The Journal of

Compliance
Risk &
Opportunity

Banking, Financial Services & Insurance

CRO

August 2011 VOL V Issue 10

SOVEREIGN RISK

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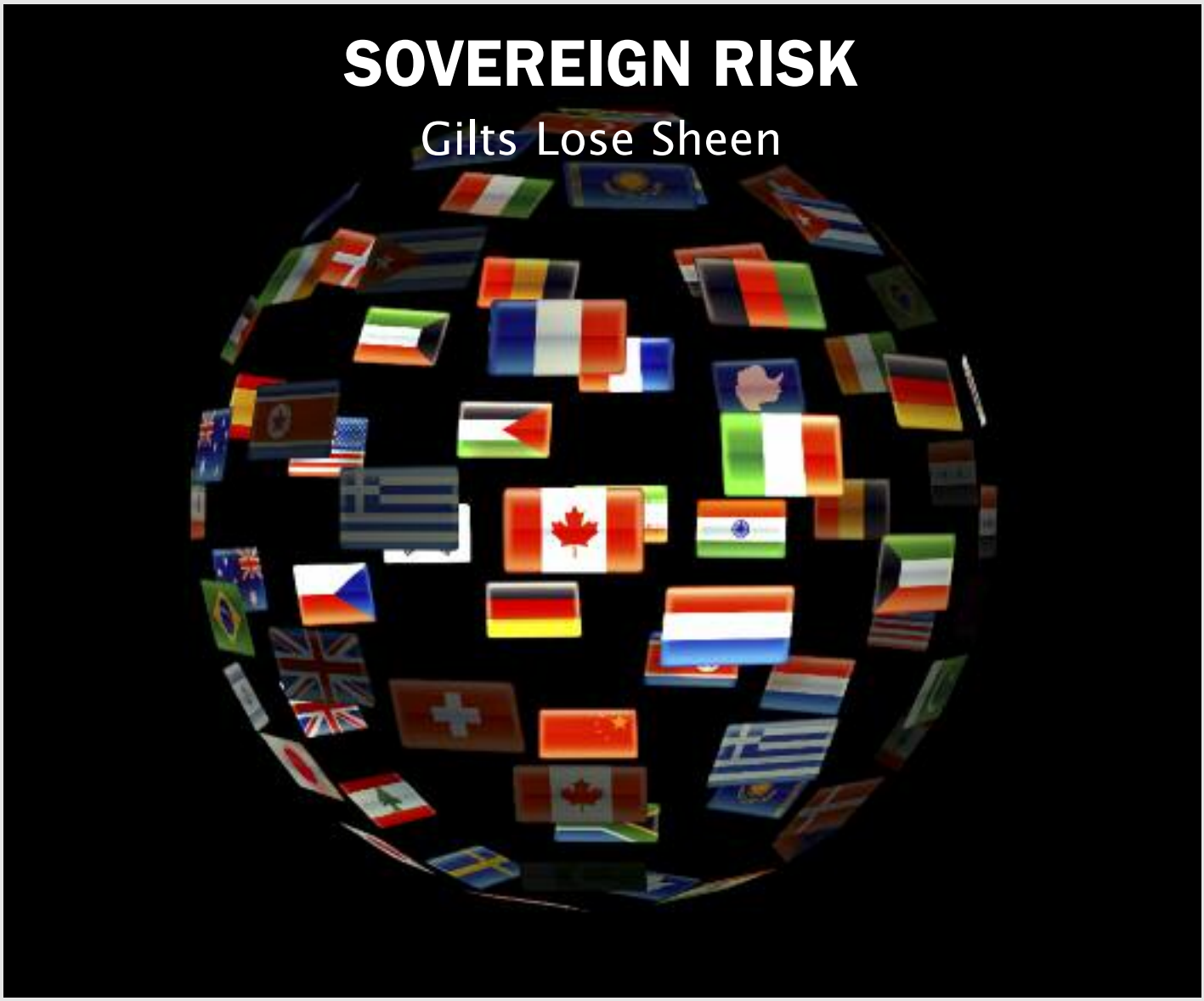

Lenddo
Credit Score

CRM on
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Innovation:
CustomerXPs

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Published monthly.

MAHENG/2006/19566.

Compliance Risk and Opportunity

Published by T S Chandrasekaran
Bldg. No. A-4, Flat No. 2-B,
Sujata Co-Op. Society, Bund Garden,
Pune - 411001 and printed by him at
Spectrum Offset, D-2/4, Satyam Estate,
Behind CDSS, Erandawane, Pune - 411004

Price Per Copy: INR 50
Annual subscription: INR 600

EDITOR'S NOTE

Sovereign risk, though not of recent origin, has now become a critical concern since this time it has affected developed countries. With persistent eurozone debt crisis and the recent rating downgrade of the US, there are very few safe havens today where the funds could be gainfully invested without undue exposure to default risk. Sovereign ratings also impact ratings of issuers and instruments in that country as the former tend to act as tacit caps with very rare exceptions. A sovereign ratings downgrade, as we are witnessing in the case of the US, can have sizeable tremors across markets and asset classes. The cover story of this issue looks into this risk. We live in financially turbulent times.

Turbulent or tranquil times, the innovative human spirit continues to work unhindered and does not seem to get affected. We document three such innovations in this issue. The first one is among six financial technology innovations selected by the Fintech Innovation Lab out of 90 start-ups. The other which recently won Fifth Asian Banker Technology Implementation Awards 2011 as the 'Best CRM Project' is an innovative attempt to bring CRM onto cloud. The third one is an artificial intelligence enabled framework for CRM as well as fraud and compliance monitoring by a team of core banking specialists.

Hari Misra

Hari Misra

INNOVATION: CUSTOMERXPS

A team of Financle product specialists have come up with two innovative software products RICE and RIMS for banking industry. The company, CustomeXPs, an acronym for customer e**XP**erience e**XP**erts, was started in 2006. Recently, the company got $4 million funding from JAFCO investment (Asia Pacific). ICICI Bank is using their products. Hari Misra of CRO talks to Rivi Varghese, co-founder and CEO of Bangalore-based CustomerXPs about these products.

CRO: Please explain in a simple way the functionality that your Real-time Intelligent Conversation Engine (RICE) provides to the users.

Varghese: Using our internal term, I would say that we are creating a customer 'aatma' (soul) inside our product which is re-factored in real time. What it means is that in real time when a customer event happens you have the entire digested history of that customer available with you. Let me give you an example. A customer walks into a bank branch, or goes to an ATM, or dials up the call center, and asks for 200 cheque leaves. This transaction is passed to the core banking system (CBS) which could be Flexcube, Finacle, or Temenos or whichever. The moment this transaction goes into the core banking system, because we are listening to it, our product immediately pushes the prompt back to the teller or the agent or whoever stating that this is out-of-pattern for this particular customer.

Our product interprets the current information based on the cheque leaves consumed in a quarter, and infers that 'most probably this customer is applying for a loan, but I am not sure'. And so it pops up the question: 'Sir, are you planning to apply for a loan?' Now, suppose two days back the same customer had gone to Internet banking and made a query for a home loan. Our product will use this partial information and infer that he is not looking for just any loan; he is looking for a home loan. In a traditional setup you have to run a number of queries and each of this query will take time to come back with results. Here you get it in a few seconds.Thus RICE could be used for cross-sell, up-sell, fraud control, compliance, risk and monitoring.

CRO: The human-like intelligence that you are talking about comes from the rules that have already been decided based on the business. So whatever intelligence I am building into the system, this intelligence would be based on what is the current state of the business which is interacting with the customer. So my next question is, is it customisable; that is, can I build my own rules as a user?

Varghese: This is a very good question. That is where the differentiation comes in. What we do is that we create out-of-the-box scenarios and templates and this is delivered to the bank. It ensures that the banks can quickly jumpstart based on these scenarios. Banks can definitely build their own scenarios making their bank completely different from other banks. So it is customisable and in fact we recommend the banks to create new scenarios.

CRO: What exactly do you mean by 'intelligent conversation' in RICE? Does it use natural language processing (NLP)?

Varghese: That again is a good point. It is not just business rules as you mentioned, the big difference is in our case we use fuzzy logic also. In our model, quantities such as income do not necessarily need to be defined precisely. It is not binary yes or no, but a degree of truth that we can capture. So you can say for a new customer that 'I do not know his salary but I am taking the cash withdrawals as a proxy and I am giving a 20 percent weightage to that. When precise information is available I will increase my truth levels'.

Use of fuzzy logic enables RICE to take in both structured and unstructured information. It can take in a chat input, social media input and so on. It could be the teller typing in what could be a conversational piece or it could be some NLP that you are doing based on social media. Our idea is to bring all these structured and unstructured pieces to a common platform and then try to extrapolate the truth.

CRO: You claim that your product was built using a multi-disciplinary approach. Which are the major disciplines that have been used?

Varghese: The product makes digested information on a customer available to the bank in a query-less fashion in less than a second. To make this happen, we have created a platform using computer science, artificial intelligence which is basically

fuzzy logic and logic elements and machine learning. In real life there is no 0-1 kind of stuff, so we used Statistics to bring everything in terms of graphs, probability curves and standard deviations. We have also used inputs from sociology and psychology.

For example, suppose there is a dormant account and somebody is trying to do a fraud; then in the conventional systems you will detect fraud after it has happened. Now, if you bring a psychological input you know that even before the fraud happens on a dormant account, the fraudster psychologically does multiple things. He will first try to do inquiries on those accounts. Nobody captures these inquiries. He will try to change the mobile number, or change the address. Then he will try to make the dormant account active. These things happen much earlier than the actual fraud. That is why we are capturing using psychological inputs.

CRO: How does RICE connect to various third party systems in the user organisations?

Varghese: We are Infosys guys, and have spent a lot of time in developing products in Finacle. We understand how to interface an ATM or a credit card system to CBS. We do not influence the transaction happening in the CBS - we only listen to it. This is a much easier interface to build than your traditional interfaces.

In the listening mode we get information through multiple models such as in-memory, triggers, log files and disaster recovery feeds. These are all non-invasive mechanisms because of the nature of our requirement. We do not need to participate in a transaction; we only need to listen to it.

CRO: Well, that is quite an innovation!

Varghese: The other innovation that we have done is a Google-like technology framework. In fact, we have used rules as a mechanism to program this thinking infrastructure. We can say that generally this happens and normally that happens and this could be a high probability, which is how our human brain thinks but there you cannot easily code it.

CRO: What does your Real-time Intelligent Monitoring System (RIMS) do?

Varghese: Let us suppose that sales staff in the bank has done a fraud. Only at the end of two months you will figure out the fraud in this particular account. Can you find out that other than this account which are the other accounts where the sales staff has shown interest? You do not have answers to any of these things because of the way current systems are designed - audits of the system captures only transactional information.

What RIMS actually does is to figure out who are the people who are showing unnecessary interest on a particular dormant account. Who are the users during the course of the day who are showing unnecessary interest on multiple dormant accounts? The unnecessary interest could be an inquiry, it could be a statement print, or it could be even someone trying to change a mobile number or trying to change the address.

Biography

Rivi Varghese *co-founded CustomerXPs after a long stint in the IT products industry. He spent over 15 years perfecting the end to end art of conceiving, delivering, marketing and selling new products. Rivi has significant international experience across 20 plus countries - a good mixture of advanced, emerging as well as the Middle-East. He has interacted with senior management of more than 200 banks and was instrumental in opening new markets for these products.*

During his stint at Infosys' Finacle as head, product management - delivery channels - he conceptualised and delivered 12 new-to-the-world products which are being used by leading banks globally – leading to some banks winning global awards for the same. As a multi channel expert, he has enabled banking in all possible channels. At Microsoft, as product manager, he was responsible for the developer tools business for India, which also included management and fostering the software marketing channel sales end-user ecosystem in the country. Rivi holds an MBA from IIM-Bangalore and B-Tech from IT-BHU.

RIMS also tries to figure out what are generally the bad users, who are generally let us say making 10 inquiries and out of them only 3 are following with transactions, others do not and a good majority of these enquiries are on dormant accounts. We can now merge these two facts together, and we can tell much in advance that there is a possibility of fraudulent activity on these accounts and by these sorts of users. That is what RIMS can do.

Similarly if in any account we find multiple fund transfers coming in from non-base branches getting credited and a large portion say 80 percent of that sum is going out in seconds or minutes or hours, then we know it is a simple method for a possible lottery fraud. How could you even know that an account is under attack for a lottery fraud?

In RIMS, we monitor the other accounts where the money is going and see during the course of the day how many times non-based branch transactions are happening on those accounts and what is happening after a particular limit has been reached. We can use this to throw an alert to ascertain from users who are depositing money in this account whether they are depositing this money in response to an SMS or an email telling them of having won a lottery. If the answer is yes, we have complete information that it is a fraud and we can stop operations in beneficiary account.

CRO: How did you get all these typologies of frauds?

Varghese: Throughout my professional career I have worked with banks. I was the head of product management for delivery channels in Finacle. While creating products like Internet banking, mobile banking etc, I have interacted heavily with banks, and thus we have enough skill sets within the company about various fraud typologies.

CRO: But still, it would require deep domain knowledge of banking and access to historical information on frauds that have already taken place, to create such scenarios.

Varghese: Since we are talking to a lot of banks, they also call us to let us know what has happened. Let me give you an example. One of these banks had called up and said that this is reported at multiple banks. In the call center the agent knows that maybe his voice is being recorded but it is very difficult for anybody to go through 24 hours of voice recording and find out what is happening. Also you cannot do a search on voice. So when he feels that a particular customer is not tech savvy, he will ask for his user-id and password and then will give it to somebody else, who will login with this user-id and password.

There is no simple way to figure out these things as they happen. Anything that you do is post facto. In our model we are trying to bring it to the point when the interaction is happening.

CRO: Are these products being used by any bank in India?

Varghese: At this point of time we are not permitted to mention the name of the bank. All I can say is that a few banks are looking at the proof-of-concept. One bank has taken both the products.

CRO: What does the bank predominantly use these solutions for?

Varghese: Right now they are going live stage wise. Next, they will go live pan-India. Once that happens they are going to use it for monitoring fraud, for cross-sell, up-sell, teller engagement, customer engagement and things like that.

For example, if a customer gets his user-id locked because of 5 unsuccessful login attempts in Internet banking, and then comes to the branch trying to withdraw cash, our system will link these two systems together, and pop up an alert to the teller to do a KYC check, giving him the customer's number.

CRO: What kind of response are you getting from banks?

Varghese: For RIMS we are finding the burning need. Proof-of-concept is based on the particular problems that these banks point out. You are aware that password sharing is very rampant in a CBS environment. Banks want us to give a solution. Some banks want it be integrated with their attendance system so if the employee has not swiped in, he should not be logging into CBS.

We are also trying to simultaneously monitor the IP address from which he has logged, and connect it to time spent on connection. Someone who has logged in from a different IP address and spent about 10-15 minutes is a suspect. Legitimate users are more likely to be logged in from say 8 AM for a longer period of time. Patterns of exceptions can be

analysed to look for staff collusion in the branch. Right now, monitoring the patterns of exceptions happening in the branch is neither being done in CBS nor during audit.

CRO: What is the percentage of public sector banks, private sector banks and foreign banks in these proof-of-concept demos?

Varghese: We are talking to foreign banks outside India. In India, all of them are equally excited on RIMS because RICE is a premium kind of product. So we pitch it to the best, largest and the most innovative banks. RIMS appeals to almost every bank. I have talked to banks with a customer base of 500,000, I have talked to banks with 10-20 million customer base; to 100-branch banks and 1000-branch banks, and each one of them is equally excited.

CRO: Your company has been around for almost 5 years; how have you kept it afloat?

Varghese: What people do not understand is when you are a product company you require 3 to 4 years to create a brilliant product. Why product companies do not happen in India is because 7-9 months down the line they start doing services and later try to create a product out of it. This kills their DNA. We were positive since inception that we will not do services; our first revenue has to be license revenue. It took about 3.5 years for us to actually create the product from ground up.

During this time the founders and our angel investor Sharad Hegde used their own money to keep it afloat until the product was ready, and as usual the first customer had to be a large customer who is very keen about it and that is typically the way we did it. For a product you need to have a lot of investments and patience, usually 3 to 4 years. Unfortunately in our Indian environment, the level of patience is very little. Most of the guys will give up within 6 to 9 months. You have to be very sure that we will get that customer, we will do it, this model is good and then continuously work towards it.

CRO: Was that customer domestic?

Varghese: It was domestic. See, if you are coming out today with an ambitious mobile or Internet banking product it is easy because the market has already defined the requirements. One can look at multiple RFPs and then get it done. You can then go and sell it as a better product. But when you are creating an entirely new product on your own you do not have a frame of reference. The only way you can survive is to have a customer close by, who has put trust in you enough, who gives you a lot of information and where you can go and experiment.

For any new innovative product, it is a good idea to have a very large customer very close to you so that you can just walk into their bank and test it out.

CRO: What made your team to move out from Infosys to float a start-up?

Varghese: We did not move out of Infosys to launch CustomerXPs. We moved out of Infosys and joined separate companies. I joined Microsoft, whereas our CPO joined Amazon and our COO joined Accenture. Yes, we were all known to each other from a long period of time and we had acquired excellent product development skills both within Infosys and outside Infosys.

Also, when we joined Infosys it was just 1000 people so you could directly interact with the senior people in Infosys and gain a lot of expertise and confidence. When a company is small you get to learn a lot of new things and you get a lot of exposure.

CRO: If you had to single out the most critical reason for success of your start-up, what it would be?

Varghese: The most important factor is that the team has to be mutually exclusive but collectively exhaustive. All the four founders have worked together very closely but we bring entirely different skill sets to the table. I am a product management, sales, and marketing person. I can view a product and say it will work, this is a new thing, but I do not have architecting skills. Lal can architect large systems. Balaji is the implementation guy. He is able to take the technology and make a branch use it, which is a people challenge. He understands that. Sandhya handles finance.

Second important factor was being in Infosys at that point of time, so we could get a bit of stock options which helped us to finance our venture.

CRO: How much time was spent on conceptualising the product?

Varghese: It took 9 months to a year for conceptualisation. After that came the state of coding and creating multiple internal proofs of concepts. And after that it was

an iterative process evolving continuously.

CRO: Which technologies and platforms were used for RICE and RIMS?

Varghese: We had to build a super system which needs a single board. If it needs to understand everything that a CBS does which is working at 300 TPS we need to work faster than the core banking, otherwise our operations will get delayed. Also, we need to work faster than CBS, credit card systems, ATMs, all those things put together. So we use Java and Linux 64-bit and to ensure that all the distributed computing can be taken care off. If you are on Linux, it can be easily ported to other UNIX machines. We wanted to bring in distributed computing from day one to ensure that we can scale up both horizontally and vertically on a very low cost infrastructure.

CRO: Now that you have got funding what would be the future roadmap of these two products and which markets would you be focusing on?

Varghese: It is actually not two products. There are two streams but there are multiple products within it. There are things for the call centre, there are things for Internet banking, there are things for branch manager, there are things for relationship managers, there are things for advisors, there are things for top management, and there are things for real time monitoring, real time transaction stoppage and so on. These multiple offerings come under the two umbrellas of RICE and RIMS. The funding will be primarily used for our development because we have a lot more new ideas to build new products, and for marketing and sales to tier-1 banks globally.

CRO: Which geographies are you more upbeat about?

Varghese: Being based in India, the Indian geography is very-very important for us because we understand the banks in India. The other geographies are Middle East, South East Asia and the US.