

## Credit Decisions through Big Data and Machine-Learning Algorithms



**Laurent Schüller**  
Head of PR & Brand  
Management

### About Kreditech

Kreditech uses BIG DATA and complex machine-learning algorithms to serve a simple mission: make faster, better credit decisions. The technology identifies and scores individuals online in seconds and decides over an instantly paid out loans based on 10,000 dynamic data points. Kreditech uses this technology to provide banking products to customers in emerging markets, where established banks lack traditional, historical credit bureau data. Kreditech applies complex credit algorithms based on BIG DATA to give people with no credit score access to financial products by partly underwriting own loans.

**Interview conducted by: Lynn Fosse, Senior Editor, CEOCFO Magazine**

### **CEOCFO: Mr. Schüller, what is the concept behind Kreditech?**

**Mr. Schüller:** The concept behind Kreditech is an app with a solution when we were founded, which is an alternative to the generally known FICO. In Germany, we have something similar, which is called SCHUFA, which is an established credit bureau that scores people in terms of their credit worthiness. Those databases are built by data that is collected over years and decades and you need a very big infrastructure and a great deal of data to evaluate those databases. What we wanted to do was to come up with an alternative solution that is able to score people's credit worthiness within seconds and within building up such a big database. Therefore, we designed an so called big data scoring system or big data scoring algorithm that is able to score people based on their online data. Everything we find about the person on the Internet by locating their IP address, checking their browser behavior or their behavior on websites, we use to get a conclusion out of this data, which is based on up to 10,000 different data points we collect at the moment of loan application. Afterwards, we come up with a conclusion and we score the person. Based on that score, we send out our own online loan or different financial services we provide to the customer. That is the big idea of what we are doing here.

### **CEOCFO: Why would a customer be looking to go outside the traditional means to create a credit score?**

**Mr. Schüller:** We are not focusing on the US, German or any other well-established market. We are focusing on so-called consumer finance emerging markets. This is how our business model was constructed and what we are focusing on. Those consumer finance emerging markets are markets where the situation for private individuals is not that far developed as in the US, for example. People in those countries normally have a big problem to get a loan or to receive any financial services by the bank. Therefore on the one side, the bank is not able to determine the creditworthiness of the customer because there is no rating agency or credit bureau. On the other side, the consumer has a need for a loan because he or she wants to pay bills for car repair or wants to redo their house. They are not able to get those loans because they cannot prove their credit worthiness. This is the reason why we are focusing on those markets where we are able to close the gap between the banks and the customers without any so far existing credit rating.

### **CEOCFO: Has something similar been tried in the past or is this brand new territory?**

**Mr. Schüller:** There are many competitors meanwhile out on the market doing more or less similar stuff to what we do with the big difference that we are focusing on up to 10,000 different data points. We do the credit scoring based on only online data, only on those data points. Other competitors for example, still use those databases that already exist, but it is a brand new territory. Basically, to explain this, when you look at the established banking sector, it did not change very much in the last 30 to 40 years because of the fact that they are able to make money out of those business models and they are making very good earnings out of it. Therefore, they do not see a need to change the running system. This leads to the fact that all established banks are normally not very willing to build a new, very innovative scoring method or lending method or services, which enables us to fill those niches and gaps. On the other side, we have to say that the banking sector is very aware of this movement in the development in the industry, there are many young companies like ourselves

who are coming up with different solutions and making things in a different way than before. They realize this, and they are willing to learn, so there is a great deal of recognition on the banking sector to screen those new business models. They are very inspired by this and look really close to what we are doing and trying to learn from it.

**CEOCFO: You mentioned over 10,000 data points. What might be something you are able to capture that would surprise people?**

**Mr. Schüller:** It might be a little bit disappointing, but there is no big magic behind that. It is just the fact that, for example, we do not see anything new that the customer could not see. We just see it faster and with more machine power on the back end. As an example to show that there is no big magic behind that, I tell you my wireless and home address that is a big church in central Vienna. You could believe me or you could not believe me. You do not know if it is right, and it is probably wrong, but you will have to check the phone book entry, maybe my Facebook address and my website as well as different other sources. Those different other sources all indicate that this address is not my address, but that I live in a castle in Munich. If I told you that I live in Munich and you look up different sources and see that there is always the same address given, then you can believe me that this might be the actual address of mine. This is how the system works: We collect different data points and look at different data sources and evaluate that data in terms of correlation and coherence, and we come up with a conclusion that the data might be right or wrong. For example, we can do this by finding some similarities. We know persons with very specific jobs, a specific income and from this or that area. If previous customers who have the same criteria paid in time, we can be sure that the next customer who has the same criteria will also be paying back in time. This is all done by this algorithm, and we look at very different data sources. We differentiate between location-based data, which is the GPS location of your mobile phone, which is where your IP address is located, behavioral data, meaning what your browser history looks like and how you move on our product website. We also use publicly available data like phone books or databases available where we can check some details about addresses. All the data will be conglomerated and will be checked, and then we score the applicant.

**“This is what we want to build in the end – a unique and centralized platform where we can offer different financial services and products at one place. Based on our big data scoring for the customer.” - Laurent Schüller**

**CEOCFO: Where are you focusing on today?**

**Mr. Schüller:** We are right now live in six different markets, which are Russia, Poland, the Czech Republic, Mexico, and Spain. In February, we added Australia. Right now, we are focusing on the Dominican Republic and Peru, which will hopefully be launched in the next couple of weeks. Going live in Peru and the Dominican Republic is a very special thing for us because they are completely different markets compared to the other markets where we are offering our products. Each and every market we have moved to so far is very different to the other markets. We focus on markets where we can really close the gaps between the banks and the customers and provide a service that was not available before. We do not want to compete with an established banking sector. We just want to deliver additional value and additional services. By that, we might move step by step into the established banking sector, but only in the way that the established banking sector was not able to get this market for themselves by building up a credit bureau system. Therefore, we are only based on our online scoring, and we deliver an online service. This is the kind of thing that gets us to the decision of whether we enter a market or not. With Peru, it is a very special situation there. 80 percent of the population there is unbanked, so 80 percent of the people do not have their own bank account. This is a very unique situation in terms of the fact that we have to come up with a very new service we have not launched so like prepaid credit cards where we enable people to wire transfer money between friends and family without cash and enable them to buy online and sell. This is how we create a new market situation.

**CEOCFO: How have you decided which markets to enter and in what order?**

**Mr. Schüller:** Basically, it is depending on very different sectors. Just narrowed down, it depends on the operational stages of the country like the legal situation. For example, in Slovakia we have a situation where they came up with a new law that only allows financial institutions to ask for a maximum APR of 50 percent. This did not allow us to go into that market with our new business model. The legal aspect is important, as well as the size of the market, like the population, how big the country is itself and how much money we would need to invest into marketing to build up some market share. All those factors have to be considered when we look at a new market, especially since we are an online service: how much of the population has access to the Internet or use mobile phones. It is a combination of different factors.

**CEOCFO: How does it work for the customer?**

**Mr. Schüller:** A typical scenario is that he goes to the website. Let us say he needs some cash at the end of the month because his car broke down and he needs to pay for a car repair. He goes to our website, logs in, fills in the details in the online form and applies for a loan. Normally within a couple of minutes, he will receive a notification. For example, he is eligible to get 500 euros because he asked for 500 euros, and we give him the confirmation that he can receive the

money. He has to confirm and we pay out the money directly to his bank account, which can work in less than ten minutes in the best case scenario. In some countries, we are even able to pay out the amount directly at an ATM. The person can verify himself at an ATM or with his mobile phone and can receive the money directly there. For example, in Poland we work with a technological partner and are able to pay out the online loan within less than ten minutes directly at an ATM. The customer does not even need an electronic cash card. He can verify only by mobile. After the loan is granted and paid out, the customer has to pay back the loan after 30 days or after 10 months or so depending on what conditions he agreed to.

**CEOCFO: *How do you reach potential customers?***

**Mr. Schüller:** We have done it mainly by online marketing such as advertising our services on websites around the globe in specific countries where we are operating so far. A couple of weeks ago, we launched our first TV commercial in Poland, Czech and in Spain, so it is the first time that we also do TV advertising. Previously we focused on online marketing because we are quite a new company. We have been operating for two years now, and we needed to use tools and market measures that are highly scalable, accurate, and that we can control in terms of budgeting and time frame. Therefore, we did only online marketing at first and now we started with the TV commercial in our three most important markets.

**CEOCFO: *I would imagine there is considerable word of mouth!***

**Mr. Schüller:** There is. Let us say the problem here is in some markets we were thrown into the same pool as so called payday lending in the beginning because our services are very similar. Especially in Poland and in Spain, there is a very well perceived business model of payday lending. Mostly, those payday lenders are not even online. They just do their business offline in cash booths. We were mixed up with them, which was not that good for us, but we are now perceived as an online lender because we moved out of the segment of micro loans and short-term loans. We now offer installments, prepaid credit cards, and we are now introducing new services like risk based pricing where people are able to check their own credit score before they even apply for a loan just in case they need to or are interested in how the system works. We moved out of the niche of payday lending and successfully established ourselves in Spain and Poland as a real online lender, which is separate from payday lending. There is a lot of word of mouth because people can lend money quickly and without depending on opening hours. You can even ask for a loan on Sunday night at 11 p.m. This is one of the big advantages that people are happy about.

**CEOCFO: *Tell us about how the banks have been receptive.***

**Mr. Schüller:** It is quite different. For example, in Germany they are very interested in what we are doing. They are excited, they talk to us, they want to learn from us and we want to learn from them as well. We just do something very new for the whole financial industry and we also have to learn a lot, try to test a lot and try to come up with the best profitable service here. Banks are willing to learn from us and are willing to understand what we are doing and how this could be really helpful or interesting for the whole industry. In other countries, we are perceived as a threat somehow. For example, in Eastern European countries such as Slovakia and Poland, the banking industry perceives those general online lending and payday lending industries as a threat for the established banking sector. Therefore, they try to separate from those industries, so it is very difficult to cooperate. In Germany, we have a great deal of public feedback and contact to established banks, and in other countries it is more or less like the market situation is so fresh that banks are feeling threatened by it.

**CEOCFO: *What is your business model?***

**Mr. Schüller:** Let me mention that we decided to stop BtoB services at the end of last year because we decided we were only focusing on BtoC. We did some BtoB business, meaning we provided our scoring technology to other partners so that they were able to score by themselves based on our technology. We stopped that for the moment because we want to focus on BtoC, meaning we are focusing on going into new markets. Secondly, we want to focus on new products and launching new and different financial products or services over the next couple of months, including the risk based pricing I mentioned where we can adjust the interest rate to the credit worthiness of the customer. We are also launching the prepaid credit cards in different countries where they are not live yet. We are launching the virtual and physical credit cards and sooner or later deposit business, but this is just the plan right now. We are focusing here on two different strategies. One is going global where we move into new countries in the new consumer finance emerging markets. The other is part of the strategy and running our new, innovative products. This is what we want to build in the end – a unique and centralized platform where we can offer different financial services and products at one place. Based on our big data scoring for the customer. When the customer hits our website, we are able to score him to understand him in terms of data so we can see the creditworthiness and financial situation of the customer. We are then able to offer him the right product at the right time. For example, when we see he has a bank account and is paying fees for it, we are able to compare other products and services to offer him a less expensive bank account from another bank. That way, we are not only offering our own product, but we are also offering channeled products provided by other partners, banks and financial institutions. The customer always gets the best or the right product he or she is looking for.

**CEOCFO:** *There is a great deal of opportunity ahead for Kreditech!*

**Mr. Schüller:** Absolutely. There is also a great deal of work. This is the big picture we want to realize to have this general platform of our own product and external products. Therefore, we postponed the BtoB strategy for a bit and we are only focusing on BtoC to build this whole thing out.

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