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The EC Manufacturing Journal

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The purpose of the Journal is to build-up and share our knowledge in manufacturing as a contribution toward the high-tech manufacturing movement in Armenia.

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. Editorial

The purpose of having a factory in the Engineering City was to start learning the process of prodcution of our engineered products.

Over the years, we have accumulated solid knowledge in Design For Manufacturing, managing production processes, operating advanced machinery, coordinating supply chains, and training factory personnel.

The factory has wrapped up the loop in the product lifecycle – from research to engineering to production, and as such strenghened our engineering position.

So far, the articles that concerned manufacturing were published in the EC Journal. But now, our insights have reached a level that justifies having a separate journal.

. Without Manufacturing, we'll be a Brain Without a Body

by Rama, Engineering Association

This article is a re-print of an article that appeared in the EC Journal, Issue 8/2026.



The Engineering Association was invited to join a panel discussion at the Yerevan Dialogue event that took place on May 5th. The title of the panel was - Critical Minerals, Semiconductors, and the South Caucasus as an Investment Frontier.

The following question was asked:

The Engineering Association has been making the case that Armenia needs to move from software and engineering services into high-tech manufacturing. With semiconductor supply chain resilience now a top U.S. national security priority, and companies actively looking to de-risk from Asia-concentrated production, does Armenia have a realistic path to becoming a location for advanced semiconductor manufacturing – not just design and R&D – and what would need to be true for that to happen?

You may want to watch the answer on the below youtube channel.



https://www.youtube.com/watch?v=NG8QInI_81Q&t=5749s
From 1:35:49

An article appeared on the www.news.am site under the title: *"Without Manufacturing, we'll be a Brain without a Body": Armenia at an Industrial Crossroads*. It has captured all the main points of our answer. You can find it here.

Below is the text of the article.

Armenia is perceived today as a country with a strong engineering school and notable technological achievements on the global market. However, according to Aram Salatian, President of the Engineering Association of Armenia, the country is currently facing a key strategic choice: will it remain a development center or manage to transition to industrial manufacturing?

Ideas Without Monetization

Speaking at the Yerevan Dialogue 2026 forum, Salatian emphasized that the engineering sector in Armenia has already reached a high level. Complex, globally competitive products are being created here—ranging from software solutions to high-tech electronic developments. Yet, despite this success, a major question remains unanswered: where exactly is the primary added value being formed?

According to him, a significant part of the Armenian engineering ecosystem currently operates within the logic of research and design, while the industrial stage—the production of the final product—remains outside the country. This creates a structural imbalance where Armenia generates ideas and technologies but does not participate in the full cycle of their monetization.

Service Economy and the Risk of "Brain Drain"

Salatian puts it quite bluntly: any engineering product only becomes a full economic value when it reaches factory production. Otherwise, the country risks being cemented in the role of a "design house"—a development center without an industrial core. In such a model, he warns, the economy remains service-based and loses a significant portion of its potential income.

Furthermore, there is a more long-term risk. If the country does not develop manufacturing, engineering talent will gradually migrate to places where this stage already exists. Thus, the country could face not only economic erosion but also the erosion of its existing engineering school's human capital.

The First Step: Developing the OSAT Segment or Niche Directions

Speaking about the semiconductor industry, Salatian noted that Armenia already has serious achievements in several areas—chip design, EDA tools, testing, validation, and measurement. Moreover, companies are already operating in the country that perform complex engineering tasks for international clients. However, in his words, this is still not a full-cycle industry.

He suggests two realistic paths for entering manufacturing. The first is the development of the OSAT segment (Outsourced Semiconductor Assembly and Test), which involves the assembly and testing of microchips. This is the final stage of semiconductor production; it does not require the most advanced technological processes but allows the country to integrate into the global industrial chain. The second path involves developing niche directions—optical, radio-frequency, and power chips, where the global industry is experiencing a shortage and the requirements for technological nodes are lower than in cutting-edge processors.

The Need for an Ecosystem

However, Salatian stresses that even these directions cannot be solved solely by creating individual enterprises. An ecosystem is required—an industrial-technological environment where production, engineering services, equipment, and infrastructure are combined into a single system. He proposes a "factory city" model, where lowering barriers to entry, shared infrastructure, and a concentration of competencies allow for an accelerated transition from development to production.

A special role, he says, should be played by so-called anchor companies—large international players capable of launching an industrial ecosystem around themselves. Historically, he notes, it was such companies that became growth points for Armenia's engineering sector, and a similar effect is possible in manufacturing.

Ultimately, as Salatian emphasizes, this is not just about developing a specific industry, but about choosing an economic model as a whole. Armenia has already proven that it can create technologies. Now the question is whether it can turn this advantage into a full industrial cycle—or if it will remain a country where ideas are born, but products are not made.

Text in Armenian here, in Russian here.

. The Story of One Production Order

by Marina Saguinian, Engineering Association

Here it is – an order for 25,000 pieces of an engineered device. This is the biggest quantity that our factory has ever received. And it spans the whole range – electronics, mechanical, final assembly, end-of-line production test.

The order is to be shipped to the US in 3 months. This is an organizational challenge, a speed challenge, a quality challenge.

With this order, the manufacturing floor is a full house and people are having a blast. Life in the factory is boiling - the joy, the collaboration, the coordination, and the inventions along the way.

This is the picture of how life will look like in the Factory City.

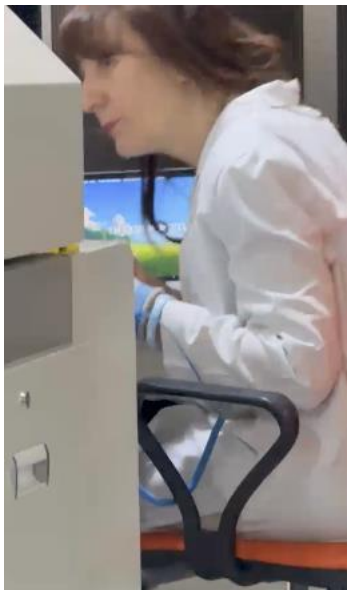
The team uses an Automated PCB Assembly Line to place SMD components (10,000 components an HR). They have to study each module, calibrate the machines, understand the sensitivity of the components, determine the amount and type of soldering paste to use and manage the temperature at each zone of the oven in accordance to the electronic components and the paste.











Pic. Waiting patiently for the boards to come out of the oven.

The larger components (THT items) are placed manually.











Thereafter, they are assembled, tested and placed within an enclosure.



And the components keep coming in. Here is a new party that needs to be entered correctly into the warehouse.



Long hours & Saturdays are the norm but everyone is very energetic, very enthusiastic, and very excited.





In parallel, Baron Ghukazyan is preparing the next generation.





At every step jigs are being developed to increase the rate of production and new technologies are in the making. In fact, Narbeh is working with the Advanced Research Center (ARC) and research students to automate the whole process for the next order. Next time you stop by, you may be greeted by our humanoid robot. In fact this project has already taken the manufacturing facility to the next level.

On the factory floor, you have the core team in addition to students from the colleges. The students joined the project under Baron Ghuaksyan's strict supervision and Narbeh's quality assurance rules. They are doing a great job. If we continue at this rate we will add 4 more people to the core team.

This project is one more step towards the Factory City @ Engineering City.

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For feedback on the *Journal*, its content, and its articles please send to info@engineeringcity.am.

To submit articles, please send to info@engineeringcity.am. Articles can be in any language.
