



Hamza Rkha Chaham:

Farming, agriculture is for me, and will remain, a central aspect of human life and of our economies, and especially on the continent in Africa. So building this company was like... (fade under)

Bruce Edwards:

Of all the different sectors that a young, excited, techy entrepreneur might want to launch a startup in, agriculture doesn't often make it to the top of that list. But for Hamza Rkha Chaham, farms in Africa are producing only a fraction of what they could be doing with a little help from satellite imagery. So why not?

Hamza Rkha Chaham:

So my name is Hamza. I actually co-founded SOWIT five years ago as a company that helps farmers on a daily basis to really make the best possible decisions. And I mean, this was a bit of the conclusion of a long path starting in Morocco where I was born, raised, before I moved to France where I studied. I got the opportunity also to travel a lot on the continent in Africa, from Egypt, South Africa, Kenya, Zambia, so many countries. And also to experience a bit how technology was evolving so fast and how it was really changing the way people farm.

Bruce Edwards:

Hamza Rkha Chaham's formative journey also included a year in Austin, Texas where he was drawn into startup culture and encouraged to take risks.

Hamza Rkha Chaham:

It was very interesting to me because Austin was a very liberal place where startups were really at this time developing very well, and where technology... And it started also with the famous Texas Instruments and so many corporates that started there... but were building a certain ground for innovation. And at this time I needed this. I needed to go and live an ecosystem where innovation was not simply something you do to build the company, but a way of life. And I loved my experience there. The culture was amazing in the sense that it was an open-minded culture where everything could be challenged and where things are built and rebuilt and challenged the day after. So I loved it and it gave me really the impression that everything was possible.

And I remember at this time when I was at UT Austin in 2013, that I attended the conference of Jeff Bezos in the university. And this was really inspirational for me to see to what extent innovation was at the core of building the United States of America. And I believe that we could in a certain way build similar ventures, of course with certain differences, but that essentially rely on making technology as a lever to develop the economies.

Bruce Edwards:

So at what point did you think that you had accumulated enough knowledge to take that and apply it to starting a startup in Africa, which is a challenge for anyone really.

Hamza Rkha Chaham:

I think when you need to start your company, especially on the continent where the perception of risk is very high in a certain way, how to say, but you need to choose to be not aware of certain risks and to choose to



close your eyes. I think that the bias for action that is required is very strong. And I think that of course if you're anxious about certain things or certain risks or bottlenecks or threats, there is no way you could actually achieve and build it because you wouldn't find enough data to build your market survey and make it rational that you need to do this step. You wouldn't find enough support that would de-risk, that would make, I mean, easy, the creation of the company and probably you wouldn't also find locally enough role models in order to make this possible.

So in a certain way, I believe that I chose, actually, to have this very strong bias for action and I chose not to get into rationalizing what I was doing. Because I knew enough the continent from my experience and all the travels and the work I did there, that if I was starting to rationalize, I may lose an opportunity to live a dream and I didn't want to lose this opportunity, so I wanted to make things happen, whatever. So that's how it worked actually.

Bruce Edwards:

That's great. So your business, as you mentioned earlier, is about supporting farmers on the continent. So how does it work exactly?

Hamza Rkha Chaham:

So farmers on a daily basis, they need to make decisions. So irrigation, fertilization, harvest, sowing, crop protection, so many decisions that at the end of the day make them profitable or not. Because of the costs that are involved because of the yield impact that these decisions entail. We are providing to farmers insights, data recommendations that help them optimizing all these decisions and to optimize this decision-making process, we rely on satellite imagery that we transform into insights for farmers. Meaning, we go from an imagery that we buy from satellite constellations such as Planet or Landsat or Sentinel and so on. And we have a processing chain with machine learning algorithms that enable to deduct a certain biophysical parameter.

So let's say, okay, I take this satellite imagery and I know that the citrus farmer is going to produce seven tons per hectare, and because I know this, I know he will not have the ability to pay back if he makes this additional decision or if he takes this additional operation. So I help him, I give him insights that help him or help her optimizing these decision making. And our job is simply to transform a commodity, satellite imagery, into insights that help farmers. And recently our data has been also used by insurance, banks and governments as they also want to use this data not to optimize operations, but to better understand risks associated to farming operations.

Bruce Edwards:

So they can better understand creditworthiness and things like that, that farmers need to do their business. So do you also support them, do those satellite images also provide information that they can use to improve their productivity?

Hamza Rkha Chaham:

Yeah, of course. So one of the information that can be used to improve the productivity is nitrogen use... the fertilizer. For example, when a cereal farmer needs to fertilize at a certain crop stage, he or she is wondering what quantity is required. This quantity is very important because the crop can absorb a certain level and over this level is going to be waste and pollution. So it's very important that the farmer is confident enough to



invest in the nitrogen fertilizer and to invest enough the right quantity in order to optimize the productivity and in order to reduce pollution.

Usually farmers, especially in Africa, tend to fertilize less than what is needed, which partly explains why they are less productive. With this kind of solution, we help them invest with confidence, invest safely in the way that they are confident that this crop is going to absorb this quantity of nitrogen. And how they are confident is because we measure the quantity of biomass, we measure the quantity of vegetation, and because they know that they have a good quantity and it's developing quite well, they're confident enough to invest. So this is a bit how it works, and it's the same system for irrigation. So they would invest in irrigation if they believe it will help them increase in productivity, and it's basically a solution that would help setting trust when doing operations and making farmers comfortable with their investments.

Bruce Edwards:

So there are tremendous technical limitations in many African countries. So how do farmers actually access this information? How do they get what you have to offer into their realm where they can actually apply it?

Hamza Rkha Chaham:

So actually it's very easy. It depends on what they can absorb and digest. So some of them simply receive text alerts. For example, you need to harvest the 9th of September if you want to reach this protein content.

Bruce Edwards:

Wow.

Hamza Rkha Chaham:

Some of them use the mobile application, which through notifications, tell them, look, you need to irrigate 17 metric cubes of water because your citrus needs this and this. And some of them even have access to a software that helps them connect all this data with their financial data, with their wallet, with other information. But obviously the last category of them, these are industrial producers and farmers in Africa do not access laptops and sometimes can barely access smartphones with connections.

So we make sure that it's available really through text messages. And we actually even go further. We have an agronomic call center and we call them to make sure they did it, to get some feedback and to kind of involve with them in the production process. And it's good that you touch upon Africa and specificity. I mean, we don't have digital highways and you don't expect any solutions to run and get the retention rate and the growth rate without having humans behind driving the behavioral change. So it's very important that your solution could be adapted to the different level of customers and their absorption level, but it's even more important that you have staff teams on the ground that get people changing their behaviors with confidence. So that's really the trade off.

Bruce Edwards:

And so what about affordability? These farmers also are, I assume are very limited in terms of how much they can pay for services. Is it affordable for farmers?

Hamza Rkha Chaham:



So I think there are three ways of seeing this question. The first is, can they pay themselves? Yes, because the cost of data now is really plummeting with the cost of satellite imagery so we have certain solutions that are less than \$10 per hectare. For the year, for the yearly subscription.

Which means one farmer that has two hectares can pay \$20 for the entire year to get all this agronomic support. \$20 does not represent more than 1% of his revenue. I mean the farm revenue. So that's first. Secondly, we focus a lot of on end-user finance. Actually, farmers are not the one that necessarily needs to pay for this because they're integrated within value chains. So if I am a milk, a yogurt or dairy company, I better have my farmers producing with the right quality if I want to get my competitive edge over the other corporates. So probably I would need to pay because probably I am asking him for an extra protein content or an extra X or Y.

So there is also end-user finance with third parties, but also with end-user finance with financial institutions. If I am a financial institution and I'm ensuring this farmer or I'm providing a loan, I mean under my strategy of diminishing the risks I need to provide him with the way that he or she can do it. So they can take it as part of the cost, the invoicing or the interest rate.

And the third is government. I mean food security today... farmers for us, they already have so many burdens over their shoulders and especially with climate change. So if you want farmers to get enough motivation in order to adapt a technology, or if you want simply this region to consume less water, because you don't have water anymore, you'd better have these farmers using the solutions to reduce water consumption. So at the end of the day, I mean we see farmer as a customer with building the product because this is where our value proposition finds its, I would say, relevancy. But regarding the business model of getting someone paying, probably farmer is not always the one that needs because his interest of course is in using the solution, but probably there are so many other organizations that benefit from him using it. And probably they need also to involve.

Bruce Edwards:

So financial institutions would also use your services to establish creditworthiness of these farmers that may need financing for some of their projects?

Hamza Rkha Chaham:

Exactly. And by doing this, not only they mitigate their own risk and exposure to certain situations in agriculture, but also they have data that they can provide to the farmer. Because if the farmer is coming, okay, I'm going to farm almonds and I'm going to do this, this, and this, and data shows that there is not enough water to farm almonds. So we tell them to switch to olives. So everyone is happy because the farmer will not marry with a farm that will have structural problems and the financial institution would finance a farmer that can pay back. And at the end of the day, we are building a sustainable relation. So the problem is that here, when you push these kinds of business models that are kind of innovative, it's hard to scale them up. Because within a project, yes, you can do it and it works, but to scale them up, probably you would require more flexibility from financial institutions.

Bruce Edwards:

So speaking of risk, so I have actually lived in and worked in Africa as a journalist for many years and traveled to many countries that you work in. And there are, as you know, a lot of challenges, pretty serious challenges



on many different levels. So there's risks, increasingly environmental risks, there's political risks, there's obviously economic risks. As an entrepreneur, how do you deal with that high level of risk?

Hamza Rkha Chaham:

So I agree with you. I think there is quite a high level of risk and also know the environmental challenge is really putting this additional stress that is hard to afford. However, as a startup, when we work in this environment, we first find local interlocutors that are really knowledgeable when it comes to doing business in this environment with the right principles, with the right values.

When facing the risk, political risk, and all this risk, we need to expand in multiple countries that are complimentary. If I do Morocco, probably it's good to do Egypt. If I do Ethiopia, probably it's good to do Kenya. So we really try to manage this as a portfolio over which one country is really more government-led data for the government. One other is with real agro-industrial producers and the last with small-scale farmers that are aggregated through an end-user finance mechanism. But we think our market development as a portfolio in which we need to rely on strong local interlocutors that provide you the right insight on the market and to de-risk with really kind of diversifying our exposure. Because the markets are not big, even if they have a big potential. And you really need to act cautiously, otherwise getting exposed to a customer or to a market in an important way could simply imply you going bankrupt at the end of this relationship.

So that's the way we see it. Obviously we tend to go to countries that are more doing business. So, Cote D'Ivoire, Senegal, are good for West Africa, Ethiopia, Kenya are very good with strong development plans. So we tend to go also to countries over which we know we will have the ability to find a way because some others have great potential, but definitely, we don't have the capacity today to face their challenges.

Bruce Edwards:

So there's so much potential in this. I mean, I'm impressed that how much this could be applied to so many agriculture problems on the continent. Do you ever work or do you have any plans of working with people in development like development agencies or who have been for many years trying to help the productivity issue on the continent?

Hamza Rkha Chaham:

Yes. We actually started working with the USAID and with the Dutch governments in order to make these solutions available to small-scale producers.

Bruce Edwards:

Like sustenance farmers.

Hamza Rkha Chaham:

Exactly, exactly. Actually, we have currently a program, we are hiring 100 what we call AgTech agents that are simply trained agents that will go on the field in their respective regions and territories and ensure farmers can ramp up and understand and build trust and get support in order to use the technology. So development agencies are critical to us because they provide us the ability and opportunity to balance our market. Which is of course, as a private company and startup, I would say really focusing on those who can pay. And with the opportunity to work with this development agency, we can find ways, business models, that really enable to



provide this data to small-scale producers. And it's been really successful with the USAID program because we have been providing data to more than 15,000 farmers.

We measured the impact of it with an external audit that proved all the water that was saved, all the energy that was saved, all the tons of carbon that was sequestered. So the impact is massive. And without this partnership, we cannot go. It's too costly, too risky, too complex. So we need organizations that would identify this level of risk we cannot take and that really choose to cover it, but provide also technical assistance for us in order to help us building this sustainably.

Bruce Edwards:

So you can be a profitable company, but also improve lives if you have the right balance.

Hamza Rkha Chaham:

Exactly, exactly. So that's our objective is once you prove what you do, and once there is a market segment that consume it every year, you don't want to make it a luxury product and you don't want to, I would say, widen the gap, the divide that already exists in the digital economy and even more in the rural areas. So you need to think cautiously about what the risk that you can end up creating and mitigate them. And one of our main mitigation plan for us is partnering with development agencies to ensure that along the development that large farms can enjoy, we are ramping up others in order not to ensure they're not left over in certain ways.

Bruce Edwards:

Just to finish off here, Africa is often referred to by business leaders outside of Africa mostly, "the hopeless continent". And a lot of business people who run businesses sort of stay away from Africa because they're not comfortable with the risk. And you mentioned that a little earlier, but how would you respond to that, "the hopeless continent" in terms of starting a business?

Hamza Rkha Chaham:

I think there are two ways of responding. The first would be probably looking at Shanghai in the sixties would probably have looked like Lagos today. And I think that there are certain optimism, willingness, contributions to the change that people need to have if they want to work in Africa. In a certain way, they need to believe that it is going to happen. And I believe that certain countries in Asia showed it, and I believe that certain countries in Africa showed it. This is not the future.

Personally, I'm from Morocco and if today I can build this venture in Morocco and hire such talents and develop this in certain countries, it's also because my country, to a certain extent, succeeded in delivering certain results and didn't succeed in delivering others. And the same goes for Ethiopia. When I go today to Ethiopia, despite all the crises, there are tremendous changes and evolutions. And Kenya and Nigeria, despite it's very, very hard, tough, and risks are very heavy, it's still moving forward.

So I believe that people need to focus on the dynamism, see the success stories, do not see Africa as a whole, really focus on territories. For me in Morocco there is a bit of Europe and a bit of Sao Paulo and a bit of Angola and a bit of India. So they really need to think with multiple scales and see Southeast Asia as an inspiration, even though it's very different and probably this very fast paced and stable growth models are not available anymore today given the constraints we have in terms of climate change.





And the second way, very quickly maybe I would hope I would answer to this is personally, I do business with purpose. When I wake up in the morning and just before sleep, I ask myself, am I happy with what I was doing today? And personally, even though if I had the opportunity... I worked in New York, in the US, I worked in Europe, but this is not where my place is, this is not where my heart is. So even though it's more difficult, for me, it's easier to take everyday hard challenges in a place where my heart belongs than challenges that are maybe less difficult and probably more interesting intellectually from a technical perspective, in a place where I don't feel I do belong.

Bruce Edwards:

So Hamza Rkha Chaham is the co-founder of SOWIT. Works in many African countries, and I'm sure that list will grow longer. Thank you so much for coming.

Hamza Rkha Chaham:

Thank you.

Bruce Edwards:

That was Hamza Rkha Chaham who co-launched SOWIT in 2018 at the age of 27. The company provides support to African farmers using technology and is now based in Casablanca, Dakar, and Paris. Learn more about his startup at [www.sowit.fr](http://www.sowit.fr).

Chaham also took part in a panel discussion about entrepreneurship in North Africa and the Middle East during the IMF World Bank's spring meetings. Check out the webcast at [imf.org](http://imf.org).

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I'm Bruce Edwards. Thanks for listening.