**Meeting in \_General\_-20231127\_083045-Meeting Recording**

0:03  
Will again be an entirely different topic.

0:05  
As we all know in the selected topics in Geoinformatics, we look into the professional practice from the entire range of domains of Geoinformatics applications, which as we know is huge.

0:22  
Today's speakers are not new in this framework, but also the topic is one I'm very keen to learn what has been going on there.

0:35  
In the meantime.

0:37  
You can see the title is to keep it short on documentation for wildlife management in that discarded National Park.

0:46  
Whoever is not familiar with this region, this is very close to sites work.

0:52  
Highly recommended to take a site to it also, maybe today's weather is not the perfect one for that.

0:59  
Anyone who wants to visit this National Park, you can take the Red bus number 840 on the Salzburg main station and go and visit them.

1:11  
Maybe today's discussion will make you a little bit curious to do that sooner or later.

1:18  
Today's speakers as let me here and also I'm both working in the research studio I space.

1:26  
For those of you familiar with the spatial setting around our department, this is the huge wet building right next to our department and office building.

1:40  
I'm sure you've noticed that possible to miss that and the research Studio I space is a research institution.

1:51  
It's it's not a public institution.

1:53  
It's a part of the university and they take care of a little bit more than one hand full of different topics.

2:03  
For the department of the university would be is a studio in RSA and I space has been part of this institution wise from its foundation from its beginning and as you might guess from the name, this is all about spatial sciences and the practice of supporting decision making with GM phonetics tools.

2:27  
I would ask the two of you to maybe add a little bit more in terms of the personal introduction how you want to be known and maybe I'll turn it over first to Doctor Assel.

2:43  
By the way, thank you for the introduction.

2:48  
Good morning.

2:48  
Also from our side, my colleague Michael and I were in I space since nearly 10 years and Michael is working on different kinds of workflows, technical workflows, data transformation things.

3:05  
And my part is well visualization part.

3:08  
And we are going to show you a really new project of our institution that has to do with a prototype for digital documentation of wildlife management for that Scan National Park and we're going to show you some 1st results of this project.

3:31  
We started the first introduction where we introduced the Baptist Garden National Park, the goals and challenges of this project and also the raw concept for the implementation of this goals.

3:43  
And then we go over to show you first results and form to become a feedback from monitoring and documentation, the wildlife management tasks and the database that is in the background.

3:58  
And then we're going to talk about next steps and lessons learned, any short discussion.

4:02  
In the end, yeah.

4:05  
The Baptist Garden National Park, as Professor Stover already says, is in the South of Germany, and it's on the border with Austria and the area of a thousand 2008 square kilometers.

4:18  
And National Park for these different tasks, for example, the nature conservation, wildlife management, but also monitoring of flow and fauna, and also research projects, recreation and education and also other tasks.

4:35  
So they're really different tasks that are related to the National Park.

4:42  
And we now have many of years of cooperation with the National Park and we have different research projects that were done the last years.

4:52  
And for example tasks are here to establishment of sustainable organization strategies for geodata infrastructures and databases.

5:03  
The digitalization of different tasks or processes that have to be also harmonized and in a way and organized automated workflows for the data integration or also the data transformation and the development of prototypes, applications, monitoring for example your foul but as well as documenting task as the current project for wide life management.

5:30  
And we're also creating different web mapping applications or dashboards for these different projects.

5:39  
And the current project has also some challenges.

5:42  
And the wildlife management is a rather complex task that involves many different steps and there are many different roles involved in this process, for example, hunters, district managers, researchers, field officers and they work in different locations.

6:00  
For example, the handles are directly in the field or in the hunting chambers, and there are other pupils that are out of work in the office.

6:11  
And here you have different locations where the data collected and edited.

6:18  
The work process has grown historically over the years.

6:22  
International Park and the documentation process is currently implemented not digitally throughout meaning this is a mix of some analog steps and digital processors.

6:36  
And another challenge is the limited access to Internet especially in the field.

6:41  
So there's an offline data collection capability required for this project.

6:50  
There are also some some goals of this project that has to be fulfilled and one of them the main goal is the development for prototype for supporting the operation process of well depth management and the different consistent data management in the background.

7:06  
And here we have to build on the software that is already used since used in the National Park.

7:13  
This is the artist and already software for the database.

7:18  
And another goal is the consistent and sustainable data management.

7:24  
And here fundamental part is that the National Park has to be able to comply with some illegal environmental information obligations that have to be regarded in the in the data organization process and harmonization and standardization of the different datas.

7:42  
Then we have the digitalization of analytic processes.

7:46  
So as I already said, there are some other steps already and it's one goal to digitize these steps so that everything is some kind of digitized.

7:57  
And one aim is also to do some automation in the background so that some errors can be eliminated, Eliminated.

8:08  
For example you have some predefined lists.

8:13  
Instead of typing into the names of some things, you have some location services that can be used automatically from mobile devices.

8:23  
The date can be automatically recorded and you have also some things that can be used because you know the location so you can say this which of the districts is found is in this location.

8:38  
So you can do many things automatically in the background and you can reduce the errors and also the time here for the different uses.

8:48  
You see the the role concept of the implementation of of this project.

8:54  
So you have also already mentioned different roles that are part of this process.

8:59  
And this roles also have different rights.

9:02  
So not every user is allowed to do the same things and there are also different tasks and not each of the people that's involved in each of these tasks.

9:11  
So you have really different sites on the insights, on the, on the data and also on the editing of this data.

9:19  
And as I already said, we have to build on already used software.

9:24  
So we have some mobile apps that can be used in the field for example that is used by the hunters.

9:32  
Michael is showing you a prototype afterwards and this data is collected in a in a database.

9:39  
And also other users that have to be involved in processes such as marketing or also dynamic reporting or also the researchers in the background that make some analysis of this data are all connected to the database and have different views and writes on this data in this database.

10:02  
And now we show you some 1st results and I hand over to so everybody, so it's my turn and I'll show you the 1st results.

10:16  
And afterwards I'd like to show you a live demonstration from our active feedback application for for the hunting.

10:26  
And yeah, OK, let's begin.

10:30  
So the first step for us was to build a decision decision tree to to record all the processes that that we need to build the axis field maps afterwards.

10:47  
So it was all about building a complex and nest process of different tasks and the data that has to be collected and different times by different people.

10:58  
The collection of the data is in situ and has to be as mentioned implemented in AKI Speed maps and the National Practice Garden stored that data in Aki's portal, Enterprise portal.

11:16  
And so we decided to use AKI speed maps because there was a possibility to to gather the data in Oracle Spatial database.

11:30  
So what are the important functionalities that Acquis Speed Maps provides?

11:37  
It's first of all that Oracle database integration that we have to use, then the possibility to use offline maps.

11:47  
Because the naps and all that.

11:48  
This garden wants to use their own map to gather data.

11:55  
And there are many areas in the nuts now that where you don't have an Internet connections, so there has to be a possibility to use the offline maps.

12:08  
The next important point was to get at the GMSS location.

12:14  
Additionally, the hard disk wants to take photos of the animals they mounted, so this was also a requirement.

12:28  
The next important requirement was to get a barcode to assign a barcode for each animal.

12:33  
They aren't.

12:37  
Then the application has to be able to select values from different lists.

12:43  
So so like drop down lists and other important functionalities that RPS field maps are capable of is a log in rights management for different user roles.

12:58  
And last but not least the condition of visibility.

13:02  
That means that you can make some fields only with visible when a distinct value is selected by the user.

13:16  
So the first step we had to do was the definition of the 5G database.

13:22  
We gather all the information we needed to like the the gender or the name of the hunter, the area of the of the hunting and based on that we define the fields and the data types for the fields and for the most of the fields.

13:47  
We also had to define coded value domains so that you can store for example a female and male the domain chamber.

14:05  
After defining the five chip database we did the same Argus Pro.

14:11  
We hosted the file sheet database as a feature layer, in our case Enterprise, this was.

14:19  
The feature layer was afterwards used for defining a web map and this web maps was the base for our field maps application.

14:39  
So and after the field maps, after the field map for the hunting was saved and you can define in the artist enterprise bottled further further information for the field maps.

14:55  
For example, this is the place where I can set the design, where I can set offline options and also who can who can view the, who can view the application and so on.

15:18  
And let's get to the one of the most important functionalities, the feed maps which also is assigned in the options or the field maps being in our case SMR case, Enterprise.

15:34  
That's the condition of visibility.

15:37  
This is done in history arcades commands so that you can define when a distinct value should only be visible based on another value which is choosed by the use.

15:57  
So for example, like I mentioned before, it's so you can only see this thing, you can only see some types of animals that are female or or this thing or or male and so on.

16:18  
And this is done for almost every field.

16:21  
So you can you get not that large application actually you know so that was our first result.

16:34  
This is the first prototype of the field that but I'm monitoring of the document documentation of the bio of management as you can see on the left side and this is the base map we get from the national bug.

16:50  
Take up from the fancy and next step would be that I'll show you the application direct on this map so therefore we use screen viewer.

17:09  
I hope everything is working now.

17:15  
There you go.

17:25  
So this is the starting starting site from active speed maps.

17:29  
As you can see the so we have several map applications here and now one is already used by the hunters for testing and I'll show you you in detail.

17:47  
So first of all, the user will get the automatic locator automatically the location of the hunt place.

18:02  
You can see there are many points because the field match is already used and we're starting by the hunt, we're assuming that the hunting is done and now we want to assign a place for the haunted animal.

18:21  
So you first of all you have to assign a point where the hunting was done.

18:26  
I'll get outside the map because that we know that just their test location and not really a hunt location.

18:38  
So we're assigned a point here it's it's outside of.

18:45  
So then the next possibilities are to take a photo, We don't have to use that.

18:53  
And then you get to the in situ data caption.

18:58  
First of all you can assign the different values of the hunting before.

19:04  
If you were hunting alone or if you're hunting groups, then you can assign name of the name of the hunter a special date.

19:14  
It's the date where where the hunting was done, the different area and then there there was a value if you can get to the animal or not.

19:33  
So we select yes in this case.

19:36  
And as you can see only if I select a value the next option is visible.

19:44  
Yeah, but if you can use the animal for or not, so we select yes, then the next step is to.

19:55  
I assign the subtypes of the animal, which is the deer and the age of the animals, then the gender.

20:08  
And as I mentioned before, as soon I choose to gender, I can select the next subtypes of the animal and then.

20:23  
And we can use the barcode scanner.

20:24  
Because every animal has we assign for every animal barcode and here we can scan it if you want, so we have to do it so and that's in.

20:37  
This were the first steps for the easy to data caption and afterwards the hunter can save it by selecting the on the the icon on the top of the right on the screen on the top.

21:00  
So the next step is that the animal gets to the hunting chamber where further measurements were done.

21:12  
So we can choose that chamber.

21:13  
Where the location of the chamber we can choose if there are through is or not, then we can assign different measurements and the the weight for the animal.

21:33  
So and furthermore there if there there were tests if there were illness for for the animals or so.

21:45  
That's not so important now and you can assign nodes further nodes if you want.

21:51  
So I'll assign here that's test so and afterwards I saved the entry.

22:03  
This is stored and already saved in the feature layer, the artist enterprise database.

22:18  
So that was the first live demonstration of the RP speed maps application and I'll give the words to tap, obey.

22:30  
Yeah, now you have got the small insight into the first field maps application that is already tested, for example people from the National Park.

22:43  
And after this first Test phase we will have some third meetings and we will refine the prototype based on the feedback from this first small feed test.

22:55  
And as I already mentioned at the beginning, we have a database in the background and on the next slide I'm going to show you a small insights how we implement this database and how we do the concept deal.

23:13  
So the first thing is that the database is 2 folded.

23:18  
This means that we have two different schema schema in the database because we have different users as already mentioned and users have different rights and especially the one who store the data based on the field maps have a connection with the Internet and it's not allowed from security issues from the National Park directly right into internal schema with the Internet.

23:44  
So we have to integrate a specific Internet schema in the database where the users are also allowed to store data from the Internet.

23:53  
And this Internet schema is not allowed to do anything in the background.

23:58  
So this is just a schema schema for storing the data collected with the field maps.

24:06  
So there's no connection from the Internet, schema included, second schema to forward schema.

24:13  
This is the internal schema.

24:15  
This schema has all the rights and other people involved that have rights to write into this internal schema.

24:22  
But this is only allowed from the desktop PCs inside the organization from the Netherland Park.

24:29  
And this second schema uses specific query queries to collect the data from the Internet schema.

24:39  
And this is done by scheduled chops that are performed on a regular interval using 10 minutes in our case and all 10 minutes.

24:50  
The internal forest schema queries the data from the Internet schema because the schema is allowed to interact with this Internet schema and there are also some reference tables for the for the drop down lists that can also be updated from this internal schema.

25:10  
So if there's some changes in the previous, then there is an update for the Internet schema to provide this updates.

25:20  
And we first started with a database model as concept and therefore we use the ORT SQL Developer, the Data Modeler.

25:30  
This is the free software tool where you can create different database models and to conceptualize a database.

25:39  
So the first step was that we create a simple logic and data model where we define the structure of the data and the relationship to each other.

25:49  
So we define which tables we need, which reference tables.

25:53  
We need, the reference tables that were just using a code and descriptions of key value pairs for the domains.

26:02  
Each table that has ref in the name is the reference table and it's used for the drop down lists and the other tables are the more complex tables that's not just using sound lists.

26:15  
And here are some more information in the background.

26:18  
This is our first logic here and you see just the except from the logical database model from the Internet schema.

26:27  
The whole schema is much larger than this one, but we want to show you just how we with the different conceptualization stages so that you can see how we define our database from scratch.

26:41  
And this logical data model provides an implementation independent view where you have just the names of the tables you see, the relationship between the tables and the attribute names.

26:56  
And as mentioned we use the RTS Credit Developer Data Modeler.

27:02  
This is the free graphical tool.

27:05  
You can see a screenshot here of this tool.

27:09  
And this tool provides a possibility to create different database models.

27:14  
For example you can create a logical one as on the previous slide.

27:18  
You can also create relative relative models, physical models, multi dimensional and other data type models model.

27:29  
And here you can see that you can provide for each of the tables that is are defined to different attributes.

27:35  
You can also assign a data type for this attribute and you can assign the primary keys.

27:43  
You can define the relationships between the tables and many other settings for this different tables.

27:51  
You can also add some comments for example.

27:55  
Sorry, you can add some comments that can be read afterwards for documentation purposes and if you have done everything correctly you can transform relative database model that is seen on this slide.

28:13  
Based on the logical model where you have much more information, you can see that there are some SQL tables in the background where you have the data types.

28:28  
You have the trials between the tables.

28:30  
You can also see the type to try and if this is a 11 or 1:00 to many relationships for example or many to many.

28:38  
You can see it on the on the type of the errors between the tables.

28:44  
Then you have the primary keys, you have some constraints, you have indexes.

28:49  
So you have a much more complex model with much more information.

28:54  
And all this information is needed or can be used to automatically create SQL code from this tool that can be used to implement the database in oriented.

29:07  
So it really is a nice tool to automatically create the all the different create table statements and the different attributes and data types so you have.

29:21  
You don't have to code all these statements from scratch, you can use this tooling let this do for you.

29:27  
So it's really nice, nice thinking.

29:31  
And this is done for both schema for the Internet schema and the poor schema.

29:36  
And these statements are used to implement this tables for usage in the OR active database.

29:45  
So the third thing is that you have to create the schema.

29:49  
You have to create the users and passwords and define the rights in the background and then you can use this SQL statement to create all the tables, the relationships between the tables, the indexes, the primary keys and so on.

30:06  
So we can run the statements in this oriented database and then you get the final result.

30:15  
And the thing that we also did is to create specific views.

30:21  
So we have to combine some information from different tables into one specific view and therefore you can create different types of views.

30:32  
So you can say I need for example attribute epsilon from table A and other attributes from table B and combine this view for example for a specific green board or something like this.

30:48  
So we have to create different views for this project.

30:54  
And as already mentioned, you can also create some triggers or some procedures or \*\*\*\* on tasks such as the one that is needed to create a data regularly from the Internet scheme undone and all this stuff is done directly in the database.

31:11  
Sorry, that's something.

31:17  
And now this is the current step where we are working on.

31:21  
So this is a project, this is work in progress and this is not implemented yet what I show you on the next slide.

31:29  
But we are now working on further form with applications that are directly used for that in the in the office on desktops.

31:37  
So where people have a direct connection to the database.

31:40  
And here we use Oracle Appx forms to create into diffuser interface or create, edit or delete data of the database in the background.

31:54  
And this Oracle Appx is also used in the next step to create dynamic reports.

32:02  
Here we have different reports that have to dynamically be created based on the contents of the database.

32:11  
And here we have also different requirements of different target users that are involved.

32:16  
And the the people are just allowed to create some specific reports that are according to their rights.

32:24  
So different people are allowed to create different kinds of reports based on the database.

32:30  
So the the rights management is important topic throughout the whole project.

32:39  
And now I want to conclude with some lessons learned and in this cooperation.

32:47  
And one thing is that it's really important to have a close interaction with the target users and with the project partners to understand the requirements and really complex tasks because this is a really complex topic, the whole white life management, international park and there are really many things that have to be keep in mind in this in this process.

33:11  
And we did some field observations before we started with the implementation.

33:16  
We had several meetings and feedback loops, interviews, brainstorming sessions and service and also first field tests and very example.

33:27  
Whereas for example integrate this decision tree that Michael shows you on the on the first slide of his prototype implementations that this was also done together with our target users and it is a multi step and iterative process.

33:44  
So we have some iterations here to develop such a complex prototype because there are always some new things that came up during testing and during the meetings.

33:56  
So this is a living process.

33:59  
And yeah, the software systems that have to be used in, in our case the artists and oriented software products also have the limitations as each of each software solution and sometimes you have to compromise on implementation or design aspects.

34:18  
This this is normal I think.

34:21  
So not anything always goes according to plan.

34:24  
This is another thing and you often need some workarounds and this here you need some additional resources.

34:32  
That is all not planned before and teamwork is important for more complex tasks, especially for more complex tasks that require different expertise and insights.

34:45  
And a good and positive cooperation is important and is the key to good solutions.

34:55  
And the digitalization of data collection processes is also important and an ongoing topping across disciplines and organizations, not just in the National Park and following standards on harmonization strategies is essential.

35:11  
Today we have many obligations and legals that have to be kept in mind and here standardization is really important and there are many requirements that have to be met when creating complex workflows and prototypes and it's important to understand all these things before you start implementing.

35:30  
So the first thing is that you have really a good understanding of the of the process and the the whole tasks that have to be implemented before you can start with the concept at all implementation.

35:46  
And but at the end we want to say that we as children might accept the knowledge and do to create different enumerative and support these lotions for many different issues and challenges and problems for different domains and we should use these skills.

36:02  
Yeah.

36:02  
I think this was it from our side and now we can go over to some questions.

36:10  
Thank you.

36:11  
Thank you.

36:17  
Oh, thanks a lot.

36:19  
I think there was quite a lot of interesting lessons to be learned for everyone.

36:25  
But first of all, thank you for being available today to report on some of your experiences.

36:33  
Again, the invitation is open to either raise your hand and then unmute yourself or if you prefer to do that, to write the question into the chapter or the Q&A.

36:46  
Just reflecting on the topic from kind of a more general perspective, I believe it's a good example for the full integration of workflows between the field between out there in the open and the back office.

37:08  
There could be other examples in maybe transportation management in maintenance activities for utility companies like power, water, telecom, of course in the field of research whenever we do field data acquisition.

37:26  
And back in the old days, these were entirely separate and separated processes and that's not the case anymore today, right?

37:37  
Then, as soon as you press the submit button or the check mark on the top right hand side, the data set immediately makes its way into the database.

37:50  
In here I'm hesitating for a moment because you mentioned that you had to prepare your field mapping application for offline capabilities as well.

38:03  
That means, I assume as soon as you get back into Internet range or you connect the device in any way, synchronization happens.

38:17  
So if I put that into questions, there would be kind of two questions.

38:22  
What do you have to do to prepare the base map for offline work?

38:29  
And secondly, are there any particular precautions to make sure that the submitted datasets we have kind of unique identifiers if multiple people are working on that simultaneously or is that automatically handled by the field maps app?

38:53  
OK, first of all to the offline map.

38:57  
Regarding the offline map, we get the offline map from the nuts not got this garden.

39:04  
So the definition of the map was their task and and not mine.

39:11  
What I had to do was to deploy this offline map also in in Artist enterprise and then choose the offline map in like this enterprise.

39:26  
In the feed maps application, there is a section which is called offline map and you can use either the whole offline map or just distinct extent of the offline map.

39:39  
And you can also decide the resolution of the offline map.

39:44  
And you have to keep that in mind because if you take 22 high resolution, it will be a bit difficult for the hunters afterwards because they have to download it on the smartphone.

40:01  
And so, yeah, so you have to keep these things in mind and choose and resolution that is good enough for for hunting and not so high that it will be a problem for downloading it on the smartphones for the hunters.

40:17  
So most I didn't understand the second question with the automatically definition of the IDs.

40:24  
Can you at least repeat this for me?

40:29  
\*\*\*\* you have to make any precautions that there are no synchronization conflicts if multiple people do field work at the same time.

40:41  
So I assume there's some unique ID being generated which is no conflict.

40:51  
I hope not because I I didn't have to do anything and that I didn't get any information from the helpers that there was a problem when they are working similar similar, similar damias.

41:08  
So I think Feed Maps do does this automatically otherwise we yeah this is this is my understanding there is an ORB created which takes care of that.

41:24  
But sort of another question related to actually in the years of the area selection they had and at the same time you're inputting of a sample point.

41:38  
Did you use Geo fencing in any way in that app for instance you could automatically you could automatically select the area the area simply by the location of activity.

41:57  
Mitchell shows you the first prototype where you have to select the district.

42:04  
But in the current version where I'm working on we just have the GNSS position from the device.

42:14  
So you can you can change this position by hand manually if you want.

42:19  
But the third thing is you say record my location mishit does not this step because we are not in the national background, it would be easily and you can see the map.

42:28  
So normally you say collect my my current position position, you can adapt it a little bit if the the accuracy is not high enough.

42:37  
But then you send this location and we did the the logic for assigning the point to the district in the trigger of the database.

42:46  
Because we say we make a spatial intersect with boundary layer, we have boundary shield data set in the database and we have a look at which in which of these districts is this point located and this is automatically stored.

43:05  
So we did not have Geo fencing in this case, but we have some feature layers in the background of the database, for example, the districts, the departments and some some locations that are important for hunting and wildlife management.

43:21  
And depending on these layers and the GNSS location, we can assign the departments, the districts automatically in the background.

43:30  
So OK, yeah, no, thank you.

43:33  
Helen, can you hear me OK, I I just had a question regarding one of the attributes that you mentioned.

43:47  
So I think you said when you are compiling in the database, one of the things that the hunter has to enter is to one of the things that he has to do is to scan the back part of the animal is is that correct?

44:01  
So is in my question now is, is it that the app is to keep a track of the number of animals that have been haunted kind of like to I don't know segregate and say OK now we have this number of animals and and maybe stop or like continue or how does it really work with this backward in the animals and the hunting.

44:29  
Yeah, it's not just for keep on track with the number of animals because the animals are also failed.

44:38  
So if you can can use it for sailing then you can also use this barcode for marketing as you have this barcode for really see all the all the stuff that is done with the animal even if it's it's I'll then you have to say this animal was haunted because it has and don't know how it's in English right for example.

45:03  
So then you cannot use this animal anymore, but you have also to use this backlit on say, OK, this was an I'll animal or this was sailed and this was saved to this person.

45:13  
And you can really although the whole stages of this animal, not just the the hunting, the number, also the the process in the background.

45:24  
So what is what happens to this animal afterwards?

45:29  
And also for example the trophy that is also important.

45:36  
So you have to to store this trophy.

45:39  
If it's an important strophy, I don't know how they they go here.

45:44  
So it's just a really old animal and has has a really nice trophy.

45:49  
Then they have to make photos.

45:51  
They have to hold this for several years in the background and this is also in the background information.

46:00  
So, yeah, and as we mentioned, the important thing here is the Arpex, they're already an Arpex application we did.

46:11  
We're defining at the moment and defining in the next month.

46:16  
There will also be reports so that each hunter can see how many animals they mounted in for distinct time, time span or other reports regarding the animals.

46:34  
So there's all things will be collected and rebooted afterwards so you can can see any details of the yeah, they have the information.

46:46  
There are also some required reports that the National Park has to do each year.

46:51  
So they have to provide for some legal issues that the number of young bias tears old ones and they have to keep track on each of their staff and they have to make a report at the end of the year.

47:10  
And this is also one of the things that we make automatically at the end because now they're really different.

47:17  
People improve to generate this report each year.

47:19  
So they have to keep on track on the number of animals for each district, but also for each, for each of the hunters.

47:27  
And there are also some numbers that they don't have to be exceed because it's just for wildlife management.

47:33  
They do not the hunting for for normal reasons.

47:38  
The national backup has to keep track for the for the wildlife management and not just for marketing.

47:46  
So they do the marketing because because they want to use the NML.

47:53  
But the marketing is just a small part of this process.

47:57  
Yeah, it's interesting to learn that it's on the one hand side, we talk about game management, then it's research, and then it's foot tracking all in one, right.

48:12  
And maybe it's a little bit of context for everyone involved here.

48:17  
Why is hunting allowed in a National Park at all?

48:22  
Because in many cases that would be completely off limits.

48:26  
Well, that relates to the background and the creation of the national part of this garden.

48:33  
Until about more than 150 years ago, this was the personal hunting area for the king of Bavaria.

48:42  
So that is that's the reason why there is no settlements, no traditional human uses enveloped in and in the meantime, So after there was no King of Bavaria anymore in this area, there was what was called the plan central Skippy, so a conservation area from all from the botanical perspective.

49:04  
And that was the core and the starting point why it was even possible to implement a National Park right there.

49:12  
So let's just a little bit of context for everyone who maybe is not that much familiar with that region.

49:19  
Again, let me make a kind of a last call for any questions.

49:24  
And while you're thinking about that, writing them in, there may be very brief and practical question to to US developers.

49:34  
Why did you use Arc GS field maps and not Survey 123?

49:40  
Was there any particular functionality or technical feature needed for that?

49:48  
Or was there a decision which was kind of made by the National Park GS people?

49:55  
So why did you end up with field maps?

50:00  
Because we can't use the results from server 123 automatically to deploy it in the database.

50:10  
This is only this is only a function of RPC maps because it's based on that on the Geo database which is deployed as in Oracle in RT spatial database.

50:25  
And this option is is not in in server 123.

50:30  
So we that's a very good point.

50:33  
You're saying server 123 only can work with feature services but not with the load of best connection on the back end, is that?

50:40  
And I'm asking that out of curiosity because this employee don't know that would be the case when you were to use survey one to three connect as well.

50:51  
So server one to three connect again and also that's not allowed to make cheer database connections.

50:59  
Yes.

51:00  
So you can you can download your data from server 1:00 to 3:00 and after what deploys, but you need an additional step.

51:12  
So 7123 has.

51:16  
OK I think.

51:23  
Yeah.

51:23  
Hello.

51:23  
Good luck to follow up on that.

51:28  
Yes.

51:29  
So I I want to have a follow up question from the databases that I that I asked people.

51:36  
So in terms of the attributes that what I understand is that when each animal is assigned a specific backward right that it carries and would it not be an option to have all the other attributes relating to the animals such as the gender?

51:51  
And then I don't know like colour and stuff already part of the of the bark wood like engraving like each specific animal instead of having then the farmers have to manually enter that information core because like just thinking about it would seem like maybe it could be a bit redundant information to have them to enter it again if it can just be connected somehow.

52:16  
You you, you don't know what animal are you going to hunt, so before you before you're hunting it.

52:23  
So there there's a background that just numbers and which the hunter carries with them and assume the hunting is done.

52:35  
The animal gets the barcode.

52:37  
It's a marker.

52:38  
It's just a marker.

52:40  
Oh, OK.

52:41  
It's assigned to them.

52:43  
Yeah.

52:43  
Uh, huh.

52:43  
OK.

52:44  
Because it's a marker.

52:45  
The 2-3.

52:46  
Yeah.

52:46  
Yeah, it's a marker here.

52:48  
You clip it on the animal and then scan it and you know, OK, this is the animal with this number and the animal gets with the number in the in the chamber, OK.

52:58  
And further along to the market.

53:00  
So you know it, but just you have to do the hunting, has to be done first.

53:07  
OK, OK.

53:07  
Because at first I thought that the animals already have the backwards in some OK now, now it makes they do not have a complete inventory of animals, only only when they're caught or killed.

53:24  
Yeah, OK.

53:25  
But that was very good to clarify because I wasn't entirely sure because some animals they are attacked beforehand, but that's kind of a different tag which is not related to that.

53:38  
OK.

53:39  
I don't see any any further questions.

53:42  
And I would just like to conclude with a remark kind of to focus your, your mental orientation on that because quite often in in our field age and fanatics we either work in depth with imagery or maybe with one or several spatial information layers.

54:06  
And not everyone has had the opportunity to practice database design like it has been showcased in this particular project.

54:17  
And I believe that while all of you are exposed to that in one another course or another class, today's case study was an excellent example that database design to kind of a middle level of complexity.

54:35  
You had some rules and branches in there.

54:38  
You could go way beyond that in some specific cases.

54:44  
But database design is on the one hand side a key skill from many practical applications.

54:52  
Whether you have stable stationary features or events, which in that case the kill of a game animal in a particular place, particular location.

55:04  
But then there is a lot of attributes where only part of these can be generated automatically and they have to be managed properly without or with minimal redundancy, with consistency in the database and workflow which has no break points.

55:25  
Break points in the workflow would be like in the old days, you have a form and you send the office to the form or send the form to the office hopefully and then continue working there.

55:40  
What I found particularly interesting is that you had some entries, fields or rules which are not accessible from the field device.

55:51  
So there's a separation in the workflow between field data acquisition and back office work, and there are not only different interfaces, but different rules and specifications to be applied.

56:06  
And for this the kind of practical side of database management with geolocated databases.

56:15  
But actually the bulk of the information is generated in the process, in the workflow.

56:23  
And for that, I believe that was an excellent example.

56:27  
And yeah, Karen here, I'm grateful for you providing that.

56:33  
Thank you.

56:34  
Thank you then.

56:39  
Goodbye everyone.

56:41  
And of course, wishing everyone a great week and we'll spend inside.