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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). 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

. Mission, Values and Mindsets. Thoughts on how to grow a great company

by Hrachya Pogosov, YEA Engineering

While working in different companies and researching methodology of work in top rated worldwide companies I have understood that if the company haven't mission which then decomposes on values and then on goals this company works chaotic and non-systematically. And the same mindset or more precisely its absence will be shared to all employees. The best of them or leave the company or the system destroy and eat them.

That's why in this article I'd like to reflect on the significance of this topic.

Throughout my working experience I have met different engineers. A lot of them think that they are a little mechanism of a big system and nothing depends on them. But any system is structured differently. It is a living organism, and even the smallest particle can have an impact on it in both directions: towards improvement and towards decline. I mean that the system may strive to improve if each participant strives to improve. It is a dialectical approach. Being determines consciousness at the same time as consciousness determines being.

But there is one very important caveat. Leaders of the system must set the right direction and all the necessary conditions for continuous improvement of both itself and its participants.

As you already understand in our case, when I say System I mean companies. But in general, these thoughts apply to any system such as the government, army, system of healthcare or education and etc.



The more complex the system, the more difficult it is to make changes to it. That's why it is very important to start now. I'd like to provide one very simple example which will clearly illustrate the thoughts described above.

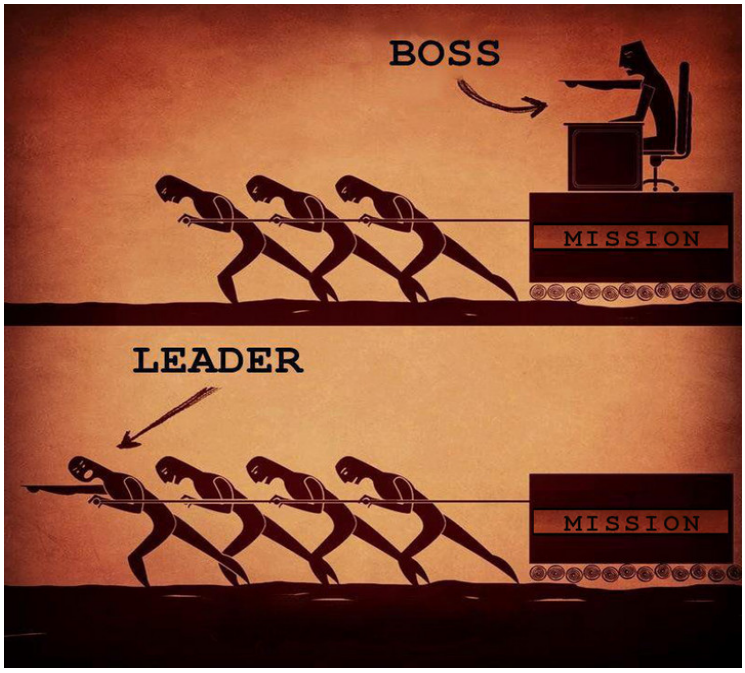
Do you have a dog? I have two! Imagine that the dog is a hard and complex system. If you want to build high-quality relationships with him/her you should start building immediately from the first day when the puppy comes to your house. The older the dog is, the more difficult it will be to change anything in its behavior.



One of the reasons for the company's success is the employees. Jim Collins in his book "From Goods to Greats" when he describes the reason for the success of the different companies tell that at first, they select the people they need, get rid of the unnecessary ones, ensure that the right people occupy the right positions, and only then decide where exactly they are heading. He is right. It is the best way to grow a great company from zero. But what can we do with this idea when we have an established company with all the consequences that come with it? How could we weed out weak employees and attract suitable ones? Only to build a system, which is based on values, longterm and shortterm goals, key results and which start from the company mission. Employees whose values and goals align with those of the

company will stay and grow together with the company, while others will leave. Jim Collins in the same book also said that the only way to help people who achieve exceptional results is not to burden them with those who are incapable of doing so.

Let's consider the system from both leadership and employees sides.



From the leadership side in the head of the system stays the mission of the company. If you still don't have it, then be sure to come up with it. It will be a good practice to invite the proactive part of employees for brainstorming.

For example in **YEA Engineering** we are discussing mission's formulation, which sounds like:

We aspire to revive the high-tech engineering industry in Armenia and take it to a new qualitative level. We aim to raise a new generation of engineers and programmers who will serve as the foundation for the development and prosperity of Armenia in all vital sectors for many years to come.

The next step will be getting values, which are shared by you and your company. Exactly from the prism of values you should approach problem solving. If the company's value matches the employee's value it leads to the formation of an identical way of thinking.

For example, the commercial or business-oriented mindset it's an important thing for every employee starting from technician and finishing to accounting and stock engineers. The same values lead to the understanding that the prosperity of the company is the prosperity of its employees. If in your company you will separate engineers and space them on the one side and managers, auxiliary departments you will space on the other side - **the company never reaches its business goals.** Each employee should understand that every his/her action and every his/her decision must be analyzed from the prism of business goals. It's about achieving profit using the fastest and the simplest method by organizing work in such a way that each participant is provided with everything necessary, has the opportunity to develop, is happy and financially secure. The next statement is equivalent for employees of all levels: "You are not a little part of a big mechanism. You are the person who can impact the system and change it."

The next mindset, which I'd like to highlight is a Product mindset - work today, think about tomorrow. Developing some code, mechanical decision or electrical scheme always think: "Could it be a complete technology, finished product, software library or something like this, which could make your work easier next time or help your colleagues or business?" If the answer is "YES!" - separate the technology (library, product, design…) from the project immediately and create a self contained product.

The next stage after mission writing is thinking through values of the company. It is a really important step. Think about what values do you really share, which of them would you like to extend to the company? Just think about it - the office is the place where you spend practically a half of your life time, colleagues are the people with whom you communicate

as frequently as with your family. It means that if you do not divide similar values it will be very difficult to work with each other.

In **YEA Engineering**, we have formulated values that, in our opinion, enable us to work effectively within the team and with our customers:

- **Team spirit** - the common goal of the team, it's the goal of each person. Achieving the common result is paramount; everything else should take a back seat! While solving the tasks facing the team, each of its members develops individually.

- **Openness in communication** - we don't accept the carrot and stick method. If there's a problem, speak up. If you see opportunities for improvement, share them.

- **Initiative** - if you have any ideas for a new project - share it! If you want to organize something interesting for the team - do it with colleagues or independently (colleagues connect to you later, show them that it works).

- **Desire for self development** - The thirst for knowledge is your greatest advantage. Knowledge, in the broadest sense of the word, provides you with endless opportunities both within our company and in life. By investing in your knowledge now, we are investing in our joint future.

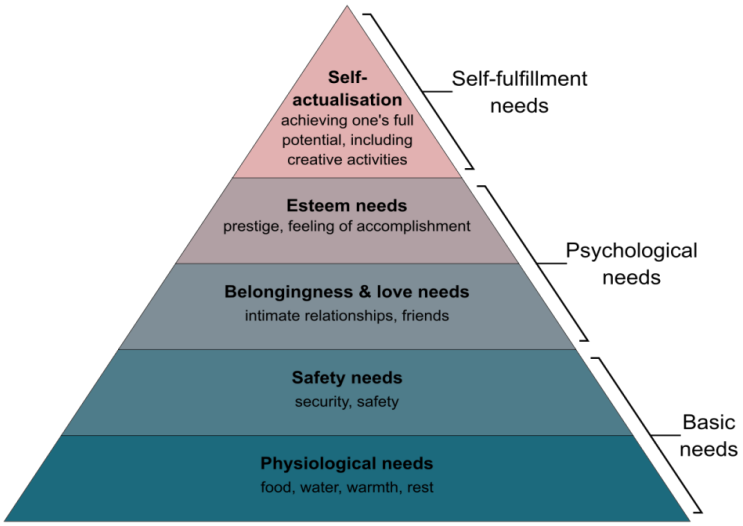
- **Involvement** - We appreciate it when you do not limit yourself to a specific area of knowledge. Do not confine yourself only to the technical aspects of work; study the contract, familiarize yourself with the financial side, look at your work from a commercial perspective. Dive into all the processes of the company, try to improve them. A project involves not only engineering but also finance, marketing, accounting, procurement, and etc.

- **Transparency** - Organize your workflow in such a way that any employee can easily find the information they are interested in. Store all data and work results in accordance with the processes adopted in the company. Use the tools and systems implemented in our company in your work.

- **Responsibility** - We appreciate when employees take their work seriously. However, we want your responsibility to extend further. Become a mentor for young professionals, take on an intern, and take responsibility for their successes and failures. By developing and teaching others, you develop yourself.

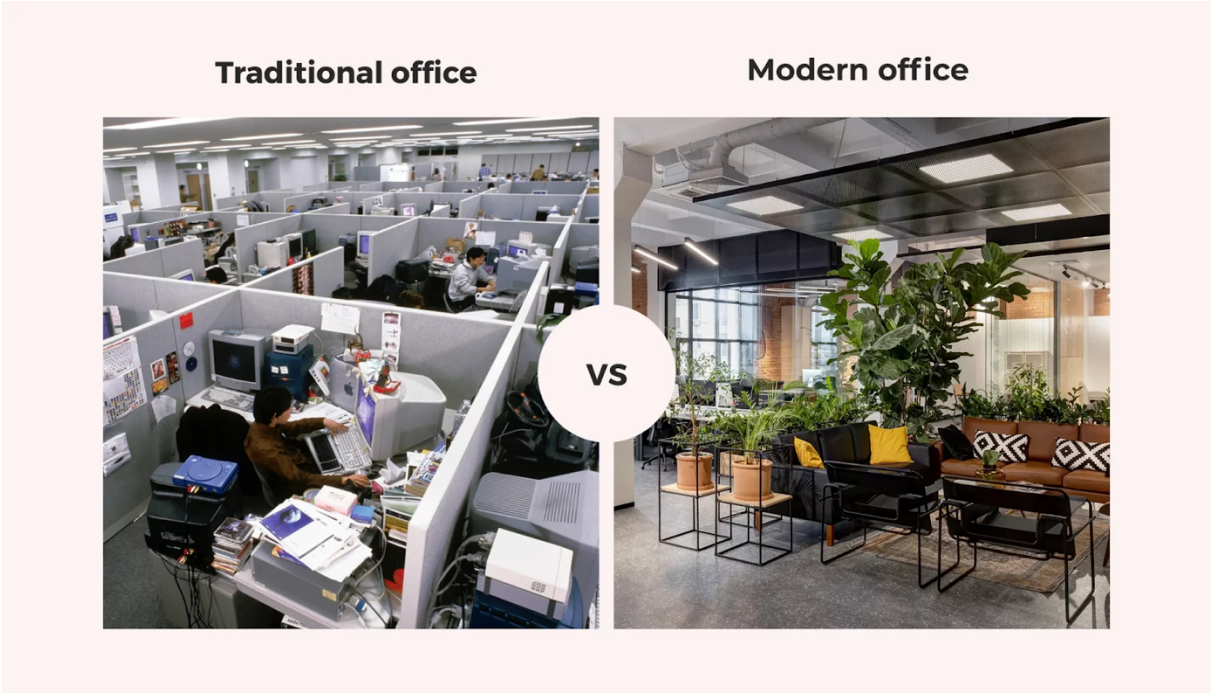
- **Happiness - At work, a person spends half of their free time, and the happiness indicators of our employees are the most important thing for us. Our responsibility to our colleagues and the value we are obligated to provide you is a non-toxic work atmosphere filled with mutual support.**

As you mentioned I boiled the Happiness. It is one of the most important values which must be monitored and regulated by team and company leaders. Regulation means that if you are a company leader, you should do everything possible to make your employees happy. The happiness rating can be defined using scale on Maslow pyramid.



When the basic and psychological needs are satisfied, opportunities for creative thinking and self-realization open for you. In this case you cloud fully dive in the work, take initiative, be proactive, take responsibility and reach your full potential. That is why it's very important for leaders and company founders to try to cover these both needs. And when we are talking about basic needs we don't keep in mind only salary. It's more deep theremin, it embraces comfortable working conditions, availability of recreation areas, health insurance, easy opportunity for sports activities and much more.

In other words, **the office should be a place which you don't want to leave, where everything is maximally available.**



No matter how stupid it may sound, but a creative atmosphere promotes creativity. And to avoid burnout in the workplace, creativity must be fueled.

So, covered basic needs gives employees an opportunity to build friendships and intimate relationships in the office. Namely, satisfied psychological needs.

As I noted above, these kinds of comprehensive measures can significantly improve productivity at work. **Take initiative, be proactive, take responsibility and reach your full potential.**

New Products Corner

. Acoustic Safe Box by ATG – Your Privacy Safe & Sound



Watch video here - Link

Travel Corner

. India Trip Report

by Gurgen Mardoyan, YEA Engineering

March 12-22 Vigen, Tigran, Levon and myself visited India to participate in CAEV (Connected, Autonomous and Electric Vehicle) Expo and visit a few customers.

The most of the work was in Bangalore, but for one customer meeting me and Levon took a flight to Chennai in the morning and returned to Bangalore in the evening to catch the flight back home.

First day, after getting badges at Expo for the next day, we got lost on our way to get dinner at Vigen's favorite restaurant in Bangalore (Chinese one).



CAEV Expo, Bangalore

The CAEV Expo took place in Bangalore on March 13-14. We had a small booth where we put our brochures, 2 X-banners and some Slides showcasing our services and solutions in Automotive.

The main focus of the Expo were:

- Software Defined Vehicle concept and a lot of Vehicle full software-stack development companies working with Automotive Tier 1s and OEMs – providing AUTOSAR compliant Software solutions.
- Automotive Cybersecurity with a lot of software companies providing online-diagnostic software solutions that run in AUTOSAR software stacks that monitor Vehicle for potential vulnerabilities for cyber-attacks. These companies also provide Cloud based services and software solution to test for cybersecurity.
- Telematics – with many companies providing Telematics Control Units (TCUs) for 2-wheelers and 4-wheelers, that allow Cellular V2X connectivity for the Vehicle and GNSS navigation.

Mostly the focus was around the topics above. However, there were a few test-and-measurement companies showcasing their solutions (Keysight, dSpace, Anritsu, Spirent), but even those mostly present ECU Software Stack validation software products and Telematics Testing equipment (like Base Station Emulators). ADAS and Autonomous Vehicle direction was represented poorly, although there were a few companies providing autonomous platforms for education and warehouse automation purposes.



Virya and Infosys (Maini group) Autonomous Vehicle



Edutech Autonomous Vehicle Platform

Over the two days of Expo we've got some good leads that we'll be following up to generate opportunities for which we'll need to be sending proposals.





(Guy on the right is Vijay from Reyocto)



Customer Visits

The week after the expo we visited a few customers in Bangalore and Chennai

1. MAGNA (Bangalore) – Vigen, Tigran, Levon, Gurgen, Suresh (NI), Bhanu (Reyocto)
2. Continental (Bangalore) – Vigen, Tigran, Levon, Gurgen, Bhanu (Reyocto)
3. APTIV (Bangalore) – Vigen, Tigran
4. Mahindra (Chennai) – Levon, Gurgen, Bhanu (Reyocto), Venkatesh (NI)

Visit to Armenian Church in Chennai

After Mahindra's visit Levon and I decided to take our time to visit Armenian Church in Chennai. Chennai is a new name for a city previously called Madras. We knocked the door and an Indian women opened and asked where we are from. When she heard we're from Armenia – she opened the door and let us in the Garden, where we could see the Church. It was built in 1712.

Then an Indian man came and said that he is the one taking care of the Church and he is always there and lives right in front of it. He had an old dog with him, who was very happy to see us.

Turned out that the Church doesn't have permanent bishop and Priest and that a Priest will come once in a while from Mumbai or Kolkata for special occasions and he expected that Armenians will gather in the Church for Easter. He showed us around, even let us go up to the Bell tower.

Putting some pictures below:

















To view this article in Telegram please click here.

Talent Development Corner

. The Role of Mentoring in Engineering Education

by Gayane Hovsepyan, 2nd-Year Student

In the dynamic realm of engineering education, the transition from novice to adept practitioner is often guided by the invaluable relationship between mentors and mentees.



As second-year student of the basic chair of engineering city, I understand the significance of mentoring in fostering academic growth, professional development, and personal empowerment. In this article, I delve into the essence of mentoring and elucidate how senior students can effectively serve as mentors to their junior counterparts.

At its core, mentoring is a reciprocal and developmental relationship between individuals, characterized by guidance, support, and knowledge exchange. Mentors, typically individuals with more experience or expertise in a particular field, offer insights, encouragement, and constructive feedback to mentees, aiding in their holistic development.

Qualities of a Good Mentor

To excel in the role of a mentor, senior students must embody certain qualities that facilitate effective guidance and support:

- *Empathy and Patience:* A good mentor empathizes with the challenges faced by junior students and demonstrates patience in guiding them through obstacles and setbacks.
- *Active Listening:* Listening attentively to the concerns, aspirations, and questions of mentees fosters trust and enables mentors to tailor their guidance accordingly.
- *Expertise and Experience:* Leveraging their own experiences and knowledge, mentors provide valuable insights and practical advice to help mentees navigate academic and professional pursuits.
- *Supportive Encouragement:* Encouragement and motivation are essential tools in the mentor's arsenal, instilling confidence and resilience in mentees as they tackle academic and personal challenges.
- *Constructive Feedback:* Effective mentors offer constructive feedback that is specific, actionable, and geared towards fostering continuous improvement and growth in mentees.

Guidelines for Senior Students as Mentors

As second-year students, stepping into the role of mentors for junior peers is both a privilege and a responsibility. Here are some guidelines to ensure effective mentorship:

- *Establish Trust and Rapport*: Building a foundation of trust and rapport is essential for a successful mentor-mentee relationship. Be approachable, open-minded, and respectful of the mentee's individuality.
- *Set Clear Expectations*: Clarify the goals, expectations, and boundaries of the mentorship relationship from the outset to ensure alignment and mutual understanding.

- *Provide Guidance and Resources*: Offer guidance, resources, and insights to help mentees navigate academic requirements, explore research opportunities, and develop professional skills.

- *Foster Independence and Critical Thinking*: Encourage mentees to take ownership of their learning journey, fostering independence, and cultivating critical thinking skills that will serve them well beyond their academic pursuits.

- *Cultivate a Growth Mindset*: Embrace failures and setbacks as opportunities for learning and growth and instill a growth mindset in mentees to foster resilience and perseverance.

Conclusion

As second-year students of the basic chair of engineering city, I recognize the transformative power of mentoring in shaping the next generation of engineering professionals. By embodying the qualities of empathy, expertise, and support, senior students can serve as catalysts for growth and success in their roles as mentors to junior peers. Through meaningful guidance, encouragement, and knowledge exchange, we can collectively nurture a culture of excellence and collaboration within our academic community, ensuring the continued advancement of engineering education and practice.

You can also read the article on Telegram here.

History Corner

. April 24 – the Wall of Flowers



. Reading from Daniel Varoujan

Միակ ապաւոակս է հայրենիքիս
օգուակար դառնալ. Ահա
գաղափարականը, որ զիս կ՛ոգևորե և կը
կանգնե. Արդ, միայն իրմով
կ՛ապրիմ, իրմով եմ հաղթական

On April 24, 2015, the poet Daniel Varoujan was deported, tortured, and murdered. He was 31 years old.

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