

File: 24April2020_002

Duration: 0:49:16

Date: 24/04/2020

Typist: Scarlet

START AUDIO

Interviewer 1: I want to ask you about your experience with using asset registers. The research project involves interviews with stakeholders using assets registers with different roles and from different companies. The purpose here is to try to understand the role played by asset registers in the maintenance optimisation and enhancement process. In particular, this research will explore asset register quality, challenges and production. Our research is also interested in the use of digital software technologies for supporting asset register production and use. In part, this research may help the University of Salford (and potentially partner organisations) identify opportunities to develop technologies, techniques or tools to help organisations and support their software development processes. I want to ask you the following questions and tape record your answers. I do plan to publish interview transcripts and extracts. Can I switch on the recorder?

Respondent: Yes

Interviewer 1: So what is your current role in Add Energy?

Respondent: I am currently a contract developer. But I mostly spent my time working on Asset C. So fixing bugs. A lot of fixing bugs and adding new functionality. So currently the only main users are the SBM team. And that who I was mostly supporting and

speaking with as often as possible. I trying to understand how they are trying to use the software. Because the majority of the work that they do is from excel and it is like integrating with excel in a sense.

Interviewer 1: May you tell us what Asset C is and what it does?

Respondent: In a more simple form than a Hoss [Research and Development Manager]. [Laughs] The easiest way to explain it is that: there is a lot of equipment on... it is not just oil rigs, it could be anything really. It can be a warehouse. There is loads of equipment and machines. There is a lot of different paths that makeup all these individual pieces of equipment. So it could be bolt, for example or a screw something really tiny what makes up a massive part of the system. So if a screw is to go missing and a machine stops working, then we have to replace that screw. So it is a basically a list of everything right down to the granule level in a block. Whatever that block may be. It could be a section of an oil rig or in a warehouse or whatever. Basically asset C tries to track every one of these individual items right down to the granule level. We try to produce a user interface what makes it easier for them to see that tracking. Then they can apply maintenance on top of that tracking. So if you think about it, emergency areas require more maintenance than a non-emergency area. So the equipment in that area will be more focused on than the others. So we have to create the user interface in a sense that makes it easier for the engineers to see what they are doing. Considering that previously that was done with excel, it is not too hard produce something worse than excel in a way. Because I don't think excel was ever; it is not created for this purpose in a sense. What we are trying to do is create something for the engineers. But in the sense what we ended up doing in the current asset C is trying to reproduce an excel on the web. So that is where a lot of the issues come from

because from the engineers' point of view, excel works better. So if we try to compete with excel on things that excel is good on, we will never win. So I try to focus more on the asset register tree. So if you think of each individual item in this big warehouse, that has got parents and children; the tree is very good to narrow down individual objects inside a long list. Some people at Add Energy would like to just replace excel completely, but I don't think that is something that we are capable of doing yet. Especially not with this version of the software anyways.

Interviewer 1: So started to do it, but I wanted to ask you to compare and contrast the features of excel and asset C then.

Respondent: Um so at the moment, the tree is probably the main thing that differentiates us from excel. Everything else is basically what excel does. We do have an upload functionality, so you can upload into a data base and store it in the cloud database as we call it. That doesn't necessary need to be part of asset C, it could just be a backup software. So yeah the tree is probably the main focus. Also a functionality is the cascade function. One of the maintenance engineers, he likes to ID these tags. Each individual elements he like to have them in order 1 2 3 4 5 6 7 going down the tree. There is no easy way to that in excel, he has to manually do it. So a created a function in javascripts that would do it for him. So these little elements like that we are improving. But they have to request that feature and explain that to us; what it is. I don't think there has been much of that happening. We just looked at what they are doing in excel and said oh how we can do this rather than sitting down with engineers and understanding exactly what they need and what we all can improve.

Interviewer 1: So you mentioned the tree. Is that really the only functionality you have been working on or have there been others?

Respondent: So we started adding more features. But I can probably a lot of the features that have been added are very similar to what excel can do.

Interviewer 1: Can you describe what they are?

Respondent: A search feature, a bulk edit feature, the standard excel stuff. From my point of view, we should building software which makes the engineers' lives easier by solving functional problems with what they got with excel. I think what we are trying to do is just creating cloud software which mimics what they are using already, which is excel.

Interviewer 1: That entitles me to ask, who is deciding what features get built then? Because it sounds that you suggest building different features than the ones you are asking to build.

Respondent: I think the problem is, once we have the clients on board, we got to support them and give them what they want. And a lot of the features that they ask for [pauses] I think there problem is, that the engineer managers see them using excel and ask them why are you using excel, why aren't you using asset C. and then the engineers will come at us and say we cannot us this instead of excel because it doesn't do this. And then we start developing the features. Because the managers have said why aren't you using asset C. the issue goes back to, is it Henry Ford, the one where he asks people what they wanted and then starts the horses and not cars. I think we are in this position in asset C where the software is a better version of excel but it is not. It needs to be a piece of software that is edited to what the maintenance engineers are doing. And just because they used excel in the past, doesn't mean that this is the best software that you can use. We need to go right back to day one and say how you are actually using the software and why. I think the problem is that the maintenance engineers are very [pauses] they are distinctly hard to understand as

well. The language barrier as well. So we try to explain oh we can just do this and they will be like asking more questions asking what is it that we are going to do. [Laughs] it is just really long conversations with the engineers rather than [stops sentence] what we have done different with the maintenance MVP, is we created like a skeleton user interface images and so on. Where they can pretend to click through and they can understand where that works. I think it is totally different that what everyone expects it. But that is what is good about that. Since we are able to go to step one and say: let's not build something they think they want. Let them tell us what features they need to have and we can try to figure out at what stage these features are. Then put them in a user interface type way which makes it a simple software to be used. Ideally, from a business point of view, it doesn't make sense to have a highly educated maintenance engineer working. Potentially there are a million tags in one of these rigs. It doesn't necessarily need a super highly educated engineer working on these tags individually. If the software is not easy to use or it is not easy to introduce people to it, then they are not going to be able to move. So from a recent discussion I had with an engineer on the SBM team is something that no one mentioned to me until a week before. That is, the tags themselves have a life. So these tags will go through different stages in the lives. So when they are first created, there will always be a new tag. Then it will go into a pending tag where it requires a bit of work. And then it will go into review or completed or deleted. Then the software should be based around the life of the tag then. They should be based around whatever it is we were building. But the problem is, it took me 8 months working there before someone explains this to me. So I think that is the problem, asking the right questions.

Interviewer 1: Have you been involved in workshops with these engineers, requirements workshop and that kind of stuff?

Respondent: The maintenance MEP one. The one you were at.

Interviewer 1: Oh that was it. But did you have any other than that?

Respondent: Ah we had some afterwards through Skype calls. But the engineers are just looking at the time and they tend to lose the focus very quickly.

Interviewer 1: Why do you think the managers at SBM want the people to use Asset C?

Respondent: Oh no its the managers at Add Energy. They are the ones that want to use our software.

Interviewer 1: So you understanding that the Add Energy engineers are still using excel.

Respondent: Oh definitely 100%.

Interviewer 1: Is Asset C interoperable with excel? can you export excel into Asset C?

Respondent: I had to work on a lot. I spent the mass majority of the hours working on being able to import excel sheets and export excel sheets. Which I find completely insane. But okay if that is what I'm told to do, I'll do it. You know [laughs].

Interviewer 1: It is sort of admitting defeat, I suppose?

Respondent: Yeah I think so. But at the same time, someone obviously came up with this idea of producing a better version of excel for what they are doing. And that is where the issue was. We should never produce anything related to excel. If we wanted to use excel online, excel exists online. It is what Microsoft does, right? I think that is the problem.

Interviewer 1: I am slightly puzzled. I heard rumour that there were things like user accounts in Asset C that allow you to track who makes changes and that kind of thing. Did I get that wrong?

Respondent: But from my point of view that is the basics of security when you implement that.

Interviewer 1: So that doesn't help the engineer do their job, it's just a governance and security kind of thing.

Respondent: Yeah so the reason why we need to do is because the software exists in the first place. If they continue to use excel, in the sense that kind of management who should be working and only one person would have the file. So what you are talking about is creating a feature that would fix a problem that didn't exist before.

Interviewer 1: Yeah okay. I'm sorry, I'm sort of siding with Add Energy management here, the reason they needed to do that is because they wanted more than one person to work on the same sheet at the same time.

Respondent: I don't think they are doing that now.

Interviewer 1: So that is a bottleneck isn't it?

Respondent: They will upload the spreadsheet. More people will be doing that at the same time. I am not sure.

Interviewer 1: You get versioning problems. Don't you?

Respondent: People override other people's work. Because someone is working on something that someone did recently, they would upload the wrong file and overrode everything.

Interviewer 1: Holy moly really?

Respondent: This is why you don't have an upload function. But I have been working on making this upload function upload a thousand

rows with 300 columns and doing it real quick. So if you make a mistake it is going to become quickly a big mistake.

Interviewer 1: But that is not going to override anything surely?

Respondent: They will.

Interviewer 1: Oh my goodness.

Respondent: What Hoss [Research and Development Manager] is asking me to produce now is a previous so people would see. It is never ending. It is never ending. I am just constantly working on stuff. It is just an upload function. It upload data into a cloud. That is crazy. We spoke about it. But at the same time, it's like we have clients who are now using it. I don't know if we are saving things. I talked to Hussein [Research and Development Manager] about it and then move away completely from it. Because it is a bottleneck. It is a complete bottleneck for the developers and for the engineers.

Interviewer 1: I didn't understand that last part here. What is the bottleneck now then? I thought excel was the bottleneck.

Respondent: No software is the bottleneck. Because every function we create we introduce small bugs. And these bugs are not necessary easy to fix. So we are putting more and more development hours into something that is not fit for purpose. Does that make sense? It is like um the tags have a life and that is what should be focusing on. We should be focusing on improving them. What I have been trying to focus is making it so that engineering could spent less time doing it manually in excel. But I know they are still using excel. I just want to work these features to make it easy for them for when they do change from excel. So instead of taking excel, they can do it in Asset C. so what they do, they upload the file into Asset C, the make the changes in asset C and then they download the file

and they carry on working on it. Does that make sense? They are not physically working with Asset C.

Interviewer 1: I suppose I should ask them really. But why do you think that is?

Respondent: Because excel is better for anything that is cell by cell basis.

Interviewer 1: Can you expand on why you think this is better?

Respondent: It is just better. It just more responsive than a browser.

Interviewer 1: Do they use a lot of key board short cuts?

Respondent: Yeah and they use a lot of formulas. Which I don't like. I don't think we support formulas.

Interviewer 1: Why are they using formulae?

Respondent: Um so I think one they use for is for equipment tag and equipment tag description which is like a code. They will assign characters that will automatically start populating over fields. Whereas we didn't build our functionality yet. So that is probably something I have to work on soon. The problem is they don't create new types on Asset C, they create new types on excel and then upload them. So it changes how we are going to work on that. So I want to implement it at a data base level because that is where the upload is going to be seen. First it is by the data base and not by the software. [Laughs]. I am just trying to support the engineers knowing that Asset C needs to be rebuild from scratch.

Interviewer 1: I am not sure I understand what you mean that it has to be built from scratch. But obviously the idea of basing it on the tag life course is a good idea. But I think there was something about people being able to freely create tags. Because the danger is that people create tags in different ways. So they used to have this freedom but actually that is not good, from

the view point of consistency across projects and that kind of thing.

Respondent: I think that is still happening though. They are creating them in excel and uploading them. So it is still happening.

Interviewer 1: So that is a work around they are trying to do to create whatever tags they like.

Respondent: Yeah. I don't know if it is. I think I am saying a lot [laughs]

Interviewer 1: What you are saying is not truly helpful to our cause here. But honestly we would rather you be honest and tell us what you think. Even if it is not quite what we were hoping to hear. But I mean I guess I am interested more about what is it that you think customers would get out of Asset C if it was working perfectly as you think it should.

Respondent: The current version you mean?

Interviewer 1: Any version or um some future idealized version.

Respondent: It should help them manage their work load more efficiently. And I don't know how they know what they are doing when they have got excel documents with hundreds of thousands of tags. How can they manage that? It is an insane amount of work for them knowing that they are editing the write tag and not making mistakes. I think it is a really stressful work. And I don't think that our software has addressed that stress currently. I think that is something we should focus on. Reduce the set of data that is given to the engineers at any one time. And trying to understand when they are working with this data what elements of the tags are they working on at any one time. And why they are working on it. And at what speed and so on. And then create a user interface around that to help them understand not just where that tag sits but where it sits in the asset register. And where do groups of tags sit and so on. I

think there could be a lot of automation as well. But that kind of automation needs to be picked from the beginning. It is done when these elements overlap. But yeah, I think we can create a piece of software that would be amazing for the engineers to use. It is going to take us time to really understand how the engineers are using the software. It is probably making it more confusing in the sense because they don't want to admit themselves that they are not using it the way they should be.

Interviewer 1: Have you had the opportunity to sit and watch the engineer create new tags in asset register?

Respondent: I have asked yeah. The problem is there is a lot of bugs and a lot of functionality that need to be put in this. I constantly working on something. It is not as if I have free time to go chat with an engineer anyway. But I can't help but feel that a lot of my time is wasted building functionality which I know in a year's time it will not be used. That is frustrating as a developer knowing that.

Interviewer 1: Are you working on your own or are you part of the team? Can you tell us a bit about the software development ecosystem in Add Energy?

Respondent: Currently I am working mostly on my own. I did at one point have [Developer] working with me. I don't think you have an interview with [Developer], but I think you will be interested to talk with him. He is more used to app store application which is simple and easy to understand. And I think his input would be valuable. Because I used to do a lot of work on maintenance MVP. I think his input from the usability point of view and how difficult he found it to understand how the engineers are using it. Because you assume he would be ahead of everybody because he was around this technology since he was a kid and I think he struggles as well with it and he also works in the office. He has found out with other people too and the

engineers to understand what they are doing. So generally I only get pulled in the task when it is really difficult. And no other developer can do. The pull me to do stuff that everyone else is struggling to do. I do it. But at the same time I complain and I think it is a waste of time.

Interviewer 1: Is this [SBM developer] we are talking about?

Respondent: Uh no no. he is the SBM guy. It is the other [Developer].

Interviewer 1: I could ask to. When you say [SBM developer] is the SBM guy you mean that he is an Add Energy but working on the SBM project. Is that right?

Respondent: Yeah. That sound right. I will check now. [Developer]. He has worked with me and we did some pair programing. So currently I am working on a big update. I am pushing 70 individual fixes into this Asset C. I have introduced a bandwidth by 90 %. And I also increased the speed of using the software: how quickly we load the data. So I am making big improvements in the software which may make the functionality better for us to work on. But I still have my hesitations with it. Because these fixes should have never really existed. But obviously a lot of the project are built before I was a part of Add Energy. So a lot of my time is spent fixing things that are broken in the beginning.

Interviewer 1: Who wrote the original thing?

Respondent: Lord. And he works on the backend. Artur did the front end. They made it very difficult for me to even speed up the application. When I first started working on it last year, it took me two weeks to just understand. There were no development documentation and nothing. I had write all of that myself. But at the same time I kind of like what the software has created.

Interviewer 1: And probably you would have followed a different architectural style?

Respondent: Yeah exactly. So from a developer point of view, I didn't like. I had to learn all these to understand it. And the stuff where 10 year old development stuff. It is not new. So but then when I started to get feedback from the engineers, and they were like we are carrying on using excel. And I was like, I don't like working on it, these guys don't like working on it, so what's going on [laughs].

Interviewer 2: I have to keep this on track in terms of this interview. What influence has Salford had on your work would you say?

Respondent: On my work. Oh massive amount. So a lot of it is the agile process. It is making sure that we talk to the engineers or with the clients if we can before we start working on the stuff. So we try to get as much information as possible before we start working on stuff. And try to make sure we are not wasting our time. I think there is a lot of stuff that I have been taught at Salford that I didn't necessary got to practice yet. Because if I am working on a code which is 10 years ago, I cannot bring in those new designs and practices. I can't do it. Because it hasn't been developed like that. From communication perspective, professionalism, understanding how software needs to be built securely, definitely helped me out a lot. The bottleneck is the software.

Interviewer 1: You gave the impression that it don't use model view controller?

Respondent: Not what I consider model view controller. It is sort of the back end doesn't know what the front end is doing. I would request 2 columns worth of data for a specific row and it will send back 3 other columns of data on a specific row. So I can spend all day working on the front end but if I don't also work on the

back end it will not do anything if the back end is not right. So I should spent equal time working on the front end and the back end. But the correct way is to have more time on the front end and less time on the back end. I think all developers have struggled with it, Asset C. because it will be treated by 2 different developers and neither of them understood the others' work. So I'm coming in trying to fix it. So the MVC pattern, even though they say one did the MV and one did the VC. [laughs] so yeah

Interviewer 1: That is quite interesting. Scarlet is there any other direction you think I should go with this?

Interviewer 2: You mentioned that you had a problem when you were developing that the code was 10 years old. Are there any other challenges that you faced?

Respondent: Um yes. We have two different parts, the front end and the back end and they were created by 2 different developers and both of them have different development environment. So it is very hard for us to update that code. And if we don't have the environment they navigate with the settings for that environment. So every time a new developer comes to the team, like [Developer]. So when [Developer] decided to help me out with Asset C, I think I spent 2 days with him just getting his computer settled to actually enter the code. Which is crazy to spent 2 days. But I think the problem is that the code that was used 5 years ago was already 5 years old. So now it is 10 years old. The amount of time I spent working on it, trying to fix what it is now, I can probably build it 2 times over. This is the thing. If you want to support the clients that are currently using it, and we don't have a big enough development team to say you support it and you go off build a new one. I think that is the problem, the development team is too small.

Interviewer 1: Where you in the same group as Ben Mogaghan?

Respondent: I think so yeah.

Interviewer 1: He is doing a PhD on technical debt and legacy. I just listening to you talk now, I think he will be interested to talk with you. I don't know if you can spare an hour and I can put Ben in touch with you?

Respondent: Yeah fine. It is kind of scary to identify technical debt because we don't have a fully released product yet. Which is really scary. I want to move away from it as quickly as possible. It is just persuading everybody else. I am not persuading because I want to work on something easy but it is currently that, I want to work on something easy.

Interviewer 1: So there isn't any way of incrementally migrating it towards a new architecture? From your point of view is there budget, time resources to be able to incrementally move it to a different direction.

Respondent: I have actually been doing that. I've been slowly moving more advanced features into a container that runs on my own personal servers. I think what we need to do, is we need to just get it into a point where SBM and whoever else is using it at the moment, to get it into a place where we can support those guys, with them still using excel to do the majority of the work. Once those projects have been finished and closed, and the data sits in the data base, no one will ever look at it. Asset C is very good for that. So if a project comes to us which is already been completed by the engineers and they give us the data already completed, we just upload that to Asset C and review it. It is really good. It is almost like Asset C is created for that purpose, the storage and review of an asset register.

Interviewer 1: What happens after that? Where does the asset register go after it is reviewed?

Respondent: I don't know. We just got this data in the data base. It sits there now. I don't know if anybody is using it. I think we would like to apply some artificial intelligence into it. So we can start helping engineers populate over fields. But this is not something we will be able to do because we are too busy fixing bugs and features.

Interviewer 1: In my understanding, eventually it gets uploaded into SAP or something like that, into the management system.

Respondent: I think that is what ends up happening to it ultimately. There has been talk of aspects of Asset C where it can convert the data to get pushed into their SAP.

Interviewer 1: That is a bit weird, because there isn't any end to end data flow. If you can't get that, what are you going to do? Drop it back into excel and then drop back into SAP.

Respondent: As far as I am aware there are so many different CMMS that they are using as well. There is no way we will be able to sort them all. There is always going to be some drop back to excel. But this is what I mean. It is very complex. What I would like to do with the maintenance MVP is to ask how to create tags and why do you treat them this way. Let's do something for that. And then move on to the next bit slowly. Because if we want to truly build an innovative software, we need to do it one step at a time. Not try to do everything at once.

Interviewer 1: The problem is that you couldn't deploy that, could you? I am just playing the devil's advocate. How do you deploy that to use it on a project?

Respondent: Well if you think about it from the point of view with what they are doing now, where they upload a file, use the functionality in Asset C and then download the file straight afterwards; then there is no difference.

Interviewer 1: Well, I am conscious of the time. Is there anything else we should have asked you about asset registers or asset C?

Respondent: [pauses] no. what we do with it is that we seem to bring more and more clients. And we are using Asset C to sell our services in the sense. So we are never going to move away from it as long as clients are on board because they want it. It is good for what is demoed. But a lot of the features that get demoed, I work on them just before the demo. So I was working on one until midnight one night. And the demo happened in Canada at 1am. we were demoing something that I literally just built. So I sat there looking at this code that I wrote just few coffees away. I don't know how it works. And now they are demoing the project and it is supposed to be brilliant.

Interviewer 1: I am afraid I heard so many of these stories.

Respondent: I enjoy doing the demo.

Interviewer 1: Is there anything else that we should discuss about asset registers and Asset C?

Respondent: I think it would be a good if you talk to [Developer] about it. I am surprised nobody mentioned him.

Interviewer 1: I can ask if we can do that. I will be honest with you, our main gobble for this phase of the study is to talk with people for SBM.

Interviewer 1: thank you. We will want some personal details from you. What is your name?

Respondent: Robert Marsh

Interviewer 1: What is your title?

Respondent: Contract developer

Interviewer 1: How long have been working in Add Energy?

Respondent: 1 year

Interviewer: How long have you been working in the software industry?

Respondent: Since I was 12. 23 years ago.

END AUDIO