Issue 15/2025

The Engineering City Journal

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The purpose of the Journal is to disseminate knowledge, experience, and best practice in engineering & manufacturing.
The articles are written by practicing professionals in the Engineering City (EC) in Yerevan. They cover issues relevant to their projects, operations, and organizations.
The articles address the challenges of the time. As such, the Journal is also a chronicle of the evolution of the EC, its companies, and its individuals.
It is the aim of the Journal to advance the engineering & manufacturing practice, to enrich the engineering & manufacturing community, and to contribute to the worldwide discourse in engineering & manufacturing.

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Engineering Management Corner

. Don't think Products, think Technologies

by Rama, Engineering Association

As we design a new product (or solution), we must firstly identify what technologies can we design into the product. We must focus on designing and developing these technologies first, not the product. The product becomes just an integration of these technologies.

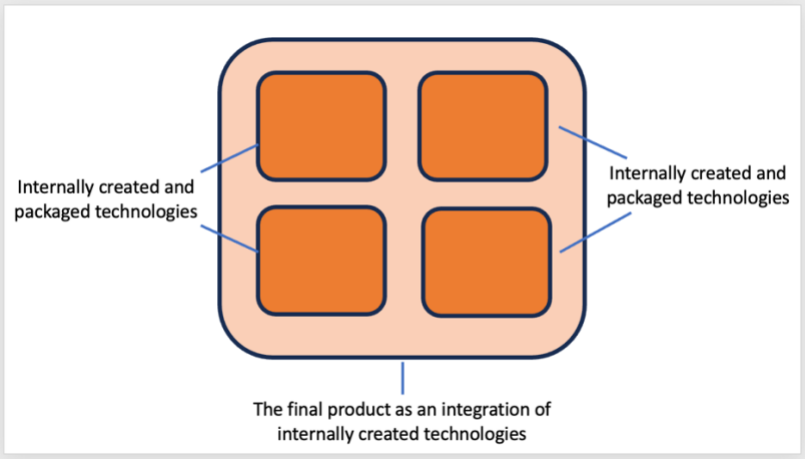
As such, we become technology companies. The benefits of technology companies are manyfold:

1. Firstly, the technologies that we develop could be re-used in other products as well. As such, they reduce the time of the development of other products.

2. Secondly, the technologies could be sold as technologies to other companies as well.

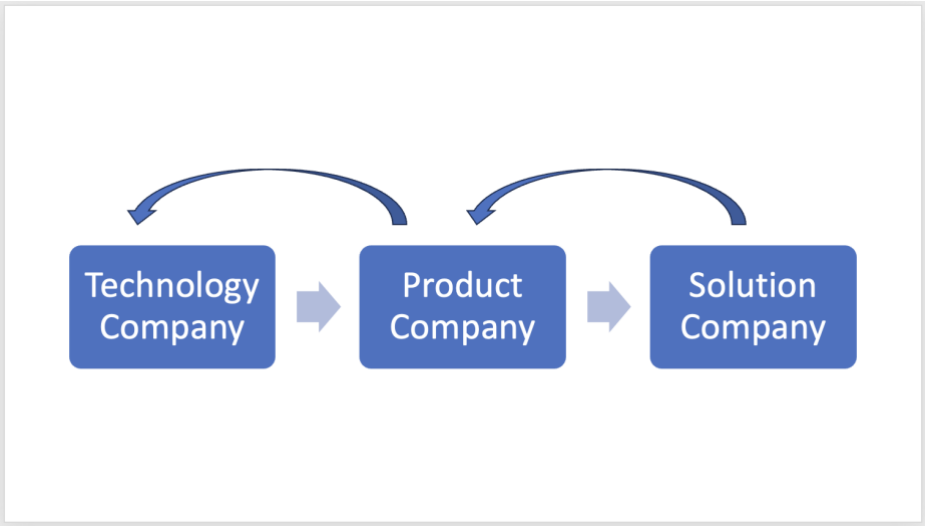
3. Thirdly, technologies packaged as IPs and patents raise the valuation of the company.

So, next time we start working on a product, we must first start with identifying the new technologies that we can create for this product. Then, we would design these technologies and package them to make them usable and re-usable. Only then, we would start designing the final product as an integration of these technologies.



Pic. The final product as an integration of internally created and packaged technologies.

As such, we would have completed our movement from firstly being a solution company, then back to being a product company, and finally back to becoming a technology company.



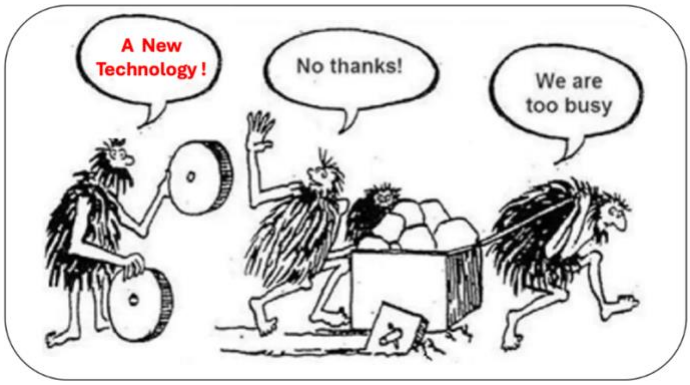
Pic. The evolutionary movement from solution company to technology company.

. Armenia as a "Center of Excellence" for New Technologies

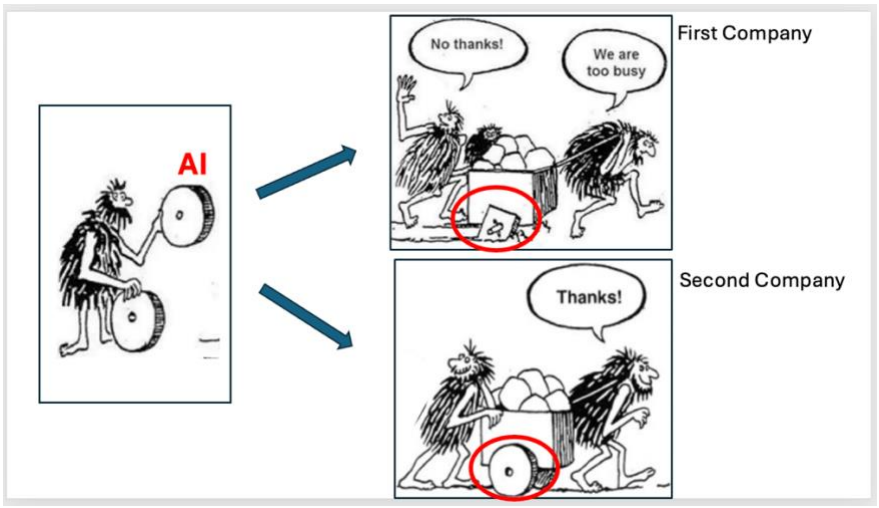
by Rama, Engineering Association

This is one of the best pictures that describe the resistance to progress, to innovation, to the "new" in general. This progress does not have to be material progress, it could be process innovation, it could be social progress, it could be new management ideas.

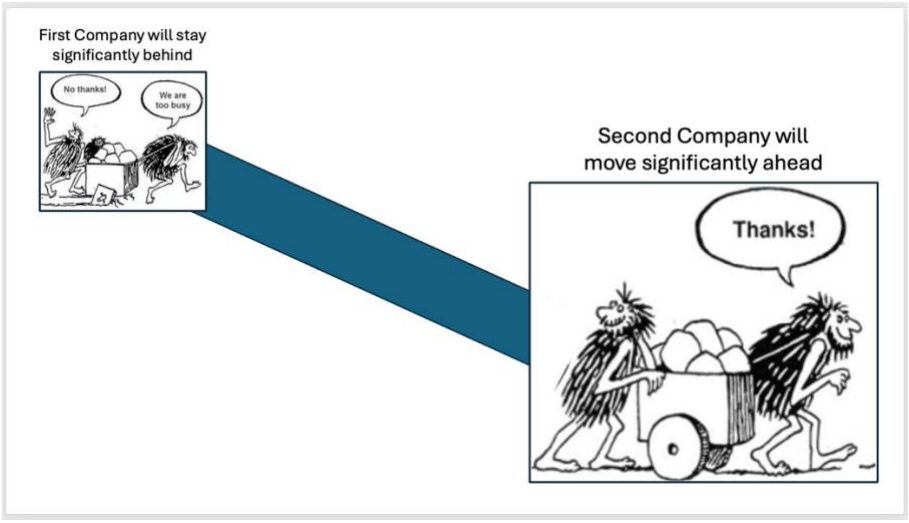
We are all guilty in this resistance. Because we all are used to the status quo, we have all adapted to the current ways of doing things, we are all used to the current technologies – technologies that turn old as soon as a new technology appears.



As soon as a new technology appears, there are two ways that a company can react – one will stick to the traditional way, the other will welcome the change.

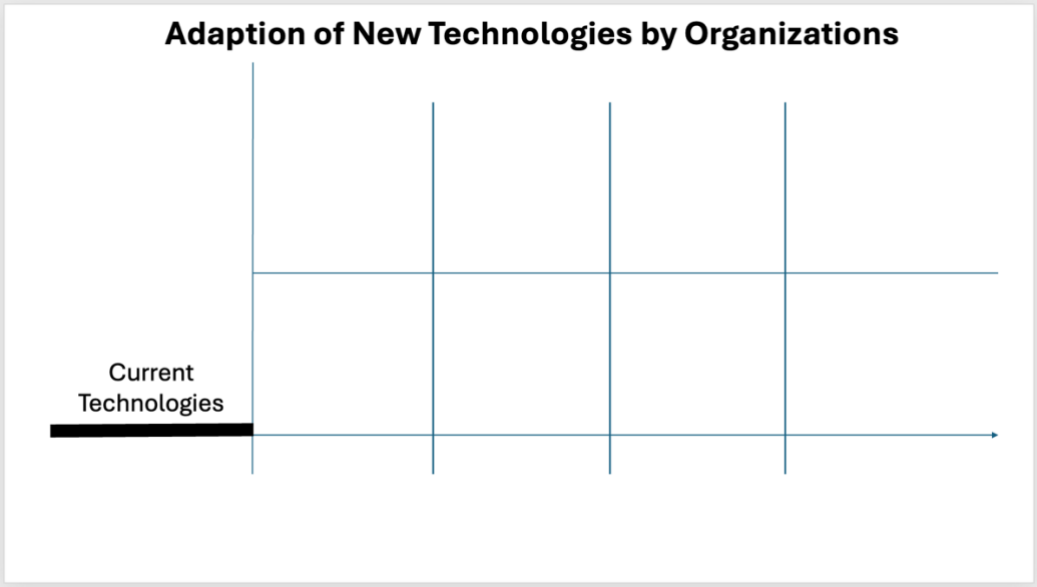


But it is the ones who switch to the new technologies that get an early advantage of the rest. Why is it important to get an advantage? This is because we all work in the market economy, and the market economy means fierce competition, and competition is about market positioning and getting advantage over the competitors.

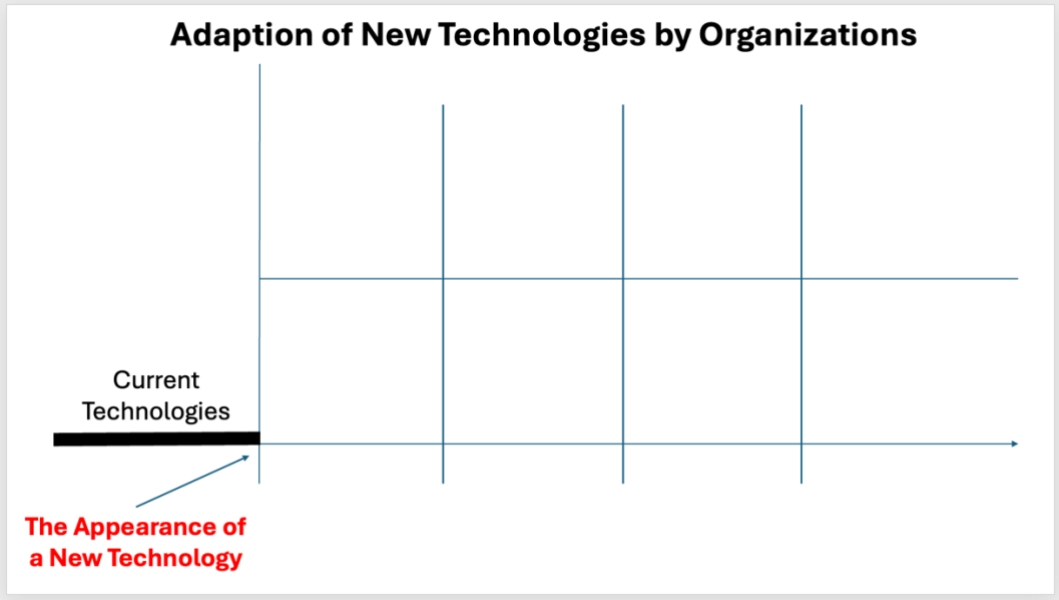


Let's look at the adaption dynamics of a new technology in the marketplace.

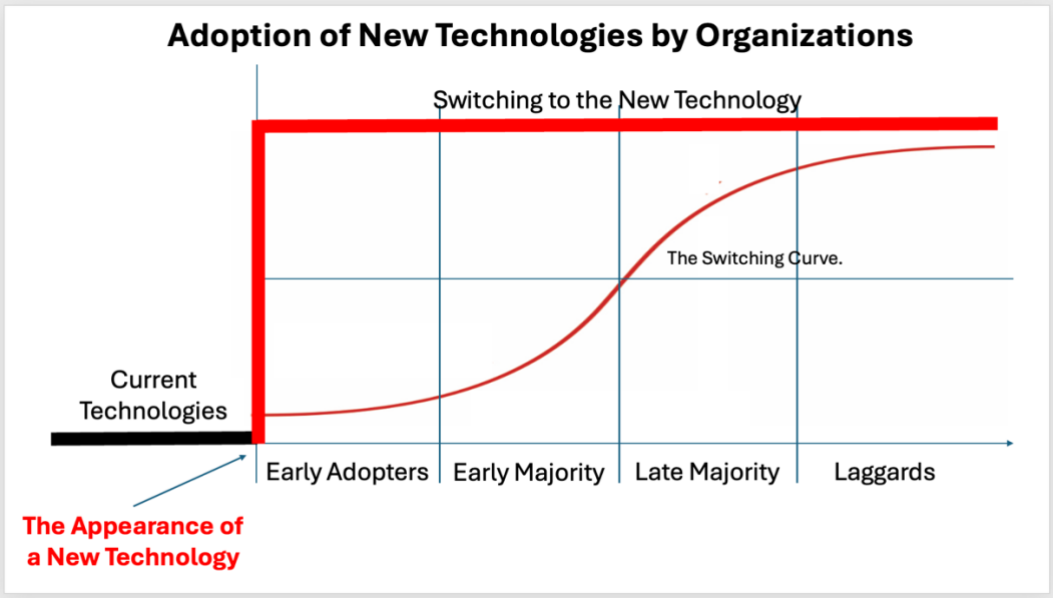
Let's start with a current state. In the current state everyone is using the currently available technologies.



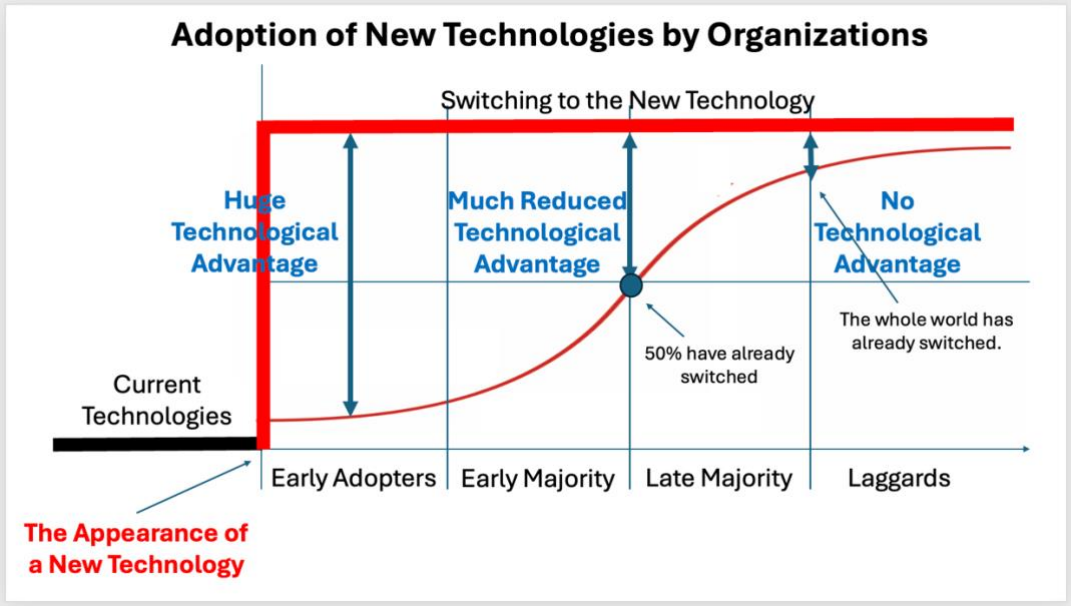
At a certain moment, a new technology appears.



Not everyone will switch to the new technology right away. The adoption of the new technology by companies will be spread in time. The people who will switch first are called the "Early Adopters". They will switch first. They will be followed by the Early Majority, then by the Late Majority, then the Laggards.



It is the time at which a company switches to the new technology that defines its advantage over the competitors. If we are an early adopter than the technological advantage over the competition is huge. In the middle of the curve, 50% of the companies will have already switched, hence the technological advantage is much reduced. If we are a laggard, then this means that the whole world has already switched, so that there cannot be any advantage of using the new technology.



So, when must we switch?

Here I recall the directive given by Paruyr Sevak:

«ՉՈՒՇԱՆԱ՛Լ, ԵՏ ՉՄՆԱ՛Լ», –

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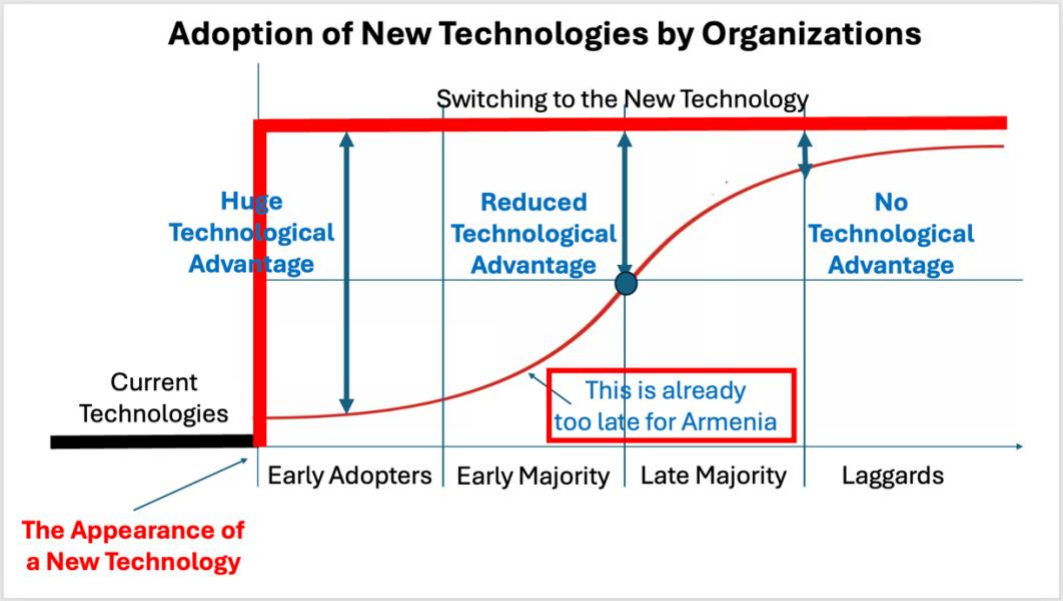
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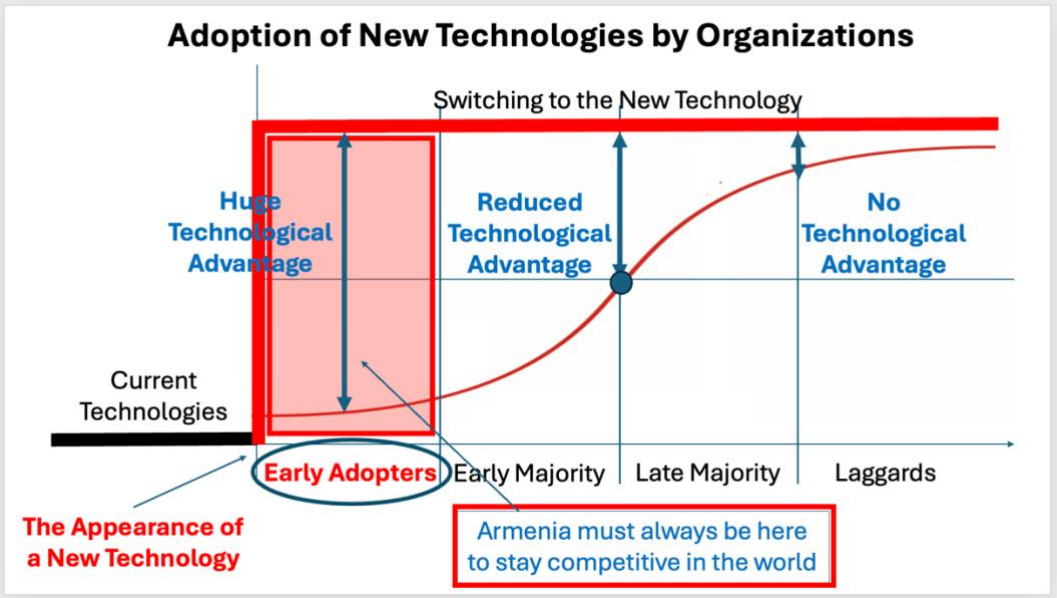
What is considered late for Armenia?

Armenia, being a small country that is always searching for its place in the world and for its contribution to the world, Armenia can be valuable only when it is an Early Adopter of new technologies. Being in the Majority is already too late for Armenia. This is good for big countries, but late for small countries.

As such, new technologies are the life lines for Armenia, and we must seek them out at every turn – not just to be ahead, but to survive.



Armenia must definitely strive to be always in the Early Adopters of the new technologies. This must be embedded in the psyche of its people. Armenia must be the lead user for the new technologies.



The formula could be:

Armenia as a Center of Excellence of New Technologies.

or

Armenia as the Lead User for New Technologies.

. The Purpose of using New Technologies in Engineering Organizations

by Rama, Engineering Association

It could be said that the purpose of any new technology could be reduced to one purpose – and that is the reduction of time.

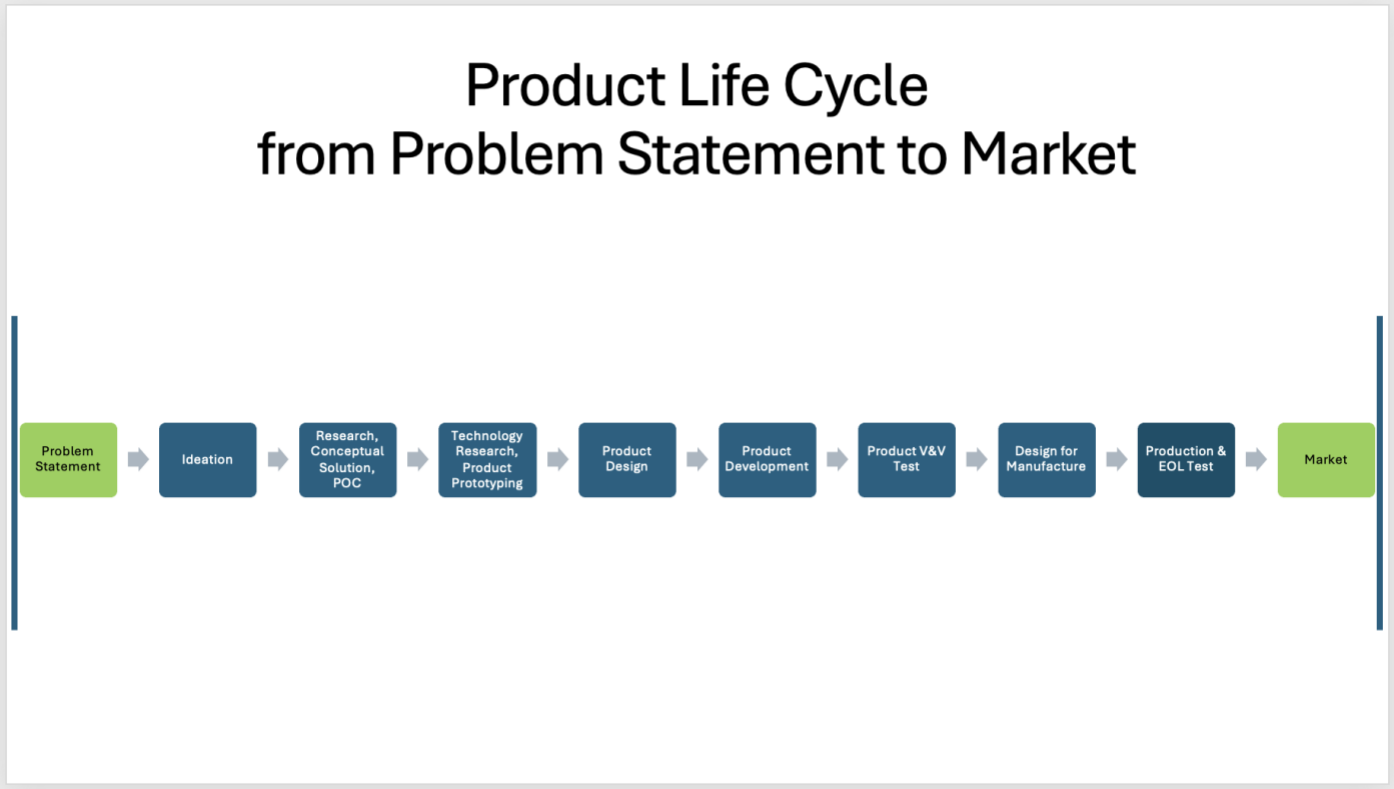


In our case, it is the reduction of time to market. Meaning, how fast can we put a new product to market before the competitors.

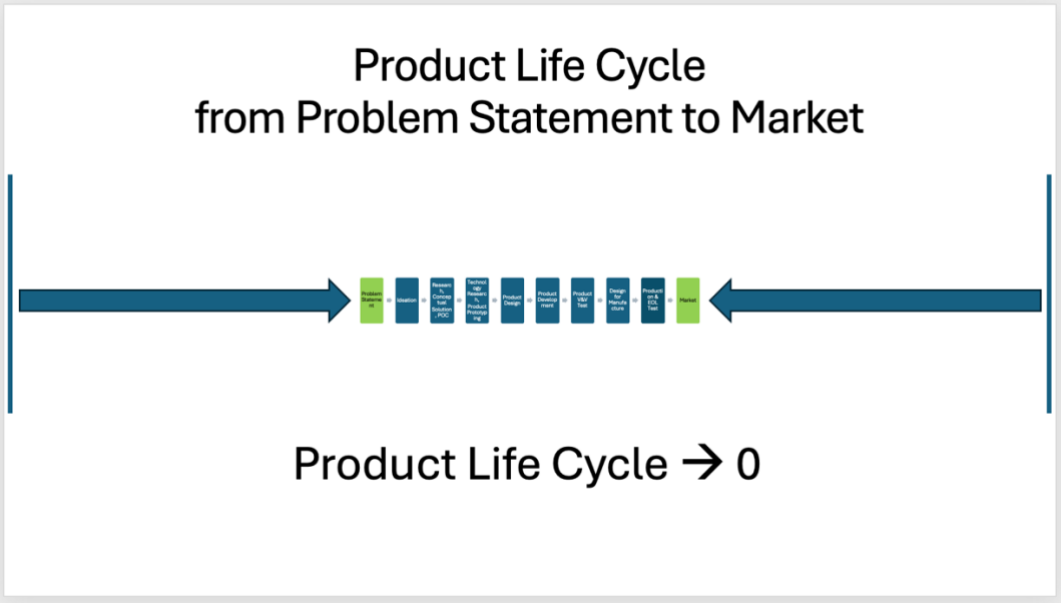


In engineering companies, that would mean – how long or short is the product life cycle from Problems Statement to Market.

Below is a picture of such a product life cycle in engineering companies.

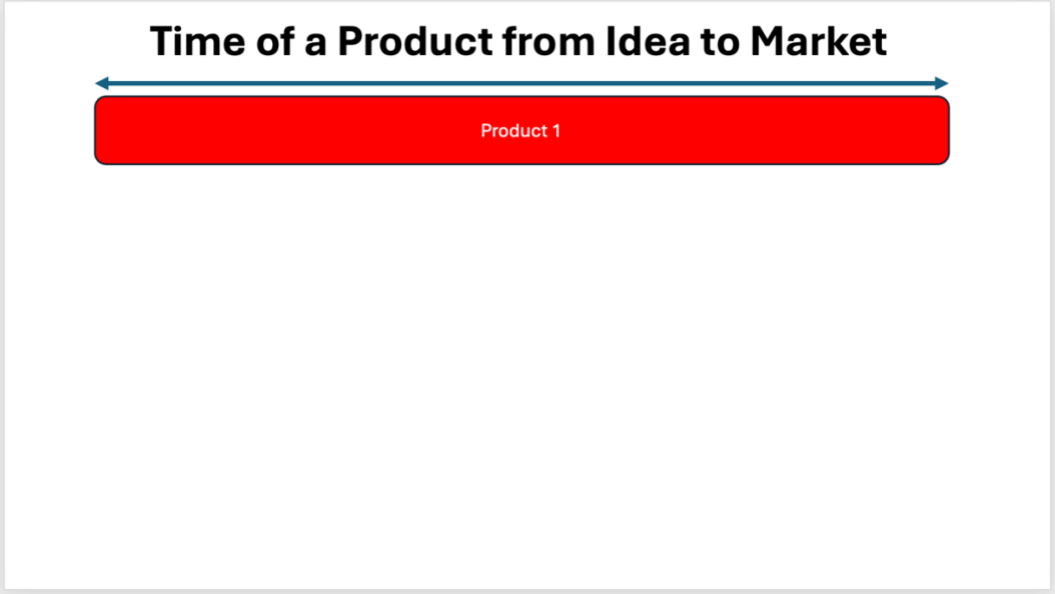


So, introducing new technologies must continuously shrink this time to reach zero.

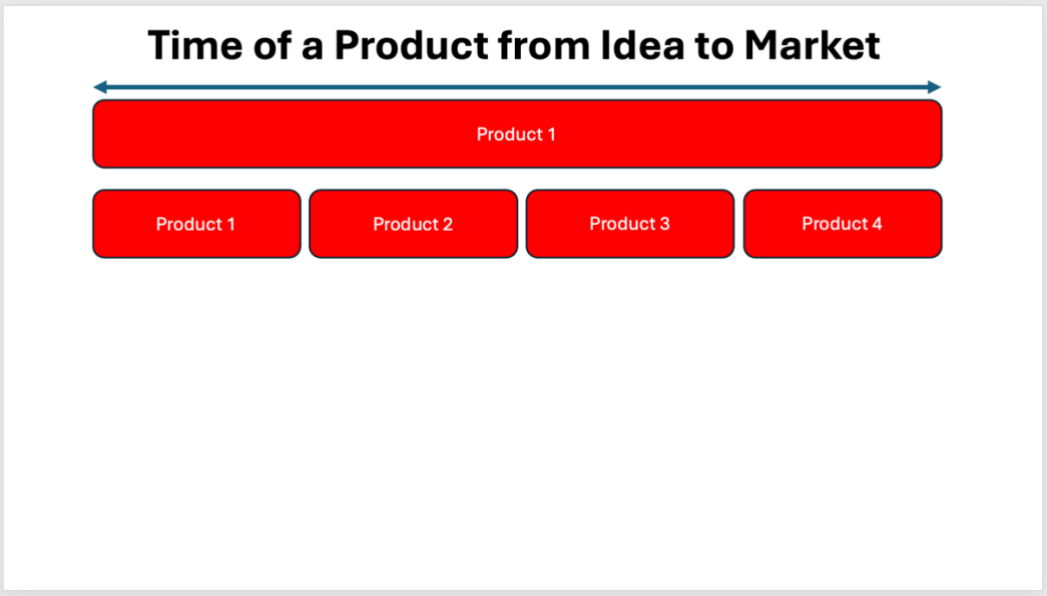


This phenomenon could also be shown differently.

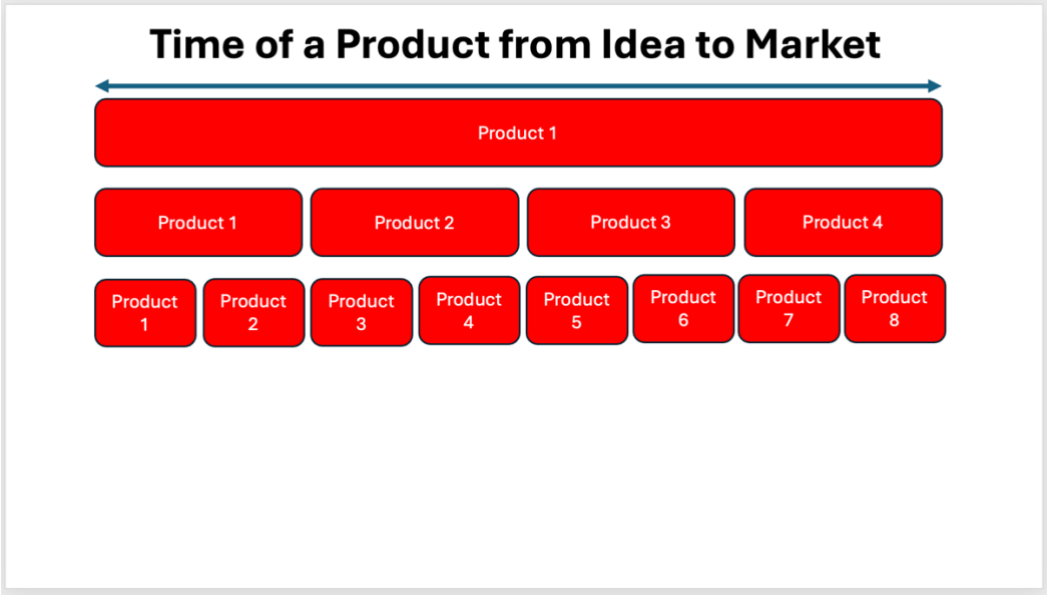
Suppose that withing a certain time frame we could put one product onto the market:



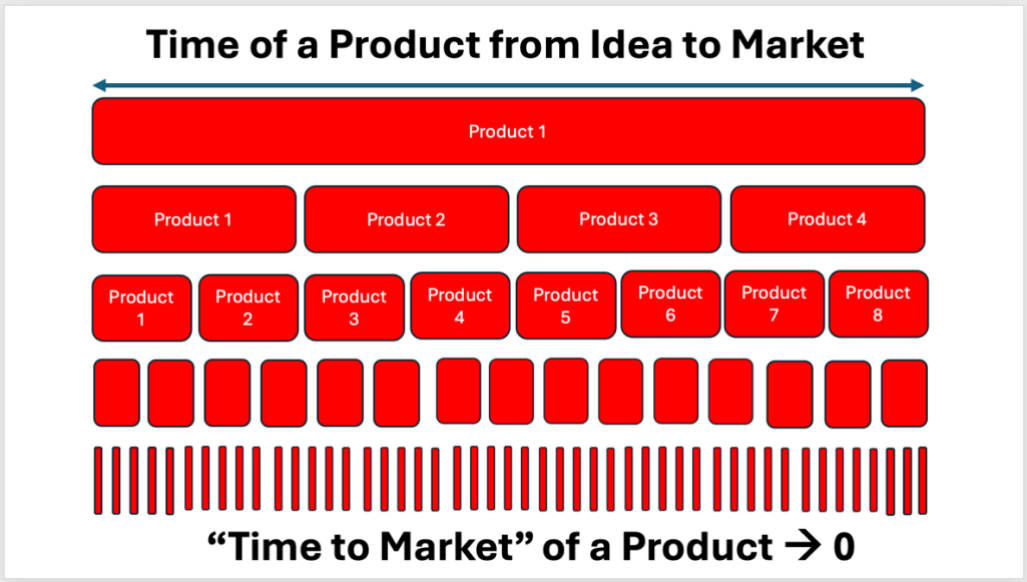
By introducing a new technology we could, say, produce four products to the market within the same timeframe due to the reduction of the product lifecycle time.



And then, we could produce, say 8 products withing the same timeframe.



And so on, till we could put an unlimited number of new products to the market within the same timeframe.



So, competition becomes about who can put more new products to the marketplace within the same timeframe.

Now, what will we have reached with this?

We will have reached a state where the time that engineers possess to work on New products get to infinity.

Would this not be heaven for engineers?



EC Community News Corner

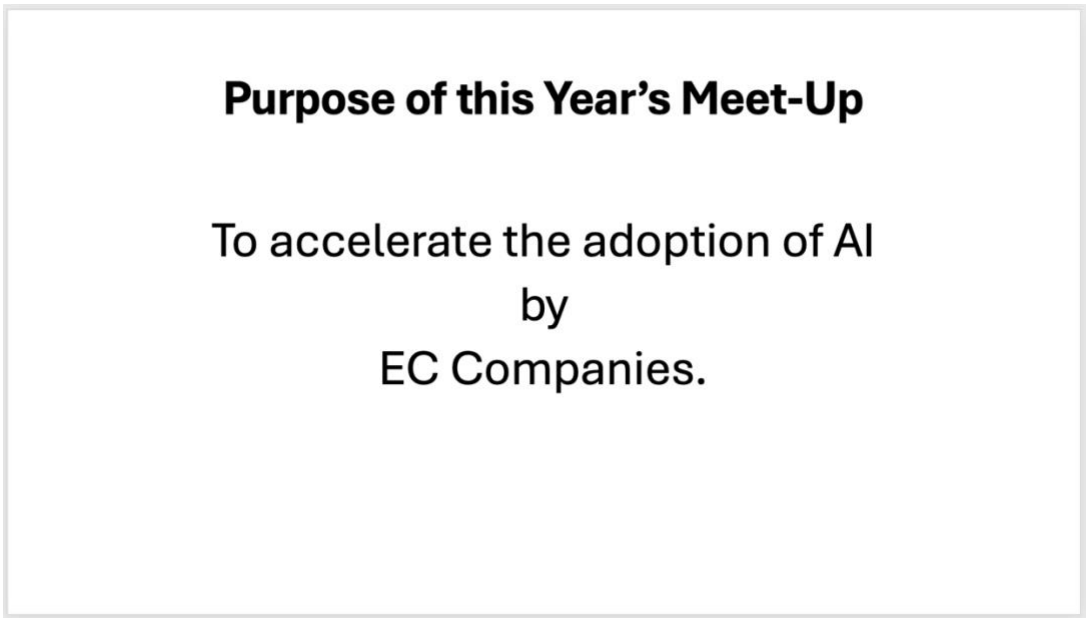
. EC Meet-Up – "AI in EC"

by Rama, Engineering Association



Pic. EC Meet-Up, August 8, 2025

The purpose of this year's Meet-Up was to accelerate the adoption of AI among EC companies.

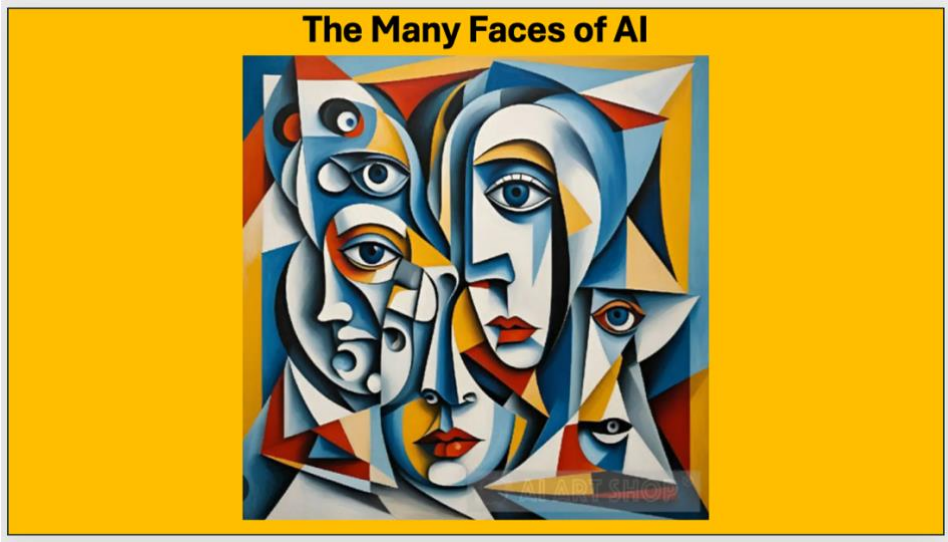


Some companies have gone further down the road with AI; some have even hired AI Engineers; others have just started.

Why is it important that all EC Companies get on AI together?

Because AI greatly accelerates the product life cycle. And since companies are already getting into joint projects, it becomes necessary for all to work at the same speed.

But, more importantly, AI has many faces, and not all faces are familiar to all companies. Companies may be using AI for one purpose, not knowing that it can be also used for other purposes as well.



We attempted to show some of the faces through the following presentations:

Name	Last Name	Organization	How I use AI in my Work
Engineering	Association	EA	Introduction
Zaruhi	Mkrtumyan	NI	AI in Content Development
Andranik	Aghajanyan	Project Integration	AI Copilots for Academic Products
Davit	Danielyan	NI	AI in Support Services
Evgeny	Ivanov	Amungo	Use AI for RADAR targets classification and diagnostic
Artur	Galstyan	ATG	The use of AI in ATG products and overall company development
Davit, Zaruhi		NI	Driving AI Adoption in Engineering Site
Narbeh	Nahapetian	YEA Manufacturing	AI in Optimization of Pick & Place SMT Robot
Zorik	Markosyan	YEA Manufacturing	AI in Oven Temperature Profile Regulation
Hrach	Yaralyan	CIPR Aerospace	AI in Space
Grigor	Shirinyan	DigiCore	AI in Automation and Education
Gurgen	Mardoyan	PMI Science	AI and GenAI in PMI R&D: Current Practices and Ambitions for the future
Arsen	Arustamyan	NI	AI in Test & Measurement

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