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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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Armenology Corner

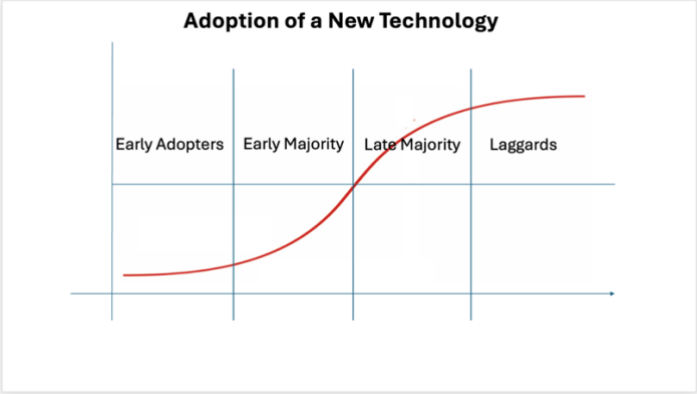
. New Technologies as New Lifelines for Armenia

by Rama, Engineering Association

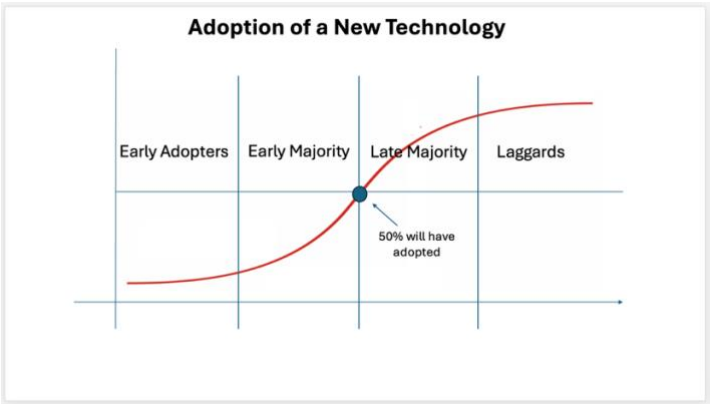
The appearance of any new technology is a new lifeline for Armenia if we wholeheartedly embrace it as Early Adopters.

The adoption of a new technology goes through four main stages:

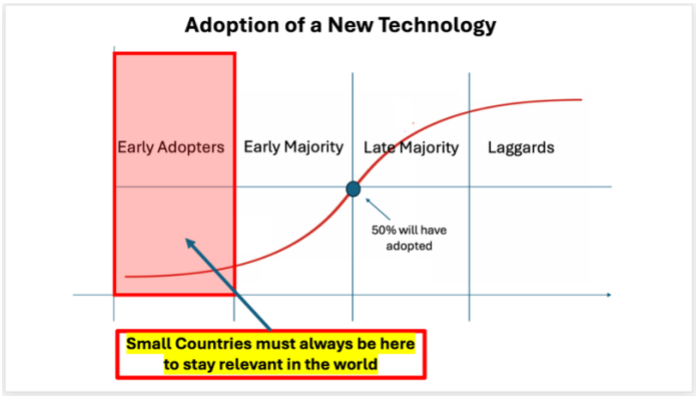
1. The Early Adopters
2. The Early Majority
3. The Late Majority
4. The Laggards



In the middle of the road, 50% of the world will have adopted the new technology already. This is already late for Armenia if it wants to be of any significant.



Armenia must enter the new technology at the very beginning (early adopters) when others have not yet even considered it. In other words, it must pioneer the use of the new technology.



This will ensure its place in the world, and hence its survival.

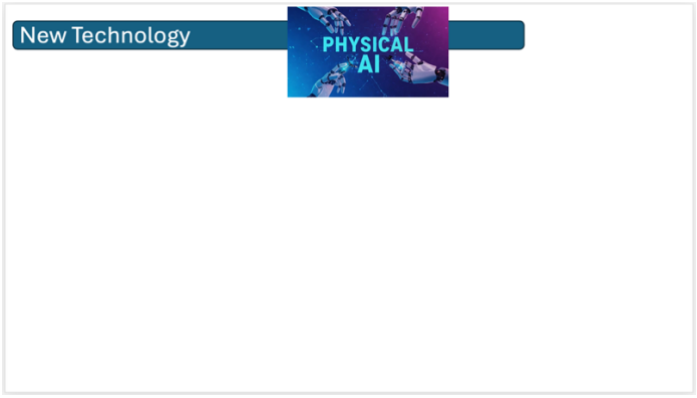
But this solution to its survival might as well be Armenia's mission, Armenia's meaning, Armenian's purpose – to always pioneer with new technologies as "Early Adoptors" relative to the rest of the world.

What do you think?

. Unfolding the Physical AI Story in Armenia – *from Enthusiasts to Dark Factories and Beyond*

by Rama, Engineering Association

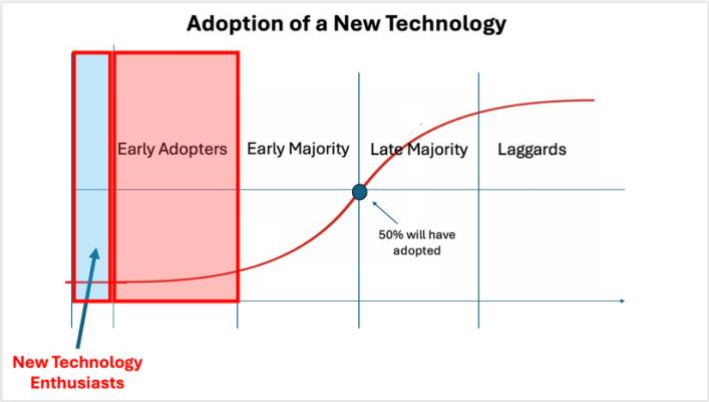
And all of a sudden a new technology appeared on the horizon with a neatly packaged catchy name – Physical AI.



Like with any new technology, it attracts enthusiasts!

All starts with enthusiasts!

Actually, enthusiasts come before the Early Adoptors.



In the EC we got enthusiasm for Physical AI right away. The combination of AI with the physical world resonated right away in the Engineering City.

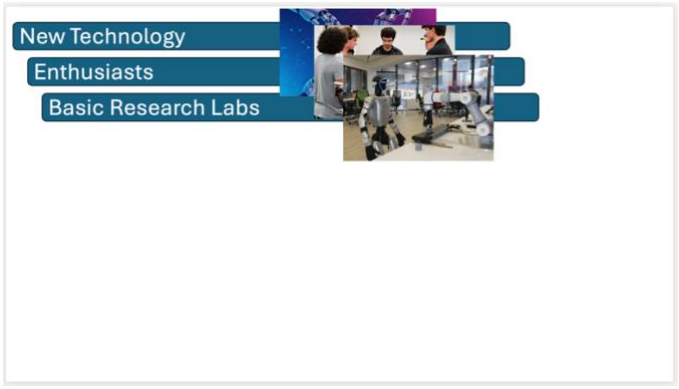


In engineering, you need equipment; with new technologies, you need research labs. You need equipment and research labs to try out the new technologies, to find the gaps in the new technologies, to formulate problem statements that will lead to innovations.

The EC enthusiasts got such a lab, although a basic one, with one simple humanoid robot and two cobots.



Pic. A Basic Research Lab in Physical AI

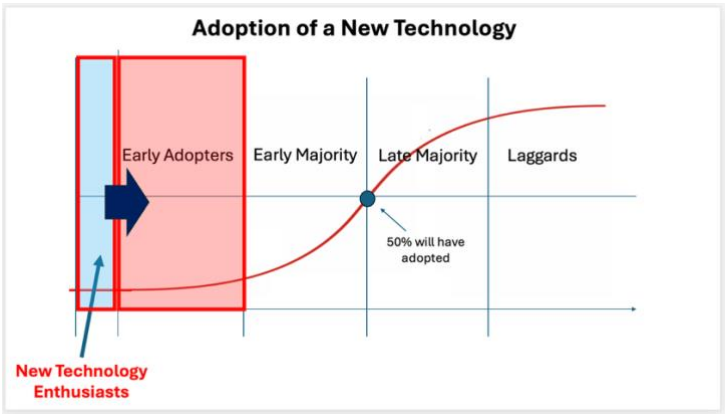


With the basic research lab we have completed the “Enthusiasts” stage in the Technology Adoption lifecycle.

This initial lab was enough to formulate the subsequent development.

Now we needed to move from the enthusiasts stage to the “Early Adoptors” stage.

The “Early Adoptors” stage is where we want to be. This is the natural position that we must occupy in Armenia.

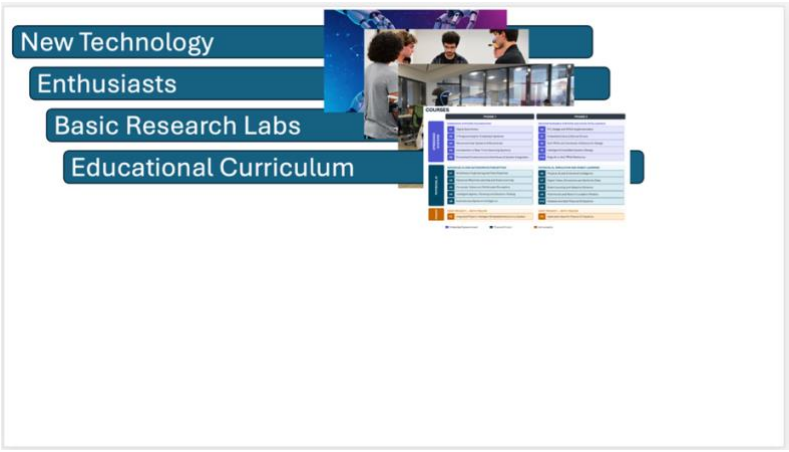


This meant that we needed to scale, and to scale we needed to develop a systematic education program.

This we did together with our Microchip Armenia friends.

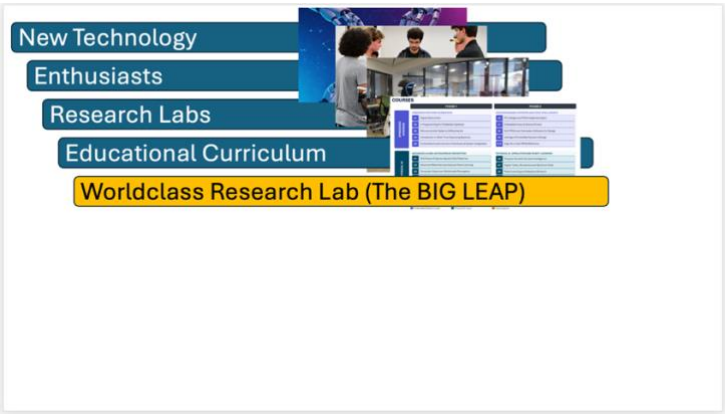






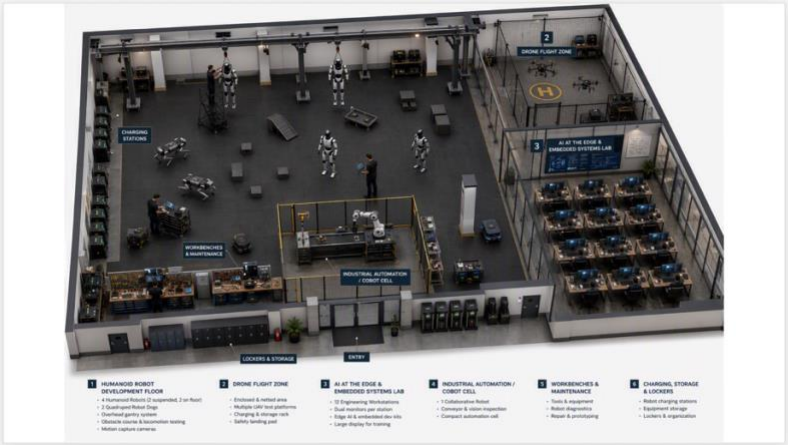
Now comes the “Big Leap”.

To make any difference in this technology and occupy a worthy place in the world of Physical AI, we need a world-class research lab - a lab that will have enough equipment so that it becomes a factory of new ideas, new products, and new start-ups, and a lab that will attract experts from around the world.



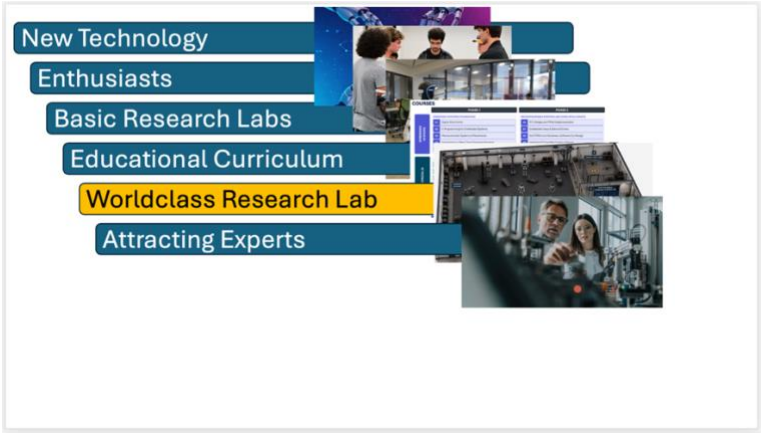
We have configured such a lab with a detailed list of equipment.

It will be our task now to find the financing for this lab.



Pic. World-class Physical AI Research Lab

Once we have such a world-class lab, a lab that only a few places in the world will have, experts will start flocking in.



And the lab will start producing new products and new solutions.



By now, we will have accumulated enough insights, knowledge, people, skills, experts, and products that will allow us to go straight into the dark.



And what is “dark”? Dark is the Dark Factory, which is a factory that is fully robotized with no human presence on the factory floor.



We will have everything to setup a Dark Factory.





And what will happen next?

This is a critical revelation.

With the traditional factories we had seen the trend of "Engineering" moving to where the "Factories" are. And we called out this trend as a "threat" to our engineering, hence our insistance on creating the "Factory City" as a strategic move.



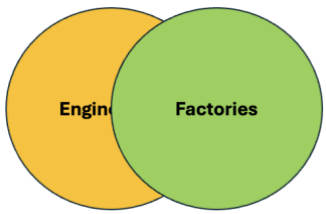
Pic. Engineering moving where the Traditional Factories are.

But now, with the Dark Factories, the trend will be reversed. Manufacturing will not go to where labor is, but will seek out the places with a concentration of engineering talent. This is because the Dark Factory will be ran by engineers well versed in robotics, physical AI, and smart manufacturing.



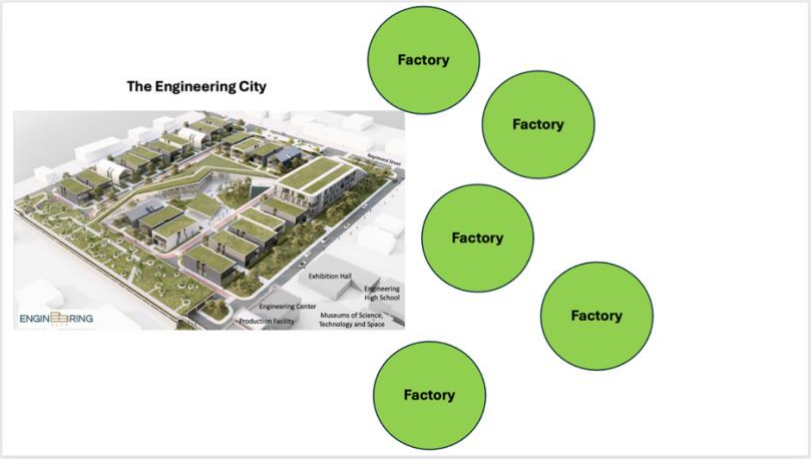
Pic. Dark Factories moving to where Engineering concentration is.

In other words, we will see the convergence of manufacturing and engineering.

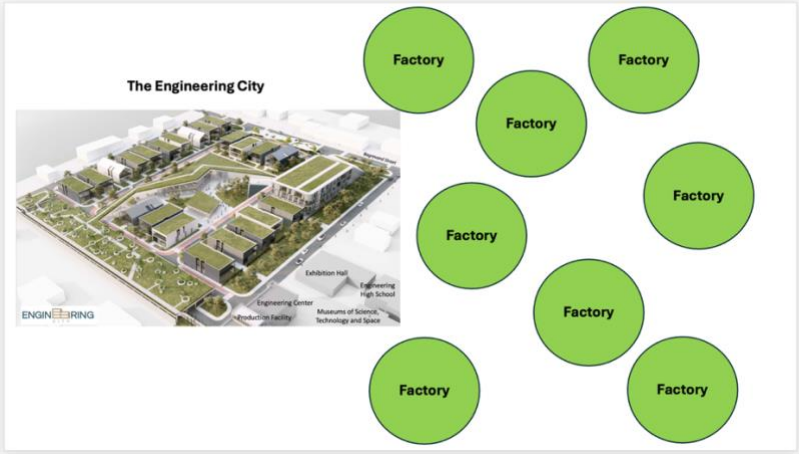


In the Engineering City we have a good concentration of engineering talent, a concentration that will only increase with time. We can already forcast an engineering population of 1,500 engineers in the Engineering City.

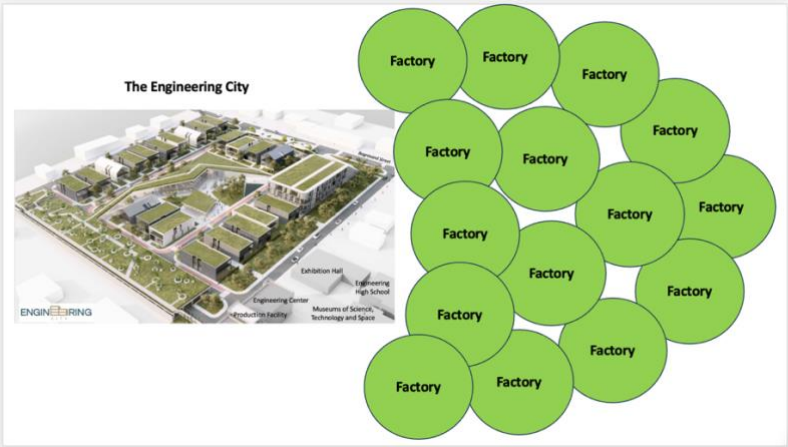
Hence, if we succeed in positioning the Engineering City as an accumulation of Physical AI knowledge, insights, and skills, it will become a magnet of Dark Factories. A few in the beginning, then a whole lot of them.



Pic. Dark Factories appearing next to the Engineering City.



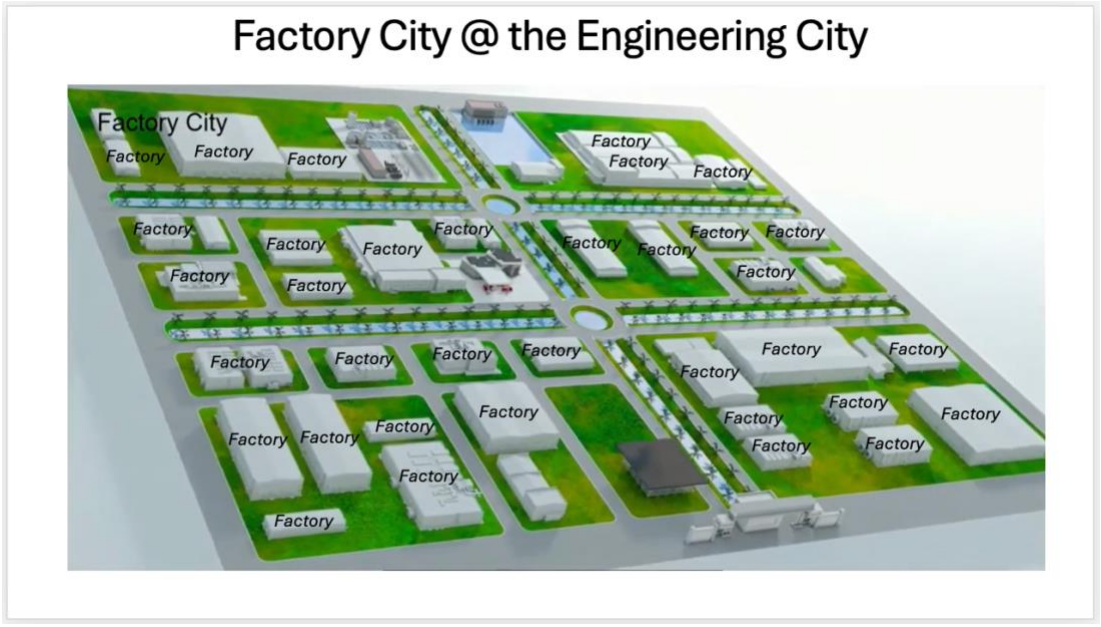
Pic. A few successful Dark Factories will attrack more More Dark Factories.



Pic. Then the flood gates will open. Everyone wants to put his factory in Armenia.

And what is this if not the FACTORY CITY!



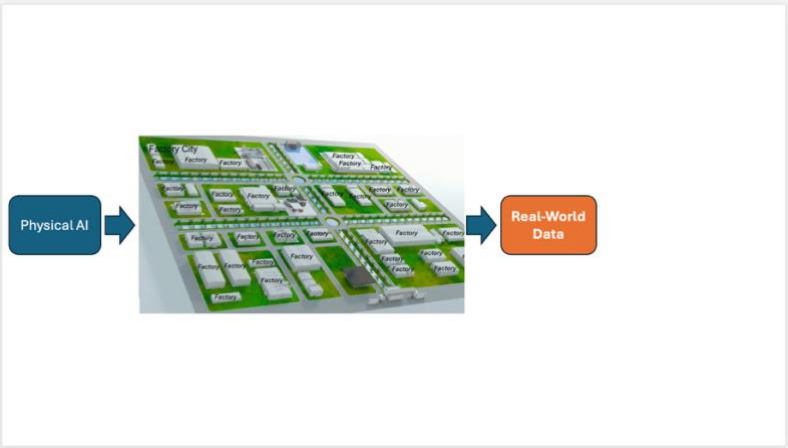


Oh, Armenians, should we not create this infrasturcture now to accelerate this build-up?

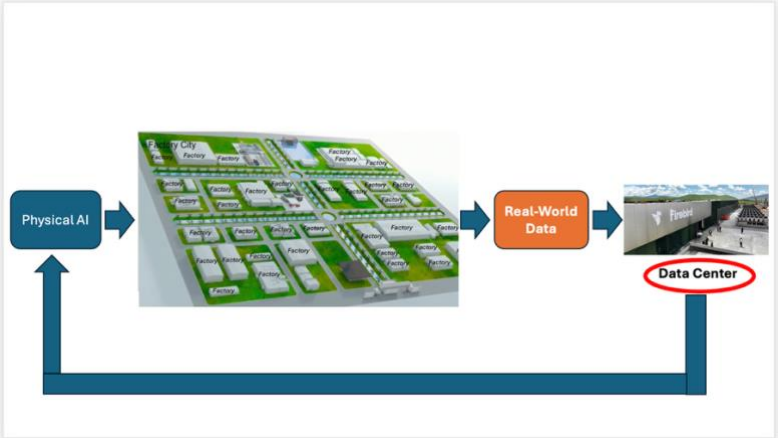


Once we have such a concentration of factories in the Factory City what will happen next?

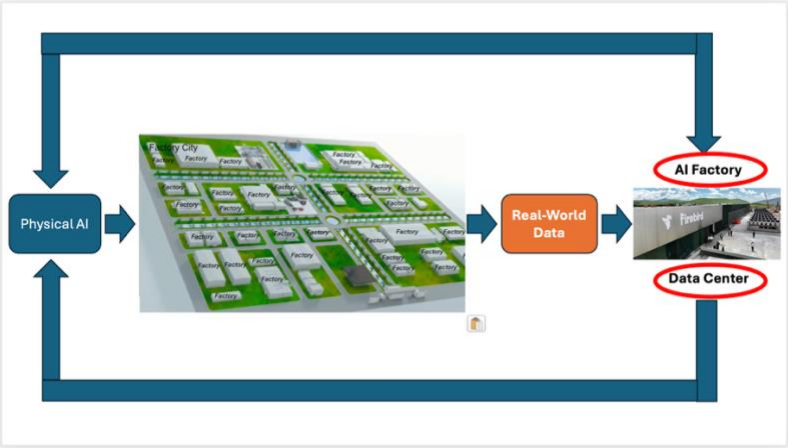
Besides the products that the factories of the Factory City will produce, they will also produce an enormous amount of valuable real-world data.



This data will be fed to the Firebird Data Center which will process it and feed it back to the Physical AI for improving it.



But the Firebird is not just a Data Center. It is also an AI Factory. Meaning, that the Physical AI can run its simulations and digital twins on the Firebird, as such, creating powerful AI models.





And here we will have arrived to “DATA” – one of the most valuable product in the digitzed world.

We made a trip from the appearance of a new technology, to a group of enthusiasts, to a basic research lab, to a curriculum, to a world-class research lab, to attracting experts, to creating the products, to running a Dark Factory, to the Factory City, and finally to the most valuable product of our times – Data.

This is how we see how the story of Physical AI may unfold in Armenia.

And now – Good Night!

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