Technology forecasting for strategic decision making - An Introduction
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Why do we need technology forecasts?
Questions in Lecture 2, part 1

Prof. Bala Ramadurai: This product is an aggregator of many communication products that we use on a day-to-day basis. Several of them are aggregated. And I was talking to a colleague, and what I said was this, we were earlier. So, if you are working and you have to work uninterrupted, to be more effective in your job, to be immersed in your job, or to attain the flow state as they call it so that you can be at your best.

You need to have the interruptions go away and focus only on your job. What this communication product was doing was, all the communication products tend to do is to notify you and interrupt you from that flow. What this integrated product was doing was, it was efficient in interrupting you. So, it is great in what it was doing, which is interrupting you. Instead of getting interrupted by 7 different applications.

You are gaining interrupted by 1 application 7 times. So, it is not doing the right thing. It is doing the wrong thing, but very very efficiently. So, thank you so much for that, this is something that I learned from you. One question regarding invention to innovation. I think you sort of answered this question already.

But I still would like to ask this in your example of the concept of James Watt, Steam Machine to the Stephenson's steam engine, locomotive working is 55 years. Is this 55-year spent in one, this is my guess is to pick out the right alternative that really works stands the test of time or is it setting up of the ecosystem in which the intervention works? Is that why it takes 55 years? I am not able to rationalize, what is going on in these 55 year?

Prof. Dmitry Kucharavy: Yeah, thank you very much for this question. Because, if you ask this question to different people from different backgrounds, they will answer differently. If you ask engineers, the engineers say, “Okay, we needed additional inventions in order to improve the efficiency of this engine.” If you ask people from social science, they say, “No, we need these years in order to demand will appear.”

But in fact, everything happens in the same time. They do not sit. They do not work differently, from one point of view within these 55 years, of course, some new inventions appear which

improve the efficiency of low-pressure machine of Mr. Watt make it more affordable. From another point of view, the knowledge of people who are capable to build such machine, the more and more people you can compete with to build such machine. The knowledge grows, it needs time.

In the same time, the demand appears, the demand appears for the transportation. Do you remember the history of locomotive was most impressive in United State, where we have a much longer distance in the country and less developed infrastructure, because infrastructure in Europe, we already had the canal's, through canal's, we could transport the goods? Well, in the US to build canals for so long-distance was not so economically interesting.

So, the demand starts to grow. Everything happens and when Stephenson, he started to build all of this. His plan, the infrastructure was already prepared, ready to start? We already had steel production for the railroad. We already had knowledge. We already had regulation, which is really important. The regulation the laws which protect Mr. Stephenson. When he is taught to suggest his product on the market.

So, these 55 years, it happens not only to improve technology, but to improve knowledge, to improve legislation and infrastructure altogether and of course, to have a demand, which will, in fact, boost the evolution of the technology because innovation do you remember, and innovation happens when we have customers who are ready to pay for this product or for this service because this will show us better performance than before. Did I answer the question, Bala?

Prof. Bala Ramadurai: Yes, absolutely. So, now I get it. So, many things are happening. And one is like we often discuss the TEES, which I am sure we are going to cover in the subsequent modules also, technology, environment, economical, and societal. So, all of these factors play a big role in bridging and not bridging the gap, that sort is happening between this invention to innovation. Another topic, again, that I know for a fact that both of us like this topic is hindsight bias, particularly hindsight bias.

Now, that we are armed with all this knowledge about history, and how about how things have evolved, particularly if somebody is interested in predicting the future, rather, doing a technology forecast for a particular technology? Is this bringing in bias from their past? Are we introducing bias by now even starting to study this? And the hindsight bias, is it going to start to play? And I know I am sure we are going to address this later on also, but I just want to get this thinking started for our learners.

Prof. Dmitry Kucharavy: Yeah, we always start with our biases. But what is a real challenge for the forecasting, we need to find a team, a team of collaborators, who will provide needed necessary knowledge from technological context from economic context from social and from environmental context, and they have to be efficient enough in order to work together.

And this is, this is a success of technological forecast. Technological forecast is not possible, just from point of view of an economist or from a point of view of specialists in technology. All they are trial to do so for the long term was not so much successful. Okay, thank you.

Prof. Bala Ramadurai: Okay, thank you so much, Dmitry. Thank you so much.