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View from the Top

Arcus Innovation Leaders Series

How business leaders use innovative approaches to shape their strategies.

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Innovation in healthcare: An Interview with Mr. Neil Seeman, CEO and Founder of RIWI Corporation.

How reliable is your research data? Can you trust the results in a global context? How do you engage the unengaged to respond? How do you integrate users of diverse technologies and devices? RIWI's CEO Mr. Neil Seeman says the organization's patented technology, called RDIT™ (random domain intercept technology) addresses a vital gap in the reliability and scalability of global data collection and analysis for sectors such as risk, insurance, branding, and market research.

What does it take to innovate? The majority of executives say it involves achieving technological leadership, global presence and a comprehensive portfolio of patents that will enable the company to help define the major trends regarding products, systems and services, and to offer its customers important added value. They say it helps to cut costs, increase sales and achieve higher earnings. But how does one come up with new solutions, and can innovations really be part of a strategy plan? Arcus' multi-industry survey of senior executives found that of all the challenges companies face in this area, the biggest challenge is finding ways to create a "climate for innovation".

As Arcus research indicates that to do so, you need to be surrounded by highly talented people, and you need to find a way to transmit your passion to them, so they will buy into your vision of the future, perform at the highest possible levels, and come up with innovative solutions to the challenges of achieving the vision. No surprise, then, that the topic of innovation has been gaining ground as CEOs seek to incorporate concepts like "a culture of innovation" into their assessments of a company's long-term value.

RIWI's Internet-based platform: Collecting no personally identifiable information, RIWI's Internet-based platform randomly intercepts non-incented Web users in every country and territory in the world, reaching all Web-enabled devices, including smartphones, desktops, and tablets. For example, it captures a 10% response rate globally on a 10-question survey. Those intercepted are equally at chance of being exposed. RIWI's citizen surveys therefore reach beyond paid panelized respondents, social media users, and it engages the previously unengaged – that is, people who do not typically or ever answer surveys or who do not tweet or write blogs – and it also targets respondents based on the city or sub-city area wherever they are located.

Arcus: Could you please share your vision for RIWI and how its all-device, all-country technology survey and risk measurement system addresses key global data collection challenges?

Mr. Seeman: We have seen the problem most recently in the UK elections polling flap – and in efforts to identify emergent threat, such as terrorism. At present, the US government is faced with a challenge: If it cannot measure the impact of what it is doing to fight threats of terrorism overseas or domestically, how can it prove that its methods are effective? Telephone polls are increasingly unreliable and expensive; house-to-house interviews in repressive countries are extraordinarily expensive and subject to bias; social media have a high signal-to-noise ratio (and people leaning toward a life of terrorism do not necessarily reveal that online); and legacy Internet polling techniques using self-selected panels or people who answer surveys for rewards elude the gold standard of randomization. The randomization problem RIWI is trying to solve emerged during H1N1 because, during the outbreak, we needed global, randomized opinion. We needed to know what people felt in affected areas, throughout Mexico, for example, about basic issues around hand hygiene. We needed to compare that sentiment to what people self-reported elsewhere. The re-allocation of educational and other scarce public health resources and personnel during a pandemic is critical.

> *"The randomization problem RIWI is trying to solve emerged during H1N1 because, during the outbreak, we needed global, randomized opinion."*

Old modalities of collecting data – whether they were panel-based survey modalities or even modalities that had been used in the early 2000s, such as infodemiology, which examines what people search for on the Web, were flawed because the symptomology of H1N1 was changing so quickly. The need for more reliable surveillance created the seed of the company now called The RIWI Corporation (or RIWI), of which I am the Founder and CEO. It also created a larger vision with respect to data collection: giving voice to the voiceless, engaging the unengaged, getting a tap on a randomized population – as randomized as possible – or, accessing true wisdom of the true online crowds.

While the concept of the wisdom of crowds was popularized in the early 2000s by James Surowiecki, before the rapid ascendance of social media, it didn't anticipate the high signal-to-noise ratio on the Web as it exists today. What we want to do is sift through that noise and really engage those unengaged people online. This is taking place amid a world that is increasingly wired – hence our vision of global data collection is being increasingly realized by the minute.

Arcus: There appears to be two issues today: first, the signal-to-noise ratio and second, reaching relevant targets. It's difficult to crowd-source information. I know Google has done some work with their maps. Would you say there isn't a platform today, apart from RIWI, that offers – that has such an offering - that is scalable worldwide?

Mr. Seeman: We're unique in the sense that we offer the global all-device random probability sample. We have introduced a new randomizer into data collection. There are other amazing data collection methodologies out there, and the world of data collection is exploding as we move to the Internet of Things. Mash-ups of data modalities are sometimes required. For instance, when you approach a wicked challenge such as collecting online surveillance data of Ebola (and related attitudinal opinion) in West Africa, or getting insights into the concerns of Nepali workers in Qatar who could have been affected by the Nepalese earthquake, the RIWI data feed may need to be one among many.

Arcus: Where do you see data collection in the future? It appears that scalability has become really important, reach is critical… What would be three drivers of the kinds of vectors you're seeing with regard to data collection and where would it be in 10 years time?

Mr. Seeman: We are starting to see a number of trends – first, a move away from collecting latent data on the Web. People are starting to see the limitations of data that's simply reposited on the

Web and has, as one of its most popular applications, so-called social media analytics to assess, for example, the ROI of branding or messaging. We see so much noise on the Web (for example, fake reviews on Amazon.com). There's a lot of questioning of legacy data and data collection tools and techniques, such as paid panels where you get largely professionalized panelists who opt in and are self-selected to answer surveys for rewards or cash. We're moving away from long questionnaires to nano- or micro- style surveys. We're literally drowning in data today and that's going to become increasingly the case as we move toward what is referred to as the Internet of Things.

"There's a lot of questioning of legacy data and data collection tools and techniques, such as paid panels."

We are seeing the explosion of domain names as we move to IPv6 and new top-level domain names. We are seeing the extraordinary and exciting proliferation of mobile. The wiring of Africa and the world continues – even though we have a ways to go before we reach the dream of Tim Cook and Mark Zuckerberg and even dare I say myself – to wire the world by 2020.

What we're seeing is a trend toward what we like to call, and others do as well, smart data. It is not the amounts of data that matter. The scalability benefits of having loads and loads of data are going to stop being emphasized and the conceit or hype of Big Data is being dramatically unravelled. Often you find very large data sets don't mean anything of significance. In fact they introduce risk in terms of interpreting those large data sets. We also, in my view, are seeing an increasing movement toward what is called soft artificial intelligence. What that really means is new ontologies or brackets from which you can deconstruct what the data mean.

For example, I'm on a cane. I had hip surgery, total hip surgery, seven weeks ago. What does the data from the pressure that's exerted on my cane actually mean? How valuable could it be to a clinician? What about smart fridges to prevent food spoilage? With whom should these data be shared, and what are the ethical implications of sharing the data? Are there clear, demonstrable benefits to sharing the data? A new array of data stewards and data ethicists will need to figure this puzzle out.

Arcus: What would be the base of randomization of data collection – we do see some indication that it is accelerating. Social movements have been augmented to a certain extent, by social media. Where does social media fit in to the data collection world? From a media standpoint, will the visibility and trajectory of data collection be influenced by where social media goes in the future?

Mr. Seeman: I think the power of social media to find representative samples of opinion has been largely disproven. The power of social media and social media analytics is numerous. But it has to be carefully articulated and defined. For example, social media in narrow circumstances can be very cool. If you have a very powerful brand, like Coca-Cola, or you're a prominent politician, like Hillary Clinton, and you really want to get some directionality, some insights into the brand of that individual or that product, you can mine social media and get some interesting signals. But most importantly, I think the future of social media, whether it be for finance or politics or consumer packaged goods marketing, is really in comparing the data signals that one gets from social media to the data signals that one might get from another data feed.

For example, we can look at the concordance or discordance between the RIWI data feed, which looks at the universe of the online crowds as opposed to the tiny and highly opinionated sub-section on Twitter. The future in my view when it comes to social media is really about mashing up not only one social media feed, but any number of social media feeds – and new ones are emerging all the time. And then comparing and contrasting those to other data feeds. And finally, getting some very sophisticated analytics around what the concordance or discordance of those signals may suggest.

Arcus: If we add the layer of health care in Canada, where is data collection today in Canada in regard to healthcare? At a national level and then maybe specifically in Ontario?

Mr. Seeman: I'm going to focus in on a few concrete examples in Canada where I think data collection will be affected by novel data streams when it comes to health care. For example, patient satisfaction surveys. We all know through great research that there are clear floor and ceiling effects to the reviews that are submitted by that small subset of patients, generally healthy patients, who fill out those long, often laborious patient satisfaction surveys. And we often forget about the late mathematician Abraham Wald's observation: what about measuring the satisfaction of those whom we forget about, or never listen to? The disenfranchised? The unhealthy?

What randomization streams can enable is, first, giving a voice to a more representative sample of potential patients and caregivers. In time, it can enable what I call a kind of impact measurement in ways that traditional surveys with floor and ceiling effects cannot.

Further, whether it is through social media tools or through new randomized streams such as RIWI, we can reach marginalized populations online like we could never have done before. In a country like Canada where we're quite blessed with a heavily wired population, and if your population parameter is a mirror of the Web population as a function of Web usage, then you can find extraordinary insights into people's, prospective patients', existing patients', and caregivers' motivations, desires, and needs.

In a hospital setting for example, we can gain insights into what may be important rapid improvement initiatives or lean initiatives that may not show up on the radar of patient satisfaction surveys, whether they be in Ontario or Canada. They may not register on social media listening systems. But only from both a data collection perspective and a data push advocacy perspective, can we enable more comprehensive, wide-ranging public health, and prevention or medication adherence campaigns, for say, diabetes management. Or provide insights into caregiver burdens and novel solutions to disseminating patient navigation information or mental health management information online. So I see the benefits not only in terms of data collection and insights, but also in terms of advocacy and information to support prevention and monitoring.

Arcus: If there was a specific example that illustrates how this approach differs from other approaches, could you share an example that would bring this alive?

Mr. Seeman: In January 2013 Bill Gates wrote an essay in the *Wall Street Journal* called "My Plan to Fix the World's Toughest Problems". He spoke about how, after many years of having worked with his wife at his Foundation, he realized that measurement, global measurement in particular, is the seed of innovation, and tracking measurement over time is the seed of innovation in health care. He pointed out a number of potential measurable things like return on investment in higher education.

I refer to it as a kind of intervention impact meter. We have thousands of NGOs, small, large, most of which we don't know, that are doing interesting things throughout Africa – all very well-intentioned. But we don't know to what extent in many cases people on the ground in Africa or in different parts of the world are improving and benefiting from these initiatives. We need accountability.

We need to allocate scarce resources wisely. If we spread our net and we engage the unengaged in a meaningful, random way, enabling them to give voice to their opinions on the efficacy of such initiatives on the ground, so-called situational intelligence, then we can know, over time, which initiatives are yielding sustained positive impact. So if you look at higher education for example, or education across developing nations in general, we can look at girls' rights and education initiatives over time and use their implementation as a proxy to measure whether other variables of inference (such as freedom from oppression, or other basic electoral freedoms) are benefiting from a positive knock-on effect of that intervention.

Arcus: If we talk about the last mile of data collection in emerging markets where penetration of the Internet and mobile devices is not quite high – is that a barrier with regard to data collection or are there other approaches that can address the problem?

Mr. Seeman: Currently, it's a challenge. If you take Indonesia for example, I believe it has 28% Web penetration, which is much lower than we'd like. But things are changing fast when it comes to the wiring of the world. The answer is embedded in your question. What we need to do is really complement different data solutions as the Web evolves. Currently about 78% of data collection in the commercial world is done online. However, in emerging markets what we really need to do is complement online methods and in-person methods, SMS messages for example, where you don't need to have high broadband configuration. And of course, in emerging markets, there are other technical issues beyond simply Web penetration. There are also issues related to geo-location and the precision around geo-location. We have a number of challenges ahead but that being said, I'm quite optimistic about the wiring of the world and the initiatives that organizations like Facebook (through Internet.org) and others are putting forward to wire the world as aggressively as possible.

Arcus: Can we talk about the environment? It has been a topic of significant interest over the past decade. There are many opinions about global warming, the intensity of global warming and government policy and what's being done to address carbon. How does this approach fit into that broader conversation about what governments need to do, what policies need to change, how could this solution augment some of the solutions that may exist?

Mr. Seeman: I think there are two fundamental answers to that really important question. The first is, it enables the democratization of opinion. I mean, what we're seeing now and in so many hot debates in the United States and around the world is a cacophony of binary, strongly held opinions. The reality is that world opinion is much more nuanced and complex, even when it comes to geopolitics. It simply isn't the case as we well know that all Arab states think the same way. One needs to dig deep and really understand these issues in a nuanced way. So I think the first part relates to democratizing opinion and engaging those people who don't vote, the two-thirds of Americans who don't vote, who don't express their opinion.

How do we engage them? I think that milestone is being crossed and that's very exciting. The second, more challenging problem, is an interpretive problem. And that relates to once, having gathered the data, being agnostic about the storyline. Just because we take something as true and want something to be true doesn't necessarily mean that it is true. I believe we need to evolve to a point in data collection, and I believe that randomization is a piece of the puzzle, where the storyline speaks for itself. And that's why I'm such a big fan of smart data as opposed to Big Data sets because the more variables you introduce into the equation necessarily means the more bias will creep into your interpretative findings.

"Just because we take something as true and want something to be true doesn't necessarily mean that it is true."

Arcus: That's an interesting comment on smart data versus Big Data. Do you think they complement each other or does Big Data lead to smart data? I guess there's a layer of value added of Big Data.

Mr. Seeman: We have learned from our mistakes, especially in health care. In very early HIV case sets, during the 1980s and 1990s, there was a lack of recognition of the importance of intravenous drug use, which thereby led to all sorts of false conclusions and analysis. We also have seen this with mental health research data sets. Health care has been a leader here in understanding the importance of confounding variables. This is also true of macro-finance and global macro-risk, or pandemic research… So I think the journey toward smart data had to go through the quicksand of Big Data.

For example, smart data means that when you're tracking Ebola awareness and surveillance throughout West Africa, one needs to be extremely careful about how the questions are phrased, whether one uses images versus questions or text and other formulations of data collection practices.

Arcus: In research and as a researcher, one of the things that keep coming up is "does the question influence opinion or does opinion influence the response?" Do you see a role for the kinds of questions that are asked in these data collection exercises that can have an enormous impact on how individuals think and the opinions they form? Does this approach help with the formation of opinions?

Mr. Seeman: The approach helps the formation of opinion in the sense that, by introducing randomization, you have falsifiability. So, if you ask a question repetitively to the same population parameter and it's a fairly innocuous question, and you get replicative results on a daily basis, then you can be quite confident in the data integrity of the question. That being said, the art of construction of questions and doing that in a way that absolves the question of bias is an increasingly powerful skill set, I think, in the world of data science. That is being quickly recognized. Putting aside the modality of data collection, we're going to increasingly need those who can refine and formulate the questions well and also those who can interpret the data well and do so in a manner that is sensitive to the inevitable biases that creep into human interpretation. The checking of one's assumptions is vital.

Arcus: Obviously there needs to be buy-in among decision makers in regard to a shift in terms of how they collect data today, the methodologies they use. What is the one thing you would like to see decision makers consider over the next 5 to 10 years that will help drive RIWI's business model forward?

Mr. Seeman: We're fortunate in a sense that that's happening already. With respect to our global data collection approach, we're seen as hugely disruptive, which can be a good thing and a challenging thing from a business perspective. It's been almost a perfect storm. There was consternation among global 2000 organizations for many years prior to us being recognized globally as a new solution to the need for randomized data collection. There had already been a very clear sense that legacy modalities of data collection, especially panel-based solutions and so-called 'tired respondents', or habitual respondents, were not the ideal way to go.

So we had that in our arsenal, and then, at the same time, very large-end clients felt like they needed to experiment with new approaches. There's been a real yearning for technology innovation, and again, what's happening as well is that decision-makers learn, although perfect randomization may elude us now, we do have with RIWI and potentially other solutions, a randomization mechanism which can be very exciting to really understanding what the everyday person, say, in eastern Ukraine truly thinks about Putin's aggression. That can be very powerful from an intelligence perspective and a security perspective.

Contact Merril Mascarenhas, Managing Partner at (416) 710-2727 or by email to learn more about our innovation related services and to schedule a strategic planning session with your team.