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SUMMARY KEYWORDS

quality, development, project, metrics, finalized, checking, developed, problem, team, testing, working, data, software, testing phase, tool, jenkins, service level objectives, quality metrics, tasks, script

00:02

Well, hello, how are you doing?

00:06

Fine, what about you?

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I'm doing well as well. Thank you for accepting this opportunity and giving us advancement in research, our research.

00:23

Thanks for inviting me for this opportunity.

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If you don't mind, let's go through the consent form. And let's agree on consent, if you agree we can continue.

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Yes. All right.

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So, first of all, we basically I am as a University of Tartu student, master's student writing my thesis in securing quality and software development process. And my supervisor is Frederick Milan and we basically conducted research as a group for the primary research objective is identifying software quality, how software quality is being implemented in modern financial industries. That's why we aim the developers software engineers, software engineers and test and project managers in the field. That's why I contacted with you and we basically designed that framework for securing data quality and financial industry and the main question is targeted around targeted to identify the critical aspects of software quality prioritization, functional functional metrics and tools used during the study the research the basically interviewer should agree should match this requirements that you should be 18 years or older, you have a work experience and financial sector at least for one year, you have experience in implementing software quality and software projects and be fluent in English

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and do you meet these requirements

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Okay, then, we basically have the whole interview will take around one hour regarding the privacy and confidentiality research team will basically progress with this recording in that way, we will like recording will be accessible on the researcher supervisor and the recording of the interview will be transcribed potential identifiers like your name your company, your experience like years of experience or your position will be removed and during this transcription period and after it original recording will be deleted. So, your data and consent form will be kept separate. And we only will share the consent form if it's needed or and the information that you share not related to you like not for identifying to alright. So, the participation is expected like expertly voluntary. So, if you want to disc discontinue or at any one point you want to remove your data from our research, you are very happy to do we are very happy to do that just contact us, me or the professor. Both of us will work do verify that you are 18 years old and you will the information providers.

04:03

Yes I am thank you

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let's continue down with the interview questions. Okay. I already pass through this part. We talked about it then Okay. The first question is that how is the software quality insured in the project's early design or planning place? Do you have this kind of experience?

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Yes, currently I work in the banking banking sector and for us the one of the main criteria of any sort we are developing is quality. And for that in early stage of the development we start asking any quality aspect quality metrics we gather from different teams In general in our bank, we have different areas inside of the bank and we are dealing with different aspects of software and before starting any project or any report that we will send to Central Bank usually livestock, first of all is quality aspects of the software and to do that, we asked from the specific team that specific thing usually provide us the all the quality that makes it and also

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quality

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quality metrics they are providing us and also the tool that we will work on top of it, it is mostly customized tool that is used in our bank mainly, this tool is used for checking the quality of our report not after basically we finish our own project at the end. So, that every project is start with the software quality and at the end, it also ends with the software quality metrics, how we are covering it. So, it is often meant to tell us

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more about the quality goals, when you start project, how you define the quality goals and who defines the quality goals

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all right. So, we have different as you know that the banking sector is mainly on top of for example, we have agreement we have a party party related topics and also the events that is construction and so on every area has specific quality metrics and every quality metric is attached to EPR starting with developing in different domain than every domain has already on top

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quality metrics.

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We if he for example, let's say that our allotment contains cross domain development and to gather all this quality into Asia and build our

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application on top of it.

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Okay, yeah, that's that's through I also have the same experience with the projects in financial industry, what about the like specific frameworks methodologies, you basically use project from beginning

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okay. So, you mean like agile methodologies or some okay. So, basically, in our bank sector, we are using Agile methodology. And main component of this methodology is that we have to find out most planning events and using these health plans to open house must be starting is probably a year of the project and after if they are there is approved by the stakeholders that we start the session and then the next session is started and we divided tasks between every two nations, like the augment tasks, and at the end of the iteration, when we finalize the development the type of task for checking the quality and also doing specific test cases, because our development mainly consists of the lifecycle of the software that basically it starts with the idea stage and are moved to the development features and after development feature is finalized and we have a testing phase which is we have a specific tool in the bank that is developed by our developers, which are taking all these development features Optima automatic team and then later after the system testing is finalized and the business acceptance testing called where we are defining that we are where we are actually checking the quality of the report

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which is

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if it is like correctly defined and also correctly developed. And then at the end, we have a specific environment that they will after the test is finalized, then we move to the production but all these stages are happening in the evening. Every collision

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Yeah, got it.

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What about the metrics the quality metrics that you are getting for each project? The dysfunctional metrics and non functional metrics? What what these kinds of metrics are generally used by your team to ensure the security and quality of software?

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Can you elaborate?

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Yes. So, basically,

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I remember that when you are working in a banking industry banking projects, they have this set of requirements. And for this requirements, there are functional and non functional, basically requirements metrics. And from this requirements, we were building the quality metrics for example, the throughput of our application so, the question is that what quality metrics are you using in the team generally,

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okay, so, basically, in every development, we in like, in our team B, we have divided into different positions, like we have a developers, we have the testers and also we have the architect as well, every team has a specific architect that is assigned to every team and which is checking the quality of the software development, which means that all the small functional non functional requirement that is checked by the art, like we have a general framework developed by the architect teams, they are mainly checking these non functional requirements. So, for example, like if we are starting any development, and we see that we need to store our data in different places than than the normal, it's a different network folder, let's say yes, then we have we are also gathering this information and then later discussing with the architect and then after that we have we are coming up with the correct implementation based on the architectural framework that they have built. And all these things are main the all these metrics are mainly checked by them.

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Yeah, got it. So, they're all like engineers and testers, and basically testers test everything related to project Yeah, exactly, exactly. Okay. By the way, like, have you ever faced the challenge while implementing this metric, for example, I had the case that way the business wanted something unrealistic as always, and so, they are metrics. Let's say they were asking that let's say 90 point 99 point 99% uptime, this kind of metrics, which was unrealistic and have you ever like faced with implementing these kinds of metrics for the project?

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Okay. So, basically in generally like, when we start any development, and we have this product, that is coming to the business and they are discussing about all these tariffs, service level agreements, objectives, and sometimes there are some situation that is our product almost like since they are usually not a technical people, they go to talk talking about the business and it is find out that what basically some of the some of this aggregate service level objectives we cannot basically meet at all. So, for example, like in one of my, one of my recent developments, we had a issue that we had one file that was it was basically the file that is from the central bank providing and let's say disparate data, okay, that was coming every month to our system and there was a problem that the central bank is not providing the data correctly all the time. And invoked, what I mean by the correctly avoiding is that usually they their data is like either outdated or they are containing the some of the data that we want to vote and then what we actually do the business that they will check this data, and we'll submit this data before mostly calculation is start. But what happened is that like when this mostly calculation started sometime in this business Trip is not eager to find out why the day has passed, then this mostly calculation comes in and then there is no database be calculated, and then later recall that, okay, this data is not available there because you haven't done this manual checkup. Of course, we were thinking about developing this alternate solution, but the business at that time told us that, that's not possible, because they need to check every each of these agreements, each of these events by themselves. So that of course, like number of events was not so big that in interfere with did work, but in general, we are basically that was the main problem that we attained when we finalize our development, we were thinking that I will take a look, my pipeline will be 99% of this all this all the time available, but it is found out and it isn't actually but this basically, we started thinking of the new way of development by automated results using the manual work. So basically, that was the one of the cases that actually we have failed by by this.

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Got it? Got it.

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Yeah, that's we're interesting case.

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The Another question is that like,

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what critical aspect of software quality is generally prioritized by your company, for example, in my company, they prefer to have the automated system tests or end to end tests rather than having better unit tests or like some tests can be covered

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in our sub as I have already mentioned, that Novolin can be located and also specific testers as well. So, we have developed our own common testing platform. And this testing platform is used for general for all all of the development and both what is happening is that like in the language, finalize our development, we the system testing is starting, which is kind of unit testing unit test before different different levels. So, it depends that if your if your development is only contained in SQL script or it is

kind of different packages that you have created and it needs to be checked. So, every part of the software, we have specific system testing, system testing, automated automated system test, what is happening at the end that usually these test cases are not enough. And then what is what we are doing is we are creating our own unit test for the system testers, our development is finalized. So basically, for every every development, we are also coming up with all unit test cases that will need to be done. Then we are saying that, okay, our testing is finalized, and everything is working fine. So in that sense, we have two cases. One is automated test cases, which is running for every type of script, for example. And then the second part of the testing case in Pali, let's say unit tests that you're writing during the development, and then at the end of the development, these tests and test cases will also run by the tester as well. So and one of the one this is the this is the bouncing that unit, we must need to do it is not optional, that we are following the development in the system testing tasks. For everyday allotment rent is finished, as part of the acceptance criteria for the task is creation of the unit test as well for this type of development as well. Okay, got it.

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Yeah, that makes sense, because financial industry. What about the priorities on service level objectives like? So do you have any priorities for service level objectives?

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I think that we don't have, we don't have like said any priority for this table level objective.

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Because we have,

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we have basically, full lifecycle that all the time it used to be the past from the so for example, development is starting and testing and production and within that framework, you don't have any have several objectives.

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So, this object is basically are the performance metrics like there are intermediate systems and customer facing systems and I know that 100% of times the customer facing systems are x they basically extremely heavy and also they have this non functional requirements that they should they should perform unrealistically well what about your project

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okay. So, in other project like part of this system testing tasks the work actually is also checking the performance as well as it is kind of automated script that is checking the runtime of the script that is run against the database and when if it is above the threshold and it is already paid, but sometimes for some old packages, let's say we have a specific condition for some all packages before they have to look like long time ago and currently, there are specific teams that are working on these packages. And in that scenario, yes, we have some several level objectives for these specific packages, but I will say that still these packages also at the end designing against our system testing. So, it should call it as

these metrics Yeah, performance metrics and all scriptlet related things that are checked already in the system testing.

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So, basically, system test is testing against the previous version of the system, am I correct or

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exactly, service version of the system and also the script itself as well like if there are some unknown type of script used and test cases are fading. So, in that scenario, many different condition that is checked there.

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Well, got it. So, basically, your test was scripts and the performance of the project. What about tools and technologies or framework that most commonly used by your projects in FinTech or financial industry, okay. So,

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in other sense, we are working with data in house in our team right, mainly using data

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steward database,

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we are using ODI or equity interface. And we are using Jenkins pipeline for loading all the script into from the development phase to the testing phase. As a version control system, we are using Git for data quality checkup, we have our own custom made tool for monitoring as well we have our own custom made to that is

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on top of audio studio.

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What I mean on top of their studio is that like all the processes that are done in the studio is shown in divinatory tool that is checked regularly by the business not by the developer that is to call for also loading for installing the script from the development phase to the testing phase we have our own also vote as well that is basically developed by our so I would say from that side mainly the tools that are outside the scope of the data warehouse developments are handled by the different team and mainly focusing on on this aspect that the data warehouse team is mainly working with the data warehouse related topics rather than additional maintenance, maintenance things. Got it?

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So there are like two teams working together around the store looking and other is basically taking care of performance.

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Exactly, exactly. I mean the performance thing is like we also like taking care of

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taking income on Think about that

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yeah, we have we have mainly income and things as well and also we have the something that is related to us and some something that is related to them. So, for us, what is the related to is to what is done to system testing right like performance if the performance feels that we need to fix all these things and then later up to the system testing from the testing phase to the production phase that are like specific team that they are handling that

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got it by the way, you mentioned the CI CD pipelines by Jenkins also the automated test and automated migration. Can you we already saw it like in several Mike's research, can you give me some advantages and disadvantages of implementing automix quality metrics or automated code testing in in the project

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like CI Yes, that's for for me, like advantages are more than disadvantage of course, but one of the main advantages, but like usually the whatever we are doing is like, it is always good to have additional check from the system as well. So, that that's like the one of the cases that is good. And then the second case is that like usually in the Data Warehouse thing, most of the developers that is coming to heel is not having any experience with CI and CD pipeline. So, in that sense, it is it will be also additional hassle for them to tackling this type of issues, and then it will take longer time and so on. So, this is like additional, additional, like useful thing. And then the second piece is that why couldn't in Jenkins pipeline we had to look like too many different projects that is using the same pipeline and we already used to the same process. So in that sense, you know, the process of like wearable, and everything is like well described and the tool itself is like very easy to use. And then the third phase is that like in Jenkins, like what we are doing, like very slowly, for example, like from CES from testing phase when we move to the production phase than we have in the middle additional phase in between the system testing and the production. So what what is happening that like sometimes some developers are running the script in test environment, first time, let's see. And then when they second time when they run the script, the script is working because it has been logged first time let's say some table created in the testing phase okay. Yes, yes, program done. And then someone is adding INSERT statement to the PM. So, if you are missing this CREATE TABLE statement click Done when whenever you run this insert statement, it will not fail in testing phase because we have all the drama in the testing database here you have the Jenkins is like basically inserting this script into different environments as well in the middle of the Production and testing and testing there if it is failing there then it means that you have a problem. So basically it is very useful tool that we have also in between process. So it is like kind of really very useful. And then the one of the also good thing is that like you can also check the current existing pipeline that is currently running and then basically in that sense is good for monitoring as well. So whatever for example, let's see if we have any script and you can go

there and check that okay trust this amount of time and why it is so all these related more more related information is already present there. So that's like the one of the most cases public leads to come to this advantage is that in our team, we have since we have many development teams that they are usually like just only adding the script to test phase okay. And it is done by the this Jenkins pipeline and then protecting that like the Jenkins pipeline is getting very slow. Then it is getting really slow. Then you're basically they allow the development is great and on top of it. So you also need to contact his administrator, people that to stop all the surrounding pipelines, or you don't have any other any other thing than just waiting so I can do a

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quick look at you to look

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for work period. And then what? I remember one time that basically, I waited for a long day to just one INSERT statement to go to test date. So one day, just only one statement is like quite the time. So this is why we have disadvantage. And then the second disadvantage is that it's not related to the tool itself. But some people are actually don't know how to use it visually like, and also making some some problems. Also, in that sense, introducing all the time new to the system, also brought to my core team as well, sometimes,

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but long question like

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is it the problem of documentation? Or is it the problem of people not knowing the tool?

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Usually, like it is both sometimes. But you cannot also like, let's say describe every single documentation, but say, in that sense, you can just refer it to this Jenkins, pipe Jenkins documentation itself. So if you describe everything, like the type of problems are the main problem is that like, usually, like the team that is working, they see that, okay, it's not a part of the job. And they don't even want to analyze it. So they just contact these guys to fix it and so on. But maybe it is just on problems from the site.

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The Yeah, some people don't take initiative in general. Exactly.

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So you cannot expect anyone to take initiative team or like in other places, some some people think they will pay you they fail. If they see the failure cases that they are just okay, something is walking Jenkins and

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yeah, let's go to investigate those directly compared to the pupil.

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Yeah, it's common problem not having like,

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it's very hard to define the boundaries of the job. And some people are using it. It's just basically a double sided claim. What about the impact of software quality on future rolling, so basically, when you must probably in data warehouse, it's a bit different, but when you basically develop new feature and you prioritize software quality, how it affects basically affects the timing, it affects the bugs, how it generally affects our future.

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Okay, so, you mean that like, when you also take into consideration the software quality of feature development that yes, what kind of so usually, like, as we, as we have already dimension that, like in our teams, like we have our own autom automated software called matrix. So in that sense, like, attend anyway, submit to run against it, sometimes what happens is that like, so you missed some of these quality metrics, and we just overlooked something in the future and then waited, what happens is after the feature finalization and the end of the development you understand that you missed quality metrics, and then okay, you come back to this feature and you develop politics kind of a different story, because it is the problem of the early planning planning problem, yes, but in general, like we have our own already pre made out software quality metrics that we have defined that sense maybe for us is not like this.

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So, did I understood correctly for example, this like, you already have the set of quality metrics that you need to meet and when you basically sometimes at the end of the road month phase, you understand that some developments basically go against this features and this matrix okay. So, there are two

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categories that you don't want one way is to address this challenge and then it means that additional development will take on that is already taking the out of this agreed time. So deadline is basically missed. Or the second day what we are what we are doing is that we are

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trying to

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like we are trying to assess the importance of this metrics as well, in some scenario, and we are creating like additional tasks. But we usually like tied to close this feature, if it is like very, very urgent for the business, they need some input for, let's say we're a short period of time, can we create new additional tasks for this feature related tasks. And then this next, our main priority will be basically taking into the new task, and then finishing it before moving into the new features. But we still provide the data to the business and actually that, okay, we have these specific metrics that are not passing the our threshold, let's say, our own quality.

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So yeah, got it. Is it possible to roll the future? With not meeting some quality metrics? Or it's basically very hard to do?

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Or is possible, it is possible it is possible you can roll rollback these features in that sense. And what it means that usually do not like the feature will not be developed. But we start to creating a new task for this feature to finalize this feature, basically. So in that sense, like it's all the feature that we're creating attention to be finalized

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by Yeah, good. Now, I got the point, actually. Let's go to the next question about regulations. I remember that when I was working, it was always the basically, the software part also gets involved in compliance regarding local regulations, either GDPR, or US regulations, or global regulations, or how it affects the software quality financial projects.

37:00

Yeah, exactly. Like this is not like the financial sector, these are not the main domain, well, these these cases, like, main problem in financial sector, so for example, like in our development, that's why we are, whenever we are starting, we are starting to take any type of developmental, let's say, any new tool comes in, and we cannot easily pick it up and work on it. So we need to have all these all these things should need to be in place. And everything should need to be according to the regulation. So that's fine. Usually, like one of the main problem of this financial company is that like they are either working with a outdated technologies, or they are working the technologies that are actually very, very strictly following some rules. So let's say you are working with devil, like, let's say python, and then you have the problem of the PIP, but you cannot use it. So that's why as a simple example, so in our case, currently, we are working, all these technologies, that everything has a license and everything is already regulated. And I will say that they are not very, very outdated, but that we are not basically working with reading new technologies as well. They're missing is already well established. And currently, for us from technological wise, we don't have any problem with the regulation. But the problem that for example, let's say I remembered at one time, I was planning to develop some automation automation application lately in PubMed and what happened at the end is that like I gave my ideas about this automation and it was discussed with the architect and so and then at the end comes up, it comes back like no, it is not possible unless you go to our deck they approve it the solution and then maybe later you can you can basically work on it. So in that sense like I say Okay, then let's work with the existing whatever we have in the system and then later maybe in the future, we can start doing it. So in that sense, sometimes it works and you view to provide really good solution to the existing problem.

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Because you cannot use all the time new technologies

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talking about me these like really new technology but I found one library that was mainly useful for this task for this library was in the north also disliked without tagging license. I was wrong. So it was fine, but why Got some random person did this lady

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get certified with SPN. And

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it was like not easily approved by the bank.

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Yeah, it's actually the biography and the involvement of third party software, it's always hard to cope with because when the software engineers start developing, they are developing in their own environment before coming to the work. And they you can use anything. And when you reach to the company level, it's extremely hard to give up all the like open source to third party tools that you can use in the project. What about the, let's say, for example, in our case, there was that there were some service level objectives that if you don't cover, for example, like 8%, uptime, code coverage, 90%, then regulators basically, you can't roll out the project. So basically, you cannot push it to the customers, because the regulations will not let you to do it do have these kinds of compliances.

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In Data Warehouse, I would say that these type of

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compliances are not

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are not like defined. Dhi will say, because we are working in mainly in the reporting side and the reporting side, like you taglines already predefined goals and also, like service level agreement and all these things. Because usually, like audit does not come in to this stage. For example, like I already mentioned several times that we have these custom made application that is developed on like, for example, like taking the data, taking the data from development, environment, testing environments, or monitoring tools, and so on. All these things, oldest oldest development are now from the other teams that they have actually this type of regulation, and also very cryptic about this service level agreement and all these things. So they have actually this patent for data warehouse, like we don't have that kind of things.

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Okay, got it

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all started for us, the system should meet 100 person. All right, all the time working with the V card reporting game is very crucial for a business and you cannot accept any failing cases. So that says maybe it's not even like going to discover

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this since. Yeah, got it. So basically, there are this tool providers, the other team that develops them, they need to meet the regulations. And you also have the other kind of like performance type of metrics that you need to

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meet in order. Yes, yes, exactly.

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Got it. Thank you. I already got answers for all my questions. Thanks for supporting us. Thank you. We will take the trust, transcribe the document and then we will remove basically the video so no worries about it.

43:28

And that's fine. That's fine.

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Have a good day. I will just stop recording.

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Okay, have a good day. Thank you