

DATA SCIENCE AND THE POTENTIAL FOR SRILANKA

Dr. Sapumal Ahangama, Data Architect and Founder of Xeptagon, speaks about the emerging trends and opportunities in data science and technology. With Sri Lanka having a well-skilled and educated cadre of IT professionals, the country can venture into high-end software and product development. Dr. Ahangama also stressed the emerging importance of cryptocurrencies, where Sri Lanka should formulate policy in this area so that it is not lagging in the global journey.

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Dr. Sapumal Ahangama, Data Architect and Founder of Xeptagon.

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how important is data science for Sri lanka?

I will explain by taking an example; if we look at the manufacturing industry, Sri Lanka has competition from countries like China and India. They have low labor costs and might have an advantage when it comes to raw material sourcing. One way that we can improve our performance and cost reduction is through the use of insights generated from data. We can achieve the targets by optimizing the production schedules using AI based real-time scheduling software. For example, in a large manufacturing facility, if we save a minimum of one percent of the cost, the savings will be in multi millions. There are many other examples from Sri Lanka where data science can be used to solve multiple issues. The applications vary from agriculture management, healthcare services, traffic control, finance, fisheries, and tourism among many others.

Xeptagon, our data science consultancy, predominantly has clients from overseas, but in Sri Lanka, we see the interest growing. Some big companies are taking the initiative. For example, recently, we had a conversation with a telecommunication company and an insurance company in Sri Lanka that needed to streamline some tasks using data driven approaches. Another manufacturing company is already implementing one of our AI driven applications into its processes. It is a good move that Sri Lankan companies are more interested in these solutions; otherwise, we will not survive globally.

the Government, in its policy direction, is taking a long term view in the technology sector. how will this take Sri lanka forward?

The President and the Government are pushing for IT education, which is one key factor in Sri Lanka. I have seen the Government's efforts where they want to increase the computer science- related students' intake for higher education. Other initiatives include the facilitation of studying for an IT degree while working, through programs offered by state universities and other affiliated institutions. The Government's focus on developing IT Parks and providing tax reductions for IT companies should be commended as the industry generates a lot of foreign exchange.

What are your thoughts on the human resources in this sector?

We have highly skilled graduates passing out from universities and other institutes providing higher education and training at various levels. We have graduates from the Faculties of Engineering and Information Technology of the University of Moratuwa, the University of Peradeniya, the University of Colombo, and institutes like SLIIT among many others. There are many such institutes, and we have a large pool of graduates with a variety of skills and talent. Very often, it is hard to find good resources because many companies compete for high quality resources. We hope that the output numbers will increase over time while maintaining the quality of the graduates. Another challenge is that many graduates migrate overseas seeking better opportunities after receiving four to five years' experience. Therefore, we need to address the issue of retaining good talent in Sri Lanka.

What is the potential for this sector in Sri lanka?

In Sri Lanka, we need to identify our specialized areas. Our target should not be to do simple business processes outsourcing or having call centers as they can be

done cheaper elsewhere. We have to make sure that we target the high-end clientele and develop high-end products. For example, if we take companies such as MillenniumIT, WSO2 and other similar grade companies, they produce advanced software products. We should keep heading where we develop software engineers and other specialists to work on advanced software products. Whenever a foreign country wants to build an advanced product of high quality, they should remember Sri Lanka's name to consider. Thus, we should push for higher quality advanced system development in Sri Lanka.

today, in Sri lanka, we find Artificial intelligence, machine learning, and data science becoming part of the conversation. how relevant do you think it is for Sri lanka?

AI has become part of day-to-day life and it will continue to be a part of our lives. Most of the applications that we use on social media run on AI. If you watch a YouTube video, based on what you watch, you will receive recommendations. Let's say you search for something on Google, and then you receive related advertisements. These programs run on machine learning.

As I mentioned earlier, application of AI is highly relevant to Sri Lanka. It is the field where we haven't still utilized the full potential. Many problems surrounding the day to day lives may have a solution if we think differently and apply AI after a proper analysis of the problem. We may use AI and data science to achieve higher productivity in the fields of healthcare, transportation, agriculture, fisheries among many others. The applications are diverse; diseases such as dengue could be controlled by identifying the spread patterns, using real time smart traffic control solutions, traffic congestions can be eased in cities, planning complete land allocation for agriculture and estimating the output, and identifying the most profitable areas for fishing are some examples.

there are many start-ups in this area. how do we compare globally?

We do have start-ups building great products as well as supporting overseas clients in their product development. Talent wise we can compete globally. However, so far, we have not seen big product brands originating from Sri Lanka in the IT sector. We haven't heard of companies in the scale of Facebook, Twitter, DropBox, or Zoom coming up from Sri Lanka. There have been several global companies, of course, and we have local tech companies supporting their development. We need to see unicorn start-ups valued more than one billion dollars coming up from Sri Lanka. It

requires a great effort to build something of that scale. It is not only technical development, you also need a great idea, a good team, mentoring and investment support.

can you tell us about Xeptagon and the services it offers?

Xeptagon is a startup that focuses on specialized software development. The office is located at the Colombo Innovation Tower. Our skill set includes capabilities of Artificial Intelligence (AI), Machine Learning and Data Science. We also have a full stack engineering team that can develop complete end-to-end software from requirement gathering to deployment and maintenance.

I established Xeptagon with the support from my professors in the National University of Singapore and Hong Kong University, where we do cutting-edge consultancy work and technology implementation in Sri Lanka. Around 16 engineers are working with us now although we started operation about a year ago. We support various high-tech software developments such as low latency products, scalable applications, machine learning solutions, and fintech application, which requires immense engineering effort. Recently, we ventured into the blockchain and cryptocurrency side too. We want to build a core engineering team in Sri Lanka, which will help to develop advanced software solutions in Sri Lanka.

Xeptagon currently provides software development services to several renowned companies including listed companies and enterprise system development consultants based in Singapore, Sri Lanka, Hong Kong, Norway, and Hungary.

can you tell us about your research and the emergence of cryptocurrency?

I am currently working with my professors from the National University of Singapore and Hong Kong University. An exciting topic these days is blockchain and cryptocurrency. It is not yet widespread in Sri Lanka, and many are not using bitcoin or cryptocurrency as yet. But globally, it is picking up.

Our company, Xeptagon, is also supporting development in this area. One project that we are working on is NFT, a Non-Fungible Token where you can buy and sell digital art. Our team also supported a Norwegian blockchain startup in the supply chain field by carrying out software development work in Sri Lanka. We are discussing with another company where they want to release their own token, and we are supporting its development in Sri Lanka.

Although not widespread, I see a small growing community in Sri Lanka interested in Bitcoin and other cryptocurrencies mainly for financial gains. With bitcoin currently at an all- time high around USD 60,000, the interest is growing.

In the Sri Lankan context, we do not see a state policy on cryptocurrency, which is essential. In 2017 and early 2018, when bitcoin hit around USD 20,000, the Central Bank warned people of the risks and to engage in cryptocurrencies at their own risk. I see similar media articles recently with the prices surging again. The Government may need to formulate a clear policy on this subject. Countries such as USA, Singapore, Japan, and South Korea have their own policies, which were drafted several years back. We need to focus on this area and take a forward approach similar to Singapore, South Korea or Japan rather than a backward approach similar to what is proposed in India. There are cycles in business trends. Bitcoin started with a value of less than one dollar, and today within a decade, it has reached up to USD 60,000. Initially, bankers and financial experts believed it to be a scam and that it did not have a future. It was mainly due to the lack of understanding. But today, many large organizations have started to see the potential, and they are joining the process. For example, you can buy cryptocurrencies using PayPal in selected countries, and you will also be able to spend on various online retailers soon. Top class investment firms such as BlackRock, Ruffer, Goldman Sachs, and DBS Bank in Singapore are gradually moving in this direction. We see a lot of institutional investments from companies such as Tesla and MicroStrategy.



Sri Lanka should take a serious look at the potential of cryptocurrency because the world is adopting it. Japan, China, South Korea, the USA, and some European countries are adopting cryptocurrency; thus, we cannot be left behind. It will be the future of finance, especially with concepts like decentralized finance (DeFi), where you can do many advanced finance processes using blockchain technology. Many applications will emerge surrounding this concept. For example, with cryptocurrency, the middleman is eliminated from the equation. Therefore, if we take the transaction of giving a loan, only the lender and the loan recipient will be involved. You can define how you are going to lend as a smart contract. With the COVID-19 pandemic, we saw many countries printing money. This is not the case with Bitcoin. Predefined algorithms will control inflation. We should have a roadmap because it might most probably be the future of finance, and we should be ready before it’s too late.

can you tell us about yourself?

I studied up to O/levels at S. Thomas Prep, Colombo 3 and then went to Royal College, Colombo 7, for A/levels. I completed my undergraduate degree at the Department of Electronics and Telecommunication Engineering, University of Moratuwa. After that, I worked in Sri Lanka for a few years at MilleniumIT. Then, I decided to pursue my Post-graduate studies leading to Ph.D. at the Department of

Information Systems and Analytics, School of Computing, National University of Singapore. I returned back to Sri Lanka after completing my Ph.D. program in late 2019. Currently I am lecturing on a contract basis at the Department of Computer Science and Engineering, University of Moratuwa. I also established Xeptagon with the support of my professors in the National University of Singapore and Hong Kong University.