like today's workshop, this is what our main aim like how you are managing these variants and how those are interlinked.

21:28  
So if someone can show that, that will be a really helpful because based on that, yeah, it will help us to just list down the specific requirements to just see whether that tool supports or not.

21:41  
Yeah, basically what's how is the process we're starting from n -1 software and we're going to the next loop and adding the corrections.

21:51  
Yeah, OK.

21:53  
And the below specification version like 4 dash zero, Yeah, yeah.

21:56  
For example, for example, here there is an update from a 50, as you see we have 4.0 and in a 60 I was requested to put 6.0.

22:07  
Yeah, OK.

22:09  
And here it's a reason why I have taken the I have taken the update.

22:15  
Yeah.

22:16  
So that is is a kind of issues or.

22:18  
Yeah, it's an issue.

22:19  
Yeah, it's a bug in the software.

22:21  
It's an issue.

22:21  
Yeah.

22:22  
This is an issue.

22:24  
And issues are delivered the material delivery.

22:30  
Yeah.

22:30  
So, so though it is a manual and created by you, I think that logic is same for everyone.

22:38  
Like they also track the similar way manually or everyone have a different process.

22:43  
No, usually everybody's tracking some.

22:46  
They have a similar document like this, but our official SOF, it's this one.

22:54  
Yeah, which is generated by my Ms tool.

22:57  
Yeah, we're tracking this, but it's not a, it's not a, it's a manual SOF where you, you are, you are doing the modification manually.

23:07  
Yeah, it's not.

23:08  
This is a manual SOF.

23:11  
Yeah, it's just for tracking purposes, but what we delivered to the supplier, it's a file like this.

23:19  
This is generated by my Ms.

23:22  
OK, So here also you have the module, the specification, specification specification code version.

23:31  
So this code version is different than that SOF that you've shown in the yellow.

23:38  
Yeah, I, I don't have here.

23:40  
I don't know the codes.

23:42  
Yeah, here.

23:44  
Unfortunately I don't have information on the codes.

23:47  
This is automatically extracted from dimension once you give them.

23:52  
So once you give them this, so the modules you are introducing the modules in my Ms, Yeah, the module is filtered out by tags, So by those tags and you have for example hybrid for this module, we only have this specification.

24:11  
Yeah, OK.

24:13  
Yeah, for let's check.

24:15  
I never checked this one.

24:16  
For example, if I'm looking on this one on 8.0, as you see on 8.0 I have more specs than I have in my SUF, but the other ones are not for me, are not for hybrid projects are are removed by the tag association.

24:36  
Yeah.

24:39  
So that associated tag, if you don't see that particular tag association, so, but that particular specification is not for that process.

24:48  
So whatever it is listed here, yeah, only those projects is using this particular version and specification.

24:54  
Those tags are automatically generated by the algo team.

25:00  
So when, when they are delivering a correction, yeah, they are associating what, what specification they have an association, A tag to associate the spectral.

25:11  
Yeah.

25:12  
So this is it's not for us the call to to tag them.

25:21  
It's for algo team.

25:23  
Yeah, what team and the architect?

25:25  
The architect, Yeah, software architect, let's say.

25:29  
OK.

25:29  
So is there any software architect available in today's call because we want to understand this the logic how like is there any configuration matrix or that is there any matrix they maintain where these taggings or this correlation they are developing and then they are updating in this particular tool here I yeah, software architecture can answer probably to your question.

25:56  
I don't have this information.

26:01  
OK, Yep, no issue.

26:03  
So maybe Sushanta, do you have any question for Andrew the whatever information you just he just provided to us?

26:11  
No, no, Vijay.

26:13  
Vijay.

26:13  
I think there is one image pasted by Dennis in the in the chat.

26:17  
Ohh.

26:17  
Just sorry, let me check.

26:20  
No, Sir.

26:28  
OK.

26:28  
So Dennis, is it possible maybe we can have a discussion on this particular image or how that selection happens?

26:36  
So if you just provide some inputs, that will be helpful.

26:40  
Yes, sure.

26:41  
OK.

26:43  
If you want, we can take a live example.

26:46  
I have my Ms open.

26:48  
Yeah, yeah, definitely that will be helpful.

26:50  
So I can show my screen to to start.

26:54  
Let me know when it's visible on your side.

26:56  
Yes, it's visible.

26:59  
I think we can start with an example of the first step of of how DSF for middleware function is is built one second.

27:13  
So basically this is the the interface of the tool one second.

27:21  
So we will select manually the middleware function.

27:25  
I have already C5 zero on my project which is HTCM hybrid.

27:31  
We had already a base created a software base created previously and now we need to fill this and to respect this naming rule middleware function.

27:45  
We are taking an example of the system function.

28:00  
And if I've I will put visit one just to show you that the tool will identify that is already created.

28:10  
So it will appear as the as the red, red one.

28:16  
Sorry, you have you one digit more you have to do.

28:21  
Yeah, yeah, we are right.

28:22  
Sorry.

28:26  
So the tool will say that this one should be already available.

28:30  
So it's not possible to modify it.

28:32  
So I, I will yeah, you see yeah, that the, the name is already existing in the database.

28:38  
So I will choose another one Visual 2.

28:43  
And if everything will be OK like it is in this case, it will show on, on on green here we have that tax selection.

28:54  
And if you are clicking on search, we have all the shopping tags that are used on on all the projects that as Andre said.

29:06  
And if you are working on as my case on HCM high, HCM Azure rating, I'll choose this one and the tool will take automatically all the the CRS that are tagged by the architect and create this especially for this project.

29:27  
And if I put here one second, I have an option here on the SF search to search a database, a previous one that was already created.

29:40  
I'll put it here C 501 and choose the one that was created previously.

29:47  
Or we can load all the specification that are that are available at this at this moment with the with this tag available with the with this tag.

29:58  
But I will choose the second the variant one second we already have created in the past 900 version V0 one.

30:08  
So I think in few seconds will appear on the bottom the the revisions that we are currently embedding in in this middleware function S wave.

30:29  
I don't know if it's clear for everyone how how each step is made and maybe yeah, let me re explain.

30:42  
So that way if any correction is negated this way.

30:44  
So what I understood is first like you are creating the SOF that is in my Ms and that SOF while creating this SOF.

30:55  
So you you are creating that the version.

30:58  
So lets say the already version one is available.

31:00  
So you are creating a version 2 for that middleware software and then you are selecting specifically which base software that you are going to choose.

31:10  
So SOF loop is nothing but your base code number correct?

31:15  
Yes.

31:16  
OK.

31:16  
Then further for that particular SOF you are the choosing kind of that hem or obesity.

31:28  
So that is kind of a functions required for in that SWF.

31:31  
So that that is a functions, right, yes, yes, right, OK, that so that HECMHR 18 that selection here that you made that is a function for that particular.

31:44  
No, no, no, no, that's the tag.

31:46  
No, it's the tag, OK.

31:49  
And so here which one is the function in that case the function is a SX 6 as is coming from after system S So once you select that tag then that functions are coming.

32:03  
Yeah, because we are getting the function from here.

32:06  
So basically if we are looking here on the A SX 6, it will show us all only the function of Earth system.

32:15  
We have also after take one which is 80 and so on same bags from combustion.

32:23  
But this is only the shopping tag which is used for especially for this this project.

32:31  
And I did not know if I explained to you already, but let's take it.

32:39  
And as an example, let's say that the V0 one, after we checked we checked this SWF, we put the wrong version here.

32:50  
I don't know 330 and it should be 20.

32:55  
We have the the the second option to create another V0 2 and to to complete the right version here.

33:05  
So we we can go from V0 one to v 010.

33:09  
I don't know until the the SWF will be fully corrected.

33:14  
So we are choosing manually the the spec revision for for each function each each function of the software.

33:23  
And this is only on horse side as Andre said on Amper side we need to discuss with the SPLD from amper which has access on on amper function.

33:36  
We are working only on on horse horse function because we are splitted now.

33:42  
OK, so the functions available for horse only are now accessible in AMS system.

33:48  
But is there any common functions or that is also migrated to horse database?

33:56  
I so, so no, basically horse users cannot see umber specification in my Ms you're if you are, let's say super user, you will you would be able to see all the specification here in this tool.

34:17  
OK.

34:17  
But our accounts are restricted only to horse specification.

34:23  
OK, so others so far, I'm not sure what's gonna happen when we're going to migrate to horse IMS.

34:29  
But and this is our topic today to discuss what are the capability of the future tool.

34:36  
Yeah.

34:37  
Is this going to be linked?

34:38  
Basically this my Ms what is this tool doing?

34:41  
It's creating a link between dimension and asked to generate a SUF content.

34:49  
Yeah.

34:51  
Because basically what the Dennis has selected here, he's going to create SUF for example and then RNTBC based on his SUF, it will download the specification or the codes or whatever it's available on dimension for that specific SUF.

35:12  
Yeah.

35:14  
So my MA is basically the tool which enables us to take the specs from dimensions based on content which we are creating.

35:25  
OK got it.

35:26  
So is it possible to show that further like selecting this further specification how it get imported or the exported from the dimension or maybe the dimension interface as well?

35:42  
It should be the swfp to be created for.

35:46  
We cannot export just for for specification.

35:52  
It was great.

35:54  
Also the full SWF needs to be created in order for Errantbc to download it from dimension.

36:00  
Yeah.

36:02  
Is there any already previous example maybe you can show that is already developed?

36:09  
I have one second, I have one export on the SWFP.

36:19  
So basically here is the SWFP which is containing all the steps that I put it in the chat, all the SWF middleware function, middleware project, Swfs and SUFP.

36:33  
So basically here is the last step for the SPLD.

36:38  
And afterwards the SUF supplier will be sent, it will be created based on SUFP and send it to to supplier.

36:47  
And if you are, what more exactly do you want to to analyze here or.

36:54  
Yeah, yeah, go to inset.

36:57  
I think they want to.

36:58  
So see how you download the Yeah.

37:01  
So we just basically see the process, the your day in life process after each step, how you operate and what activities you do.

37:11  
So yeah.

37:11  
But basically, basically our role stops once we have the Excel spreadsheet created in my Ms.

37:19  
Yeah.

37:20  
OK then N TBCI is doing their work.

37:23  
Yeah.

37:24  
And they are delivering us the suf supplier.

37:27  
Yeah, the last last part.

37:30  
OK, So that sof MW that second step that is also done by you or only first step.

37:38  
So all steps are done by us till the last.

37:43  
So SUF pay we're doing SUF midwire function midwire P sufs and SUF pay the SUF supplier is done by Rentbci OK, once once the SOFP is created on MYMS or and the codes and specification can be downloaded there the the pre compilation team can start the activities in order to create the SOF supplier, the final content, the final software which would be sent to supplier.

38:17  
So our job is to create the SOFP and then we send the inputs to ADBC or horse team to start the activities to start to generate the Co flu to see if we have any other issues.

38:32  
And if everything it's OK, they will start the precompilation.

38:38  
So they the precompile precompilation teams will download every time the SOFP in order to have the all specification and codes for their activities.

38:55  
And when that safety modules are get added here itself or in the surface when when you're creating the surface, you are adding the safety specs is here we'll use on the Swfs, we'll use the previous SUF created middleware project plus adding the safety modules is the same logic here.

39:24  
Yeah, yeah, made on my Ms is the same logic that I I've explained to you on the middle of middle function will proceed like that on middleware project middle on SFS.

39:39  
And for the each step, we'll use the the SUF that was created previously plus something.

39:45  
OK.

39:47  
Basically here we'll use SUF middleware project plus safety models.

39:52  
Here on the SUFP, we'll use the previous one, SUFS plus something.

39:58  
In this case, it will be the applicative software specs.

40:02  
So this is the logic behind the creating all this software software loops in my Ms.

40:18  
I don't know, it's clear, it's clear on your side, yes.

40:23  
So maybe anyone have other questions maybe from Tata side TTL team.

40:38  
I think also this image is really relevant how we how we are we are proceeding because I don't know if you you are having a new software loop which has a modification only one one series function, you'll need to take all the steps again.

40:56  
So basically if you are not having any modification on middleware project, but you have one once here is that needs to be evolved from to revision 2 to 3.

41:08  
You need to create this one to create this new on this new middleware project to create another Swfs with this Wave middleware project and safety models.

41:20  
Even if if you are not having any modification on safety models, we'll use the previous one.

41:26  
But this one due to the fact that here we had you had the modification of the revision, you need to to take all the steps again to to create the SOFP.

41:38  
So in this case, let's say you're SOF MWF.

41:43  
So that will get revised.

41:44  
So let's say from version one to version 2 you will, but in MWP, will that get revised or how is it?

41:53  
We'll create an SUF middleware function, new SWF middleware function, new SWF middleware project, new Swfs and after that new SWFP.

42:05  
OK, but let's say safety modules are not revised, then you will use the same version of safety models, right?

42:11  
Yeah, yeah, same version.

42:12  
But as the Dennis said, it's will the version will be incremented.

42:17  
Yeah, no matter how small the modification or how big the modification is the the modification, the version will be incremented.

42:28  
Yeah, that's OK, That's OK.

42:35  
So basically this series modification has token as an example will be affecting the middleware project project also the middleware project here even we we are not having any safety models updates, but we need to to free this one also this one also this one by incrementing also the the software version as as and recent and to construct the final one which is on our side the SFP with the new new reference name.

43:13  
OK, got it.

43:14  
And then finally you will have that SOF supplier.

43:18  
So which will done by your RNTBC team.

43:23  
And then you will have the final deliverable files to flash on the hardware with that specific more thing.

43:31  
No.

43:32  
So those, this is supplier package, it's delivered to to the ECU, I don't know Bosh or Vitesco or whichever supplier is working on.

43:47  
And then after they do their job, they are delivering us the the software package which we can send to the tuning team.

43:56  
Yeah, tuning that validation and tuning.

43:58  
Yeah, yeah, yeah.

43:59  
Then the process of validation starts.

44:02  
OK, got it.

44:04  
But basically what my Ms is doing, it's an interface between us and dimension.

44:12  
Yeah.

44:13  
With this my Ms, we can filter out specifically for our project and create the content.

44:21  
Basically, it doesn't matter which content Swfs, SWF doesn't matter.

44:26  
Yeah, this should be on the export of the Ms.

44:30  
We should have only this one.

44:32  
This serve only for my analysis purpose on and also is very important here the tag selection, because the export from my message is telling you which tags were used on constructing your project.

44:46  
So here we have also HCM hash rating as I I've explained here.

44:52  
So to have a better rush ability for each each software loop building my Ms.

45:06  
OK.

45:06  
And for this maybe this and maybe I'm repeating that question, sorry about that.

45:13  
But this particular tax selection for this SOF that you selected HGCM R 18.

45:22  
So it is the software architecture decide for which SOF which specific that the the module got need to be selected or is there any further predefined metrics you have somewhere in Excel and based on that you are doing this selection.

45:40  
So for the text selection, each project has predefined some text at the start of the project, Yeah, that's defined by software architect.

45:53  
OK.

45:54  
But each specification which is created within it doesn't matter the function or has A tag associated to it.

46:04  
Yeah, this is by.

46:06  
Also, if I'm not mistaking, this is also done by software architect when the specification is created.

46:12  
Yeah.

46:16  
OK.

46:16  
So mainly that software architecture defines and based on that this configurations are available in.

46:22  
Yeah, exactly.

46:23  
Yeah, yeah, yeah.

46:24  
So the software architect says, OK, one project HR 18 HCM, you need to use those 3 tags as Dennis is showing here.

46:36  
So Dennis has selected tag 3 versions, IMS Tab 2 Reno and HCM HRT.

46:45  
And in this way he's filtering out the module.

46:48  
Yeah, I don't know Adrian, Andre, sorry.

46:53  
If we have something to to show how it was done previously on that Excel files that the for that.

47:01  
No, not then is because how was speaking about a tool which we need to create in order to interface dimension.

47:08  
Yeah, just to show the logic behind how the tags are working are working on on this tool.

47:18  
I don't know if we have something one second, if I have something here, what I no, I didn't have every time.

47:32  
But basically the tags, like we said, are created by the software architect, sort of software architects.

47:38  
Yeah, yeah.

47:47  
The logic behind those tags, how it was done previously until the the my Ms was was available here.

47:57  
We have all the project that are are are now on on our horse or Reno word.

48:06  
And here we have all the specs, applicative specs available at I don't know an A meteor delivery version MD 25.

48:18  
We have some meteor deliveries from algo.

48:22  
I think from 3 months to 3 months.

48:25  
It should be.

48:27  
And if you're putting here one, we'll have all the specs that must be embedded on on the on our software loop.

48:37  
So basically this is what this this tag is is making.

48:44  
In the background we have a database of the specs that are predefined with the tag hash rate, HCM hash rating.

48:54  
And by putting here the this week with HCM hash rating will have available all the specs that are predefined with this with this this shopping tug.

49:13  
OK, so in these logic, yeah, yeah, go ahead please yeah.

49:18  
So in that particular logic, if you go to that Excel file, yeah.

49:22  
So HERCMHR 18 that filtering.

49:26  
So here you're doing that E column E that you did.

49:29  
Yeah, exactly.

49:30  
So yeah.

49:30  
So the same way this all the specifications are available for this particular project.

49:36  
And then further based on your need, maybe you are just changing the version or addition modification if that is needed that you are doing the updates in that particular file, right?

49:50  
Yeah, in the configuration.

49:51  
OK, Yep.

50:03  
Any further information or the process steps that you would like to explain related to this from my side, I don't know, Andre, Sebastian, if nothing on your mind or Yeah, go ahead, Sir.

50:16  
Maybe Dennis on the maybe I would like to understand is there any connection with your software requirements?

50:29  
Yes.

50:29  
So at the beginning of the projects, we are requested to implement some CRS.

50:40  
That's change requests.

50:42  
Yeah, yes.

50:46  
Let me show you a little bit.

50:48  
My screen again.

50:53  
So let me know when my screen is visible.

50:56  
Yeah, yes, yes, it is.

51:00  
This is an hypothetical example.

51:03  
Yeah, because it's not impacting me.

51:04  
I added this, for example, I have version 20.0 of this pack, but the requirements are associated to a CR change request.

51:15  
Yeah.

51:17  
And for example, on a specific project, we are asked to add a new function and that new function is linked to a CR.

51:26  
Yeah, this is our current process.

51:30  
And this CR is done OK with the software architect, with the specialist?

51:37  
Yeah, Algo specialist.

51:39  
And this CR is delivered after SCDR zero, SCDR one, SCDR 23.

51:45  
And this one is delivered officially.

51:47  
For example, this one was delivered officially in MD 18.

51:50  
And in order for us to to have this CR, we need to have version 18 of this specification.

51:58  
Yeah, this version 18 of the specification, it's including in a specific module and we need to take the that module in order to have this, this, let's say new requirement embedded.

52:15  
But this is the link for us between the requirements, the new function and the specification.

52:22  
Yeah.

52:23  
OK, OK.

52:25  
So there is no direct traceability, just like dimension and AMS, you have a direct traceability, right.

52:33  
So for requirements, no, no, I don't have a Yeah, I don't have a direct link to the requirements.

52:42  
Yeah, for me each requirement is linked right now.

52:47  
This is a process right now each requirement is linked to a new function and a new function is linked to ACR or HCR.

52:56  
Yeah, OK.

52:57  
Each horse change request or unper change request, Yeah.

53:04  
So we don't have specific I know what you mean a new require No each requirement it's linked to ACR or a change request yeah.

53:17  
You don't have so so through through change you are bringing the traceability that's what I understood right yeah yeah change request or I, I yes.

53:28  
What you see here is is a bug fix discovered in the software.

53:32  
Yeah, OK, bug fix.

53:34  
So, so for example if there is a bug and we need to correct it, we need to this is an is which is raised to track all the issues in within the softwares.

53:46  
And if the is is impacted the software you need to correct it or and for example, if I want to correct this is 1460 to 9I need to take this version 20 of this specification.

54:02  
But we don't have a direct link to the requirements.

54:07  
Yeah, OK.

54:09  
For us the requirements like I said are linked to a new function and the new function is usually linked to an ACR number or ACR depend, it depends on on the function.

54:22  
Yeah, OK.

54:24  
Yeah.

54:32  
So how are these variant configuration manage in the dimension?

54:37  
So is there any methodology or logic you maintain in the dimension?

54:42  
I, I fortunately I don't know how dimension works for us as Splds, as software project managers delegate software project management.

54:54  
Our role is to create the SFP and then we send this to RNTBCI team and based on our SOFP they are providing us the codes and the other SOF supplier package documents needed for the spare.

55:11  
Yeah.

55:13  
Like we said before our role stops after we create SOFP.

55:21  
Our no, our interaction with dimension let's say stops when we create the SOFP.

55:28  
We don't have any visibility of what happens afterwards on RDBC side.

55:35  
OK, Yeah, I think Naveen is there I think in call.

55:41  
So Naveen, is it possible if you to explain how that variance or configurations manage in the dimension?

55:54  
Yeah, but actually the variant of each specific each module, it is also part of the module delivery.

56:04  
OK.

56:05  
It is a kind of file which is created automatically during the model module creation.

56:16  
Maybe any diagram or any structure if you have that will helpful.

56:21  
No, Navin, I think there is.

56:23  
So with the variant file, I think they are referring to the specifications or the codes, correct, not the variant.

56:33  
Yeah, inside the inside the module, we have a variant file.

56:39  
No entry.

56:40  
Yeah, let me show you what we first of all.

56:43  
Yeah, let me show if I have.

56:45  
I'm not sure if I have a variant file fortunately, so I have here a variant file for example, each module is delivered to us with the variant file.

57:00  
But based on this variant file we are creating the task order.

57:08  
Yeah, I'm not sure if this you're referring to as variant file, I'm not.

57:16  
I think we have different definition of what you are calling variant file and what we exactly we have as variant file.

57:28  
For us this is a variant file, basically the variant file, it's the module content and the word in which the specs are being called.

57:42  
OK.

57:42  
And with their respective revision, Yeah, with respect to revision and this task order, if I'm not mistaken and nothing can correct me, it's used to create the task order necessary for the Bush or for the supplier activity.

57:58  
Yeah, exactly.

58:06  
So Naveen, for this particular task order, maybe can you explain more like how did like we can read that one to 8.

58:13  
So it's a first specification.

58:15  
Second, so you are sending the combined package, right.

58:18  
So what is the significance of this task order?

58:21  
Yeah.

58:22  
So we we have to give the task error for the complete project.

58:26  
It is also in Excel format.

58:29  
So it is a integration of all the modules in in into that project.

58:35  
So in in this module, this is the order we need to respect.

58:39  
OK.

58:39  
Like and so the tool will take this order into consideration without changing anything because this is a input to the tool, OK.

58:50  
So for from integration point of view you need to follow this particular order.

58:55  
So that way proper input output of the sequencing or overall that will be maintained correctly.

59:00  
OK, Yeah, yeah exactly.

59:07  
And is there any way maybe Naveen, will you able to show us that dimension tool, how it works or how you manage that details over there?

59:18  
Because from the dimension I am, I'm a kind of an user perspective only because I will be, because I know only how to use that, but not the from the developing point of view.

59:30  
But if you tell like exactly what information he knew it probably I will ask the develop developer to explain.

59:39  
Yeah, mainly this variant because here what we understood this in my hands, this particular the specification and the configuration so that SOF is getting created and based on that it is downloading the files or that specific input from the dimension.

59:59  
So we would like to understand how you manage the things in dimension because here you are giving the input OK, you need this particular specification with this particular version and this set of specification module is needed in that particular SOF.

1:00:14  
So how dimension read that at high level or what logic you have applied there?

1:00:19  
So that way it is extracting that exact the required information and giving the required output.

1:00:24  
So that part we would like to understand in dimension.

1:00:27  
OK, maybe, OK, maybe I will try to get from the developer and maybe I will ask them to show.

1:00:33  
OK.

1:00:34  
Yeah, Yeah, that will be really helpful.

1:00:37  
OK.

1:01:03  
OK.

1:01:03  
I think team memory is not available, it's lunchtime here.

1:01:07  
I will try to see when they can join.

1:01:09  
OK, Yeah, sure.

1:01:10  
So if today if it is possible that will be helpful.

1:01:13  
If not, maybe tomorrow we are going to have the source code management session.

1:01:17  
So they are also if they available in that session and they explain this flow or the logic that will be helpful because in I think tomorrow session we are going to talk more detail on from the source code side also.

1:01:31  
So yeah, that that will be really helpful if you include them in tomorrow session today, if it is available, then that will be really.

1:01:38  
Yeah, sure, sure.

1:01:50  
Yeah.

1:01:50  
Now from this integration point of view, I think this my aims is integrated with a dimension only, right, Not with any other tool.

1:02:00  
So is that understanding correct?

1:02:02  
Yeah, yeah, yes, OK.

1:02:06  
And maybe Stefan, in today's call, is there anyone available from the that the software architecture and the system architecture point of view?

1:02:17  
Because we just want to kind of understand the linking like when at a main functional level you create the different variants and how those variance gets get cascaded to the software level.

1:02:32  
So that that linking or that flow that we would like to understand.

1:02:38  
Because here what we understood is mainly from the software side that that information is already available.

1:02:44  
And then further how it get build at that specification module and it will pass to the the next stream.

1:02:53  
But the initial steps like when it start with the new project, how at system level it get created the variance part and how it is linked with the software part.

1:03:03  
So that part we still need to understand if anyone is available in today's call.

1:03:10  
No, I don't have any colleague from software or system to the available or any specific documentation or any flow diagram is available maybe which can explain or provide us this information.

1:03:30  
From what I know the the variance are mainly done here but because normally your variance will flow from top like you have that particular system.

1:03:55  
So at that level also some variation will be maintained and further it will get cascaded and so that that particular linking we would like to understand.

1:04:23  
OK.

1:04:23  
I know the question and I will try to find someone in the next days.

1:04:31  
Yeah, sure.

1:04:31  
That will be helpful.

1:04:39  
Yeah.

1:04:39  
Then from the further question point of view, maybe Jayadeep or Sushant Dhamadan, do you have any additional questions?

1:04:58  
No, Ajay, just one question regarding the integrations.

1:05:12  
Basically only one integration I can see at this point of time that is aims to dimensions.

1:05:21  
Is that correct?

1:05:22  
Or any other integration is also available?

1:05:31  
I don't think I understood the question, no.

1:05:36  
As you explained, you know there there is a integration between aims to dimension right from where you are downloading that data.

1:05:46  
Apart from that, is there any integration with any other tool for the data exchange?

1:05:54  
I don't know me as SPLD, I don't have visibility on what happens on integration side once we deliver this SWFP here.

1:06:06  
I think we need to speak with somebody from or maybe somebody from LTBC side to explain what the interaction with between dimension and and this document.

1:06:18  
Yeah, I maybe we can, maybe we can take a question and ask to the developer.

1:06:23  
Yeah, yeah.

1:06:29  
OK.

1:06:29  
Thank you.

1:06:39  
And from the improvement perspective, do you suggest anything how your future tool should look like and that will resolve your existing problems or maybe the improvement in the process, something like that.

1:06:56  
Do you have any views on that?

1:07:11  
Maybe today if you are, if you are spending more time on finding the informations or getting the information that is delaying your activities and maybe some kind of repetitive task you are doing.

1:07:26  
So are there any kind of expectations to improve that area?

1:07:33  
Maybe that will be helpful for us.

1:07:41  
Maybe Dennis on the right now on improvement on my Ms, I don't know, maybe the speed because it's well, yeah, the speed, the speed, but it's not depending.

1:08:02  
I I don't I don't know what the interaction between like I said, dimension, my Ms, I don't know what's behind it.

1:08:08  
Yeah, the speed, yeah, because we the waiting time is too long when creating an SF in my Ms waiting time in the sense it takes it takes a lot to list the modules when after you select the tags.

1:08:30  
So you select the tags and then you have to wait a few minutes to leave to have the list of the modules and then.

1:08:42  
Yeah, correct.

1:08:43  
We just observed, Yeah, when you selected that particular target took time to load the specification for that particular model.

1:08:53  
Yeah, and any other activity where you need to spend more time like the manually to prepare something.

1:09:13  
With this variant related part, I come up with let's say topic for let's say improving the tool.

1:09:25  
If there would be some kind of possibility to for example, put an change request number or and automatically download the specs or tell you the specs impact impacted by the new function or by the new change request.

1:09:52  
I'm not sure if my question was understood.

1:09:54  
For example, we need to correct the topic or introduce a new function in our software just to put that is number for example, this is now that is number was officially delivered in Metier delivery.

1:10:07  
Yeah.

1:10:08  
And the tool to automatically introduce that update in the SUF, you know, but it's just a suggestion, let's say.

1:10:19  
OK, so currently in my Ms you are able to add that CR number or that?

1:10:26  
No, no, no, you're able.

1:10:27  
We're we're not, we cannot add that.

1:10:31  
For example, starting from an old SUF pet to add a new ACR, we need to manually add the module.

1:10:39  
Yeah, which is impacting the correction.

1:10:43  
OK.

1:10:45  
And overall this process that you explained, is there any variation with this process or like from location to location or which location this you are performing this activity mainly you're talking about the speed of the tool home.

1:11:06  
No, no, that, no, no.

1:11:07  
The variant part that you just explained are the software variant how that SOF creation.

1:11:13  
So but this activity, the process steps or that are you like in only but done in Romania or you have the other sites also.

1:11:24  
So they're also the same.

1:11:25  
We also have other sites, we have Spain, Brazil and so, so they follow the same process or is there any variation?

1:11:35  
No, no, it's the same process.

1:11:36  
So basically to yeah, we need to create an SFP in order to start the, let's say to deliver a package to the splash that's a SF supplier.

1:11:46  
So basically the process is the same.

1:12:05  
OK.

1:12:05  
I think, yeah, Jay, Deepa, so I think we covered most of the question.

1:12:09  
Only 2 parts are remaining.

1:12:12  
One is what that system and software, how that is getting cascaded from system to software, that variant part.

1:12:19  
And the another is the how it handles within the dimension.

1:12:24  
So these are 2 topics are remaining from today's workshop.

1:12:34  
OK.

1:12:34  
So that means from the first to 1I think we need to have a discussion with software architects, right, Yes.

1:12:43  
So maybe if Naveen able to arrange one.

1:12:48  
No, not I think still we need to request Stephen maybe like last time.

1:12:55  
So, Stephen, we need to have meeting with system architects as well as the software architects, Yes, Yeah.

1:13:03  
So to understand how the variants are defined and maybe someone from the dimensions team who also works on the variates and it is linked with the aims.

1:13:27  
Yeah.

1:13:28  
For this we need to talk with Navin to see who can help us from his team.

1:13:34  
OK, OK.

1:13:50  
Any question, Vijay, we have missed out.

1:13:54  
No, I think, let me quickly flash that.

1:13:57  
Let's quickly review just a moment.

1:14:05  
Is my screen visible?

1:14:08  
Yes, yes, this is so this mainly this first question like we got the partial answer.

1:14:15  
The initial part is that we need to discuss maybe that system architect and software architect they will able to provide us the more detail how that variant management or the variant definitions handle from the system level and how it flow to the at software level.

1:14:35  
Yeah, once it is available at software, that part we understood.

1:14:39  
So this yeah, this the feature constraints.

1:14:45  
So is there any rule or this current tool is designed in a such a way that or any rules are defined like if you select the particular feature or module then I think you shown that like it is mainly based on the tagging, right?

1:15:03  
Yeah, tagging and I think there is are some other rules.

1:15:07  
For example, there is a restriction in.

1:15:11  
You cannot add 2 modules.

1:15:16  
I'm not sure.

1:15:16  
I'm thinking one of the restriction is you cannot add 2 identic modules in your SF.

1:15:24  
But this is a restriction for.

1:15:26  
You cannot create.

1:15:27  
It's a rule.

1:15:28  
OK, you do.

1:15:29  
You'll get an error once you create this, but OK.

1:15:33  
And that is in my Ms, my MSM, yeah, yeah, yeah.

1:15:39  
Then this the variant matrix.

1:15:41  
Yeah.

1:15:41  
So you shown for software that in my Ms how it is get configured.

1:15:47  
So you are selecting that particular project the specifications and you are having that Excel tables also through track manually.

1:15:54  
So yeah, this part is clear then yeah, traceability also you explain.

1:16:00  
So there is no direct traceability and but yeah, through CR and is the requirement can be traced back.

1:16:10  
OK.

1:16:10  
The tool, yes, it's a my I Ms.

1:16:13  
So this we got idea for software level then integration.

1:16:18  
So for now only my I Ms and dimension that is what integration we know.

1:16:23  
And maybe the RNTBC team or the Naveen's team can provide more detail if any other integration is there in this particular area.

1:16:34  
And yeah, we discuss about the pain areas or the limitation while using the tool.

1:16:39  
If any other limitations pain area that you would like to add, please let us know.

1:16:49  
And maybe if not immediately came something in your mind, but afterwards you find, yes, this particular points or topics are needed or these are the kind of pain areas.

1:17:00  
Please feel free to share those detail with us, Stefan.

1:17:03  
And accordingly, we will have those details and if you find any specific document process flows that that will help us to capture this.

1:17:12  
So please share that as well.

1:17:14  
That will be helpful.

1:17:17  
OK.

1:17:22  
I have a, let's say not question, what do you mean by software variant?

1:17:28  
Because it's for us as SPLD, it's some kind of confusing this word variant.

1:17:36  
What do you mean by software variant?

1:17:38  
It's the software version or?

1:17:44  
OK, So here when we talk about a variant, I will give you the example, let's say maybe it is A at a very high level to just explain this particular scenario.

1:17:57  
So we have a particular vehicle type, so maybe it's a diesel, petrol vehicle type.

1:18:04  
So that is a variant at a system level, right.

1:18:08  
So and in that also in diesel you have the Asia Pacific, Europe or the North America.

1:18:14  
So this kind of different models will be delivered based on the respective feature differences.

1:18:21  
So this again at a system level variant.

1:18:24  
So now if you select that particular variant, so if we select the European model and the North American model or the Asia Pacific model considering the norms or the requirements, if you go the down till a component level, different functions will be there but in that particular function considering their local norms there is a slight variation.

1:18:49  
So that variation will be applicable at a software level also.

1:18:53  
Because in software also you need to may be add some additional functionality or the feature or some functionalities are not required.

1:19:00  
So maybe you need to disable those functionalities so that variation you are handling at a software level also that is get cascaddered from the top to bottom.

1:19:10  
So we are talking about the same.

1:19:12  
So when we say the software variant.

1:19:15  
So from that angle here we are expecting the details like how you are managing those things.

1:19:23  
So I think here you are the version or revisions.

1:19:27  
Revisions is nothing but like you are changing something, you are enhancing something so that get revised.

1:19:33  
But this variant means that particular functionality is there and same functionality is not available with your other model or the other region model.

1:19:42  
So that we call we are calling as a variant.

1:19:46  
OK, OK, understood.

1:20:02  
Yeah, I think.

1:20:02  
Anything else anyone would like to add or any questions so or should we conclude the session?

1:20:15  
For me, it's, let's say, OK, I hope we explained what my Ms tool, it's doing for our, let's say for our role for we were speaking about from the SPLD perspective, Yeah.

1:20:33  
So I hope the functionality was understood from our point of view.

1:20:38  
I'm not sure if my other colleagues have anything to add also for me, it's OK.

1:20:46  
OK, sure.

1:20:46  
And definitely like we'll come back to you if any further clarification or any revalidation is needed on the process that we understood.

1:20:56  
So they're also like requesting your support.

1:21:05  
OK.

1:21:10  
Do we need to discuss anything else today or?

1:21:15  
No, I think we are good only that 2 topics are we supposed to discuss.

1:21:20  
But yeah, that maybe we need to reschedule based on the user availability.

1:21:28  
Yeah.

1:21:29  
So Stefan, any corrosion comments from your side?

1:21:35  
No, no.

1:21:36  
But 111 more thing, maybe my colleague can correct me if I'm wrong, I think.

1:21:43  
But OK, we can talk with the system architects.

1:21:46  
I think the variant you are talking about on the system level are treated like a separate project on our side.

1:21:55  
No, that's fine Stephen.

1:21:56  
That's OK.

1:21:58  
But we will just want to see how that information is going down to software level, OK.

1:22:05  
And from software level to further what Andre and Dennis just explained to us.

1:22:10  
So who we got the clarity on how they work on the daily basis.

1:22:14  
However, how it is linked to the upstream, that is what we are interested in.

1:22:20  
OK, OK.

1:22:21  
I will, I will try to find a slot with with them.

1:22:24  
Yeah, yes.

1:22:25  
So guys, from our point of view, from SPLD point of view, our link, you know, for software creation is the change request.

1:22:32  
Yeah, yeah, yeah.

1:22:34  
That that we got done there.

1:22:36  
Not a problem.

1:22:37  
Yeah, OK, OK.

1:22:43  
But it was a good discussion.

1:22:44  
Thanks for your inputs, Vandre, Dennis and everyone.

1:22:51  
Thank you also.

1:22:52  
Thank you guys.

1:22:53  
So we we can stop here now.

1:22:56  
Yes, Yeah.

1:22:57  
So if required, we will come back to you if we have any additional questions.

1:23:02  
Yeah.

1:23:02  
And Stefan, maybe you can stop the recording.

1:23:05  
And is it possible to you to stay back 510 minutes?

1:23:09  
Yes, Yeah, yeah.