[Corrected transcript based on the supplied automatic transcription. A few proper nouns and unclear phrases may still require verification against the audio.]

[SPEAKER_00]
You are now listening to a podcast from the University of Stavanger.

[SPEAKER_02]
Okay, welcome to the reginno podcast, where we uncover stories and ideas behind academic papers and academic work that shape our understanding of innovation and regional economic development.
And today we have with us Professor César Hidalgo, who is Professor of Economics at Toulouse School of Economics and who is also Director at Centre for Collective Learning at Corvinus University of Budapest.
César, welcome to Stavanger and welcome to the Reginno podcast.
How are you feeling today?

[SPEAKER_01]
I'm feeling great.
We had a great lunch.
We had a great seminar in the morning.
So I'm ready for this.

[SPEAKER_03]
Yeah.
Also, welcome to Kåkånomics, which is, which is a week-long economic festival that's going on in Stavanger.
I will start off the podcast with the question that we ask most of our guests in the beginning.
That is, you're one of the GOATs of economic complexity.
What brought you to the field and what keeps you inspired to contribute to the field?

[SPEAKER_01]
Oh, well, you know, like those origin stories are a little bit hard because in some sense they're a little bit circuitous.
And so my story is the following.
I studied physics in Chile as an undergrad.
And during my undergrad in physics, I had to choose a specialization, you know, and that's something that helps you discover your own interests.
And you flirt with many ideas you flirt with general relativity and quantum mechanics but what really started to become attractive to me was all of this work that was happening in complex systems that involved chaos fractals and so forth and during my undergraduate all of that community shifted into the study of networks networks were like a big thing If you go back to 1998 or 1999, the web was like what AI is today.
Everybody was talking about networks and networks was the way to think about the world.
So I started looking into networks and I decided to do my PhD in physics, in complex systems, in networks with Albert-László Barabási, which is a very well-known network scientist who was

having a very hot streak at that time.
So I went to the United States and there I realized that also things were changing.
Like networks have been a thing in the late 90s, early 2000s.
What was happening was that these networks themselves had given rise to big data, because the internet was collecting data at an unprecedented scale and velocity.
And all of these complex systems scholars that had been working in these art topics before, we're now having large amounts of data that I didn't know what to do with.
So grad students like me at that time were thrown these big datasets.
It was like, “Okay, look, we have this big dataset.
We believe there's something here, but we need to get the diamond out of this mountain of data.”
And that was my job.
And I was thrown a lot of datasets.
One of them was a dataset on international trade.
And that dataset on international trade allowed me to get started on the study of economic complexity because it was a dataset that had an unprecedented, at the time, resolution, both in terms of time, it covered many, many years, and in terms of the activities that it encoded.
And in that context, then I started working on economic complexity because I started using machine learning type methods to understand international trade.
I was looking at how countries change the mix of products they produce.
And then those evolve into a much wider set of methods and theories.
But a little bit, that's how I got started.
It was an interest on complex systems, networks, driving to big data.
And then in the context of those opportunities, that's how things came about.

[SPEAKER_02]
Yeah, super cool.
Yeah, I remember reading one of your papers that's published in Science.
I'm not very much into your topics, but that was quite intriguing for me.
What's the story behind that paper?

[SPEAKER_01]
Yeah, so the story behind the 2007 Science paper is quite straightforward.
So at that time, I was at Harvard Medical School.
I was working on big data in the context of genetics.
I had joined my advisor László’s team at Harvard Medical School, where he was part of the Center for Cancer Systems Biology.
And he was meeting people for lunch regularly because Boston is a place that a lot of people can connect.
So people that would have read his book or that would reach out to him would invite him for lunch.

One day he came back from lunch and said, “César, I met this guy.
He was really interested in my book.
Why don't you go and see if you can help him?” because I had told László that I was interested on the intersection between networks and economics.
László being very smart at this said like, you know what?
I've already gone to other fields.
I know how difficult it is to do interdisciplinary work because you get some defense mechanisms from the other fields.
So if you want to go into networks and economics, you have to find other people to work with.
I'm going to support it, but I'm not going to do it.
So then I wrote, this person was Ricardo Hausmann, I wrote him an email, I said like, okay, László told me that you would like to meet with someone, and we met, and then he told me this story of the, economy being like a forest in which each tree has an amount of fruit and countries are firms or collections of monkeys that jump from one tree to the next.
And the process of economic development is the process of these monkeys jumping from one tree to the other.
He and Bailey Klinger, a PhD student that was working with him, but they didn't have the way to formalize it into a mathematical representation, but they had the data.
So Bailey shared the data with me, I copied it in a hard drive and I took it back to the medical school.
At the medical school, I had been working on genetics.
And at that time in genetics, there was a lot of work on trying to understand the networks of gene interaction.
So I was working with software to map networks that had been designed for biology.
So I could use the trade data in this biology software to create a network, not of genes that were similar or that interacted, but of products that were similar.
That's what gave rise to the product space.
It's an interesting idea because it comes, of course, from this collaboration, but it also comes from the fact that I was lucky enough to be at a biology lab that had the tools that economists didn't have, but were needed to create this representational breakthrough.
So that's how that paper got started.
And then it was quite smooth.
Within a year, we had written the paper up and submitted it.

[SPEAKER_03]
That's quite a nice summary of how you recombine existing ideas that have never been combined before, and then boom, you create something super nice.
That's super cool.
I want to dive into a little bit about the topic that you're going to discuss tomorrow, in the evening today, your new book, The Infinite Alphabet, and the name of your talk is Why Innovation Usually Fails.
Do you want to speak about it a little bit?

[SPEAKER_01]
Yeah, so I think there's a big jump between what we just discussed and this, because we're talking about 2007, 2006, 2005 actually, because these events happened before the paper was published, and now we're 20 years later.
So what happened in that period of 20 years is that
We went from understanding this process from maybe a description of economic development that was empirically valid to something that could expand more into a theory.
So in 2015, I published a book called Why Information Grows that starts discussing these ideas.
And then that brought me to read
other work that inspired me to write The Infinite Alphabet as a way to formalize these ideas as a set of principles that govern how knowledge grows, how it moves, and how it is valued.
So my idea is that
Knowledge is a quantity that we're beginning to understand in quantitative terms.
So it's going through a transformation similar to the one that temperature did in the 19th century or in the 18th century.
And it also satisfies certain laws and principles that govern how fast it can grow.
how fast it can diffuse, and how we can understand which combinations of knowledge generate value.
So The Infinite Alphabet, what it does is a book that starts by telling stories of some attempts to develop knowledge through cities of innovation, cities of knowledge, or innovation districts that fail.
And the reason why they fail, I argue, is because they do not honor these principles.
So it's like trying to build a rocket to go to the moon without understanding chemistry, aerodynamics, gravity, and all of those things.
And if you understand these principles, you would do things differently.
So then the book goes into explaining those principles and then we go back into successful cases and also to revisit those cases of failure as a way to see how those principles would have been applied differently and maybe would have given these places a better chance.
So that's where this evolved.
It evolved from something that was maybe more machine learning, like mechanical, into something that in the conceptual space is more about the laws, not of motion.
Like in the case of Newton, the laws that govern knowledge.
And it's also like a package of three that then get unpacked into smaller bits.

[SPEAKER_03]
I think one of the cases in your book is NEOM in Saudi Arabia.
It's very personal to me because I was almost about to go to NEOM to work for them as well.
But from the experience of writing the book, for example, if you were given a billion dollars today by a government and said, okay, now we want to build a knowledge hub, what would you think about?

What would your gradual steps be?

[SPEAKER_01]
Yeah, so exactly.
That's a good question because we have examples on how this has been done wrong.
And there's a number of them.
In the book, I start with the story of Yachay. That was a billion or 1.2 billion, depending on who is doing the math, that went into an area of the size of Manhattan, two hours north of Quito.
and the attempt to create a city of knowledge failed.
And there is now the remnants of a university that also has issues like the water is still brought in system tracks and everything.
NEOM was originally a 500 billion project, was enormous.
And there's a story from Bloomberg that I use in some of my presentations, which is that in NEOM, the consultants who went there, they would tell the story that to go to NEOM, you needed to bring two buckets.
One bucket is for the gold, because you are going to be paid very handsomely and it will grow heavy very quickly.
The other bucket is for the shit, because you are going to have to put up with a lot of it while working on the project.
The idea is that once the bucket of shit gets full, you grab the bucket of gold and leave.
And they had a lot of rotation turnover.
I met some people who had worked at NEOM, and clearly it was backwards.
So we have examples of this thing being done backwards.
Now, how would you do it forward?
Well, you need to understand a few things.
First, when it comes to the growth of knowledge, there are certain timescales you need to respect.
For instance, if you're bringing knowledge that is new to a place or to a region, what we know from the literature is that those tend to be intergenerational events.
So there is a famous paper by Petra Moser and other coauthors in which they look at chemists that had to emigrate out of Germany and move into the United States in the context of the Second World War.
They see who in the United States adopts the areas of chemistry in which these chemists specialized. It is not their peers; it is the next generation, the generation of people that were trained by them.
So it's a mentor-mentee relationship, and that has been identified also in other studies as well.
If you are thinking about developing knowledge about something that was not previously available in your location, this tells you that it is a 20- to 30-year process.
So that's the timescale.
They're trying to do everything all at once in a short period of time.
That goes against the principles.
Knowledge is also agglomerative; it is not simply diffusive.
So knowledge diffuses, but not really because knowledge is diffusive.
It is not like a drop of ink in water that naturally diffuses.

Actually, it tends to concentrate.
Like humans, we concentrate in space.
You have like cities and a lot of empty spaces in between because we agglomerate.
And yes, the migration and the movements that happen between those places allow the diffusion of that knowledge to take place.
But in reality, it's the opposite.
We're all trying to fit and agglomerate.
That means creating knowledge where you already have knowledge is much easier.
So you have to bet on density.
And when you compare NEOM or you compare...
Yachay with efforts in China, like in Zhongguancun, you see that they're completely different because instead of betting on a piece of land a couple of hours north of the city, like they did in Yachay, in China they bet on a single street segment on the densest part of their innovation district.
So completely opposite, so you do those things.
And the third thing is that you have to understand that knowledge, it's a form of capital and you have to honor and treat it as such.
And a lot of these other projects, they spend instead of invest.
And for a lot of people that looks similar, but it's not necessarily the same.
In a place like Yachay, they would spend money on buildings, staff, teachers, and student subsidies, but that did not generate a return.
So a smarter way to do that and to do it gradually, because you want to do it gradually to respect these timescales and processes is you grab a billion dollars, you put it on an endowment that pays 4 or 5% a year.
Nowadays you could buy just treasuries and get 5%.
And now you have 50 million a year that you can use not for 10 years or 20 years, but forever.
And those 50 million become 50 positions that you can start offering to people to move to that location that you want to develop to create their teams there.
So let's say you give someone like,
a million dollars a year for 10 years in the context of developing a lab, you can be very attractive in an international context because that's much more attractive than an ERC grant or any of the big awards that are provided here in Europe.
So you could target people at that level to come to those places.
Now, the good thing about that is that on the one hand, you provide a lot of autonomy.
These people that would receive these chairs have a long runway and the autonomy to build the labs as they see fit.
And on the other hand, you haven't risked much of the capital because if the endowment is working and the payout rule is reasonable, you're gonna be able to keep all of the capital and maybe even grow it while this is taking place.
The problem though is that many countries do develop endowments but they suffered the temptation to invest it in local projects that generate bad returns.
So for instance, a lot of NEOM was paid by part of the Saudi Arabia’s Public Investment Fund, and it would have been better to

put that money on NVIDIA stock.
or any other things to make it grow.
And there is this temptation that when the endowment is local, it tends to be invested in local projects that sometimes are not very good.
So it's not being managed properly.
So it has to be really professionally and properly managed in a way that is responsible.
And then you can actually go way further with the same amount.

[SPEAKER_02]
Yeah, interesting.
I want to deviate a bit from what we have discussed so far and move to AI, which is like the current hot debate across many disciplines, including ours.
You started a journal for AI written papers.
What's the story?

[SPEAKER_01]
Oh, well, you know, some...
I love adopting and exploring technology.
So I've been an AI user for a while.
One thing happened—I don't know when it happened for you guys, but for me it was around December of last year.
So I remember like around Christmas of last year, there was a project that was stuck.
And I remember waking up at 3 a.m., I was very frustrated.
And I said, maybe the AIs by now are good enough that they can code this.
And I started to realize that they were, and that within a weekend I could build something that would usually have taken a team six to eight months.
And soon after, I learned about coding agents on the command line.
And I realized that it was a very different form of AI than the chats that we have been using at that moment, because you open a project in the command line, in Claude or Codex, and then it would download the data, it would write the code, it would write the LaTeX file and everything.
So you could give it a direction, and it could then execute a project in that direction by working for hours while it collected and managed all of the resources.
So it was clear to me that there was a possibility to generate papers using AI and that people were gonna go into that space.
And it was clear to me that everybody was gonna at the beginning reject that idea.
But in 30 years from now, that idea
was going to be obvious to everyone because of course it's like today, like say like, oh, you can send electronic messages to people like an email or a text message.
Maybe, you know, 40 years ago, I'm sure you can find examples of like, this is gonna kill society because it's gonna, you know, destroy the, I don't know, greeting cards industry, whatever.
And so I saw an opportunity to do something early on.
And I said, well, I have the chance to

be the first one in the world and face a little bit of ridicule.
But if I believe that in 10, 20 years from now, this idea is gonna be vindicated, I can claim I was there first, you know?
So I said, okay, I'm gonna go for it.
It's easy.
So I spent a weekend, you know,
creating the journal with Claude.
And funnily enough, you know, we got submissions the first day, you know?
And in fact, like what we've done is we've done a criteria is a little bit more stringent in the submissions and the endowments and everything, because otherwise we were, we started to get flooded.
So I decided to make the criteria much more stringent. But it has allowed me to meet a lot of people that are in this space.
So to me, that that's sort of like the, um,
the lesson and the idea on the one hand, it was an opportunity, and on the other hand, it was to not have the cringe to move into the opportunity, because if you believe that the idea is gonna be vindicated in the future, it's not a bad idea to be the first if you can.
And funnily enough, now a lot of people have reached out to me, or at least a few,
saying that they wanted to do this, they found the journal, because the AIs know about the journal now, so when people ask, oh, I want to do an AI-generated paper, they would say, JAIP.org exists.
And then they would come to me and say, and they would start collaborating and working together.
So I think it was an idea that was ripe for the moment, and it was for anyone to grab it, so I said, why not me?

[SPEAKER_03]
You're betting on the long run.

[SPEAKER_01]
I think that's what you want to bet because, so I care a lot about impact and there are different ways to measure impact.
Sometimes you have impact that is very fast, but very short lived.
And that's not what you want.
You want impact that is long lived.
So I'm proud of the work that we've done in economic complexity, for instance, because
The 2009 paper on economic complexity received more citations in 2026 than in any previous year.
That's a long time horizon.
And probably next year, it might still get more than this year.
When I did my TED talk in 2018 on the use of AI for augmented democracy,
the idea that you could have an AI that could represent a person like in natural language, I didn't even have that idea, but I kind of like intuit that it was going in that direction, seemed ludicrous.
But nowadays in 2026, there were a lot of papers in that space and they're like entire sections of computer science conferences dedicated to AI and democracy with LLMs.

So usually when I try to work on ideas that are gonna be vindicated in the future, not because you started them, but because you figured them out earlier and you figured out that they're gonna become obvious to people in the future as well.
So they're gonna rediscover them.
And those are the type of bets that I think generate long-term impact.

[SPEAKER_03]
Yeah, both of these are really good examples of the time pillar of your pillars of knowledge.
And there's the value pillar and the space pillar.
Can you explain that a little bit as well?

[SPEAKER_01]
I think there are two separate things here.
When it comes to the laws of knowledge, I organize them in time, space and value.
So time is the growth of knowledge about the same type of thing.
So we are getting better at doing something, like what happens through practice.
And there's a lot of examples that in manufacturing, the more cars that you manufacture, the fewer errors that you make, the faster that you produce them and so forth.
Space is about the diffusion of knowledge in physical and geographic space, but also across activities.
And value is about the value of the portfolio of activities.
There is another area of research I focus on, collective memory, which looks at the information shared among people.
So if I ask you, Raj, do you know who John Lennon is?
Who is John Lennon?
He's an astronaut, a writer, a musician.
He's a musician, exactly.
So now we know that we have common knowledge.
So we've been running experiments like that, that try to identify which information is shared among people.
And then we also have like a quick way to think about them.
We call these the four Ts: technology, tongue (that is, language), time, and territory.
And their time is really important because it's what really separates the long-term impact from the short-term impact.
So John Lennon, the fact that in 2026, we still know who he is and we're talking about it, shows that, well, his music and his legacy has been able to survive.
You know, Elvis, similar story.
Bad Bunny: are there people going to be talking about Bad Bunny in the year 2080?
We don't know.
If they are, he would have been able to survive that time filter, which is really strong and really important.
It actually follows with a double exponential.
So I would say that what I was talking about, impact relates more a little bit to that, which is what endures and what produces over time.

[SPEAKER_02]
I have one last one.
I can go again.
In all of your explanations, when you try to build these econometric models, there's this growing recognition within economic geography that apart from material structures, there are other things that matter for regional development.
For example, those are ideational factors such as narratives, visions, imaganaries.
How do you see these ideational concepts within this theory?
Or can they be somehow brought into the econometric modeling?
Or they need a separate explanation or separate theories altogether?

[SPEAKER_01]
Yeah, I tend to be very promiscuous when it comes to methods.
And for example, if you saw my presentation today, it was like very mathematically oriented.
There's that work that is empirical.
If you read my book, it is a collection of stories—much more qualitative, while making connections to that quantitative literature.
And I do believe narratives and stories are important, because economic development requires some form of leadership.
The older you get, the more you realize that there is a role for leadership like self-organization only goes so far and sometimes some people have to cut the cake and many people like others to cut the cake for them you know and decide what needs to be done and and and assign roles and assign responsibilities and own also the responsibility over those outcomes so if you look at the development of different regions in the world and situation which development has been successful, you'll find heroes in the story.
And it's not that those heroes were solely responsible, they had like big teams, but those leaders were important in those transformations.
So examples that will come to mind will be like Lee Kuan Yew in the case of Singapore, or Deng Xiaoping in the transformation of you know, of China, that started in 1978, which are leaders that move, you know, the systems in certain directions and they do it using narratives and they do it, you know, using storytelling as a way to rally and organize people around it.
And I think that's something that doesn't go away.
It's extremely,
important and providing that leadership is an essential aspect of development that is very hard to replicate also because you cannot simply go to the market and buy a leader that would develop your place.
You might be lucky to get one and you might be lucky to get one and identify it because you might also squander it maybe depending on the rest of the institutional environment and they might not survive.
But I do believe in the importance of those narratives, stories, they're essential for pushing a group forward.

[SPEAKER_03]
I'm going to bring us back to regional economics and regional economic geography.
I'm going to start with the statement, which is a paper that you wrote a couple of years ago, Complex Economic Activities Concentrate in Large Cities.
And it's also something we already talked about a little bit.
So there's a big debate on it, and there's two perspectives to it.
One is, how do peripheral regions that are not the core, that are not large cities, how do they get knowledge?
And this is something we touched upon a little bit before when we talked about NEOM or establishing knowledge hubs in a different place.
But the second idea is, if you're an investor,
Do you, as a scientist, favor that investment should be made in these large cities and get the maximum benefit and least amount of risk and then redistribute the values generated out of it?
Or do you also see value in investing in smaller peripheral regions?

[SPEAKER_01]
Yeah, so I think we're mixing...
a number of things because there is the value to investor and there is the value to society and ideally those align, but they're not the same thing.
So they don't necessarily have to align.
And when it comes to development also, you have a tension, which is discussed frequently in the literature,
which is the development of place or the development of people.
Historically, in some cases, the development of people has involved the movement of people into the places where development already has taken place.
So that migration from the farm to the city that happened during the industrial revolution or other migratory movements,
are usually from less-developed to more-developed places because it's easier to bring people to development than development to people.
Now, there might be kind of other effects that we need to consider and involve there, but when it comes to the development of people, usually it is, that's the main mechanism.
It's much easier to move in that direction.
When it comes to the development of place, in some sense, you know that you're now working against the grain, because usually developing a place that is not developed and trying to force development into those places is less likely to be successful.
But you might have other reasons to do it.
Maybe as a country you need a strong enclave on that part of the territory because it's strategic from a military perspective.
So it is worth not losing the population that is there, and perhaps growing or consolidating it.
And you're gonna be willing to pay the price, you know, to keep that population in that place.
There might be, you know, altruistic or humanitarian reason maybe, you know, that you think that this population, you know,
that is excluded because of their peripheral geographic location,

deserve access to better opportunities, and you are trying to redistribute those opportunities to them.
But you are doing it against the natural force, which is in the other direction, which is the one in which people usually develop by moving to these developed places.

[SPEAKER_03]
Okay, that's a super interesting and really...
There has to be some kind of value, even if it's not economic value, some kind of value in investing in places.

[SPEAKER_01]
You do have situations in which there are successful stories of development of places that touch into the idea of leadership.
So you've heard of the city of Donetsk in Ukraine.
No.
No?
Oh, it's very famous, of course, because in the context of the war.
But that city actually is a relatively modern city and it has a very interesting story, origin story, that is connected to a Welshman by the name of John Hughes.
So in the 19th century, John Hughes was a Welshman that grew up in this family that was involved in the iron and steel business.
He developed his business extensively in London and Wales and he was a specialized among other things on iron-cladding ships so at that time you remember like ships were becoming steam-powered and Ships used to be wooden.
So you would cover them with iron to protect them in a military situation and He was invited to a ironclad fortification in at Kronstadt by the Russian empire.
He developed connections with the Russian Empire, whose representatives had a concession to develop the area around Donetsk because they had found resources of iron and coal that could be used to develop metal working operations.
So he won that concession and he went back to the UK and he packed seven ships full of people and tools
sailed all the way to the Sea of Azov, landed there, and used donkeys to carry all of that material into the area that is now Donetsk, which at that time was called Yuzovka because it was John Hughes, so it was the Hughes town, Yuzovka.
And they started producing pig iron somewhere there at the second half of the 19th century.
Pig iron is the simplest form of iron. You melt the iron, and it flows through sand into little pockets.
So it looks like little piglets that are suckling, you know, from the mom.
And that's why it's called pig iron.
And that area started to grow as a consequence of that because it was an area that was completely empty.
It was an area that also like A French geographer had said that the area was unsuitable for the development of metalworking.
but the French geographer was wrong, the resources were there.
And then that city started to grow enormously under the patronage of the enterprise that had been developed by Hughes and then his family

until the 1920s when it was seized by the Soviet revolution.
But by that time they had built schools, they had built, you know, hospitals, they had developed an entire city around this metalworking industry.
Until recently, Donetsk was one of the main metalworking centres in the former Soviet Union.
It was not that they went to a place with an existing population and tried to build it up; rather, they had a resource that made that place economically viable if you could bring the knowledge needed on how to operate, manipulate, and commercialize that resource.
And then they brought someone very, very experienced on that space that brought in the knowledge and were able to develop that resource further.
So you have examples like that, in which you can move knowledge into a place that has a particular strategic resource, but they tend to be exceptions.
And they also are like these exceptions of the rule that tends to prove that knowledge is really, really hard to move.
Because these stories are quite anecdotal, but they can be very, very, very powerful.

[SPEAKER_03]
And it takes time for it to actually institutionalize.
Do you have any questions?

[SPEAKER_02]
No, I think we can maybe wind up.

[SPEAKER_03]
We can go to the last section of the podcast, which is a thing that we do in our podcast, where the last speaker leaves a keyword to you, and you leave a keyword to the next guest.
Our last guest was Ron Boschma, and he left you the word productivity.
So if you can reflect on productivity in a couple of sentences.

[SPEAKER_01]
Yeah, well, so productivity by definition is how much output you get from the unit of inputs that you have available.
And it is an indirect measure of knowledge.
It's like how you can transform the inputs you have into outputs.
And the way in which you transform inputs into outputs more efficiently is by having better ways, better ideas of how to make that transformation.
So I like to think about knowledge more than I like to think about productivity because I think in productivity, even though it's an interesting concept, it keeps us within the realm of economics.
But when we think about knowledge, we go into a much wider realm.
We're thinking about cognitive science.
We're thinking about the diffusion of a quantity across a group of people.
You can think of epidemiology in that sense. You can also connect to the different branches of philosophy that try to define knowledge in

different ways.
to education, which also concerns how knowledge is transmitted; to history, which studies how knowledge is preserved; and to engineering, which examines how knowledge is put to productive use. so i would go from productivity to knowledge and maybe that's the word that i want to leave the next person knowledge Okay, thank you. That's a really nice word. Thank you very much for joining us today, and thank you to our listeners as well. Until we meet next time, thank you.

[SPEAKER_03]
Thank you, Cesar.

[SPEAKER_01]
Thank you, Roger.
Bye.

[SPEAKER_00]
You have been listening to a podcast from the University of Stavanger.

[SPEAKER_03]
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