

## **AAIG 2021 SUMMIT WEBINAR 1 TRANSCRIPT – ENGR. ROLANDO PAULINO**

### **Understanding the foundation of the subject(s) we are passionate about is important to OUR success in Industry 4.0**

Thank you very much Clarence and thank you for the very warm introduction and welcome. And I just want to also take this opportunity with AAIG for giving me another shot in presenting in this conference. Let me just check if I can share my screen now and kick things off with you. Okay, so good morning everybody and for those who are not in the Philippines right now and listening in our global economy right now so good afternoon or good evening wherever you are. So what I would like to share with you today is really about the passion that we have in, for me what have shaped me in the last 27 years working for an industrial company is really the fact that in a lot of the changes that we all have to undergo through there's one thing that remains constant. And that is really about understanding the passion that we have, in being passionate on certain subjects. And what is more important for me despite of all those changes that have happened is actually understanding what fundamentally is behind those subjects. So that's what I would like that the journey to bring with you, and that my background has shaped me a lot. I've been teaching with the UST now for the last six months and at the same time with De La Salle University. So I can say I'm a young educator for in the meantime but also I have a 21 year old Matthew who's actually a third year Materials Engineering student right now. And I think that experiences that I had led me to two things, and that is really about creating and making dreams possible and that our success is not just about ourselves but it's really about making others successful. So as we go through this presentation think about those two things because as educators, as students, as leaders in the academe, we have a role to play in all of that. Now people have been talking about Industry 4.0 and maybe as the first presentation I would just like to ground everybody what industry 4.0 really means and what it is. And let me tell you a story, when I was young we have a small business. My mom will ask me or my dad will ask me to support them in that business and one of the things that I will need to do is to buy materials for that business or even collect the money for people who owe us. Whenever my mom will ask me to do that she will give me a sketch of where that company is or where that person is and how to actually get there. And that sketch has been my guide to actually reach that place. And for me if you compared it with the journey that we're being here, being right now, that sketch is equivalent to more or less Industry 1.0. It's a basic fundamental. This is the map; this is where you're going to. And after that things have been a bit more advanced and I started getting maps of Manila as I grew older and as a student of UST. And then eventually as I joined the industry, GPS started coming in and that's what industry 3.0 is all about. So you have the GPS in your car nowadays that actually tells you that I'm going to a certain location, that's where I'm going to and this is the path that you can take. Now the thing with GPS is that it has a single algorithm. It will ask you the fastest or it will ask you whether you want the fastest or the shortest distance. But lately if you look at it, those especially the pre-Covid period when the traffic of Manila was just unbearable and going to work takes you three hours. A lot of us have actually started using Waze, and what Waze does is that it gives you the pathway of where the location that you want to be or the destination you want to be. But at the same time it tells you the most efficient path to do that to get there. And how does it do it, it

actually uses the information of the crowd, the people traveling the speed in a certain street and collate that and turn it into something intelligent and say look if you use this road this will be faster based on that analysis that we have. And I guess that's the reality of our world nowadays. It's about the inter-connectiveness, it's about the data that we actually have and use on a daily basis to actually make efficient, reliable decisions on the things we want to. The example I gave to you was a very simple example that we do on a day-to-day life. It's about where to go and how technology can actually help. If you expand that in a much wider sense in a business, we now have technology that actually enables us to predict failure. In the work that I do, we actually collect tons of data. But the most, the beauty of those data now is we can put it on an algorithm and tells us this particular equipment can, will actually fail if you don't do anything because of the trends that we have. And that's also the reason why with Malampaya, the energy coming from Malampaya, we can supply at a very high reliability of 99.9% because of the data that we have and because of how we use that internet to actually help us make better decisions. So that's the journey that we had in the world from that simple sketch that my mom gave me to the fact now that we can actually use Waze, and Waze telling us how the best path to actually go to a certain destination. And I'm sure there's a lot of examples that you can now start thinking about how Industry 4.0 and the use of data in the internet is actually helping you to actually make better decisions, more reliable decisions and at the same time set a path for yourself. Now I've been reflecting on this and interestingly I got this book back in 2008. So one of the things that I do whenever I'm in a country is I will go to the old bookstore shops, the second-hand bookstore, and being a nerd and being an engineer myself I want some old books on engineering. And I came across this. It's the Engineering in the Ancient World and the Asian Culture and Society. And if you just look on the contents and this book was it's in the early 90s that this was written, sorry early 1910s, and if you look at it the issues that they are dealing with not just in the Asian world but even in the time this book was written, it's almost the same things that we're actually dealing with right now. Power, energy, I mean World War II was because of Japan's search for better and sustainable energy for their country. I mean water supply it continues to be an issue for us. I mean just last year right we had the issue on having low water pressure and that are dams going down. Anything, in all of these things, engineering continued to play a very important part, right? And these things have not changed. And so the question that I have myself is if these needs are not changing, what is changing with Industry 4.0? And I have two authors with you to share some thoughts in that. And one is Michael Sandel who wrote a number of books on justice and the Tyranny of Merit. And in latest books he said, *"In the new economic order the notion of work tied to a lifelong career is over; what matters now are innovation, flexibility, entrepreneurialism and a constant willingness to learn new skills."* Yuval Harari also said in his book 21 Lessons From The 21st Century he said, *"In the 21st century we're flooded by enormous amount of information ...,"* we're talking about beyond Waze here, right? *"People need the ability to make sense of this information to tell the difference between what is important, what is unimportant and above all, combine many bits of information into a broad picture of the world, and in order for us to keep up with the world of 2050, you will need not merely new ideas and products but above all reinvent yourself again and again and again."* Which actually made me reflect that, what remains constant is really about understanding the fundamentals because for you to learn new skills and be able to adapt and to be able to make sense of all this information that we have you need to have a very fundamental

understanding of subjects that you're really passionate about. Just think about it, as a doctor, a doctor with the help of new MRI technology, with the help of other technology where they can actually go inside the body, they still need to step back and analyze what am I actually doing here, what am I trying to do with this person, and I by doing this am I curing him or her, am I promoting wellness? And a lot of these things if you look at it whilst artificial intelligence and machine learning can actually help us analyze, there's still one thing that artificial or machine learning cannot actually have. And that's the ability to have an emotion, and that's the ability to have empathy with others. And this is a very important skill that a doctor, a dentist, a nurse, an engineer, a leader in the industry needs to have. Aside from all this information where certain equipment and tools can help you, if you look at it, empathy and the emotions around it, it's not something that AI can do. And that pretty much is actually grounding us to really understand what the technology and what do we really need moving forward. I want to share with you just a graph of how I see careers of people and how I see the career that I had for myself and as an engineer. Now when I started my engineering degree at UST, definitely there was an increase in my technical skills. I learned to understand the beauty of thermodynamics, I learned to understand why stresses are both important and dangerous to our equipment and to the design that we have. I learned to understand that behind this technology and the technical things that I'm doing, I'm also doing it for something bigger. And that's really being part of an organization and being part of something that actually helps others to become successful. And I think we all go through this path, that from doing our degree, we learn a lot and then as we go along the need for that technical understanding becomes less and less. Now I want to emphasize on this area of that graph, because it is important that as we spent more time in leadership roles, in roles that actually makes a lot of impact and difference, as doctorate researchers, as educators. What is more important is not the vast of knowledge that we continuously have. It is important to continue to develop ourselves but it's what's more important is that we have the understanding of what's really important. And it could be the foundations of thermodynamics, in my case; it could be the foundation of biology. And because a lot of these things doesn't change through time because by understanding that fundamental, it enables us to think more clearly so we can actually influence more what can happen in the future. And I would like to close with this in a challenge that I put into this summit. If you go back to my first line about my journey from Industry 1.0 to Industry 4.0, it is important to understand that. But for me it's not about waiting for the future to happen. For me what is more fundamental is actually being able to do the things we want to do now and start influencing the journey that we have. And there are three things that we can do together not just in the summit, in the classroom, but also in the offices that we're in. The first one really is about falling in love with the subjects that we're passionate about. We don't need to fall in love with the same subjects. We just have to fall in love in the things that we really want. Because falling in love in those subjects allows us to contribute and be complementing one another. It is important that in falling in love with those subjects we also understand the fundamentals around it. The second thing that we can do is really about communicating, engaging and actively participating in the discourse especially nowadays. I think the information that we get as Yuval Harari said is just enormous, and it is important that we be able to focus that information and be able to process that discussion in something that is tangible for us, for us to make sense and allow us to use that information to adapt to new skills. And maybe last point really is, whilst as we continue to

be a world of commerce, whilst money continued to be important in the decisions in the work that we're doing, it is important that leadership skills of empathy, listening, finding your own purpose, communicating and collaboration continue to be an important and fundamental part of the education system that we have but also a very important part of the society that we continue to live with. Thank you very much for this opportunity.