**EPISODE 81**

[INTRODUCTION]

**[0:00:10.4] SC:** Hello and welcome to another episode of TWIML talk. The podcast where I interview interesting people doing interesting things and machine learning and artificial intelligence. I'm your host Sam Charrington.

This week on the podcast, features a series of conversation with speakers from the AI summit in New York City. The theme of that conference and this series is AI in the enterprise and I think you'll find a really interesting mix of both technical and case study oriented discussions this week.

Please note that on Wednesday, December 13th, we'll be holding our last TWIML online meetup of the year. Bring your thoughts on the top machine learning and AI stories of 2017 for our discussion segment and for our main presentation, Bruno Gonzalvez will be discussing the paper, understanding deep learning requires rethinking generalization. By Shiwan Zhang MIT and Google Brain and others.

You can find more details and register at twimlai.com/meetup. Today's show continues our discussion of enterprise AI with a conversation with Thierry Derungs, Chief Digital Officer at BNP Paribas, a multi-national bank, headquartered in Paris. Terry joined me to discuss how BNP uses AI and some of the opportunities that have arisen with the changing artificial intelligence landscape.

We also discuss the innovation process that BNP has used to introduce AI to the bank, via what they call innovation incubators or factories. The notes for the show can be found at twimlai.com/talk/81. This AI summit series is brought to you by our friends at IBM power systems.

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[INTERVIEW]

**[0:02:44.4] SC:** All right everyone, I am on the line with Thierry Derungs. Thierry is the Chief Digital Officer at BNP Paribas Wealth Management and he is — we're connecting today, he's in Paris and Thierry I'm very grateful for you to spend some time with us.

**[0:03:05.4] TD:** My pleasure.

**[0:03:06.1] SC:** Absolutely. All right Thierry, why don't we get started by having you introduce yourself to the audience and tell us a little bit about your background and how you came to be interested and involved in artificial intelligence.

**[0:03:21.1] TD:** Sure, today, I'm the Chief Digital Officer for Paribas Wealth Management as you mentioned. Yeah, I have a very long story around digital since I'm busy with digital topics since 25 years in CDO title was not yet imagined but already working for many digital solution on the big sites and secured sites. A very long background and of course as a CDO, yeah, you are looking for the new technologies and all the opportunities that can be raised by them.

Artificial intelligence is a pretty hard topic since pretty long, especially when you're here, the hot topics as robo advisory, but also big data, everything connected to voice, there's a very wide field of interest around artificial intelligence and everything that can be connected with it.

**[0:04:21.3] SC:** For those that aren't familiar with BNP Paribas, can you give a little bit of an overview of the firm?

**[0:04:28.1] TD:** BNP Paribas is what we call a universal bank, today we are about 190,000 employees in a bit more than 80 countries. Coming back to wealth management, so we are, of

course, from what we call the investment solutions so that's a big division from the group but wealth management, luckily for us I should say, we are pretty small, we are about 6,600 employees in 21 countries, managing a lot of assets, about 360 billion set on the management.

Very efficient, but what is very nice is that our size is pretty small which allows us to behave as a kind of start-up inside the very big group that BNP Paribas is.

**[0:05:26.4] SC:** Okay, that's a big startup.

**[0:05:27.7] TD:** Yeah, sure. Yeah, compared to the size of the enterprise.

**[0:05:33.3] SC:** Right, certainly in an organization like BNP Paribas, there are lots of opportunities to apply machine learning and artificial intelligence, how do you think about those various opportunities and what does that landscape look like for you?

**[0:05:56.6] TD:** As I like to say, first CDO is not for 'Chief Digital Officer,' it's more for a 'chief disruption officer'.

**[0:06:05.9] SC:** When it's done correctly, right?

**[0:06:08.5] TD:** Yeah. I'm a gentle destructor or destructive gentleman nevertheless. My duty is really to transform the company to support the different countries in that way for wealth management. Looking to all the opportunities, artificial intelligence is at our side, a very hot topic on which we are working. I would say it's a kind of old story if I may say so, as for example, robot advisory is a very well-known topic for financial, like especially wealth management. We have already robo-advisory since almost three years now in place.

Even if we provide the advice, not directly to the clients but to our relationship management because we are a human based — it's a commercial approach but that kind of topic exists already since, at our side. It goes together with all the challenges that you could have from big data, not because it's big but because you have to analyze that amount of data and artificial intelligence is really something very important in that area.

Many more opportunities during that, we strongly believe that voice will be the new interface for the future. And when you say voice, you need NLP so 'natural language processing,' you need a Symantec analyzes and all that is supported by artificial intelligence and finally, the world is changing, it's very challenging in terms of let's say a profit and the way we can manage the business.

We have a very strong focus on being efficient and there you connect with the other topic which is APA. So the robotic process automation which is also related to artificial intelligence. There is a lot of things ongoing, a lot of opportunities, on which we are, today, working pretty hard.

**[0:08:31.6] SC:** You mentioned some of the long history of AI in general and even prior projects at the bank. What is it that makes AI hot right now for an organization like yours? I mean, it's certainly, a lot of the technologies have been around for a while and in fact, banks in general have been early adopters of both machine learning and some of the types of technologies we associate with AI today.

What do you think is — or do you think there's something different about what's happening right now and what is that?

**[0:09:15.5] TD:** There are several factors. Regarding BNP Paribas Wealth Management, we have load to the digital transformations five years ago and to be a very transparent, the principal focus was really to build the foundations because, yeah, wealth management is very traditional, that's the same for us since I've been in BNP Paribas.

Meaning that as we have a very human based model, that yeah, that digital was a bit far away. It was really the first focus was really to build up good foundations which are very classic and once those foundations were achieved then we had the capacity to accelerate and the really — let's say, move into the more destructive area that we could imagine by building different factories in the countries so today we have three factories.

Which are really incubators and accelerators for us, allowing to work directly with clients, build up some MVP, so minimum viable products that we can test in real situation with clients and

then from the successful ones, move to what we call the industrialization so we need to make other deployments from those new services or solutions to all our clients.

Having factories now allow us to really move forward into more specific topics and artificial intelligence is one of them. Today we are for example working with a factory that we have in Singapore, around the classic chat bots, supported by artificial intelligence but also voice bots because we have a strong belief that we need relationship managers but we want them to be relationship managers to .0.

Augmented relationship managers and for that, we see a lot of opportunities in the artificial intelligence to really increase their capacity to be a straight to the point, more accurate, get rid of some — let's say, administrative stars where the added value is not there and give really to them, the capacity to better reply to clients.

Have more time to spend with their clients and take really, all the most that we can offer in the relationship in terms of expertized and really — let's say the most important discussion that I think we'd have with their clients about assets. And artificial intelligence, the opportunities we see is really to expand their capacities, that's a very strong belief that we have.

**[0:12:17.1] SC:** These factories that you're describing are digital factories and it sounds like what's making — sounds like a big part of what's making AI timely for you is that you're better positioned to do something with it, right? The bank is built out capacity from a digital perspective that you know, positions it to take advantage of AI and in a way that it maybe wasn't able to do at least broadly years ago.

**[0:12:52.0] TD:** Yeah, what has changed really a lot, in the factories, is that we have now the capacity, the way we managed the factories to work on business [inaudible]. We are not looking, we are not an IT company so more or less, I should say, I don't care about the technology, I'm interested by the opportunities that we could have for the clients to provide them added value and by the way, to do that, we need some technologies.

That's really the shift we have, digital is not anymore inside BNP Paribas, a kind of geek island where some strange people on digital try to influence the way the business should be done, we

have shifted that back really to business and when we take initiative in a factory. First we do that in mean startup mode with a lot of co-design and pure [inaudible] approach.

The project owner is an expert from the business, coming for his expertise and we are able to help him in terms of methodology and so on, but is really focusing on the clients and the way to provide added value. That's really a big shift because it's it allows really to experiment new approach, new way of working and new ideas. Really connected to clients because we have clients that work with us inside the factories from the very initial ID concept until the MVP and test ,really in production, real situation with real clients.

Then, failure suddenly becomes an option. We have now the capacity to really take a subject, try to find the best way to address. If it's not working, okay, we find another way, we change the technology, we change the stuff with which we are working or we change the concept itself and we can adapt a lot.

Artificial intelligence is as I will explain at the summit at the beginning of December, is really an unknown area, we know that there are a lot of opportunities but it's very difficult to really see what will be the real complexity to have that, what are really the added value for the customers and of course for the bank. Being able to experiment that very quickly while not having a prototype disconnected from the real life that, reaching really project that we can test is key if you want really to explore artificial intelligence.

**[0:16:04.3] SC:** Do you find that there are any ways in which AI has required you to evolve your factory model or your agile methodologies, MVP approach?

**[0:16:18.9] TD:** So far, the way we work inside the factory is really perfect for artificial intelligence. Today, for example, working on the voice bot to expand the capacities from the relationship managers, we do that with very short sprint or short cycle, delivering something that we can test, evaluate, adapt and then move to the next step.

That in a very fast approach, when we work on the MVP usually it's about four months to really deliver something that we can put into the hands of our customers. The capacity that we have to

adapt constantly is the best approach in terms of discovering something pretty new as artificial intelligence.

Especially when it comes to NLP, semantic analyzers which are really for us new technologies, new ways of thinking and having that faculty to really adapt all the time is crucial.

**[0:17:34.6] SC:** Can you tell us a little bit about the chat bot and voice bot projects that you have launched?

**[0:17:41.8] TD:** The story started in June this year with the international hackathon which is organized by BNP Paribas group in which wealth management is very active, yeah, we have participated to the hackathon in seven countries for wealth management. Meaning, having a real wealth management challenge to address and the challenge to start for Singapore was chat bots, globally speaking, but during the weekend of the hackathon and I had the pleasure to spend 48 hours really on the floor with the start-ups.

Because of all the discussions and so on, there had been one startup who moved from the pure classic chat bot approach to the voice bots and having the ideas to have, to augment the capacity from the relationship manager. They won, sorry — the hackathon session in Singapore. Because of that, we took them and said, “Okay, when someone wins with wealth management in the hackathon, it’s because we want to do something right after.

Come with us in the factory, work with us and we want to reach the MVP with you and by the way, the 1st of December, it’s what we call the demo day. It’s at the big final of the international hackathon, it will be in Paris, we truly hope that our startup from Singapore will be a winner in that final date where all the startups from all around the world will compete for the final prize.

**[0:19:31.1] SC:** Okay. Can you give me a little bit more detail about what do you mean when you say voice bot, what is the envisioned functionality of this voice bot?

**[0:19:43.2] TD:** I will show the pitch from that startup at the summit but to summarize, it’s really in real time conversation between the clients and the relationship manager, the conversation will be listened through NLP, it will be processed, we will detect the intents of the clients, a compute

reply, not a reply that we will give to the clients but a reply that will be displayed on the workstation of the relationship manager. To guide in directly. If the client says I need to do a transfer, if I simplify, on the screen, in real time, there will be, let's say the summary of the transaction or requests and the button for the relationship manager to execute.

If the client is asking questions around a product or something very specific in terms of assets, we will find a reply and give all the information elements directly to the relationship manager. Of course, when you are dealing, let's say when you are doing transaction remotely with the clients, we have to follow many rules for the regulators and the legal context.

The discussion will be listened and let's say, highlights and guidance will be provided to the relationship manager in real time, again on the screen. So, "Pay attention to that, you forgot to say that," and so to be sure that everything goes very smoothly and behind with the capacity to execute what it is I read during the conversation.

**[0:21:32.2] SC:** Okay, that's very interesting. I recently attended an event in New York, the NYU Future Labs AI summit, NYU Future Labs is a, they've got an accelerator program called AI nexus lab that incubates AI startups and one of the startups and I actually did a podcast with them that was — went up a few weeks ago or so, a couple of weeks ago.

There's a company called Second Mind and I think they're doing just what you're describing, you kind of transient listening to a conversation and then it's almost like the old screen pop from a call center type of work station where it's in their case, the demo that they showed, you know, you can be talking about general topics and it would push the agent Wikipedia articles or directions, google maps, things like that.

You know, I think the market that they're going after is just the one that you're describing with this voice bot where you would be tying it in to business systems and really – I guess, what I'm interpreting here is kind of the next evolution of almost call center, you know, software that is kind of guiding someone through a conversation but here, you're trying to kind of augment the resources that they have. Augment their ability to access a broad set of resources while still trying to help them kind of guide the conversation toward some set of goals.

**[0:23:09.7] TD:** Yeah, exactly. At the same time, as we display information to the relationship manager, the way it will use them will give the feedback group to the artificial intelligence and the systemt thensystems, must become more and more accurate and there's really the feedback group to enrich the system, it's pretty poor.

**[0:23:33.3] SC:** How do you think this changes the relationship between those relationship managers and their clients or more broadly, the bank and the clients?

**[0:23:43.9] TD:** Again, our objective is really to deliver the best quality to the clients the best added value to be accurate, sharp, on the request you could have and so on, very fast — many topics to be addressed. Basically, the relation between the client and these relationship manager will not change so they will still discuss and so on. It's just that we will have of the relationship manager to be faster, more accurate, have a broad vision on everything that could influence his discussion with the client, it has right now, on the phone without any preparation so that's really what is very interesting in that area with artificial intelligence.

**[0:24:37.1] SC:** What have been some of the — well, can you describe some of the technology involved in the way you've implemented this and maybe some of the challenges that you've run in to.

**[0:24:48.9] TD:** I must say that NLP is the first key asset that we need. I had been really impressed by the startup who wins the hackathon session in Singapore. Because they have the blogs, their own interview processing and I am going to say that I've been amazed by the accuracy that they can reach. The capacity of learning from the system to adapt to the different accent, different languages and really their capacity too win the final. Let's say you have a kind of a personal NLP per client. So as you can hear I am not English native.

So I have an accent which of course could impact the way the artificial intelligence can understand me when I am speaking and the way that they manage that they can really adapt the understanding, relay it on the very personal basis. So even a real French, with a heavy French accent in English would still be understood by the system. So that is something very important because we need accuracy to detect the intents from the clients and then the artificial intelligence respond based from the intent find the best reply to display to the relationship

manager and have the learning capacity with the feedback based on the final model that we need and behind with the topics to get access to all the data that we have inside the bank to really think the most, because artificial intelligence without perfect input is kind of empty brained. So you have to feed that and data is really crucial. Luckily as a bank we have a lot of data to share with, so we can really put a lot inside the brain and then it's a question to let's say to make the way of thinking really shifting the targets we offer them.

**[0:27:09.7] SC:** When you describe the startup in Singapore, is this an internal startup? I envision this as an internal hackathon and this startup where bank employees or is it an external startup company?

**[0:27:26.7] TD:** No, it was a real hackathon with the external instructors with a set of startups which were from the very young startups to the ones which are already known on the market and now more mature. So it was a full fledge hackathon.

**[0:27:47.0] SC:** Got it, and is this what's the startup called?

**[0:27:51.7] TD:** So it is a Korean startup named Co Lab Test, very young startup, very promising.

**[0:27:58.6] SC:** Okay and do you have a sense for some of the technologies, the technology decisions that they've had to make in building out this platform and maybe some – I guess one of the questions that comes up frequently for me in talking about chat bots and voice bots and the like is whether they are building on top of some existing third party software or whether they've built it all from scratch and what some of the tradeoffs there are?

**[0:28:32.6] TD:** Co Lab Test is a mix so they have the blog, their own NLP and their own artificial intelligence engine and then they extend some of the capacities by using let's say other solutions. I'm really sorry I could not name those solutions because it is really at the periphery from that, but they are really, their own technology. That makes them pretty interesting if — yeah perhaps I should not say that but if our topic was to make Elixir like all the others it's still interesting of course.

Nevertheless, it's like the others and we have a strong belief that there are opportunities to really be different on the market for wealth management. And the best, of course, for the clients but really to take the most from those opportunities is not by copying what everyone is doing or at least not all the time in that area to explore at best. Yeah, we don't have to follow all the time what the others are doing.

**[0:29:47.0] SC:** Right, are there other opportunities on your roadmap that you can speak to and how you further apply AI to wealth management?

**[0:29:57.0] TD:** Yeah, I can also speak about big data. So not on how to manage big data with a loop hole other technologies but really how to take the most from all of those information in the best way. On that, we have again with the startup. This time in Paris, we have work done, a proof of concept and we are working on the MVP itself to really use capacity based on artificial intelligence which supports the way DARPA scientist and the data analyst, more classical ones, are exploring the data to find the path they are looking for, for example to detect a base on model that we can after apply to many clients. Why that client is more interested in advisory while another is more of execution only or any other questions that we can have, hot topics like attrition, client retention, to really dig into what the data in a very deep manner, you need tools and artificial intelligence is a really very interesting area to think about that.

**[0:31:17.6] SC:** Okay and what's that company?

**[0:31:20.5] TD:** So that one was Dream Craft. It's more about the neuronal approach on the data to connect all the different topics that you could explore or to find really to come on by about a specific behavior that you would like to analyze.

**[0:31:39.9] SC:** And you said a what kind of approach?

**[0:31:41.9] TD:** 'Neuronal,' is it French, 'Frenglish perhaps'. No, it's neural.

**[0:31:50.4] SC:** Neural, okay.

**[0:31:51.7] TD:** Yeah, sorry.

**[0:31:54.0] SC:** Okay, no it's not-

**[0:31:55.0] TD:** My French.

**[0:31:57.2] SC:** I wouldn't have to do the entire interview in French so. Okay, so they're helping, they've got some technology that you can apply to it sounds like that your various data lakes and big data repositories that helps you better understand, that uses AI to help you better understand what information assets are within those environments and maybe help you understand how to best use them? Is that the idea?

**[0:32:31.1] TD:** Yeah, exactly so that's the idea. So the way they manage that, I will slow down notes on let's say that delay. It can be big data technology itself. It's really the way they analyze the data and the way they translate that into let's say factors and items that can be understood by a common marketers. I hope that there will not be too many marketers listen to me because they will hate me but yeah, data can be so complex that you have really to find a way to represent that clearly. Show what are main factors which influence the results and that part is based on artificial intelligence inside Dream Craft and it's pretty efficient. So it's very understood and interesting to explore.

**[0:33:29.8] SC:** Okay, yeah it sounds like a really interesting area. In the early days of data lakes there was a lot, a lot of the effort went into trying to manually create these data catalogs that would help a marketer, a line of business person, understand what data is available to them but there's just so much data it seems like applying AI to that problem of keeping that data catalog up to date and even automatically making recommending insights that could come from the data that you have is an interesting opportunity for a large organization.

**[0:34:13.5] TD:** Yeah, exactly. And also surprisingly, you also learn about the quality of your data. For let's say the funny story, we have been very surprised that for some exploration we made, one of the main factor was being male or female which was on that topic totally kind of nonsense and in fact, we have seen that there was a mistake somewhere and a contract for many, many clients, we did not have the information if it was Madam or Sir and so on.

And then so we have corrected that. So we have of course the information in one half of our system but the way that that lake was feed, there was a mistake and that information was sometime lost. So we improved the quality of the data lake by working with the solution.

**[0:35:17.5] SC:** So, just to make sure I understand the issue here, was the issue that gender was in fact very predictive but you didn't have that data for a lot of your records or that you ran some analysis and found that gender was predictive but it really shouldn't have been and there was really something else going on that you had to identify?

**[0:35:45.5] TD:** Exactly. It is the fact that gender was very important in the result, was just a nonsense.

**[0:35:54.3] SC:** Yeah and so what was the underlying issue? Was gender correlated with something else or just something very broken in the process?

**[0:36:08.0] TD:** It was broken in the process so that's the reason why I meant that equality because in fact let's say we have a kind of bug in the process to feed the data lake which meant that for many clients. The gender was not filled in fact so it was in the, let's say the main systems but when we take the data to put that in the data lake something happened that the gender was just disappearing for 40% of the clients.

**[0:36:43.4] SC:** Oh wow, okay.

**[0:36:44.8] TD:** So based on that, we have found that issue. We have corrected it of course and then the model made more sense because suddenly gender was not a factor anymore.

**[0:36:57.7] SC:** Okay, it makes sense. Well, Thierry, can you maybe to help us wind things up, do you have any advice that you'd give to other, either CDO's at other organizations that are trying to figure out how to fit AI into their portfolio or perhaps even to companies that want to work with organizations like yours in terms of the types of things you need or things you are looking for?

**[0:37:30.4] TD:** If I have some advice, it's really to focus on the used case.

**[0:37:35.8] SC:** Always great advice.

**[0:37:36.9] TD:** Yes, really do not start with the technology. Business, it must be really in the driving seat based on the business used case to achieve otherwise you will be lost in the topic. It's too wide, it's too complex, it's very often too new. So be very pragmatic. I want to achieve that in terms of business and then it's just in brackets just a question to find the right technology or the right partners to drive that. If they can advise if you are not working on the artificial intelligence, well you should because, yeah.

Especially for the banks but for many other companies there is a strong war against cost to be more efficient, more accurate, deliver the best quality at the best price and so and so, yeah artificial intelligence is a for sure part of the reply so you have to work on that. It's about your future for your company and all the business that you can do for sure and I think yeah, that's my two best advice I could give. Perhaps a third one, yeah baby steps.

Don't try to put artificial intelligence for the whole company at once. Experiment, learn because there is a lot to learn and the artificial intelligence area is totally different from what you usually manage in terms of technologies. So the best approach is really to try, fail, try again, adapt and so on. So experiment is one of the best advice I can give also.

**[0:39:28.8] SC:** Great, well Thierry thank you so much for taking the time to chat with me. I really appreciate it and you know, I learned a ton about what you're up to and it's some really interesting stuff so thank you.

**[0:39:42.5] TD:** My pleasure, I was really happy to discuss with you.

[END OF INTERVIEW]

**[0:39:49.4] SC:** Alright everyone. That is show for today. Thanks so much for listening and for you continued feedback and support. For more information on Thierry or any of the topics covered in this episode, head on over to twimlai.com/talk/81. To follow along with the AI Summit Series, visit twimlai.com/aisummit.

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[END]

 