

Global Manufacturer Looks at Industry 4.0 Through COVID-19 Lenses

Emerging
Technologies can
foster an inclusive
Covid-19 recovery

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**Post covid-19
recovery -
Everyday life of
an Industrial Hero
24 Interviews
with Workforce
that run the show**

**A few developing
countries
overperform on
frontier technologies,
but most lag behind
reported by the UN**

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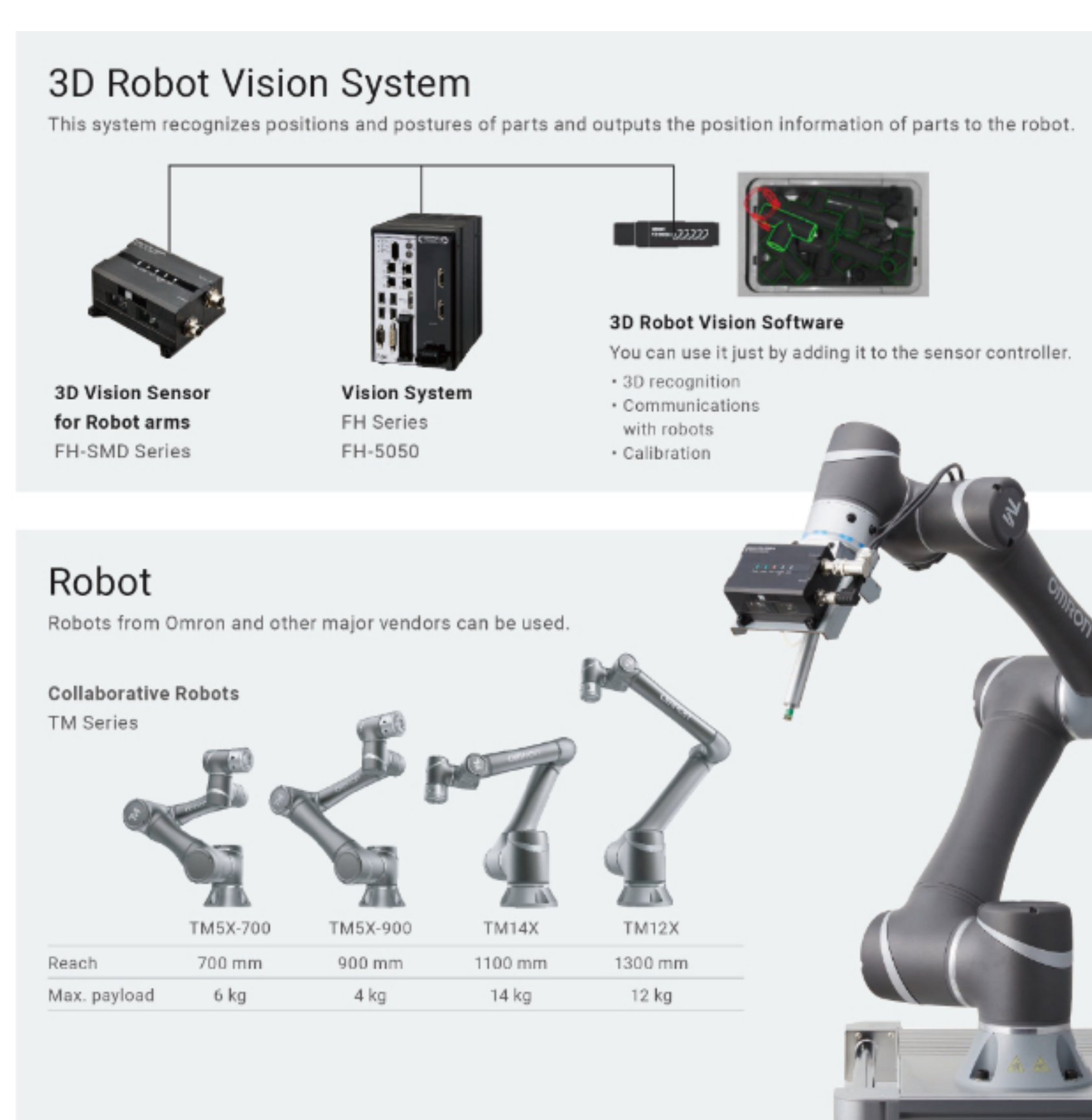
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Hi Folks!

It is the first-year anniversary to this Covid-19! Last year we produce an edition of Covid- 19 technology, innovation, and invention. Coming this year, the same time of the year, we are coming out with the Post Covid -19 recovery with interviews with our Everyday Industrial Hero in the feature story.

We look back and see how far we came, from baking, cooking, building kitchens and backyard pool, coding, sewing facemask to so many more thing! What a year it had been. There is nothing we will trade for being healthy, safety with our loved ones, securing our jobs and taking care of people, pets and our eco systems.

The new normal with commuting outdoor, working in office and public areas with facemasks on all the time. Last year, the cost of face masks, sanitiser and almost everything went up triple! This year, world leaders has worked their way up to lessen the cost of the new normal. This on a positive note, not a bad practise at all. It simply reminds public to be vigilant and stay hygienic.

The rise of technology, everything smart has been speed up by 10 times, simply a fantastic news for such manufacturers. Robotics has been deployed to manage work to protect people and big data become so crucial so as cyber security especially with the rising scamming cases all around the world. We manage a whole month long of 1-1 Korean Robotic Management Meetings, it was positive amidst uncertainty , country like Saudi Arabia is quick for technology deployment, Singapore has a positive acceptance of service robotics and the education robots are flying high with big demands from India, Australia, New Zealand, Malaysia and Indonesia. This sends a very positive notes for the Korean manufacturers. Their work is highly supported by their local government despite this traveling problems everyone have, we were so glad that the online zoom meeting went all well!

This issue, we embrace the strength of People. Let's read up from all level of our everyday work life. Be inspire and be stronger for another year. Writing this now, our friends in India and Brazil are facing tremendous agony and suffering, with vaccination that has not been 100% studied and tested. The world is bracing this uncertainty with faith. With this, we hope that more alternatives solutions and invention will surface to counter this pandemic.

With this, we leave you to this issue of Post Recovering Covid 19 , reading from Real People, that is of you and I.

Until the next edition of Precision Engineering, Metalworking, Measuring & Control and Medical Manufacturing, please stay healthy and keep your interesting articles coming in!

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Global Manufacturer Looks at Industry 4.0 Through COVID-19 Lenses

Flex Executive Vice President Paul Baldassari provides a manufacturer's view on the importance of the digital revolution during and after the pandemic.

In many ways the pandemic has impacted not only how manufacturers operate, but also how they value their investments, especially in digital technologies. For many, COVID-19 has intensified the need for specific tools enabling operations in today's reality. However, what specifically matters can depend heavily on an operator's individual environment and operational priorities. Read on as Paul Baldassari, executive vice president of strategic programs and asset management with Flex Ltd., shares his insights on how the pandemic has shaped the global manufacturer's operations.

1. How has 2020's pandemic affected the Industry 4.0 movement? Are there things that were thought to be important that don't make sense in a post-pandemic world?

The pandemic tested the maturity of the Industry 4.0 movement. When COVID-19 spread throughout the world, the ability to have real-time information at your fingertips for everything, from suppliers to the factory floor, empowered teams to operate at the same speed, if not faster. In the factory, automation and robotics were instrumental in spreading the shop floor and keeping employees properly distanced. Augmented reality played a critical role in setting lines up quickly. And simulation was essential for virtually showcasing and making changes to factories, lines, and ramps. The industry proved that a lot of these advanced manufacturing technologies are ready for primetime.



However, we quickly learned that some of the promises of Industry 4.0 aren't as important in a post-pandemic world. For instance, the idea of customization gained strong momentum pre-pandemic. And while it's still significant for some markets, such as enterprise computing and communication, we've seen it's not nearly as important to consumers as initially thought. Our experience suggests that interface customization is essential for electronics, but people don't want to be overwhelmed making the decisions required for a truly customizable product.

2. What advanced manufacturing technologies aren't living up to the hype?

Two major advanced manufacturing technologies haven't lived up to the hype yet: additive manufacturing and smart products. Don't get me wrong. Additive manufacturing has been excellent for quickly prototyping tools, fixtures, and spare parts. But the promise that additive manufacturing could help high-volume production, or 3D printed parts, hasn't lived up to the hype. In some lower-volume manufacturing initiatives, such as aerospace, it's worked, but for high-volume or complex production, additive manufacturing has fallen short thus far. Further, additive manufacturing only yields roughly 80% of the material strength compared to a part produced by molding, milling, or other traditional methods. Additive manufacturing also requires expensive equipment and time-consuming post-processing in many applications. The other technology that has not lived up to the Industry 4.0 hype is highlyconfigurable smart products. There was a belief that every product would define its journey through the manufacturing process, but this requires a lot of strategy and design. There's a lot more untapped value in investing and pushing intelligence on the factory floor than the actual product during manufacturing.



MR PAUL BALDASSARI

3. Any technologies you feel are not getting enough attention?

Simulation is not getting nearly enough attention. Most companies have dipped their toes into simulation, but we've made a big commitment to it at Flex. There's a real opportunity for growth in a post-pandemic world. The power of simulation is that it drives the upfront conversations organizations must have externally with customers and internally with staff before producing a product. How will the factory be set up? How will the product flow through the line? Traditionally, executives and customers would fly to a factory to walk the floor and physically see how products would roll off the lines. Changes to the line or factory setup could take months. And if it didn't work? You're back to square one, reverting to the original layout, wasting time and money. Simulation provides a virtual view of the factory for all stakeholders, showcasing what the factory and line looks like and highlights the machine view to identify and troubleshoot issues proactively.

If a change is needed, it's as simple as clicking a mouse and running a new simulated version with additional logic layers. Once the line view is set up, businesses can create a simulated view of the material flow, which helps look at equipment yields. Manufacturers can also make a yield prediction and see if a machine or process doesn't work.

Once you have that information, you can address what a failure means for your full manufacturing process, areas you need to fix, and gaps in throughput. You can also simulate the inventory view, ensuring the setup generates the right throughput without creating a stockpile in the factory. Travel restrictions hampered 2020 and will be a big part of 2021. Before COVID, everyone thought simulation was challenging. It's not easy, but we've completed more than 200 simulation projects in the last two years at Flex and saved our customers a lot of time, money, and stress. Our management has extensively utilized simulation because it's essential for support functions to connect to factories. We've been together with our people walking the shop floor virtually. It also helps our customers make sure they have a good feeling about how we secure their product, implement their new product, and apply advanced technology to support them in this difficult time.

4. Any insights into how an organization can determine which digital technologies make the most sense for their operating environments?

The biggest challenge for any organization is often getting started. The most crucial step is to take stock of your current environment. Where do you need help? Our factory employees wasting time on routine and repetitive tasks? Maybe investing in automation and robotics is the right step. Once you've been able to address the areas you need help with, the next step is to get started.

Start small on one project, assess the results, and then scale to additional projects. Once businesses gain confidence and see positive results, it's easy to build momentum and make investments in other digital technologies that modernize and improve the manufacturing process.

5. Any Industry 4.0 pitfalls you have seen that can actually hamper production?

One of the key tenants behind Industry 4.0 is having the advanced manufacturing technology to extract real-time information and make accurate decisions in real-time. However, businesses experience data overload when they aggregate and analyze data from thousands or millions of feeds, which can lead to a delay in decision-making. One of the most common pitfalls is making decisions based on outdated information. Whether from an internal source or working with a partner, flexible interfaces become incredibly important.

6. How has the industry benefited from adopting elements of Industry 4.0?

It comes down to making better decisions based on current information. Whether you're talking simulation, automation, machine to machine (M2M) communication, or virtual reality, businesses are finding that it's easier to collect vast amounts of data that weren't accessible before.

Real-time data must get to the right decision-makers fast, so they make good decisions quickly. If you're not going to utilize the data in this manner, it might make sense to allow the equipment to collaborate and automatically decide for itself. That way, you're not applying new fixes to old problems.

Digitizing processes and coupling them with advanced analytics empowers employees to gain deeper insights, run tests, add innovation, and make real-time decisions that keep manufacturing operations running smoothly. For instance, with a digital supply chain, manufacturers can immediately see when they have a shortage and where they can source inventory.

7. Which elements are benefiting the industry the most and can be associated with improved business outcomes?

It depends on the business need and what an organization is looking to manufacture. As an example, Flex recently leveraged simulation in 2020 and created a digital twin of a factory to optimize the manufacturing of a medical device for a customer. In this case study, the device model has reiterated hundreds of thousands of times, which enabled the team to quickly run "what if" scenarios and test out numerous variables and constraints to see what best fit the process. Using simulation, an approach that otherwise would have taken three months to complete was reduced to only three weeks.

Or on the shop floor, energy consumption data can identify when a piece of equipment is about to wear out so you can order a replacement or scheduled maintenance. Another great example is automation: high-speed cameras can detect if a line starts to wear out or if you need to address a specific section. These examples showcase how vital data is when properly harnessed.

On the demand front, the customer was looking for 8 million per quarter. Manually, the scheduling team was averaging around 5.5 million. Using simulation over a few days, the scheduling was optimized to produce 8.1 million units. And when it comes to efficiency, simulation directly impacted the output, increasing one station by 69.8% and another station by 16.75%. Additionally, simulation was able to reduce change over time by 27 hours. This project reaped multiple benefits for the customer by implementing simulation, including time savings, operational benefits, technology benefits, business benefits, and project management benefits.





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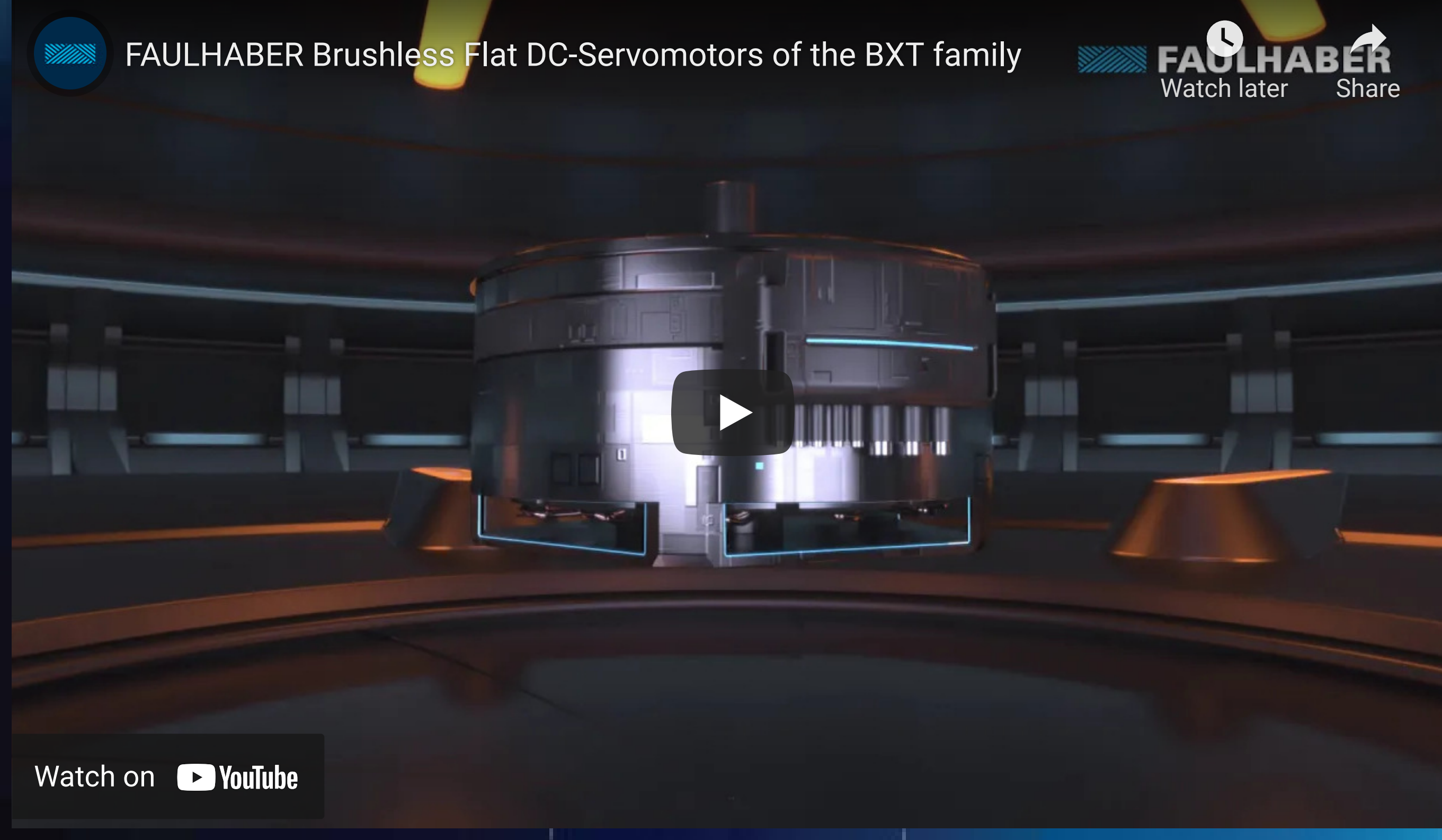
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Rockwell Automation

Mr. Amitvir Singh Bhamra
Industry Consultant Automotive

1. What were the first 5 actions you took for your department upon notice about the Covid-19 pandemic?

One of the biggest challenges brought by Covid-19 was the need to work remotely and switch from in-person interactions to a more hybrid or completely virtual setup. Globally, we rapidly transformed how, when, and where we worked without compromising employee safety or productivity. This included adjusting all domestic and international business travel plans due to global boarder restrictions.

Rockwell Automation employs 23,500 in more than 100 countries worldwide and the safety and well-being of all our employees is our utmost priority. As we shifted approximately 70% of our employees to work from home, we needed to ensure that telecommuting would not impact business continuity. We prioritized ensuring our employees were supported in setting up a conducive home office environment without compromising on network security by providing them with the necessary technological tools, including Wi-Fi dongles and desktop computers.

Equally, we had to ensure we continued to support our customers through this time.

The nature of manufacturing meant that the immediate question most had was around how they could work with only a small number of workers physically allowed to be present on factory floors. We addressed this immediate need with advanced augmented reality (AR) tools that would help plant workers adapt to new norms and specialists respond in real-time. Customer service, learning, and development did not take a backseat during the lockdowns. Employees were equipped with technology to help them remotely service customers, troubleshoot implementation issues, and continue monitoring ongoing projects through their laptops and even mobile phones, reducing their need to return to our offices.

2. There were many companies that went into limbo and were unsure about where to go next, please share with us how did your team help manufacturers in coping with their production and operation?

Rockwell Automation is dedicated to delivering the next generation of smart manufacturing and providing value for customers no matter the circumstances. When COVID-19 struck, we rose to the challenge of working hand-in-hand with customers to meet their changing business needs, whether it be expedited turnaround times, logistical shortages or accelerating productivity.

During the peak of the pandemic, when complete lockdowns were imposed by many governments, we arranged virtual technical training sessions to educate our customers on how to troubleshoot and maintain their enterprise tech tools, such as drives, servos, programmable logic controllers (PLC), and more. At the same time, our technical support teams were readily available to help address any questions or issues faced by manufacturers. We also ran complimentary e-learning courses for our

customers to keep their employees up-to-date with the latest developments and equip them with the skills necessary to successfully deploy the tools provided. To help manufacturers prepare for the gradual economic reopening, we developed a start-up readiness guide to help our customers adjust and thrive in the new normal without compromising output quality and workers' safety. This readiness guide provides a step-by-step walkthrough best practices to help manufacturers restart operations, as well as sharing scenario mapping for enhanced preparedness. Topics covered in the guide include guidance on safety checks, inventory mapping and management, test driving dormant equipment, re-establishing communications protocols, and more.

3. Has system integration becomes more crucial during this time for the factory?

For years now, Rockwell Automation has been driven by a singular vision of helping our customers realise the significance of The Connected Enterprise®. In this age of technological advancement, manufacturers need to scale output, incorporate flexibility, improve holistic visibility, enhance worker productivity, and enable truly intelligent automation.



The pandemic has led many industrial players to realise they need to ramp up their ability to adapt to remote working and decentralised operations. The Connected Enterprise® makes this possible by converging plant-level and enterprise networks to securely connect people, processes, and technologies. Better systems integration also calls for the need for better cybersecurity to protect an organization's physical, intellectual, and digital assets. We work with both our customers' IT and operations teams to establish multiple layers of protection through a combination of physical, electronic, and procedural safeguards.

When developing a control system, our core security principles can be summarised in five points:

• Secure network infrastructure

A resilient network security system that uses cloud technology, data analytics, and mobility tools to optimise systems monitoring

• Authentication and policy management

Minimizing threats from internal resources through enabling centralised control over user access while allowing for flexibility for remote work.

• Content protection

Safeguarding sensitive information such as intellectual property while maintaining productivity and quality.

• Tamper detection

Having a strong coordinated response in place to detect and disable any unwanted activity, including regular backups of digital assets and the meticulous monitoring of actions an inventory.

• Robustness

Connecting the enterprise under a Converged Plantwide Ethernet (CPwE), a single-system architecture that allows for centralised monitoring and reporting.

4. Which sector in manufacturing recovers the quickest during this time?

Essential businesses such as F&B or pharmaceuticals are likely to recover a lot faster than say, aviation. But more importantly, it's manufacturers who are agile and quick to pivot, that are most likely to bounce back even stronger after a crisis. Regardless of the industry or sector, digital transformation is the true key to recovering and maintaining operations and is what will allow manufacturers to adapt to new ways of working whilst capitalising on growth opportunities. A more interconnected enterprise means better data and analytics, which can improve predictability, adaptability, and long-term decision-making.

5. What challenges do your team face, especially traveling is so difficult during this time, and how are you able to diagnose cases for your clients?

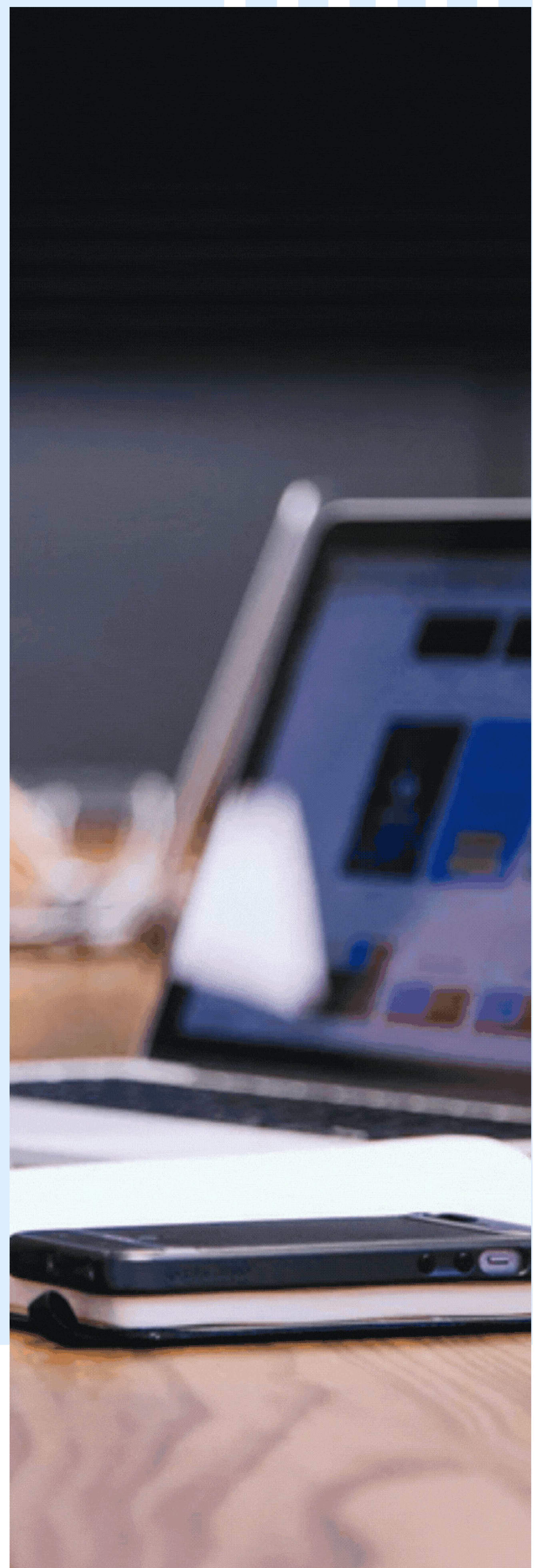
Many of our customers have been classified as essential businesses. For industries such as pharmaceutical or medical equipment manufacturing, our customers have to balance meeting skyrocketing demand whilst staying compliant with social distancing measures and limits to maximum group capacity. One way we've managed to continue servicing customers without interruption is by providing complimentary access to our AR program; an advanced simulation tool that can capture manual activities in real-time and enable rapid knowledge transfer, bridging expertise gaps. AR allows remote experts to help onsite personnel perform critical tasks and maintenance, such as those required to recover from unplanned downtime or outages. For example, equipment manufacturer intelligence can be streamed directly to an engineer's device, even as maintenance staff at other plants help with the diagnosis. Mixed reality devices also help frontline employees to safely assemble complex products, by equipping them with real-time production data and instructions as required while performing the task

Simulation tools enable engineers with tasks such as mapping equipment layouts and studying the impact layout changes have on productivity and throughput equipment from anywhere in the world.

6. What do you foresee will be the next industrial trend?

Smart manufacturing is the true gateway to a comprehensive digital transformation. Seamless connectivity is the key here – integrating smart devices will spur better collaboration while data and analytics tools will enable better and faster decision making. The rapid evolution of technology in industrial automation systems requires tighter integration between devices on the plant floor and the rest of the enterprise. This integration requires a secure network infrastructure, smart devices for efficient data collection, and the ability to turn data into actionable information. This integration of control and information across the enterprise enables industrial players to optimize their operations. To summarise, smart manufacturing can be defined as the seamless integration of control and information across the enterprise.

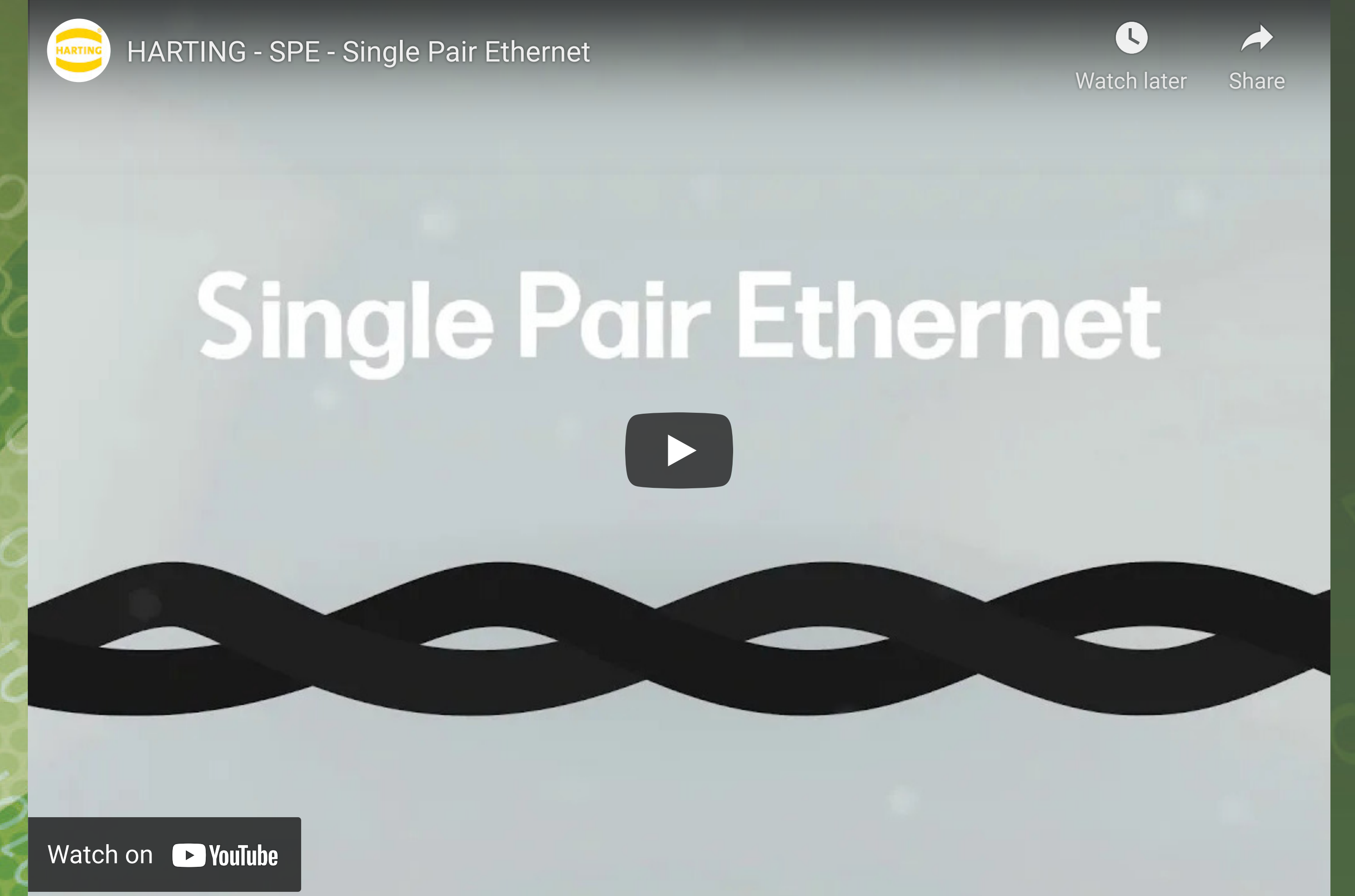
The Connected Enterprise® will allow manufacturers to become more flexible, resilient, and better positioned for future growth, by connecting factory floors, facilities, business operations, and the people who run them.





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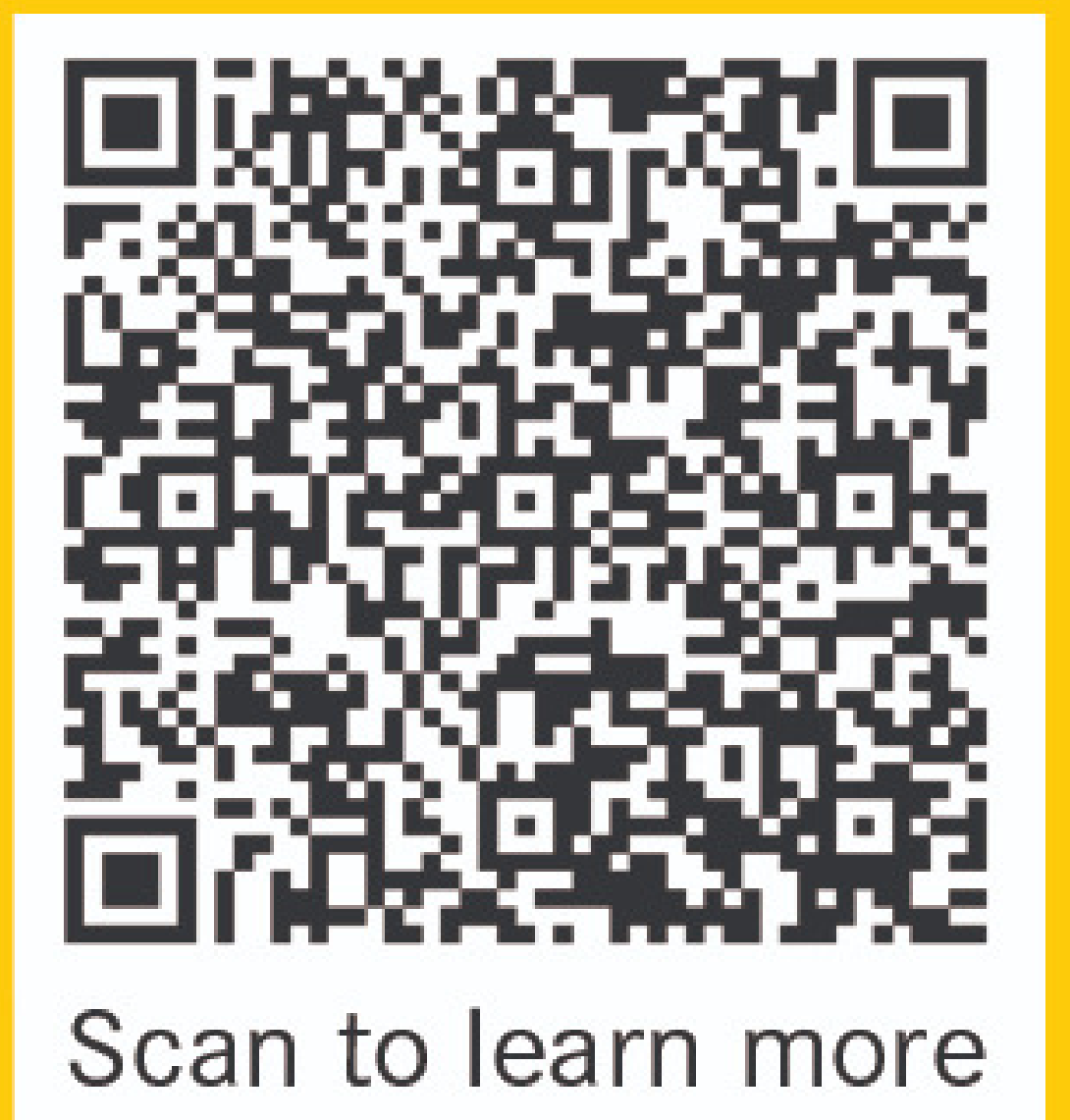


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POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MR. CARSTEN HECKER
HEAD OF ASIA PACIFIC



(What are your top concerns to get through the COVID-19 situation at the workplace?)

With a few exceptions, all igus motion plastic products are manufactured at headquarter in Cologne/ Germany. In general and at this critical manufacturing location in specific we have to ensure that our people are safe and protected and our operations stay open to ensure our global supply chain support for our customers. The production here is currently running at full capacity and so far we have had hardly any breakdown in the supply chain, as we have been implementing the two supplier strategy for years without exceptions. However, we all know that the situation is very fluid and the virus is changing. We have to be prepared for quick adoptions and changes as and when required. The same cautious approach we took over the last 12 months in Singapore. We quickly adopted a work-from-home regime which has been proven to be effective and focused. Of course, the daily routine changed as we have to ensure the employees continue to feel being part of a team.

Aligned with our OKR approach, we have started regular check-ins, internal and external virtual meetings, and a standard reporting structure allowing us to monitor success.

What are the recovery plans of the company during this pandemic?

We managed the pandemic so far decently well. No doubt numbers have been affected but we have been able to change our routine within literally minutes. We started remote visits, we kept close contact with our customers via different media and we ensured we keep sales-related activities at an accelerated level. The economy has started to recover and we have been seeing elevated demand for specific industries and products. igus motion plastics products can be found literally in any moving application and with a wide range of opportunities, combined with our ongoing development of new products and materials we are optimistic to continue our growth ambitions.

(Do you overall satisfied with the recovery plan during this pandemic?)

In igus, any crisis is seen as an opportunity - you manage old behaviors differently, you adapt and manage new tasks and you encourage all employees to question status quo. From crisis mode, we quickly changed to opportunity focus and we recognize that our ongoing investment into new products, new materials, equipments are paying off step by step. We have rolled out cost measures on global scale which are focussed on waste reduction, productivity gains and cost reduction. A consolidated approach on all levels accelerated traction and we will continue to drive those measures forward.

(What are the temporary and permanent changes that are happening at the workplace due to this pandemic?)

Iigus Cologne being our headquarter is a crucial manufacturing base for global support, It is all the more important that we have implemented over 250 preventive measures at the Cologne production site since February 2020, both those prescribed

by the authorities and those that go beyond them. We offer, for example, free rapid tests to our visitors in co-operation with a Cologne institute and have installed a drive-in for self-collectors on our premises. We have installed indoor air filters in our main canteen, the corona rapid test center and in parts of the factory. The tubes, which have been attached at ceiling height, absorb the air and free it from possible (corona) viruses and bacteria via UVC radiation.

Many more of our measures can be found here...

<https://www.igus.sg/info/precautions-during-COVID-19?cologne>

How is the company handling work travel to high-risk regions?

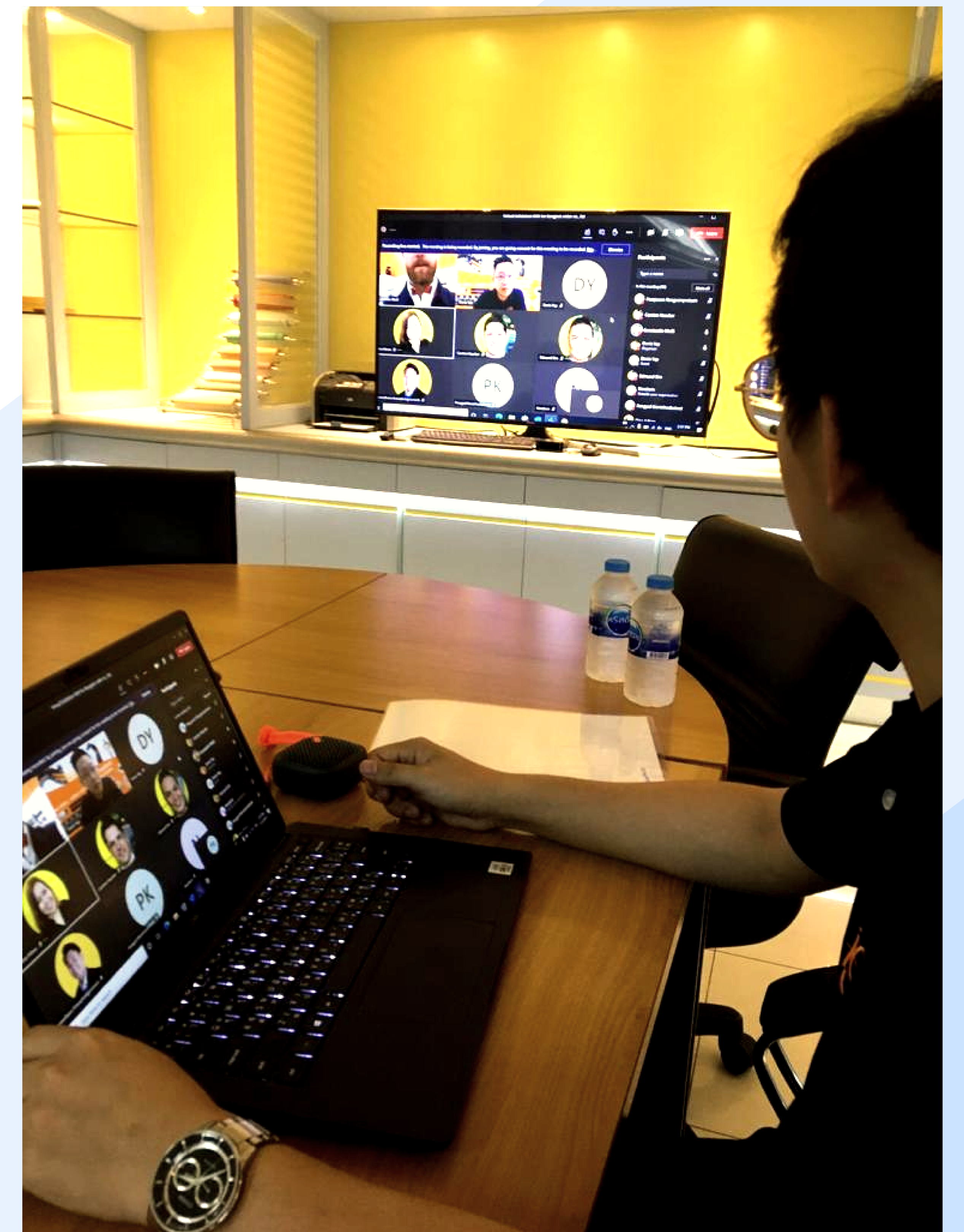
Travelling has been a standard part of our business practice, be it from our outside sales teams or product managers or the management for internal meetings and customer discussions. The pandemic has shown us that traveling is not always needed and exchange discussions can take place remotely via e.g. Zoom or Teams. As a company, you not only save time and money as a result, but you are able to remotely involve many more people from different sections if needed. We utilize e.g. our purpose build virtual exhibition booth in Cologne to showcase our product news to our customers. So currently our employees are only traveling within the

respective country but not cross the border to other regions - even it is selectively possible (e.g. travel bubble). Post pandemic, this may become a norm and excessive traveling as it used to happen pre-covid may not take place anymore. At the end, it will be a combination of physical and remote meetings - focus on productivity and environmental (CO2 footprint) will play a part in our consideration as well.

Do you have any recommendations on what actions to address the challenges at the workplace during COVID-19?

There is no standard approach from my perspective and it all depends on the companies' direction, environment and focus. In igus though our first concern goes to our customers and the well-being of our employees - we are not taking any shortcut and risk in this aspect.

Important and crucial is to ensure a close communication loop to employees of all levels. Working from home can be a challenge, considering that many families live together with the parents, relatives, children, etc. We have to ensure to support the employees to remain focused and productive. We paid each employee a certain amount of money for e.g. a proper chair, internet connection, etc.



(As and where possible, we allow flexibility to working from home, even post-covid. In our headquarter in Cologne, WFH or WIN from HOME as we call it has become a norm till end of 2022!

My recommendation: Stay flexible, consider unconventional ways, support your employees and customers and communicate your actions.

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POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MS. SUSAN LIM

UNITED MEDICARE PTE. LTD.

Is there any positive outcome in regard of your home life now compare to before the pandemic?

No positive outcome because since pandemic , there are more task to be manage

How is the pandemic psychologically affecting you?

Physically tired due to work perhaps

How would you rate your knowledge level on how to prevent spread of the Coronavirus?

Probably 7 over 10

Would you support or oppose making it compulsory to wear face masks at the workplace while Coronavirus outbreak is still ongoing?

I support this rule because it is important and compulsory for us to wear masks at the workplace especially when we're are exposed with the covid-19 patient.

Has your job require more task now compare to before pandemic?

Yes for sure. More administration task.



Has there been a reduction in salary due to COVID-19?

No

What you think the level of risk of catching COVID-19 at your workplace?

It is rather risky in my field. The main difference would be more task and responsibility than before.

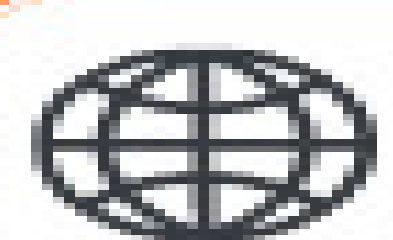
What are the biggest challenges for right now in regard to COVID-19 at the workplace?

Being exposed to covid-19 patient

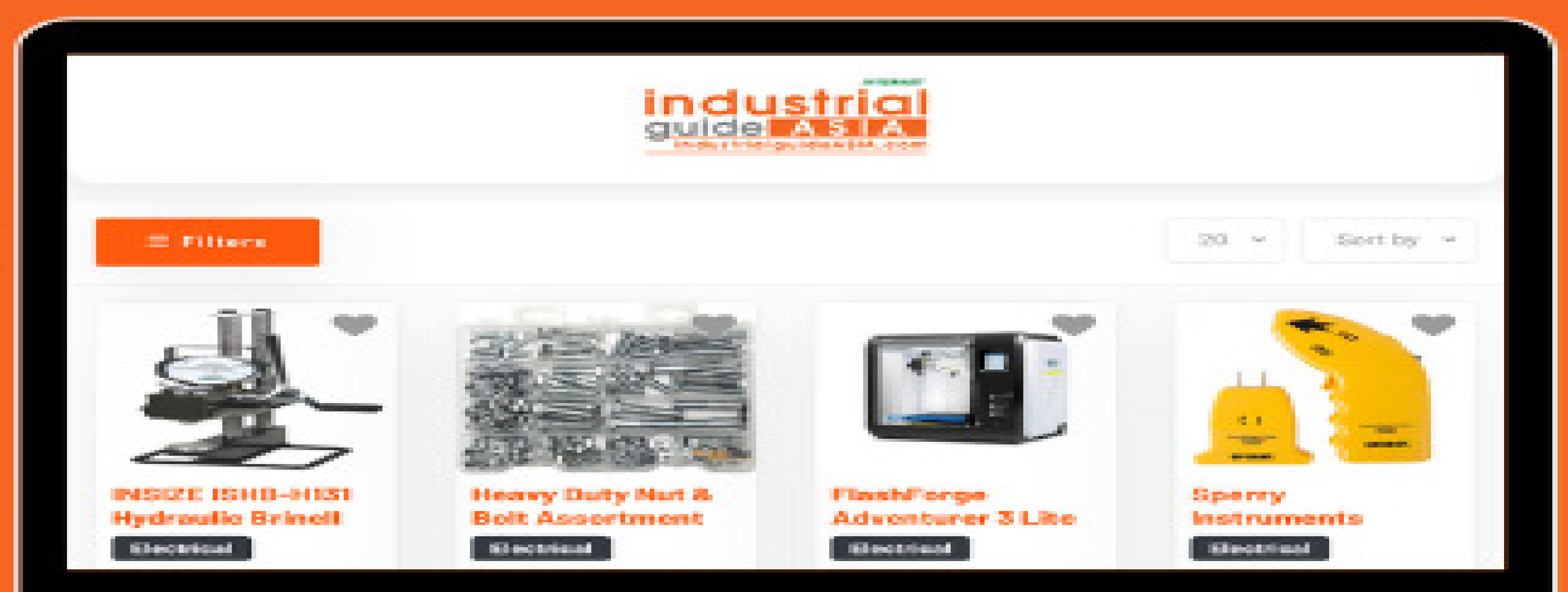
Do you have any recommendations on what actions to address the challenges at the workplace during COVID-19?

Just following the standard operating procedure that had been given to us from the company's guidelines, we should be good.

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POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MS. TRACY VOO
PSA SINGAPORE LTD.

How big is the impact of this Covid-19 pandemic on your personal life?
Lost of many job opportunities

If you have 1 thing you could possibly prepare before Covid-19 Pandemic, what would it be?
Having more savings for the rainy days

What are your top concerns to get through the COVID-19 situation at the workplace?
Job retrenchment

How do you see your personal life in the next two or three years if the Covid-19 Pandemic persists?
I think the most important thing for me now is staying safe and hopefully not catch or affected by the virus.



Have you worked remotely? If yes, how much of an adjustment was working from home for you?

No, we are not working from home

Have pandemic-specific strategies been developed for each department in the company?

No, this come as surprise to the world

Does your workplace provide masks, sanitizer, or viral sprays for the employees?
Yes

What are the biggest challenges for right now in regard to COVID-19 at the workplace?
One of the biggest challenges for me right now is the fear of retrenchment from the company.



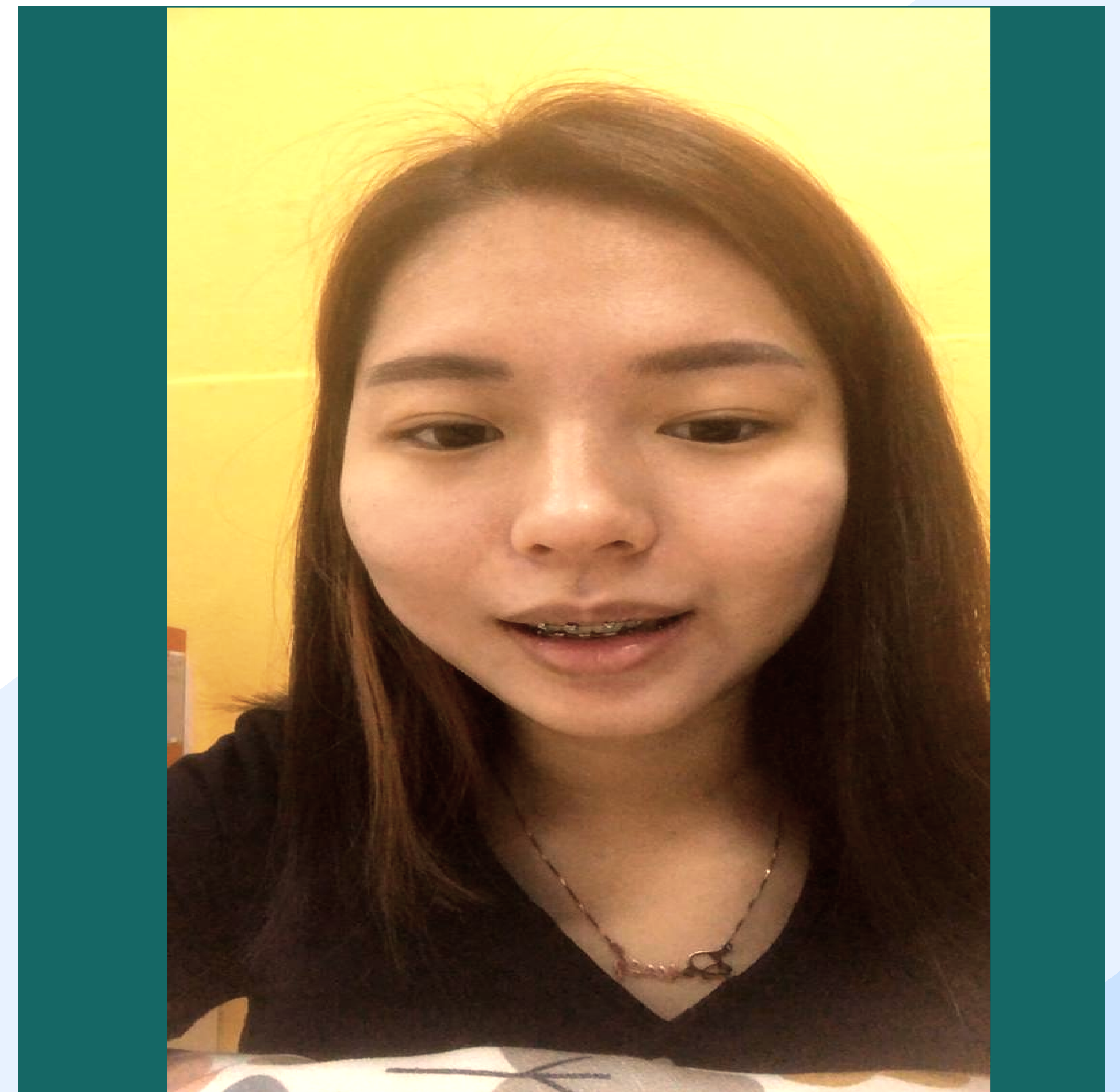
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POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

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How is your home life during the pandemic?
More free time than usual

What does your home life look like before the pandemic?
I was always running on a tight schedule

How have you handled the stress of the pandemic and all the quarantine?
I catch up on movies

How do you feel about an eventual return to work?
I am excited and looking forward to go back to work

What are your top concerns to get through the COVID-19 situation at the workplace?
Being infected at the workplace

What are the recovery plans of the company during this pandemic?
Currently there isn't any recovery plans as business continue as normal for us.

Do you overall satisfied with the recovery plan during this pandemic?
Yes

What are the temporary and permanent changes that are happening at the workplace due to this pandemic?
Temporary changes would probably be following the standard operating procedure during pandemic such as wearing mask during work, maintaining social distance and using hand sanitizer.

How is the company handling work travel to high-risk regions?
No work travel for now to ensure safety of all employees.

Do you have any recommendations on what actions to address the challenges at the workplace during COVID-19?
Nothing for now as everything seems fine as we are in the essential services line.



POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MS. NORAMAIZATULAKMA MOHD RASYID
KOPITIAM PTE LTD.



Does this Covid-19 pandemic situation affect your personal life?

Yes, absolutely.

What kind of effects that you are facing during this Covid-19 Pandemic situation?

Less industry events, more work-from-home situations for us

Do you think it is important for all workers to prepare a long-term Risk Management in life?

Yes, this is very crucial.

If it yes, could you please briefly explain what kind of Pre-Risks Management plan that you have prepared? If no, can you please explain why you had not prepared any Pre-Risks Management plan?

No, as no one expected such a pandemic to occur on such a large scale basis.

Does this Covid-19 pandemic affect you financially, psychologically, or nothing at all?

Not really.

Is your Industrial company affected by this Covid-19 Pandemic?

No

Could you please explain the steps your company taken after this pandemic?

We have adopted a Team A/B work-from-office system where different groups come into the office on alternate days.

Do you have any major concern working on site during Covid-19 Pandemic? If yes, what is it?

Perhaps travelling to work as it may result in exposure to the virus.

Does your company do a lay off to some workers?

No

Does this pandemic slow down your company's performance? Like the manufacturing process, distribution process or etc.

No

As an associate, do you get any recovery plan support from your company?

No

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POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MUHAMAD HAMKA BIN MUSTAPA
KENTUCKY FRIED CHICKEN SINGAPORE



Is there any positive outcome in regard of your home life now compare to before the pandemic?

The only positive outcome that I noticed is that I have more time to spend with my families than I use to due to the quarantine period.

What kind of effects that you are facing during this Covid-19 Pandemic situation?

Personal Income.

Do you think it is important for all workers to prepare a long-term Risk Management in life?

Yes...of course it is crucial especially with all Pandemic that is going on.

If it yes, could you please briefly explain what kind of Pre-Risks Management plan that you have prepared? If no, can you please explain why you had not prepared any Pre-Risks Management plan?

Yes...one of the pre-risks management plans that I prepared is money because it is important to survive.

How did COVID-19 affect your job so far?

Nothing seems to have change because it did not affected the company performance or anything.

Is your Industrial Company affected by this Covid-19 Pandemic?

Not really, we are in the food sector.

Could you please explain the steps your company taken after this pandemic?

The company increased employees monthly salary.

Do you have any major concerns working on site during the Covid-19 Pandemic? If yes, what is it?

Afraid of being affected by the virus by the customers.

Does your company do a lay off to some workers?

Yes, few employees from my department had been lay off.

If you have 1 thing you could possibly prepare before Covid-19 Pandemic, what would it be?

I would like to prepare more in terms of financial.

FREE JOB POSTING

POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MS. ANSABELLE ZHANG
PETROEAST SINGAPORE



What kind of effects that you are facing during this Covid-19 Pandemic situation?

Less industry events, more work-from-home situations

Do you think it is important for all workers to prepare a long-term Risk Management in life?

Yes, I believe it's important because we need to be always preparing with unexpected incident that might happen in the future.

If it yes, could you please briefly explain what kind of Pre-Risks Management plan that you have prepared? If no, can you please explain why you had not prepared any Pre-Risks Management plan?

No, as no one expected such a pandemic to occur on such a large scale basis.

Could you please explain the steps your company taken after this pandemic?

We have adopted a Team A/B work-from-office system where different groups come into the office on alternate days.

Do you have any major concerns working on-site during Covid-19 Pandemic? If yes, what is it?

Perhaps travelling to work as it may result in exposure to the virus.

Does this Covid-19 pandemic slow down your company's performance? Like the manufacturing process, distribution process or etc.

No

As an associate, do you get any recovery plan support from your company?

No really because of the company that I work did not actually affected by the Pandemic.

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POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MR. NESLON RAULAN

HC SUITES ENTERPRISE LTD. (SINGAPORE)

How big is the impact of this Covid-19 pandemic on your personal life?

The covid-19 pandemic caused me to be unemployed for half a year now.

What are your top concerns to get through the COVID-19 situation at the workplace?

To avoid sick or unhealthy people particularly for someone those are affected by the covid-19 virus.

How do you see your personal life in the next two or three years if the Covid-19 Pandemic persists?

Manageable, in Singapore the government has a very strict SOP and we believe it's the new normal.



Have you worked remotely? If yes, how much of an adjustment was working from home for you?

Yes. Currently, the employee provides accommodations for me so no need to travel much.

How is the company handling work travel to high-risk regions?

So far in Singapore, it's safe and low risk.

What are the biggest challenges for right now in regard to COVID-19 at the workplace?

The biggest challenges for me would probably due to the foreign guests coming to stay with us. I'm just afraid if we got affected by the foreigner as we are unsure if he or she has the virus of Covid-19 or not.



POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MR. AJI TEGUH PRIHATNO , CEO/FOUNDER

PT. JAYA OTOMASI SOLUSINDO/ JAVATECH AUTOMATION



Did the Covid-19 Pandemic have an impact on your personal life?
Yes, the impact of pandemic has an impact on my personal life.

What is your biggest challenge in dealing with Covid-19 at your job? Tell me briefly.

Big impact where Javatech clients are mostly from the manufacturing industry . When the Pandemic occurred, a lot of production from our customers decreased dramatically. Some of our customers who temporarily stop the production process and there are also those who close the door to vendors (factory external parties) to enter the factory because it is in order to reduce physical meetings (social distancing). This resulted in Javatech unable to deliver solutions and support to customers and reduce company revenue.

If you had 1 thing that you could possibly prepare before the Covid-19 Pandemic, what would it be?

To be better prepare financially for the staffs and company as there will be closure and locked down anytime.

How would you view your personal life in the next two or three years if the Covid-19 Pandemic was still happening?

If the pandemic persist, then there must be new "radical" breakthroughs that our company must undertake in the context of business survival. These breakthroughs can be in the form of solutions and new technology products needed by society during a pandemic.

Was your work process also hampered during the Covid-19 pandemic situation? Could you briefly describe what has been the difference to your job position in your workplace?

Several obstacles to the work process occurred during the this situation. We were required to carry out a rapid test and PCR test before entering the customer's factory area, this add on to many extra cost.

Can you briefly describe the steps your Industrial company took after the Covid-19 pandemic occurred?

- Cost cutting
- Preparation of new technology products and solutions to be

offered to the market.
• Market expansion

In your opinion, is the new policy from your company effective enough to be implemented in the face of the Covid-19 pandemic situation?

Yes, the policies of our company are quite effective

Have you prepared a strategy in advance for your company to anticipate unexpected situations that may occur? If so, please describe briefly the strategies that have been prepared. If not, please tell briefly why you haven't prepared this.

Generally, we have prepare for unforeseen conditions in our business. In short, the "red-to-blue ocean strategy" can be our alternative in dealing with unexpected situations.

What is your company's recovery plan during this pandemic? Have you done the plan? Please tell us briefly

A recovery plan is in progress. In brief, we are exploring collaborations with other companies to deliver new products and technology.

Are you overall satisfied with your recovery plans for the duration of this pandemic?

Not satisfied, there is something that can be improved

POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MR. AMEL

PT. GFC TERPADU

How has your work routine changed since the COVID-19 outbreak?

Work is more complicated now

What were the impacts that you faced during the Covid-19 Pandemic situation both in terms of work and personal life?

Very much

Do you think it is important for all workers to prepare for long-term Risk Management in life? Have you prepared it?

important but unfortunately I am not well prepare

Has the Covid-19 pandemic affected you financially, psychologically, or not at all? If so, briefly describe why this happened

Of course, we have to take pay cut.

How does your company make changes to the Rules & Regulations, Policies, and Employment Contracts? Did the changes affect your work life or personal life? In what ways did this affect you?

Salary



Did your company lay off some workers? What would you do if you were one of them?

Not that I know of

Did you feel worried while working in an Industrial Estate during the Covid-19 Pandemic? If so, please describe your concern

Yes, because many have contracted the virus in our country.

How would you view your company if the government required all workers to work remotely? Have you prepared for the possibility for this to happen?

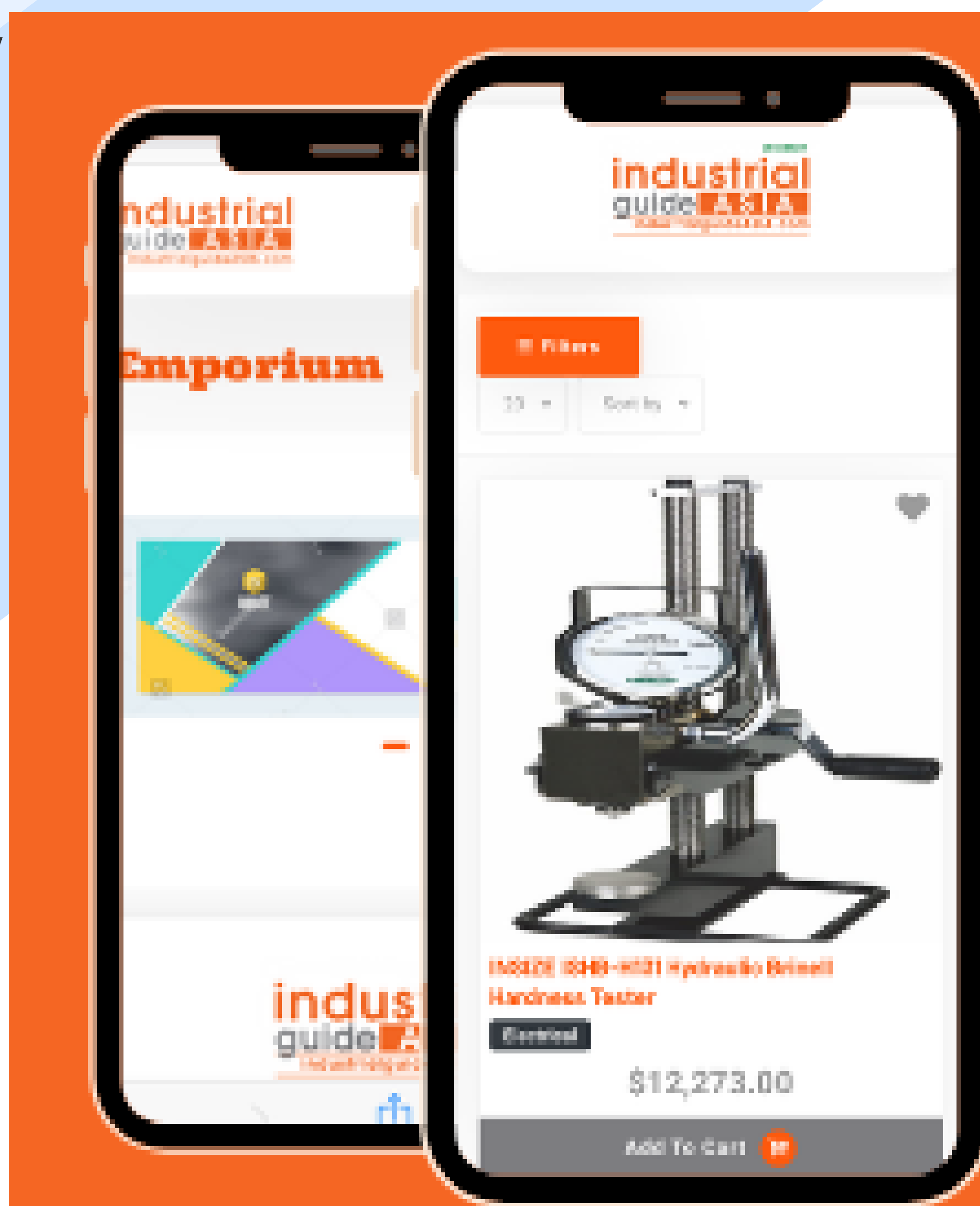
Not yet, we are not ready for this.

As a worker, do you get recovery plan support from your company? If so, please mention it. If not, what do you think the company should provide?

Not for now.

In this time of uncertainty, what are your goals for your company and your personal life? Can this be achieved during a pandemic situation?

Hopefully things can get better soon and we can thrive again



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POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MS. CLARISSA

PT. TIARA BUANAMANDIRI

How has COVID-19 affected your work so far?
We do not have any significant impact

Is your company currently providing more jobs than before the pandemic? what is the difference like?
Just the same, there is no difference

Has there been any reduction in wages due to COVID-19? Have you experienced it? What do you think about this?
Thank God, we are ok , and hopefully we can go back to where it was.

In your opinion, is the new policy from your company effective enough to be implemented in the face of the Covid-19 pandemic situation? Both in terms of financial, work contract, security and prevention of transmission
Yes.

Has the Covid-19 pandemic affected you financially, psychologically, or not at all? If so, briefly describe why this happened
It quite normal just that traveling causes much anxiety



How do you seek help if you are affected financially in your personal life? Are you going to do alternative work?
I am going to start a business.

How would you view your company if the government required all workers to work remotely? Have you prepared for the possibility for this to happen?
I do, I am ready to have disruption to my work anytime.

What kind of recovery plan do you need from the government? In what ways can this help you?
Providing direct cash assistance of Rp.600,000 to employees

As a worker, do you get recovery plan support from your company? If so, please mention it. If not, what do you think the company should provide?
There is nothing so far

What would you do personally to maintain safety in your current workplace? Have you complied with all the policies that have been set?
Yes



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POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MS. FONY SIJAM

P.T SISTEMAKSESINDO PERDANA



DURING COVID-19

Has the Covid-19 pandemic affected your daily lifestyle?

Yes, I am more discipline now.

How would you view your personal life in the next two or three years if the Covid-19 Pandemic was still happening?

Will be more economical and careful in using money and still following Health protocols.

Is Your Industrial Company Affected by the Covid-19 Pandemic? In terms of whether your company has been affected by the Covid-19 pandemic? Briefly explain

This impact the whole world and of course the company I work for at the moment.

Can you briefly describe your company's new policy? is the new policy deemed safe for your own health and safety?

Our company strictly calls on all employees to follow and follow all HEALTH PROTOCOLS urged by the Jakarta government. I also personally follow and abide by these recommendations for the health and safety of all in the office and families at home.

In your opinion, is it possible for the Industry sector to work remotely from home? If possible, how do you maintain your work from the home performance?

From this pandemic, Indonesia has begun to learn to control all work from home (WFH) even though sometimes we still have to be in the office from time to time because we can't do everything if it's just at home

Has the Covid-19 Pandemic situation changed your short-term or long-term strategy for your business? What is your short term strategy during this pandemic

The current short-term strategy is to be more careful in investing in order to survive this tough times.



How would you see your business in the next 2 or 3 years if Covid-19 was still happening?

If the next 2 to 3 years the pandemic is still not over, then we still have to do our business to keep it going and in line with the pandemic because it is impossible for us to stop business, the economy will be devastated if everyone either withdraw investment or stop waiting for the pandemic to end. This is real disaster!

If you could change one thing before the Covid-19 Pandemic happened, what would you do for your business?

I will be more careful with my investment.

Have you prepared a new program so that your employees will be more productive during the Covid-19 pandemic? Has this new program been implemented for the advancement of your business? Can it be considered successful?

New programs during the pandemic were applied to employees so that with the pandemic and business there would be no setbacks and that all employees were encouraged to follow the company's SLAs AND SOPs to be more productive and consistent.



BEFORE COVID-19

What support did your company provide for the needs of the entire workforce during this pandemic?

The support received is support from the company in the form of warnings and warnings about the dangers of the current pandemic virus and the company is trying to maintain all employees stability by not cutting any wages or layoffs, and provides medicines and tools for virus prevention, and to always carry out HEALTH PROTOCOLS and provide reminders or warnings if an employee or staff does not comply. We have stricter rules now.

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POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MS .GABRIELLA
DELOITTE

How has your work routine changed since the COVID-19 outbreak?

Very different and all change , because it is necessary to work from home and to follow a system now.

What were the impacts that you faced during the Covid-19 Pandemic situation both in terms of work and personal life?

Socializing with others

Do you think it is important for all workers to prepare for long-term Risk Management in life? Have you prepared it?

Very important. I guess I am only 40% there.

Has the Covid-19 pandemic affected you financially, psychologically, or not at all? If so, briefly describe why this happened?

Yes, so it's very rare to socialize directly and I can get bored easily.

How does your company make changes to the Rules & Regulations, Policies, and Employment Contracts? Did the changes affect your work life or personal life? In what ways did this affect you?

Adapting to new changes like working virtually from home.



Did your company lay off some workers? What would you do if you were one of them?

No so far.

Did you feel worried while working in an Industrial Estate during the Covid-19 Pandemic? If so, please describe your concern.

I am ok too.

How would you view your company if the government required all workers to work remotely? Have you prepared for the possibility for this to happen?

We must accept the conditions, in order to return to normal again, of course this is mandatory.

As a worker, do you get recovery plan support from your company? If so, please mention it. If not, what do you think the company should provide?

Yes, some additional allowance for internet.

In this time of uncertainty, what are your goals for your company and your personal life? Can this be achieved during a pandemic situation?

I strive to do my best as this is my chosen career path.

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POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

GEDE EKALANA

BALI GARDEN BEACH RESORT



Did the Covid-19 Pandemic have an impact on your personal life?

Yes, absolutely yes.

What is your biggest challenge in dealing with Covid-19 at your job? Tell me briefly

The biggest challenge is having to be prepared to lose work due to layoffs and retrenchment. . Then reduce the daily work frequency to only 10 days in 1 month.

If you had 1 thing that you could possibly prepare before the Covid-19 Pandemic, what would it be?

Investing in foreign currency & gold.

How would you view your personal life in the next two or three years if the Covid-19 Pandemic was still happening?

• It will be difficult to have savings for the future

Was your work process also hampered during the Covid-19 pandemic situation? Could you briefly describe what has been the difference to your job position in your workplace?

The work process sometimes becomes hampered due to shifting work and has to adjust to the working hours of other employees. There are additional jobs to help and take care of other employees' work.

Can you briefly describe the steps your Industrial company took after the Covid-19 pandemic occurred?

Maximize existing employees and make adjustments to work agreements for employees / staff who are still working. In addition, if there is assistance from guests, the basic needs of all staff will be distributed evenly

In your opinion, is the new policy from your company effective enough to be implemented in the face of the Covid-19 pandemic situation?

Yes

Have you prepared a strategy in advance for your company to anticipate unexpected situations that may occur? If so, please describe briefly the strategies that have been prepared. If not, please tell briefly why you haven't prepared this?

No one expected that this pandemic would last long, even until the occupancy where I worked decreased significantly even if it did not operate at all

What is your company's recovery plan during this pandemic? Have you done the plan? Please tell us briefly

Registration of all staff including those sent home to receive vaccines, conduct intense promotions to local guests, various price-reducing promos, there is even a free promo to visit the swimming pool

Are you overall satisfied with your recovery plans for the duration of this pandemic?

Less / quite satisfied

POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MS. IRENE
SHOPEE

1. Did the Covid-19 Pandemic have an impact on your personal life?

Yes.

2. What is your biggest challenge in dealing with Covid-19 at your job? Tell me briefly

Working time that is more than usual, it is difficult to meet brand partners like before.

3. If you had 1 thing that you could possibly prepare before the Covid-19 Pandemic, what would it be?

Nothing.

4. How would you view your personal life in the next two or three years if the Covid-19 Pandemic was still happening?

There is an obligation to adapt to new habits.

Was your work process also hampered during the Covid-19 pandemic situation? Could you briefly describe what has been the difference to your job position in your workplace?

Yes. More virtual meetings and longer working hours.

Can you briefly describe the steps your Industrial company took after the Covid-19 pandemic occurred?



Working from home, weekly check from superior for working conditions at home.

In your opinion, is the new policy from your company effective enough to be implemented in the face of the Covid-19 pandemic situation?

Not really...

Have you prepared a strategy in advance for your company to anticipate unexpected situations that may occur? If so, please describe briefly the strategies that have been prepared. If not, please tell briefly why you haven't prepared this

Advise employees to work from home; if necessary to the office, employees need to fill out a declaration form regarding current health and permission from the reporting manager.

What is your company's recovery plan during this pandemic? Have you done the plan? Please tell us briefly.

Increase campaigns to attract buyers to come online.

Are you overall satisfied with your recovery plans for the duration of this pandemic?

Less satisfied.

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POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MR. JOHANES RICKY

PT. VERBIND TECH LANGGENG JAYA

Has the Covid-19 pandemic affected your daily lifestyle? Tell me briefly

It made a difference, I paid more attention to fitness and take multivitamin. In socializing and outdoor, I am more wary and alert now.

How would you view your personal life in the next two or three years if the Covid-19 Pandemic was still happening?

It is the same for me , will look out for latest sop.

Is Your Industrial Company Affected by the Covid-19 Pandemic? In terms of whether your company has been affected by the Covid-19 pandemic? Briefly explain.

No, it just so happens that our customers are not affected by this pandemic as well.

Can you briefly describe your company's new policy? is the new policy deemed safe for your own health and safety?

We are to look after our hygiene and sop from Company.

In your opinion, is it possible for the Industry sector to work remotely from home? If possible, how do you maintain your work from home performance?

I am working online now from home and so far it is fine and I am able to adapt to this lifestyle.



Has the Covid-19 Pandemic situation changed your short-term or long-term strategy for your business? What is your short term strategy during this pandemic

Online branding is very effective now, looking at trends and behaviour of consumer going online now.

How would you see your business in the next 2 or 3 years if Covid-19 was still happening?

There is no problem for us because our trades is rather flexible and essential.

If you could change one thing before the Covid-19 Pandemic happened, what would you do for your business?

We should be more prepare virtually. So far we have nothing on this.

What support did your company provide for the needs of the entire workforce during this pandemic?

Support and focus on humanity. Keep ourselves inform on the latest situation and prevention.



POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MR. LAMBOK H
PT. ORIENTAMA MAKMUR ABADI



How has COVID-19 affected your work so far?
It is more difficult to meet customers now.

Is your company currently providing more jobs than before the pandemic? what is the difference like?

Of course, we focus on developing the online market now.

Has there been any reduction in wages due to COVID-19? Have you experienced it? What do you think about this?

No, because online sales keep going up for us

In your opinion, is the new policy from your company effective enough to be implemented in the face of the Covid-19 pandemic situation? Both in terms of financial, work contract, security and prevention of transmission.

There is no new policy, because the old system can actually be applied in this area.

Has the Covid-19 pandemic affected you financially, psychologically, or not at all? If so, briefly describe why this happened.

Financially increased, psychologically busier and tired of working without holidays.

How do you seek help if you are affected financially in your personal life?

Are you going to do alternative work?

I stick to the same and should have more savings plan.

How would you view your company if the government required all workers to work remotely? Have you prepared for the possibility for this to happen?

We are ready. However there should be more assistance for the same.

What kind of recovery plan do you need from the government? In what ways can this help you?

We need policies that are more helpful to economic enterprises.

As a worker, do you get recovery plan support from your company? If so, please mention it. If not, what do you think the company should provide?

It should provide space for refreshing.

What would you do personally to maintain safety in your current workplace? Have you complied with all the policies that have been set?

I do comply to the policies. I follow all the health protocols i.e. wearing a mask, maintaining safe distance and washing hands.



POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MR. STEVEN WIJAYA
ASIA PULP AND PAPER

How has COVID-19 affected your work so far?

Not much changes, just that we have shift work and working from home schedules.

Is your company currently providing more jobs than before the pandemic? what is the difference like?

Not really.

Has there been any reduction in wages due to COVID-19? Have you experienced it? What do you think about this?

No, this depends on the agreement of the two parties in my personal opinion.

In your opinion, is the new policy from your company effective enough to be implemented in the face of the Covid-19 pandemic situation? Both in terms of financial, work contract, security and prevention of transmission.

Yes, the system applied to my company is quite effective in ensuring security and preventing transmission as well as making sure all business activities run smoothly.

Has the Covid-19 pandemic affected you financially, psychologically, or not at all? If so, briefly describe why this happened.

Not very specific. Maybe only changes of lifestyle that we have to stay at home more and work remotely.



In your opinion, is the new policy from your company effective? How do you seek help if you are affected financially in your personal life? Are you going to do alternative work?

There are various options that can be done to overcome this problem, perhaps from investing activities, online business, and so on, like a side.

How would you view your company if the government required all workers to work remotely? Have you prepared for the possibility for this to happen?

Of course, our work system is inline with the Government requests.

What kind of recovery plan do you need from the government? In what ways can this help you?

Recovery assistance and prevention knowledge that is effective and easily accessible to workers and society at large.

As a worker, do you get recovery plan support from your company? If so, please mention it. If not, what do you think the company should provide?

Yes, the company provides benefits for workers affected by this.

What would you do personally to maintain safety in your current workplace? Have you complied with all the policies that have been set?

Follow health protocols by maintaining cleanliness and always wearing masks, social distancing, and limiting Face-To-Face interactions.



POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MR. WILSON MACKINLEY
CV. BERKAHMAJU JAYA

Did the Covid-19 Pandemic have an impact on your personal life?

Yes

What is your biggest challenge in dealing with Covid-19 at your job? Tell me briefly

The biggest challenge is that there are fewer retail sellers starting and growing, the Covid 19 pandemic has hampered the growth of the retail business in the FnB sector, causing a decline in demand for our products.

If you had 1 thing that you could possibly prepare before the Covid-19 Pandemic, what would it be?

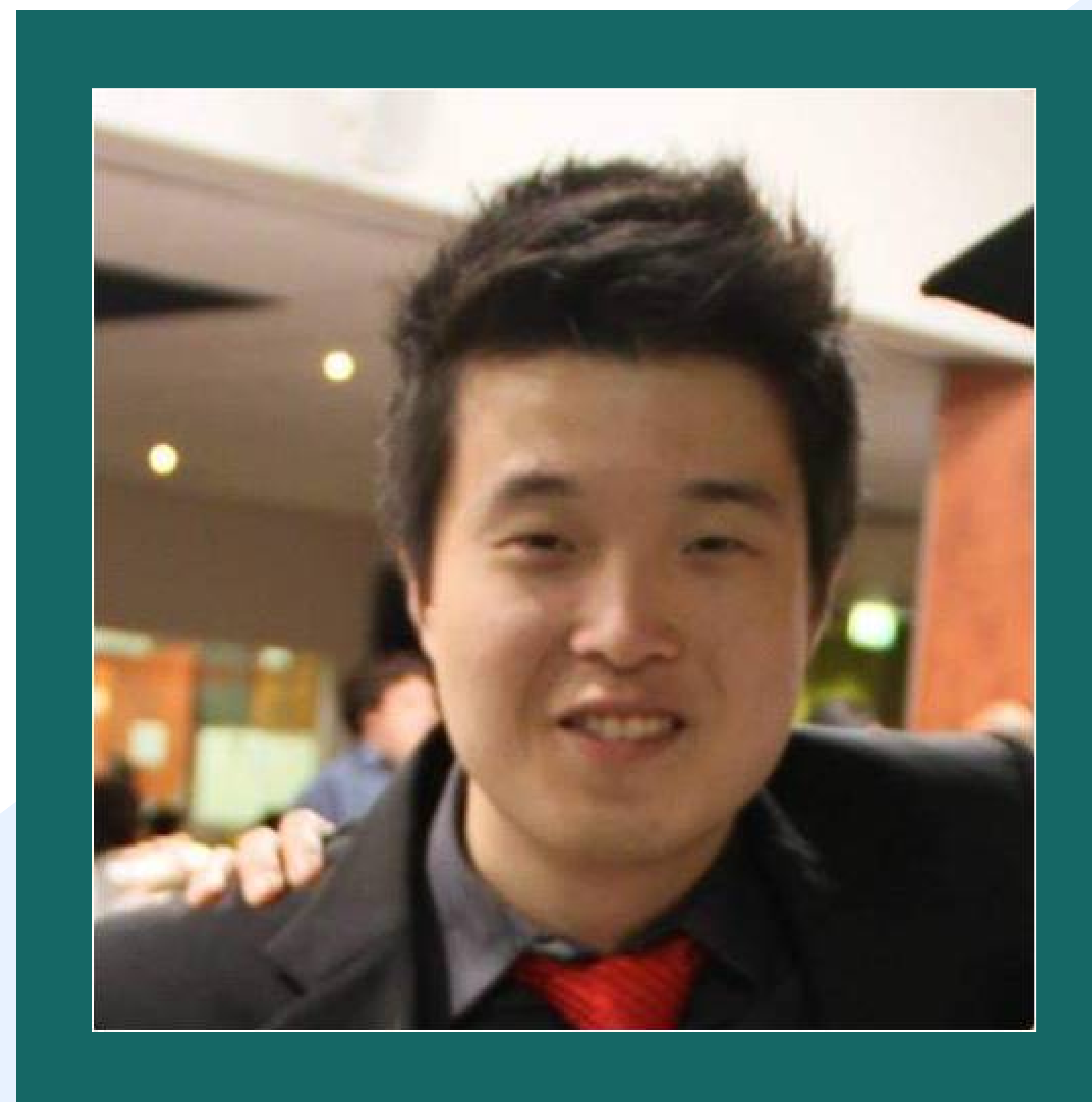
Preparation for company finances that are able to withstand production costs at the same time.

How would you view your personal life in the next two or three years if the Covid-19 Pandemic was still happening?

No idea yet for now.

Was your work process also hampered during the Covid-19 pandemic situation? Could you briefly describe what has been the difference to your job position in your workplace?

Yes, because it will be more difficult for us to meet workers



Can you briefly describe the steps your Industrial company took after the Covid-19 pandemic occurred?

We are more active online and on our social media platforms. Yes

Have you prepared a strategy in advance for your company to anticipate unexpected situations that may occur? If so, please describe briefly the strategies that have been prepared. If not, please tell briefly why you haven't prepared this.

Yes, we have prepared social media to compliment our website.

What is your company's recovery plan during this pandemic? Have you done the plan? Please tell us briefly

Our recovery plan is that we continue to conduct sales on our social media and online, to continue selling products

Are you overall satisfied with your recovery plans for the duration of this pandemic?

Satisfied

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POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MS. LAUREN

DECORINDO PRIMA GRAHA

How has your work routine changed since the COVID-19 outbreak?

So it has to be WFH and Shifting Work

What were the impacts that you faced during the Covid-19 Pandemic situation both in terms of work and personal life?

Pay cut for the first, is getting harder to travel and meet people in person now.

Do you think it is important for all workers to prepare for long-term Risk Management in life? Have you prepared it?

This is an urgency but there is nothing yet, I am thinking of it too.

Has the Covid-19 pandemic affected you financially, psychologically, or not at all? If so, briefly describe why this happened.

Yes I have a pay cut, so there is a lot more for me to ponder now.

How does your company make changes to the Rules & Regulations, Policies and Employment Contracts? Did the changes affect your work life or personal life? In what ways did this affect you?



Not really, we will be working full time from home now. The only problem is when the job demands are still high as usual, but the income is not stable for me.

Did your company lay off some workers? What would you do if you were one of them?

Yes, many are looking for job opportunities now.

Did you feel worried while working in an Industrial Estate during the Covid-19 Pandemic? If so, please describe your concern

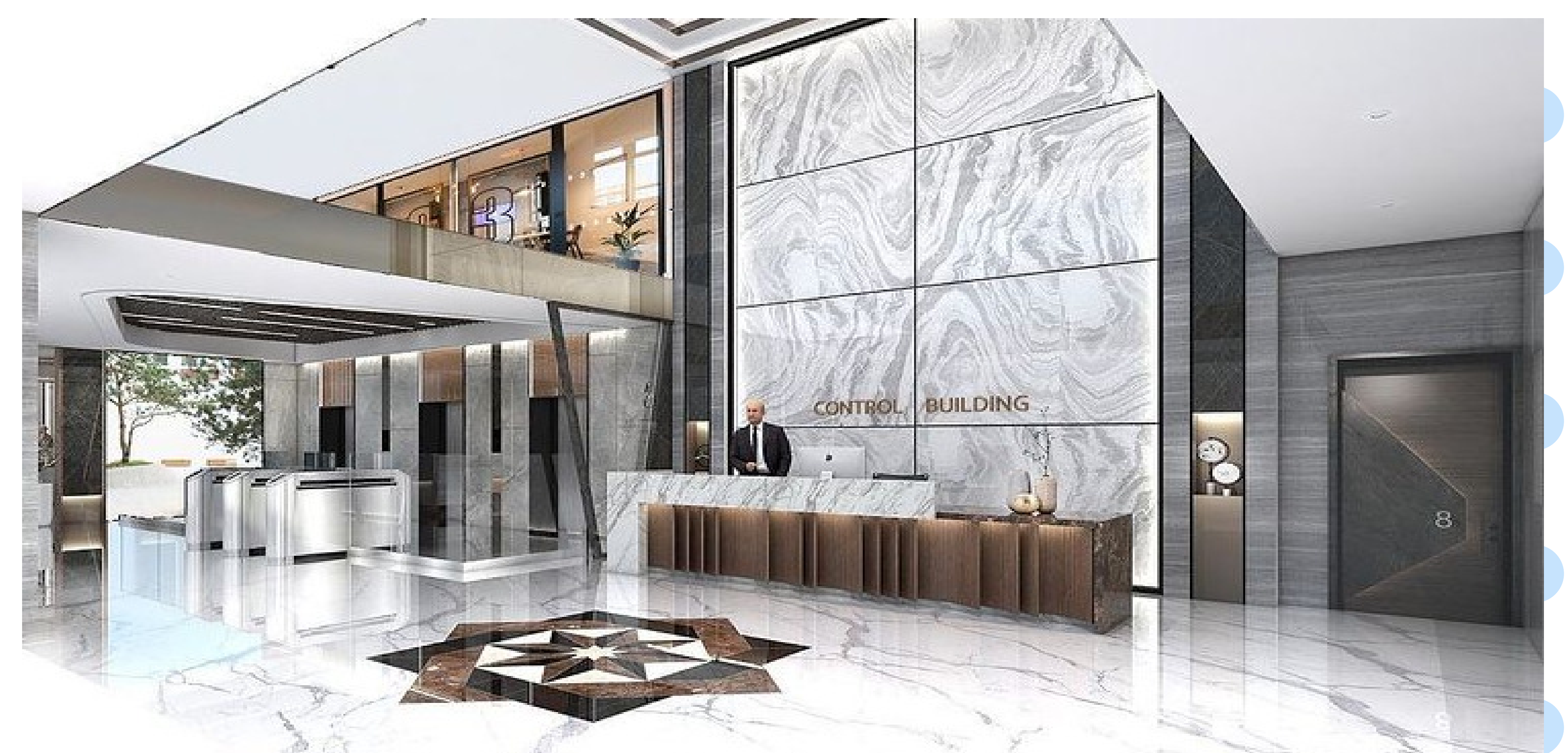
Yes. Because you still have to meet a lot of people, especially when you have to go to the site and meet people at the field.

How would you view your company if the government required all workers to work remotely? Have you prepared for the possibility for this to happen?

It should still be running. However, for some divisions it seems that it is not possible to implement the WFH system.

As a worker, do you get recovery plan support from your company? If so, please mention it. If not, what do you think the company should provide?

No there is no plans for us.



POST-COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MR. YEO TIONG HWA

SAA ARCHITECTS PTE. LTD.

Where do you see the future of your career/business in these times?

I think working from home can be a permanent style in future for the majority of business out there.

Is there any positive outcome in regard of your home life now compare to before the pandemic?

Yes. As majority of the people are working from home. There are more times to be with our family. This is something that is quite valuable in the midst of the pandemic.

How have you handled the stress of the pandemic and all the quarantine?

I think doing sports doing exercises such as slow jog really helps me to de-stress a lot.

How did COVID-19 affect your job so far?

Working from home arrangement due to COVID-19 is definitely beneficial as compared to the usual working job arrangement. However, there bound to be pro and cons of each arrangement, it depends on how one sees it.

Has your job require more task now compare to before pandemic?

I think doing sports doing exercises such as slow jog really helps me to de-stress a lot.



What COVID-impact mitigation measures are being implemented or planned to be implemented in your workplace?

Temperature reading everyday, doing safe-entry scans. Mask up in office. Alternate working day arrangements, flexible lunch time so that all do not go out at the same time.

Has there been a reduction in salary due to COVID-19?

Yes.

What happens if an infected associate comes to work?

Quarantine the infected associate. And put everyone at office in WFH arrangement for at least 2 weeks. Staff with COVID-19 symptoms to WFH at least 1 month

Have you worked remotely? If yes, how much of an adjustment was working from home for you?

Yes. Currently 100% WFH arrangement.

What you think the level of risk of catching COVID-19 at your workplace?

Relatively low.

What are the changes have you made to safety protocols because of COVID-19 in the company?

No.

Do you have any recommendations on what actions to address the challenges at the workplace during COVID-19?

No.

POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MS. FAZILLA JIANAL
JOB BANK MANAGER



How big is the impact of this Covid-19 pandemic to your personal life?

Quite big as I need to work from home but I am able to spend more time with my family.

If you have 1 thing you could possibly prepare before Covid-19 Pandemic, what would it be?

I am more cautious about our Health now.

What are your top concerns to get through the COVID-19 situation at the workplace?

Travelling is one of the main anxiety.

How do you see your personal life in the next two or three years if Covid-19 Pandemic persist?

We have more family time but financially will be affected.

Have you worked remotely? If yes, how much of an adjustment was working from home for you?

It's been good, but the electricity bills went up too without any assistance from the company.

How is the company handling work travel to high-risk regions?

It's being barred temporarily.

What are the biggest challenges for right now in regard to COVID-19 at the workplace?

Having stagard times and work from home.

Do your workplace provide masks, sanitizer, or viral sprays for the employees?

Yes



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POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO

MR. CHRIS CHAI, CEO, MTAM, AAT
CRATOS ENGINEERING



What are your top concerns to get through the Covid-19 situation?

- Traveling restrictions
- Unable to do business presentation
- Shipment delay - due to lockdown in several other countries

What are the recovery plans of the company during this pandemic?

Revise website, Online roadshow, Exchange company profile and Email potential client

Are you satisfied with the overall recovery plan during this pandemic?

No.

What are the temporary and permanent changes that are happening at the workplace due to this pandemic?

Sales decrease less than 50% (2019-2020)

How is the company handling work travel to high-risk regions?

Swab test (quarantine before/after traveling)

Do you have any recommendations on what actions to address the challenges at the workplace during covid-19?

Workplace sanitised and online meeting during lockdown (zoom/google meet)

What assurance need to be provided to the facility associate so that they are safe work?

Sanitisation of workplace.

What are the company's top priorities in the next few months?

Increase sales and financial stability.

What are the biggest challenges right now in regard to covid-19 at workplace?

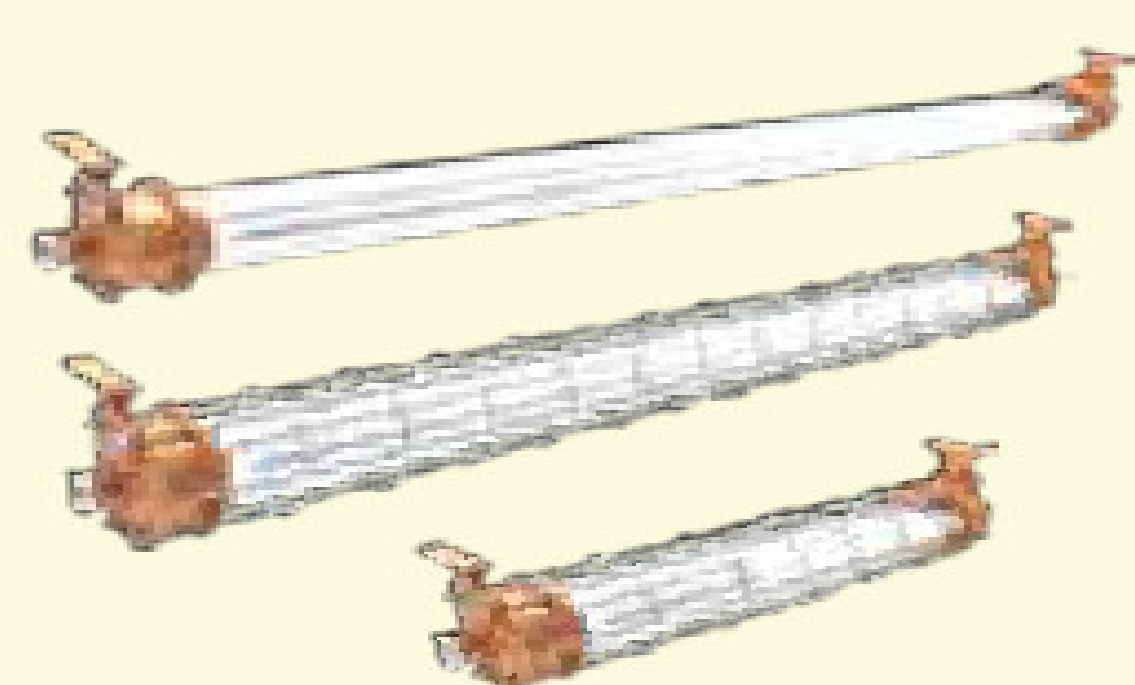
Bargaining power decreases, demand decreases =, causing sales to drop. Unable to travel, cost increases and delayed shipment from overseas.

What support do the company provide to an associate during this outbreak?

Instead of laid off, to reduce associate's working time to reduce operation cost.

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POST COVID-19 RECOVERY EVERYDAY LIFE OF AN INDUSTRIAL HERO



SANGFOR

MS. VINNA, MARKETING EXECUTIVE
PT SANGFOR TECHNOLOGIES INDONESIA

**How has COVID-19 affected your work so far?
COVID-19 does affect me a lot in terms of work**

Is your company currently providing more jobs than before the pandemic? what is the difference like?

Yes, the company I'm currently work demand more work commitment than ever.

Has there been any reduction in wages due to COVID-19? Have you experienced it? What do you think about this?

No, there is no reduction for the employee's wages.

In your opinion, is the new policy from your company effective enough to be implemented in the face of the Covid-19 pandemic situation? Both in terms of financial, work contract, security and prevention of transmission

I believe that the new policy from my company is good enough to be implemented in the face of the Covid-19 pandemic situation.

Has the Covid-19 pandemic affected you financially, psychologically, or not at all? If so, briefly describe why this happened

Not at all. This pandemic did not affect my in any ways as I am trying to adapt with the situation well.

How do you seek help if you are affected financially in your personal life? Are you going to do alternative work?

I seek help by using an emergency fund that provided by the Indonesia government. And yes, I would definitely find an alternative job that can be done outside of working hours.

How would you view your company if the government required all workers to work remotely? Have you prepared for the possibility for this to happen?

Our company already adapt working from home for the employees during the Pandemic, Therefore, we are already get used to work remotely and will comfortably prepared well in the future if the company decided to work remotely again.

What kind of recovery plan do you need from the government? In what ways can this help you?

The only recovery plan that we need from the government is the vaccine in which can protect us from the virus when we're working in the office.

As a worker, do you get recovery plan support from your company? If so, please mention it. If not, what do you think the company should provide?

The company have not provided us the recovery plan support for the employees. I think that the best recovery plan support that should be provided by the company is by giving the vaccine to the whole workers in the office.

What would you do personally to maintain safety in your current workplace? Have you complied with all the policies that have been set?

I personally maintain the safety in the workplace by the implementation of 3M which can be done by carrying out at least 3 disciplinary behaviours, namely: wearing a mask, washing hands and keeping distance and avoiding crowds.

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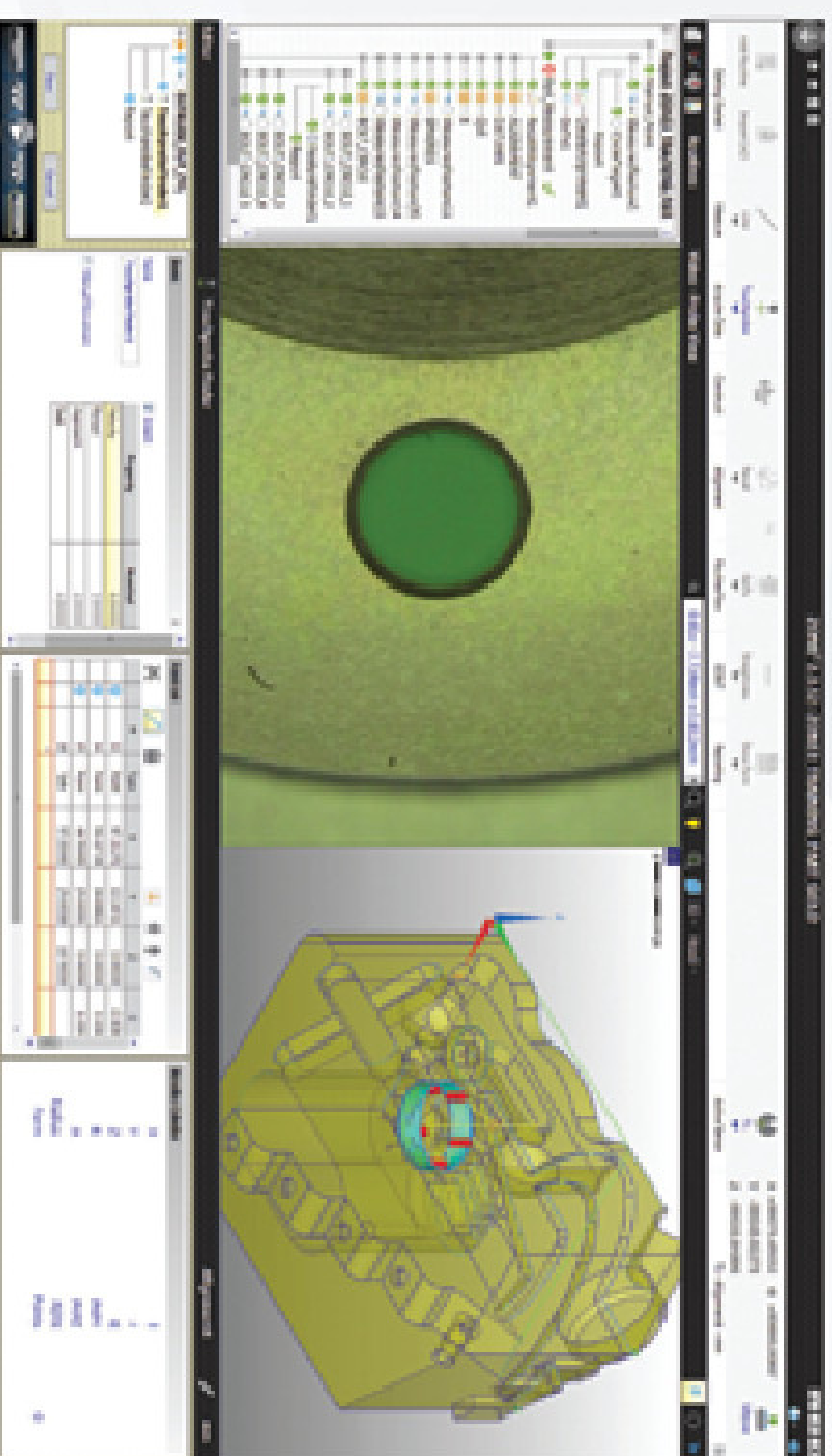


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EMERGING TECHNOLOGIES CAN FOSTER AN INCLUSIVE COVID-19 RECOVERY

UNCTAD's Technology and Innovation Report 2021 warns, however, of serious implications for development objectives if poor communities are overwhelmed or left behind by the new technological wave.

COVID-19 recovery efforts present an opportunity for governments and the international community to use new and emerging technologies to reduce the inequalities brought into sharper focus by the pandemic, says UNCTAD's Technology and Innovation Report 2021, published on 25 February.

Such frontier technologies – those that take advantage of digitalization and connectivity – include artificial intelligence (AI), the internet of things, big data, blockchain, 5G, 3D printing, robotics, drones, gene editing, nanotechnology and solar photovoltaic.

These rapidly developing technologies represent a \$350 billion market, which by 2025 could grow to over \$3.2 trillion, according to the report, entitled "Catching technological waves: Innovation with equity."

"It is key that developing countries do not miss the wave of frontier technologies, otherwise it will further deepen inequalities. Hence, societies and productive sectors need to be well prepared and build the required skills," said Acting UNCTAD Secretary-General Isabelle Durant. She said frontier technologies have already brought enormous benefits, but rapid advances can have serious downsides if they outpace the ability of societies to adapt.

New technologies, new inequalities

According to the report, each wave of technological change

has brought inequality in new shapes. The great divides that exist between countries today started with the onset of the first industrial revolution over 250 years ago. Since then, every spurt of progress has brought sharper inequality between countries.

The outcomes for one generation have affected the opportunities for the next, resulting in intergenerational transmission of inequalities. Between 1820 and 2002, the contribution of between-country inequality to global inequality rose from 28% to 85%.



Workers install solar panels for a hospital in Yemen. / © UNDP Yemen

The report says frontier technologies can affect inequalities through differential access to their benefits and their potential unintended consequences.

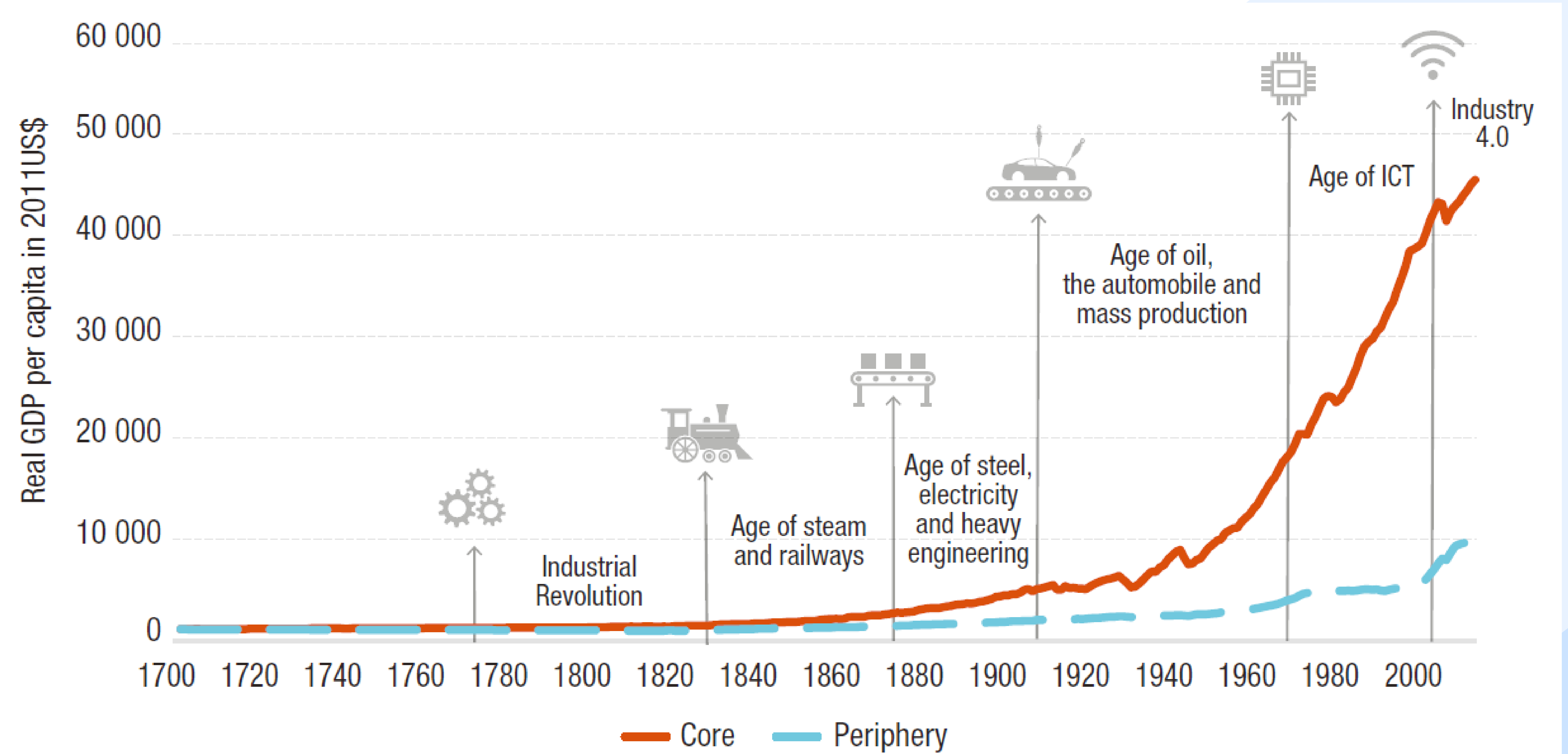
Today, major concerns are related to risks of automation taking jobs in large scale, the gig economy and the reduction of labour rights. Others are the inequalities created by market and profit concentration, the increase of inequality driven by AI and widening technological gaps.

But how the new technological wave will affect inequalities in and between countries will depend on national policies, the report states.

It finds that the countries best prepared to equitably use, adopt and adapt these technologies are mainly in Northern America and Europe, while those least prepared are in sub-Saharan Africa and other developing regions.

“Technologies are not deterministic. We can shape their pathways for good. And we have an obligation to do it,” said Shamika N. Sirimanne, director of UNCTAD's division on technology and logistics.

Ms. Sirimanne said whole economies and societies are being reshaped by rapid technological change, and “although we don't know yet how the final picture will look, it's



Source: UNCTAD's Technology and Innovation Report 2021

safe to say that changes will be more far-reaching than we imagine.” She added: “Governments and other development actors will need to prepare fast. Developing countries, particularly the least developed ones, can't afford to miss this new wave of rapid technological change.”

Technologies should not perpetuate inequalities UNCTAD warns of serious implications for developing countries if poor communities and countries are either overwhelmed or simply left behind by this new technological wave.

“Technological progress is essential for sustainable development but can also perpetuate inequalities or create new ones. The task for governments is thus to maximize the potential benefits, while mitigating harmful outcomes,” the report states. It says success in the 21st century will require a balanced approach – building a robust industrial base and

promoting frontier technologies that can help deliver the 2030 Agenda for Sustainable Development and its global vision of people-centred, inclusive and sustainable societies. The report also emphasizes that governments have a critical role to play in paving the way for technologies, especially in creating an enabling environment and ensuring the benefits of these technologies are shared by all.

Likewise, labour unions have a renewed interest in taking up workers' concerns about the looming changes that automation will cause to employment relations, the report says.

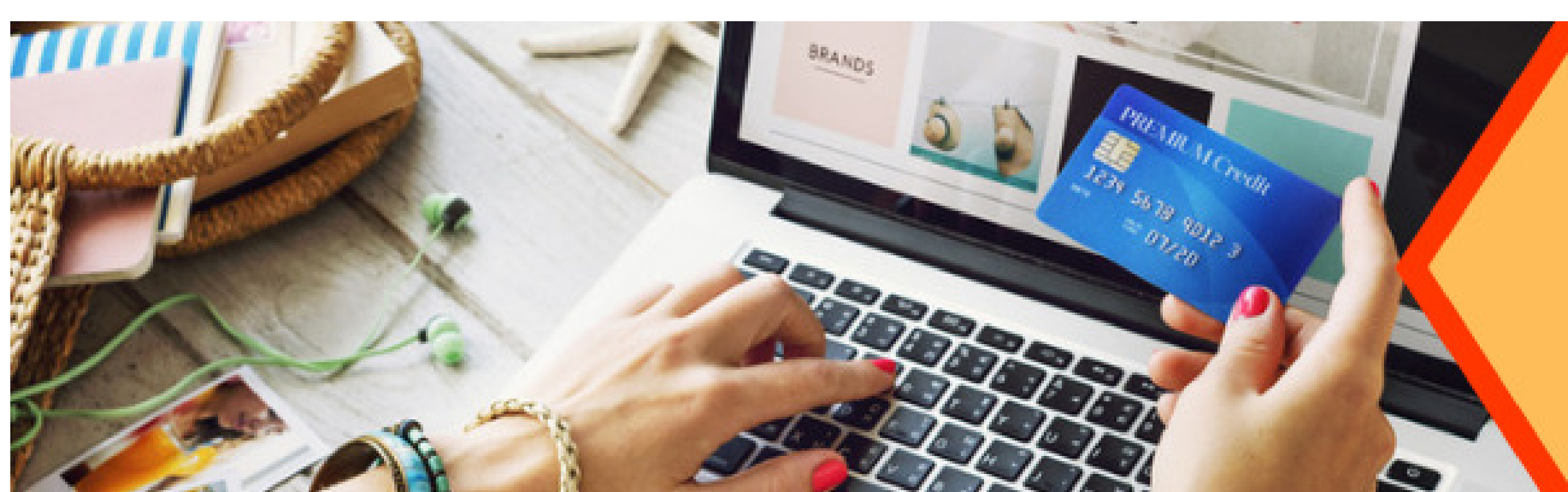
Each country will need science, technology and innovation (STI) policies appropriate to its stage of development, but all developing nations will suffer the impact of frontier technologies and need to prepare people and firms for a period of rapid change.

And to ensure innovation is done with equity in mind, social activism, with people and organizations working in tandem, can guide the direction of new technologies to ensure positive outcomes for all. Supporting this will require effective national governance to guide technological change, international cooperation to strengthen a global framework for STI for development, and vigorous citizen activism to keep the UN's Sustainable Development Goals as central guiding principles, the report states.

UNCTAD says developing countries need to work towards universal internet access and ensure all their citizens have opportunities to learn the skills required for frontier technologies. It also calls on developing countries to adopt frontier technologies while continuing to diversify their

production bases by mastering existing technologies. It urges them to strengthen social protection systems to provide safety nets for workers who may lose their livelihoods. The report also calls for greater participation by developing countries in international debates about the impact of frontier technologies and their normative frameworks and regulatory regimes. It says the UN offers an impartial and trusted platform where the international community can deliberate on these contentious issues.

Further, the report says international cooperation should focus on building stronger national capacities in STI, easing technology transfer, increasing women's participation, improving foresight and technological assessment.



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A FEW DEVELOPING COUNTRIES OVERPERFORM ON FRONTIER TECHNOLOGIES, BUT MOST LAG BEHIND - UN REPORT

Frontier Technologies represent a \$350 billion market, which by 2025 could grow to over \$3.2 trillion. The economies most ready for these rapidly changing technologies are in Northern America and Europe, while those least ready are in sub-Saharan Africa and other developing regions.

A few developing nations are exhibiting stronger capabilities to use, adopt and adapt frontier technologies than their per capita GDPs would suggest, but most are lagging behind, according to an index of 158 countries in UNCTAD's Technology and Innovation Report 2021 released on 25 February. Frontier technologies are those that take advantage of digitalization and connectivity. They include artificial intelligence (AI), the internet of things, big data, blockchain, 5G, 3D printing, robotics, drones, gene editing, nanotechnology and solar photovoltaic.

"Frontier technologies are redefining our world, especially our post-pandemic future," said Shamika N. Sirimanne, director of UNCTAD's division on technology and logistics.

Ms. Sirimanne said despite some negative realities associated with these technologies, such as their potential to worsen inequality, widen the digital divide and disrupt socio-political cohesion, they could be transformative in achieving the UN's Sustainable Development Goals (SDGs).

The report provides a "country readiness index" that assesses the progress of countries in using frontier technologies, considering their national capacities related to physical investment, human capital and technological effort.

It scores countries on their readiness for frontier technologies based on five building blocks: ICT deployment, skills, research and development (R&D), industry activity and access to finance.

Overperforming countries

The index spotlights developing countries that perform better on frontier technologies than their per capita GDPs would suggest (Table 1). Their overperformance is measured as the difference between the actual index rankings and the estimated index rankings based on per capita income. The greatest overperformer is India, whose actual index ranking was 43, while the estimated one based on per capita income was 108. Hence, India overperformed by 65 ranking positions. It is followed by the Philippines, which overperformed by 57 ranking positions.

How did the outliers exceed expectations? China, at position 25, and India perform well for R&D. This reflects their abundant supplies of qualified and highly skilled human resources available at a comparatively low cost. They also have large local markets, which attract investment by multinational enterprises. In China, the progress is partly a reward for spending 2% of GDP on R&D.

The Philippines has a high ranking for industry, reflecting high levels of foreign direct investment in high-technology manufacturing, particularly electronics. Multinational enterprises are attracted by the country's strong supply chains and solid base of parts manufacturing. The Philippines also has pro-business policies along with a skilled, well-educated workforce and a network of economic zones.

Overall, however, the top five overperforming developing countries have lower rankings for ICT connectivity and skills. This drawback is true for developing countries as a group.

Top overall performers

According to the index, the United States, Switzerland and the United Kingdom are best prepared for frontier technologies (Table 2). Most of the best-prepared countries are from Europe, except the Republic of Korea, Singapore and the United States. Some transition economies, such as Russia, also perform well on the index. The top overall performers have well-balanced performances across all building blocks of the index and are typically associated with high innovation and GDP.

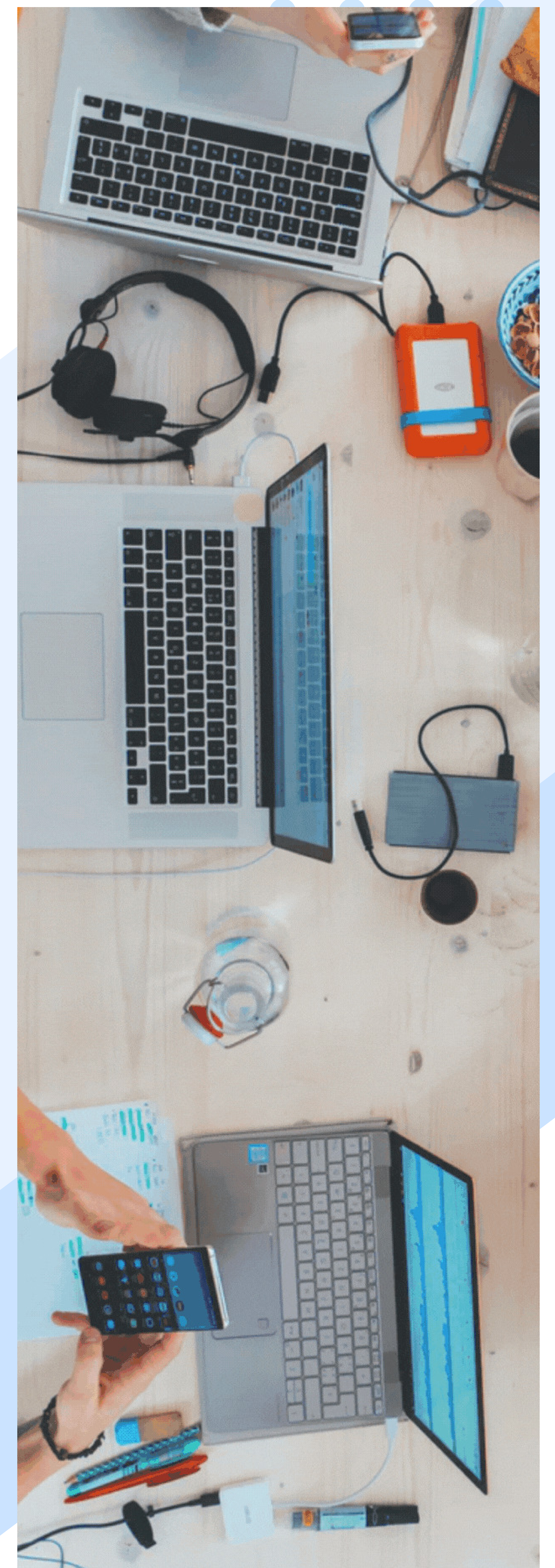


Table 1. Countries overperforming relative to per capita GDP, gain in ranking position

	Country	Overperformance (positions)		Country	Overperformance (positions)
1	India	65	11	Morocco	29
2	Philippines	57	12	Kenya	28
3	Ukraine	47	13	Nepal	28
4	Viet Nam	45	14	Serbia	25
5	China	40	15	Korea, Republic of	24
6	Jordan	34	16	Russian Federation	24
7	Brazil	33	17	Lebanon	24
8	Republic of Moldova	33	18	Togo	23
9	South Africa	29	19	United Kingdom	21
10	Tunisia	29	20	Ghana	20

Source: UNCTAD Calculations based on GDP data by the World Bank (World Bank, 2020)

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How developing countries can catch up?

To catch up and forge ahead, UNCTAD urges developing countries to adopt frontier technologies while continuing to diversify their production bases by mastering many existing technologies. These countries need to strengthen their innovation systems, as most of them are weak and prone to systemic failures and structural deficiencies, the report says.

“A whole-of-government approach is needed to absorb these technologies, as opposed to working in silos,” Ms. Sirimanne said.

Developing countries should also align science, technology and innovation (STI) policies with industrial policies, according to Ms. Sirimanne. “New technologies can re-invigorate traditional production sectors and speed up industrialization and economic structural transformation,” she added.

UNCTAD also calls on governments to draw in various actors who can help build synergies between STI and other economic policies – industrial, trade, fiscal, monetary and educational. The state, industry, and labour unions should work together to optimize the potential of these technologies for faster productivity.

In this regard, UNCTAD's STI Policy Reviews can help governments integrate STI policies into their national development strategies while working towards the SDGs.

The report also urges policymakers to help people acquire the necessary digital skills and competencies to adopt and adapt frontier technologies into their countries' existing production bases.

Governments should also seek to connect everyone online, focusing on the farthest behind, as frontier technologies demand greater digitalization and connectivity. They should provide incentives and subsidies not just for internet access but also for the devices through which people get connected.

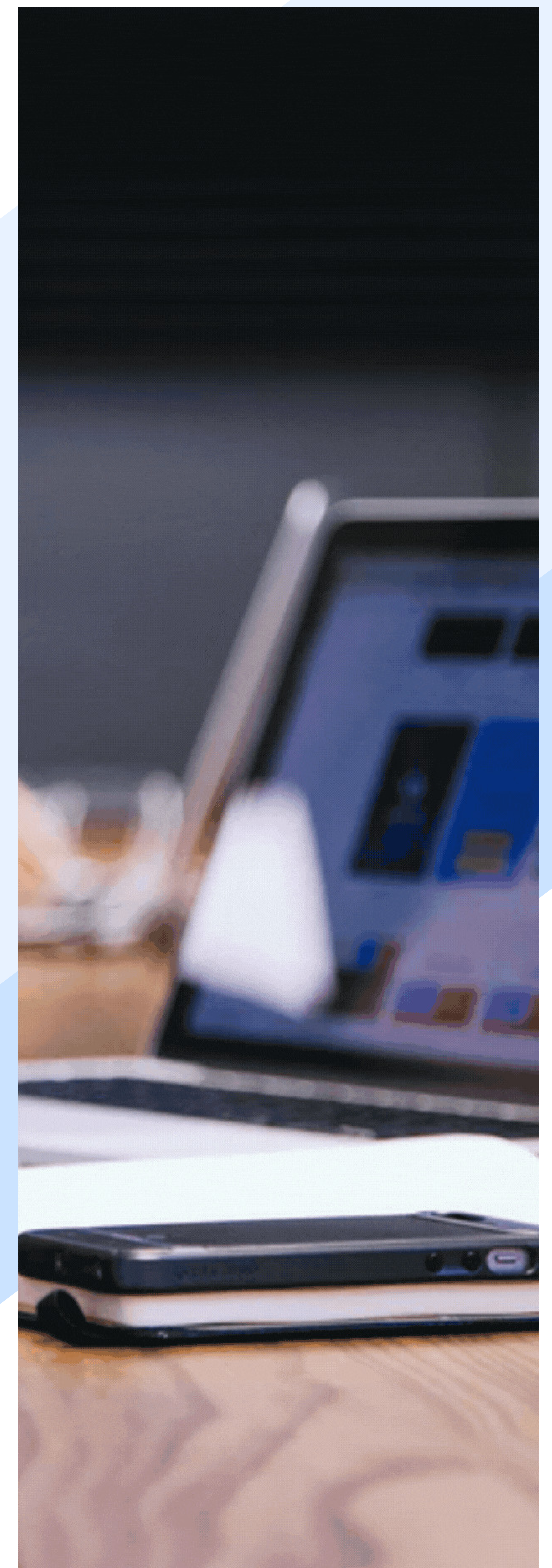


Table 2: Readiness for frontier technologies, selected countries

Country name	Total ranking	ICT ranking	Skills ranking	R&D ranking	Industry ranking	Finance ranking
Top 10						
United States of America	1	14	17	2	20	2
Switzerland	2	7	13	13	3	3
United Kingdom	3	17	12	6	11	14
Sweden	4	1	7	16	15	16
Singapore	5	4	9	18	4	18
Netherlands	6	6	10	15	8	23
Korea, Republic of	7	19	27	3	9	8
Ireland	8	24	6	21	1	87
Germany	9	23	16	5	10	39
Denmark	10	2	4	25	21	5
Selected transition and developing economies						
China	25	99	96	1	7	6
Russian Federation	27	39	28	11	66	45
Brazil	41	73	53	17	42	60
India	43	93	108	4	28	76
South Africa	54	69	84	39	71	13

Source: UNCTAD

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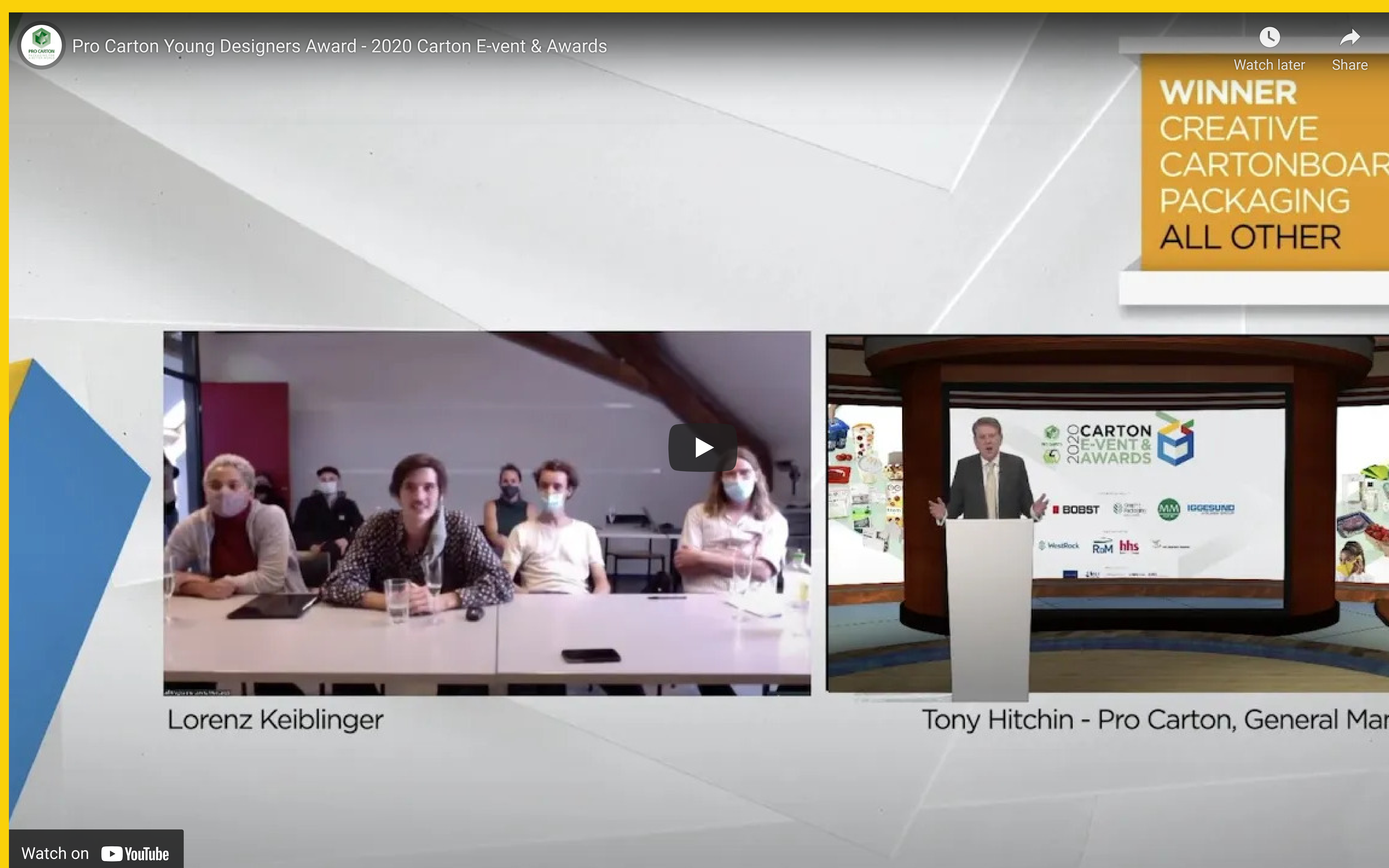
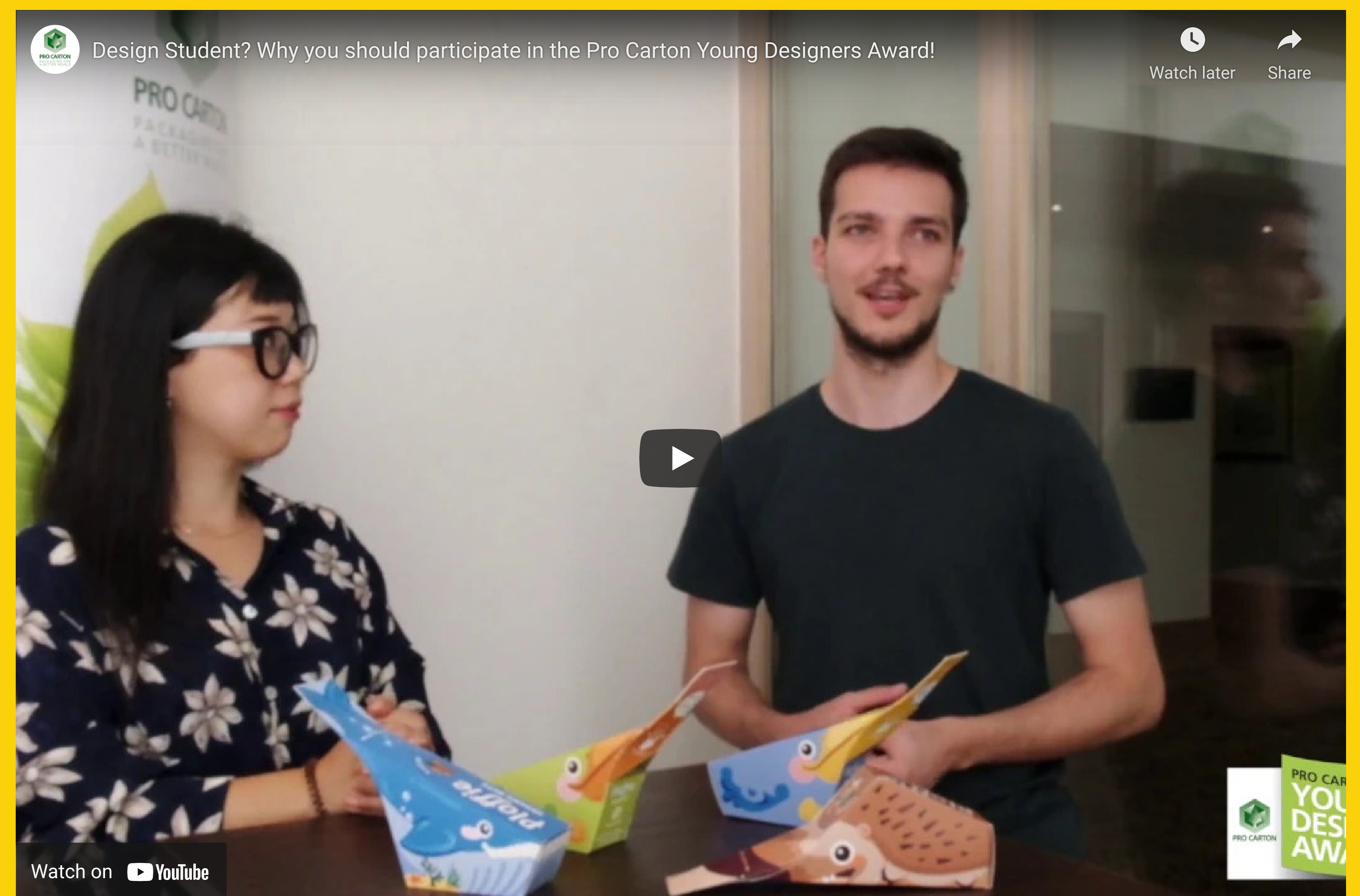
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<https://event.asme.org/Events/media/library/resources/msec/MSEC-2021-Student-Manufacturing-Design-Competition.pdf>

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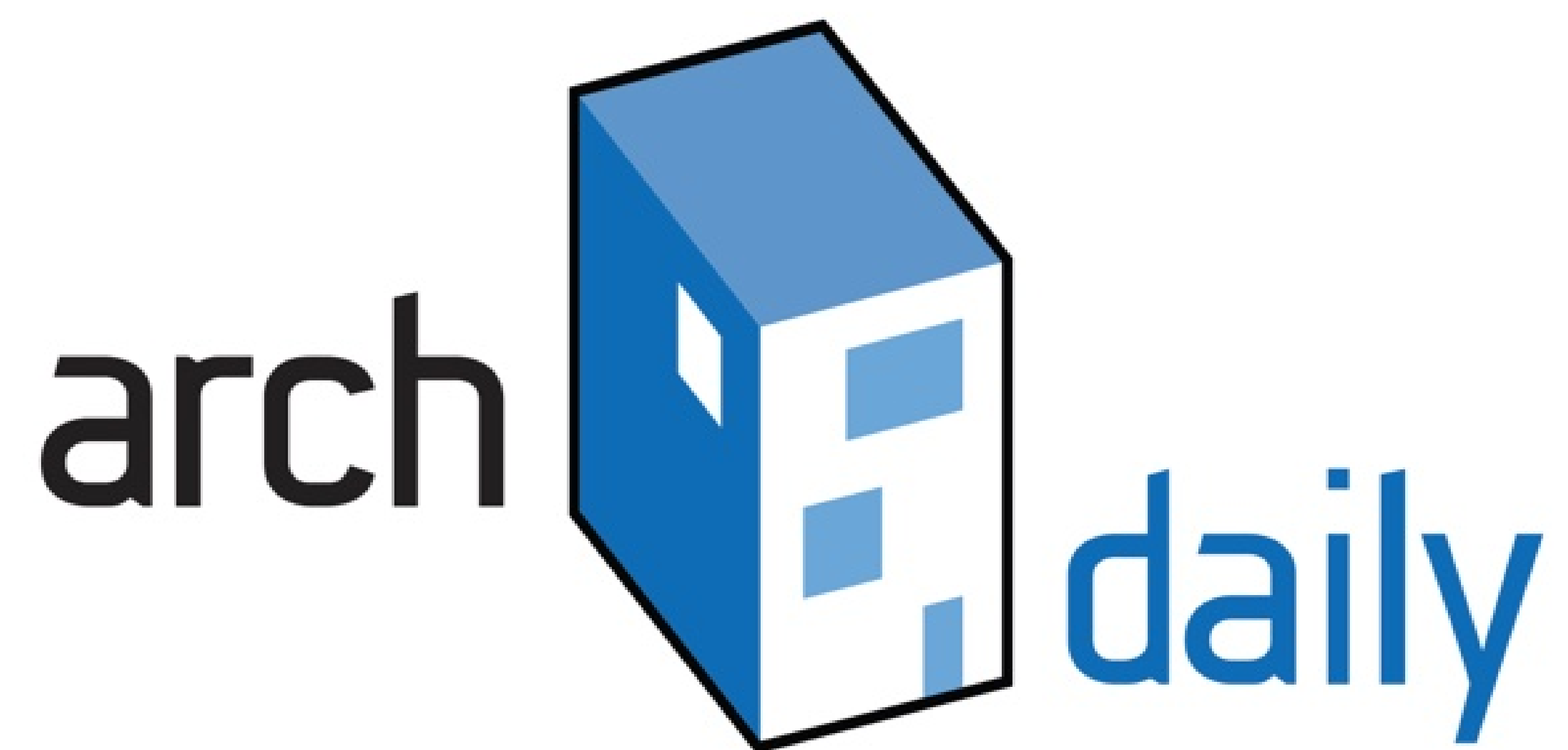
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For more information :

http://eng.kidp.or.kr/eng/04_newsevent_seqnum=58



Capital city Podgorica announces public call for conceptual urban and architectural design for Golotočkih žrtava Square in Podgorica, Montenegro.

The main objective of the Competition is to select the best design based on the parameters and recommendations specified in Terms of reference. The conceptual design is expected to propose a distinct and unique refurbishment of the square, with a focus on creating a new public space.

Competition for conceptual architectural design is international, general, one-phased, and anonymous. The Competition is open for all individuals and companies that meet the conditions defined by the Competition Announcement and the Terms of Reference.

For more information: <https://www.archdaily.com/958792/open-call-competition-for-conceptual-urban-and-architectural-design-for-golotockih-zrtava-square-in-podgorica>

OPEN CALL : COMPETITION FOR CONCEPTUAL URBAN AND ARCHITECTURE DESIGN FOR GOLOTOCKIH ZRTAVA SQUARE PODGORICA

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CALL FOR SUBMISSIONS FROM THE ISTANBUL DESIGN BIENNIAL: “DESIGNING RESILIENCE”



Believing in the importance of supporting knowledge and policy production in the field of design and architecture, the Istanbul Design Biennial hosts a research programme titled Designing Resilience, in partnership with the Center for Arts, Design, and Social Research. The programme aims to work collaboratively with a selection of four women designers, curators, researchers, thinkers (two from Turkey and two from the US) who are actively investigating geopolitics to build new tools and systems for social, economic and mostly environmental resilience.

The objective of the programme is to inquire the connection between the oppression of women, POC, LGBTI+ all over the world, and the destruction of the environment, while revealing design's potential to instigate new processes, and spark global changes stemming from social, political and ecological endeavours.

The project aims at enabling researchers to contribute to establishing a different relationship with nature through collaborations across borders, institutions, and disciplines. It also aims at advancing and stimulating knowledge exchange in the field of design, and contributing to creating a sustainable common living space, in empathy with nature and all species. The programme will foster collective research methodologies as well as forms of solidarity and responsibility within the design field that could lead not only to ecological but also spatial, political, and social transformations.

The research projects will continue to evolve until October 2021 with support from the Istanbul Design Biennial, enriched by regular digital meetings held between researchers, and supervised by the evaluation board.

At the end of the program, the selected research projects will be presented in a display at a digital archive, a new public research space, which will be created by the Istanbul Design Biennial. A digital publication with essays, and visual research will also be brought to life. Four selected participants will be awarded 1.000 USD each to initiate and develop their research projects.

Women practitioners and thinkers including designers, artists, writers, curators, researchers, and academics from the US and Turkey are welcome to apply for the programme until 28 April 2021.

For more information :

<https://www.archdaily.com/958473/call-for-submissions-from-the-istanbul-design-biennial-designing-resilience>



1

ELECTRONICS IN THE CONTROL CABINET



2

INTERFACES



3

CONNECTION TECHNOLOGY



4

I/O SYSTEMS

LITZE 
SYSTEMATIC TECHNOLOGY



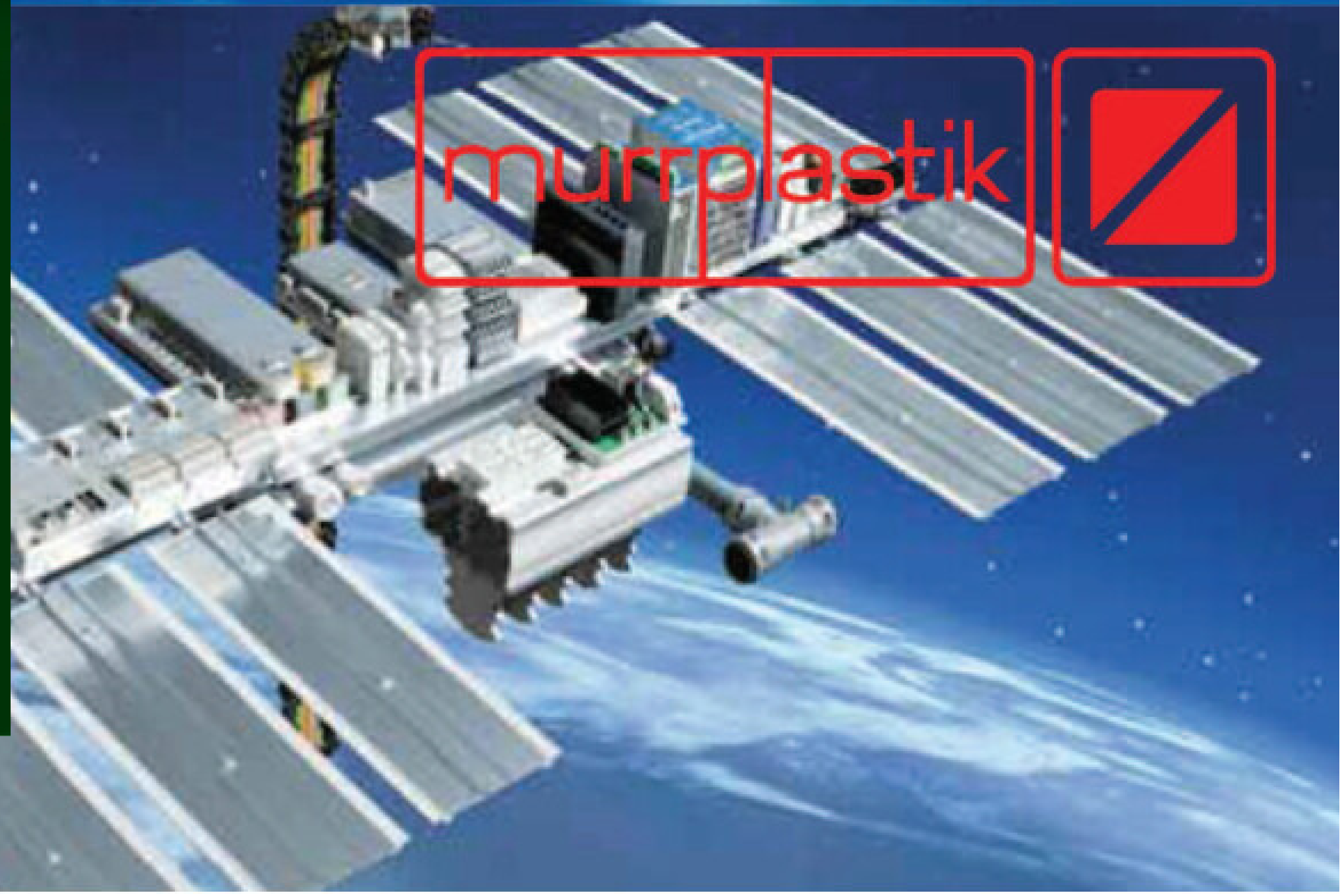
How to reduce the size of your control cabinet

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DECENTRALIZED AUTOMATION SOLUTIONS

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Claroty and Yokogawa Engineering Asia Partner to Secure Process Operations Partnership Delivers Industrial Cybersecurity Solutions and Expertise to Critical Infrastructure Organizations in Southeast Asia, Australia, and New Zealand

Claroty and Yokogawa Engineering Asia Pte. Ltd announced their partnership that gives Yokogawa customers in Southeast Asia, Australia, and New Zealand access to the Claroty Platform as an added product or service, or embedded within Yokogawa's managed security services. The two companies' reseller agreement is designed to further secure process operations against cyber threats. The partnership expands upon Claroty and Yokogawa's reseller agreement in Europe, established last year.

"Our software combined with Yokogawa's expertise gives organizations like IRPC Public Company Limited Thailand deep visibility into their industrial environments, comprehensive security controls for those environments, and actionable insights that allow them to better assess and improve their security posture," said Eddie Stefanescu, General Manager of APJ at Claroty. "We are delighted with the proven success of this collaboration with Yokogawa to date and look forward to its continued global expansion."

Assets in industrial environments – including operational technology (OT), Internet of Things (IoT), and industrial IoT (IIoT) – are hard to detect, hard to manage, and even harder to secure. Adding to this challenge is the accelerating convergence of IT and OT networks, which enhances the efficiency of industrial operations, but also increases the attack surface available to adversaries.

As a result, industrial enterprises and critical infrastructure providers need to be able to detect and respond to cyber threats more quickly and effectively than ever before. "Yokogawa is continuously investing in secure products and services as part of our commitment to quality, safety, security, reliability, and sustainability, with highly competent and experienced resources in Asia," said Charles Lim, Head of Digital Innovation & Security Solution at Yokogawa Engineering Asia. "Our partnership with Claroty further reinforces process operation cyber security protection and will



Mr. Eddie Stefanescu
General Manager for APJ
Claroty

deliver plant security lifecycle services based on the defence-in-depth approach corresponding to international standards for enhanced operational resilience."

Available as an added product or service or embedded within Yokogawa's managed security services, the Claroty Platform reveals 100% of OT, IoT, and IIoT assets on enterprise networks and protects them from vulnerabilities, emerging threats, malicious insiders, and unintentional errors. Its resilient threat detection model continually monitors the network for both known and unknown threats, automatically weeds out false positives, and gives clear direction on how to take action. This is all enriched by Claroty's extensive ecosystem of third-party technical integrations, as well as the latest threat signatures and remediation guidance from the renowned Claroty Research Team.



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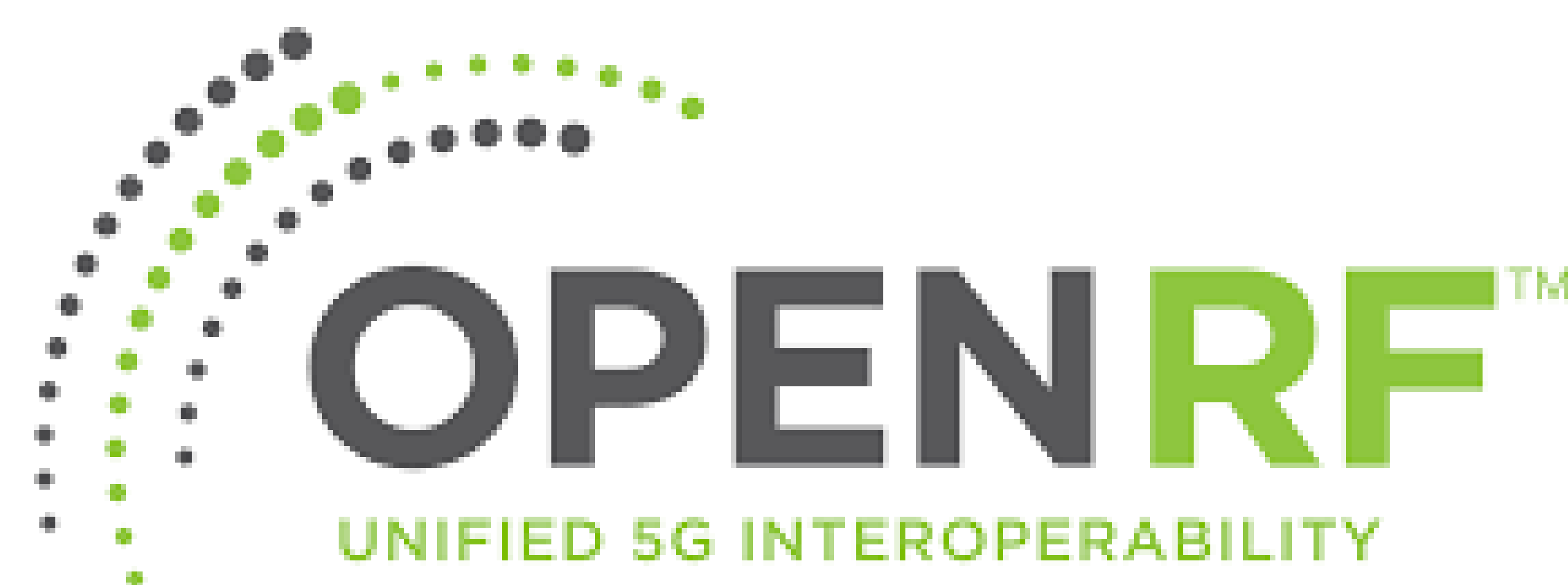
SUEZ and Schneider Electric join forces to create a joint venture to strengthen their major role in the development of innovative digital solutions in the field of water

SUEZ and Schneider Electric join forces to create a joint venture to strengthen their major role in the development of innovative digital solutions in the field of water. The SUEZ and Schneider Electric groups have announced the creation of a leader in digital water to develop and market a joint offering of innovative digital solutions for the management of the water cycle. This joint venture will support municipal water operators as well as industrial players in the acceleration of their digital transformations, by providing them with a unique range of software solutions for planning, operation, maintenance, and optimization of water treatment infrastructure. This joint venture, to be created once all the authorizations from the relevant competition authorities have been received, will leverage SUEZ's expertise in water and its experience in digital solutions, as well as the know-how of Schneider Electric in the development of software which provides digital water, energy management, and automation solutions. The offering of this new entity specializing in software solutions designed specifically for digital water will provide customers with access to an application software database to optimize installations and networks, and enhance their performance, resilience, and sustainability: reducing leaks, optim

performance, generating energy savings, extending the lifespans of installations, preserving natural environments, improving the environmental footprint of water systems, etc. Diane Galbe, SUEZ Group SEVP, Smart & Environmental Solutions global Business Unit and Strategy: "Our shared vision and the complementary expertise of Schneider Electric and SUEZ will enable us to strengthen our agility and our leadership in the fast-growing digital water market. The creation of this joint venture is fully in line with the SUEZ 2030 strategic plan which aims to use cutting-edge technologies in order to offer all of our customers' digital solutions that are 100% sustainable in terms of their impact on health, quality of life, environment, and climate." Peter Herweck, EVP Industrial Automation at Schneider Electric: "By combining SUEZ's expertise in the water business with the capabilities of EcoStruxure, Schneider Electric's open and inter-operable IoT platform, we are creating new solutions and services to empower our customers with actionable information to manage their process and assets more efficiently. With this joint venture, we look forward to becoming the digital partner of water cycle players, enabling them to reach true resiliency and sustainability."



NI JOINS OPENRF TO HELP ACCELERATE 5G INTEROPERABILITY AND ADOPTION



NI to chair the newly formed OpenRF Compliance Working Group

The Open RF Association (OpenRF™), an open industry consortium dedicated to creating a 5G ecosystem of functionally interoperable hardware and software across RFFE (RF Front End) and chipset platforms, today announced that NI has joined the organization and will chair the OpenRF Compliance Working Group. As a leading developer of automated test and measurement systems that help engineers solve some of the world's toughest challenges, NI will work with OpenRF to address the interoperability challenges facing the 5G ecosystem. "We are pleased to welcome NI to OpenRF and lead our Compliance Working Group," said Kevin Schoenrock, President of OpenRF. "NI's global scale, strong brand and long history of system testing expertise will be an invaluable asset to the organization as we embark on developing a robust compliance program improving the cost,

efficiency and time-to-market of OEM wireless devices."

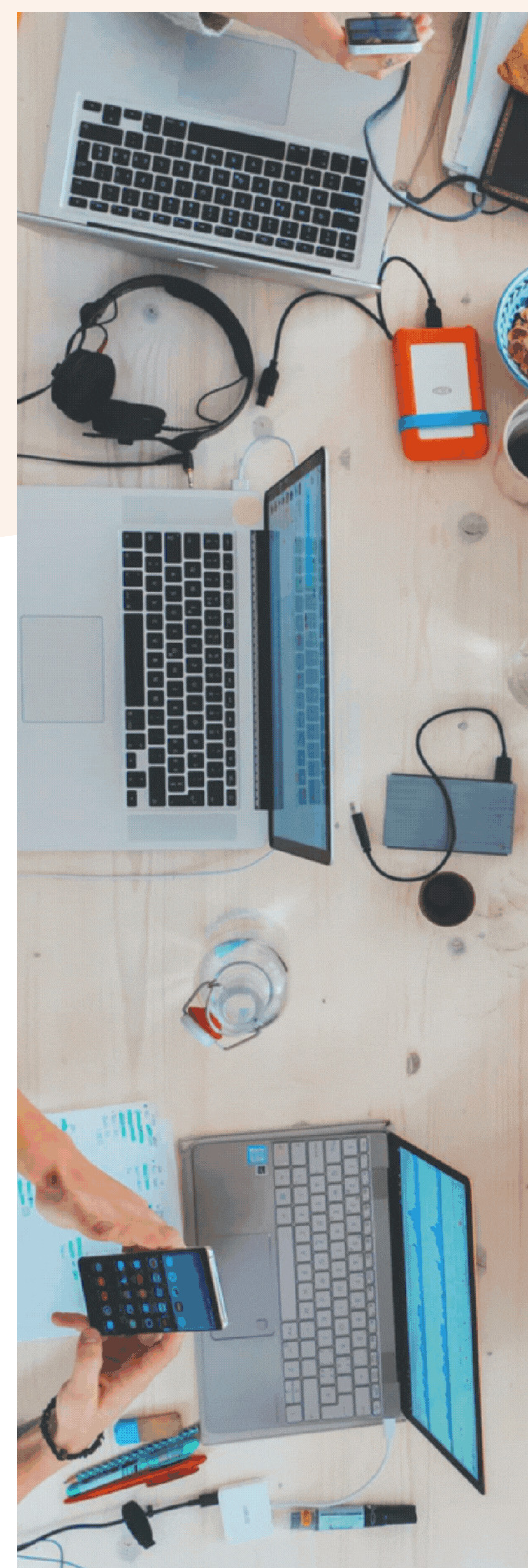
"With 5G introducing significant changes in how we interact with each other, it also introduces new ways of interacting with and testing 5G devices," said Chen Chang, Strategic Business Development Director, NI. "As Compliance Working Group Chair, we are excited to work alongside other companies to continue addressing the evolving needs of the industry and advance OpenRF's mission to accelerate 5G innovation and adoption."

OpenRF members are working together to develop an open framework that standardizes hardware and software interfaces without limiting innovation while enabling 5G device OEMs to realize time-to-market, cost, performance, and supply chain benefits. The OpenRF Working Group 5: Compliance was officially formed in January 2021 and will develop a program to support a robust ecosystem of interoperable RF front end and chipset platforms. The OpenRF Release 3: Compliance is targeted for completion in Q4 this year.

Join OpenRF:

OpenRF is open to smartphone chipset, RFFE, and OEM vendors and related industry companies. For information on membership benefits and to complete a membership application,

visit www.OpenRF.com/join.



Yokogawa Establishes Yokogawa Bio Frontier Inc. to Advance Biomass Materials Business- New company will produce and market biomass materials to enable a sustainable carbon cycle -

Yokogawa Electric Corporation announces the launch of Yokogawa Bio Frontier Inc. to develop businesses related to the production and sales of innovative plant-derived biomass materials, as well as associated licensing and consulting activities. The new subsidiary will officially kick off business operations on March 22.

Yokogawa Bio Frontier will focus on developing and commercializing high value-added plant-based biomass materials, such as nano-cellulose and lignin monomer, which can be used to substitute chemicals and materials currently derived from fossil resources, thereby enabling a sustainable carbon cycle. The company will apply Yokogawa's long experience in industrial automation to develop highly efficient extraction and production processes and facilities, and will market biomass materials to a wide range of customers in the chemical, food & beverage, pharmaceutical, and other industries.

The bioeconomy is considered to be an important pillar for building a sustainable society, and is one of the focus areas defined in Yokogawa's long-term business framework. The rapidly expanding biomass materials market has been identified as a field in which Yokogawa can leverage its core technologies and global sales and service network. To obtain technologies and expertise in this field, Yokogawa has already taken steps such as investing in and partnering with AlgaEnergy, a Spanish company that is a technology leader in the production and application of microalgae, and Bloom Biorenewables SA, a Swiss startup focusing on the utilization of biomass with its highly efficient lignin extraction technology. Yokogawa Bio Frontier will work with these and other strategic partners to contribute to the development of a circular economy.

YOKOGAWA 
Yokogawa Bio Frontier Inc.

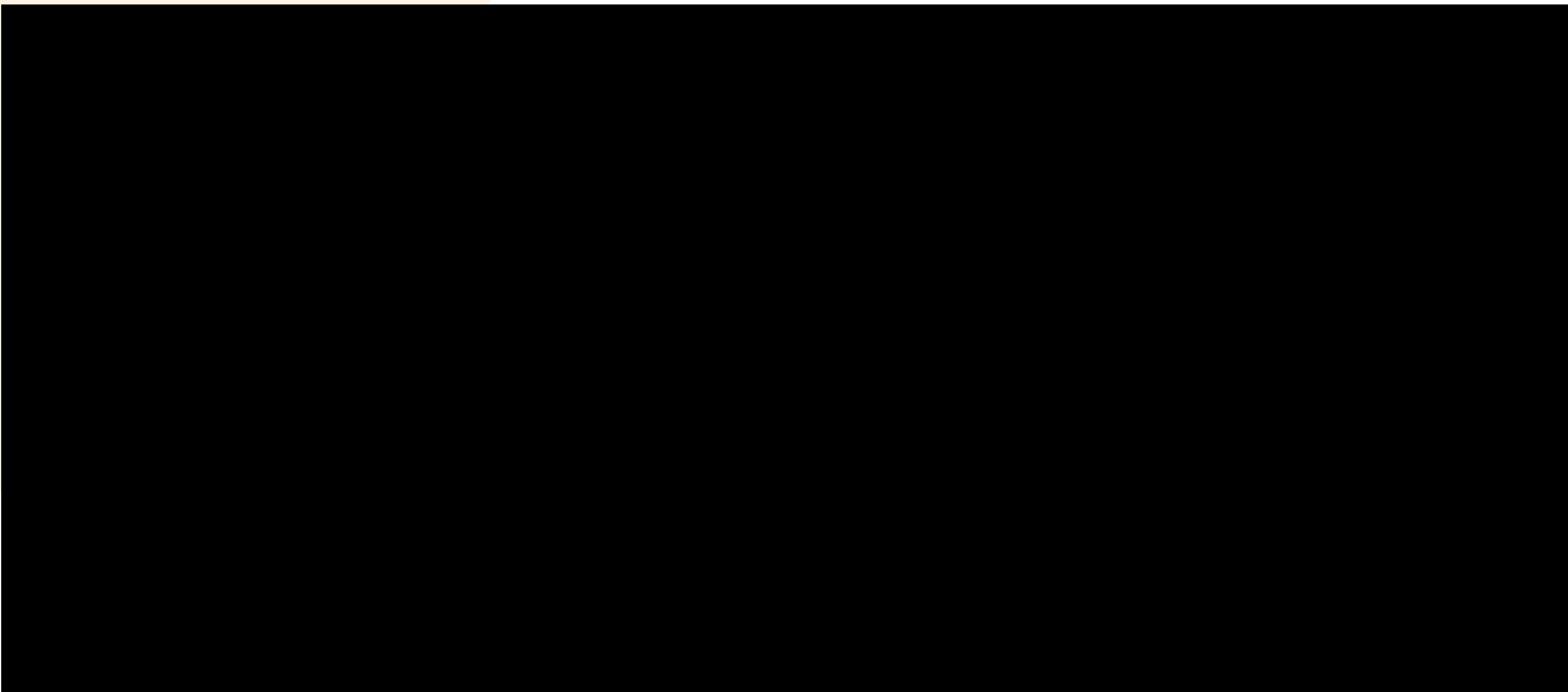
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Okta Signs Definitive Agreement to Acquire Auth0 to Provide Customer Identity for the Internet



Acquisition will accelerate Okta's journey to provide identity for the internet, bringing choice and flexibility to both developers and the world's largest organizations

Okta, Inc. announced it has entered into a definitive agreement to acquire Auth0, a leading identity platform for application teams, in a stock transaction valued at approximately \$6.5 billion. Together, Okta and Auth0 address a broad set of identity use cases and the acquisition will accelerate the companies' shared vision of enabling everyone to safely use any technology, shaping the future of identity on the internet.

The transaction will accelerate Okta's growth in the \$55 billion identity market.

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Auth0 will operate as an independent business unit inside of Okta, and both platforms will be supported, invested in, and integrated over time — becoming more compelling together. As a result, organizations will have greater choice in selecting the identity solution for their unique needs. Okta and Auth0's comprehensive, complementary identity platforms are robust enough to serve the world's largest organizations and flexible enough to address every identity use case, regardless of the audience or user.

"Combining Auth0's developer-centric identity solution with the Okta Identity Cloud will drive tremendous value for both current and future customers," said Todd McKinnon, Chief Executive Officer and co-founder, Okta.

opening up new ways for our customers to leverage identity to meet their business needs.

We are thrilled to join forces with the Auth0 team, as they are ideal allies in building identity for the internet and establishing identity as a primary cloud."

With continued global market tailwinds of cloud and hybrid IT, digital transformation, and zero-trust security, an identity platform has become one of the most critical technology investments an organization will make. These trends have accelerated over the past year as companies of all sizes and across every industry had to quickly pivot to deliver engaging customer experiences online. Organizations everywhere are rapidly leveraging identity to streamline processes, reduce costs, maintain the highest levels of security, and improve customer experiences to drive business growth. Okta and Auth0 are both committed to delivering innovation and value to organizations navigating those transformations.

NEW RESEARCH CENTER AT UA BENEFITS MANUFACTURING INDUSTRY, CONTRIBUTES TO WORK DEVELOPMENT

The University of Akron (UA) has officially launched The Center for Precision Manufacturing — a research center for UA faculty and graduate students to develop new finishing technologies for the manufacturing industry. These process technologies such as grinding, hard machining and superfinishing are the backbone of many manufacturing companies today but have not experienced much innovation in the last few years. This center will benefit industry by improving traditional manufacturing processes while providing a learning environment for engineering students.

“This Center demonstrates our mission as an urban public research university relevant to the needs of the region, state and the nation,” says UA President Gary L. Miller. Initially, research activities will occur at various existing labs across campus with the plan to open a state-of-the-art dedicated physical space in the future. Siamak Farhad, Ph.D., associate professor in the Department of Mechanical Engineering, is serving as interim director.

Dr. Siamak Farhad is training Michala Dauterman on a CNC machine. Michala received her undergraduate degree in biomedical engineering and is currently pursuing her graduate degree in mechanical engineering.

“In the last few years, university research centers focused on finishing technologies have

closed as faculty have retired and the focus has moved to additive manufacturing,” says Craig Menzemer, Ph.D., interim dean of UA’s College of Engineering and Polymer Science. “Innovation in these traditional areas is critical to manufacturing competitiveness and can lead to shorter lead times, cost reduction and quality improvements. We believe that research and innovation in improving these areas will have a dramatic impact to manufacturing overall.”



Shared risk, shared rewards

UA is partnering with manufacturing giants such as The Timken Co., Swagelok, and Schaeffler Group USA Inc. to launch the Center by contributing to the financing of the labs and associated equipment where students and faculty will work alongside industry experts in process and materials engineering. The goal is to conduct research in these critical areas to help UA's industry partners increase their global competitiveness and help UA students to be prepared for the needs of employers.

The equipment, instrumentation and technology that exist in these labs will be useful to companies looking to partner with UA in research and development. The concept of open innovation recognizes that many companies cannot bear the risk of investing in fundamental research alone. Working in partnership with a university reduces that risk. With an expertise in commercializing research and intellectual property law, UA can help manufacturing companies develop new products and technologies and yet protect the proprietary nature of the process.

Companies can conduct this type of research happening in the Center at their own facilities but doing so may be cost-prohibitive and companies may not have the specific expertise or machinery required. Universities, like UA, are often more suited at conducting basic research, doing it more

affordably and training the next generation of students along the way.

Meeting the need

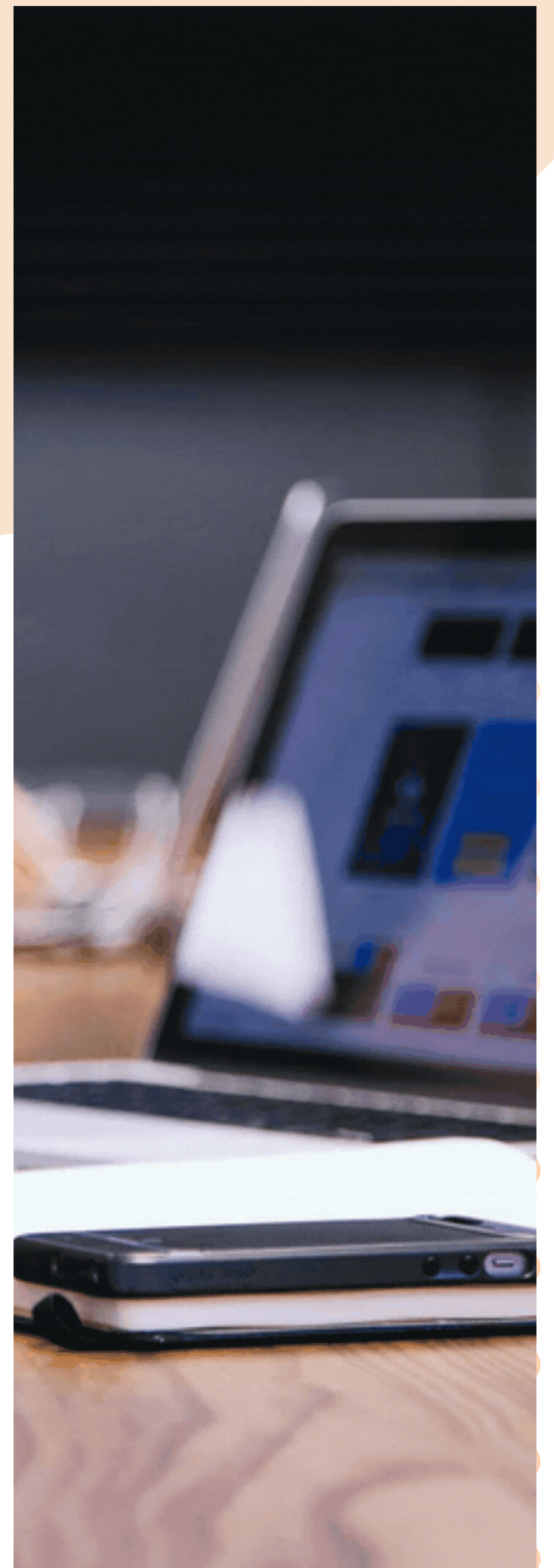
The U.S. manufacturing industry relies heavily on finishing processes for everything from automobile and aircraft parts to food and beverage processing equipment. Highly stressed functional components used in manufacturing, such as rolling element bearings and gear systems, need finishing processes to achieve final geometry, surface texture and material properties required to deliver the necessary product performance.

These components are at the heart of most industrial machinery, encompassing everything from chemical plants to oil and gas, primary metals, agriculture, food and beverage, and transportation.

In 2018, Stephen Johnson, Ph.D., retired director of research and development at The Timken Co. and champion of the Center, approached UA to discuss designing an on-campus research lab focused on improving manufacturing technologies and involving students in the process. "Currently there are no university-level research programs in these critical manufacturing technologies in the United States," says Johnson. "If not addressed rapidly, this threatens the long-term competitiveness and viability of U.S. manufacturing."

Industry pipeline

The ultimate outcome of open innovation is shorter times for research to get to the market and the creation of new jobs. The Center will allow undergraduate students to gain valuable experience while assisting graduate students and faculty with experiments, data collection and analysis. With this approach, more students will be exposed to critical manufacturing technologies and will be introduced to a broader range of career choices and options in manufacturing.



“What we are hearing from industry colleagues is that it is almost impossible to recruit engineering talent with expertise and knowledge of the types of processes we will be studying at the Center,” says Johnson.

Companies interested in working with the Center should contact Siamak Farhad, Ph.D., interim director, at sfarhad@uakron.edu.

William Wenzel Jr., majoring in mechanical engineering, is pulling parts out of the wash station for the metal 3-D printer. UA plans on the 3-D metal print system being an integral part of the Center for Precision Manufacturing.

About The University of Akron

Celebrating 150 years in 2020, The University of Akron (UA) is one of Ohio's most influential public urban research universities, offering unique, top-ranked and in-demand associate, bachelor's, master's, doctoral and professional degree programs in engineering, business, healthcare, the arts and sciences, education and law. As a STEM-intensive institution, UA has strong connections with industries such as polymers, advanced materials and engineering.

The University's beautiful campus, located in the heart of Ohio's fifth-largest city, is surrounded by thousands of businesses, including Fortune 500 companies, giving students access to internships, co-ops and careers. With award-winning residence hall groups and programs, hundreds of student organizations, NCAA Division I sports teams, and a nationally renowned Student Recreation and Wellness Center, UA provides the full campus experience.



TOYOTA RESEARCH INSTITUTE SPONSORS MASSROBOTICS “ADOPT-A-SCHOOL” STEM PROGRAM FOR NATIONAL ROBOTICS WEEK



Toyota Research Institute (TRI) participated in the MassRobotics “Adopt-a-School” program, where Boston Public School students built robotic hands. The goal of the program is to accelerate the growth of STEM content in the Boston Public School system by creating an accessible curriculum, training teachers, and providing necessary hardware. TRI is one of the first industry partners to adopt a school through this pilot program.

“I’m excited that TRI is supporting this excellent MassRobotics program that is investing in the next generation of leaders in STEM,” said Kerri Fetzer-Borelli, Head of Diversity, Equity, Inclusion and Community Engagement at TRI. “It’s energizing to see public, private and non-profit sectors coming together to

Our hope is to inspire students with diverse knowledge, skills and lived experiences to enter the robotics and STEM fields so that they can have an impact on future innovations.”

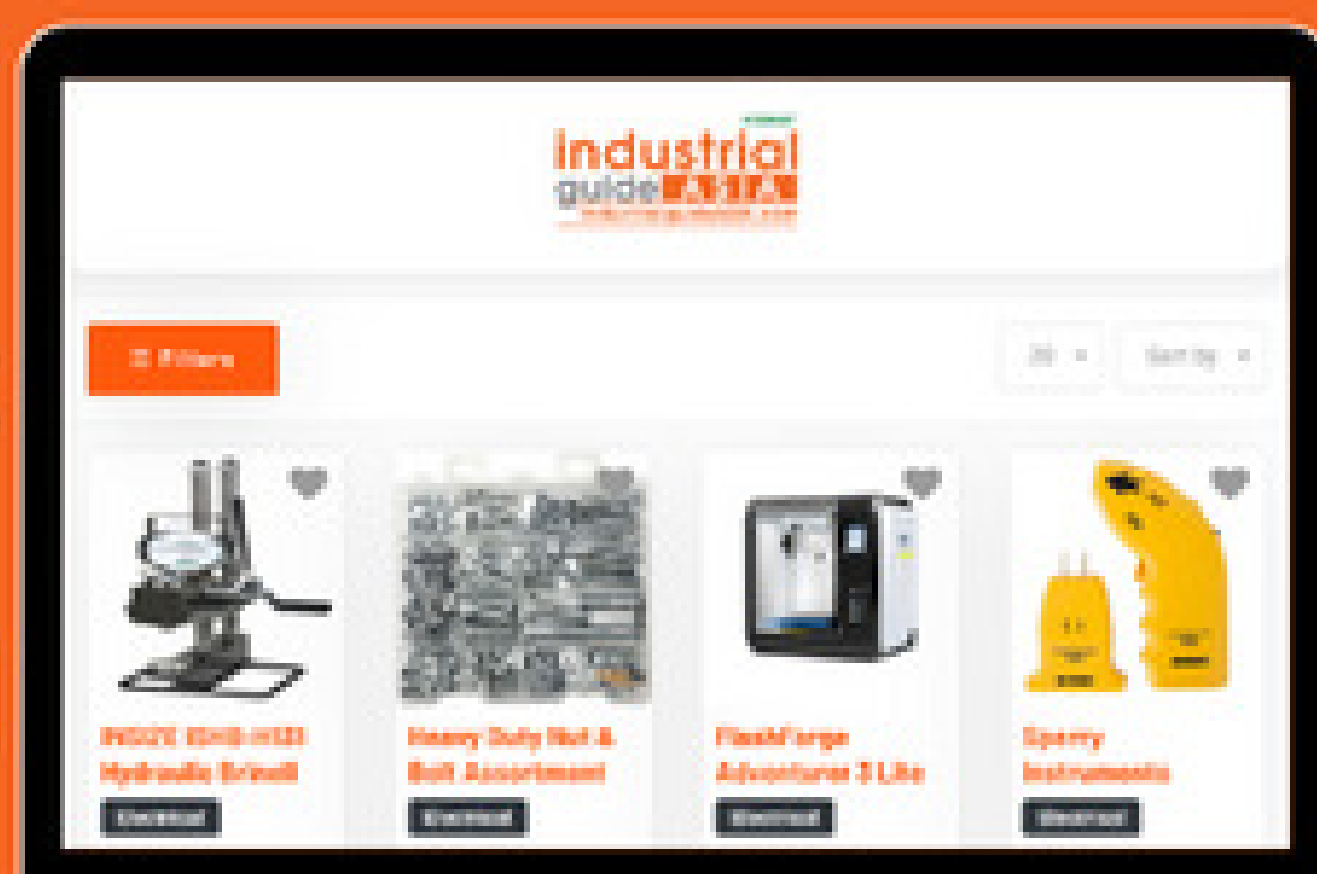
“TRI’s program support and active participation in the activities is the type of corporate sponsorship we love to see. And we at MassRobotics are seeking to replicate this type of support with other corporate sponsors later this year,” says Khalif Mitchell, STEM Lead at MassRobotics. To further support future academic interests, TR

I announced that it will award a \$3,000 scholarship to a deserving student pursuing STEM studies. The scholarship will be awarded in the coming weeks and will be the concluding event for the students. The program, hosted at the John D O’Bryant School of Mathematics and Science in Roxbury, MA, consisted of a series of STEM based learning sessions at the high school on Tuesday and Thursday afternoon last week. The curriculum utilized ten (10) BrainCo reusable robotics kits, which TRI donated to the school. The instruction was facilitated by a local high school teacher, a MassRobotics instructor and a TRI research scientist. TRI was also invited to talk about careers and projects, as well as provide mentorship to students.



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SL CONTROLS ANNOUNCE TWO KEY APPOINTMENTS

SL CONTROLS, the specialist software integration firm, has announced former PM Group CEO Pat McGrath as a non-executive director and chairman of its board. It is also announcing the appointment of John Scanlan as its new Director of Corporate Services. The announcement comes after SL Controls recently announced it would be creating 50 new highly-skilled jobs over the next 18 months, with a number of them in Cork.

SL Controls is an international provider of equipment system integrated solutions to a range of world-leading brands across a number of industries including MedTech, Pharma, Healthcare and Technology. Many of the new hires will be engineers. As a Chartered Engineer himself and having worked for PM Group for 40 years, SL Controls Chairman Pat McGrath has extensive experience in the sectors covered by the company. He was CEO of PM Group for almost 12 years and remained as a Non-Executive Director for three further years, leaving in 2014. Some of Pat's specialties lie in the fields of Strategic Management, Corporate Governance, Engineering, Project Management and International Business Development. Pat is also a Chartered.

As Director of Corporate Services, John Scanlan will play a key role in SL Controls' delivery of total solutions from equipment systems integration to data driven insights to help customers transform their operations.

John's experience spans across a range of disciplines and industries and, over the past five years, he has specialised in service and market development strategy for cloud technology, artificial intelligence and Industry 4.0.

SL Controls Chairman Pat McGrath said: "I am delighted to join the board of SL Controls and look forward to working with the company as it goes through this growth phase; it is exciting to be part of that journey with them.

"SL Controls has already put itself into a great position with an excellent team and strong systems and procedures across the organisation. Now, with a formal board and a robust development plan to bring us to 2023, the company is really ready to scale. The company has already exceeded all targets for 2020 and is working in a sector that is seeing unprecedented growth.

"I hope to bring good corporate governance at board level as well as applying my knowledge of international business development and the multinational sector.



I am personally very passionate about CPD and am very pleased that SL Controls has a strong commitment to supporting its team to continuously upskill."

SL Controls Director of Corporate Services John Scanlan said: "SL Controls operates at the leading edge of manufacturing systems internationally. The company has also developed turnkey control to cloud solutions for intelligent manufacturing and provides a range of innovative services.

"I look forward to working with my colleagues to truly deliver the benefits of our total integration expertise and real value from data in the cloud to our customers."

SL Controls CEO Keith Moran said: "We are delighted to welcome both Pat and John to the SL Controls team. Both have extensive experience in strategy development and implementation and these will be key skills in assisting the company in its continued growth. I look forward to working with both Pat and John and am excited to see what we can all achieve together."



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DUTCH COMPANIES FROM THE MANUFACTURING INDUSTRY JOIN FORCES IN NEW ELECTROLYSERS MAKERSPLATFORM NL

Hydrogen is one of the pillars of the energy transition and can be the growth engine for a new economy. The Netherlands is pre-gearred to occupy a leading position internationally as a supplier of electrolyzers, the key technology for the production of clean hydrogen. This is evident from the report 'Joining forces in the electrolyser industry' by FME and TNO. But this still requires something. At the moment, the Netherlands lacks a fully-fledged industry that can produce electrolyzers on a large scale. One of the recommendations from the study is to establish a national community of companies that will work together to enable electrolysis and the production of clean hydrogen on a larger scale.

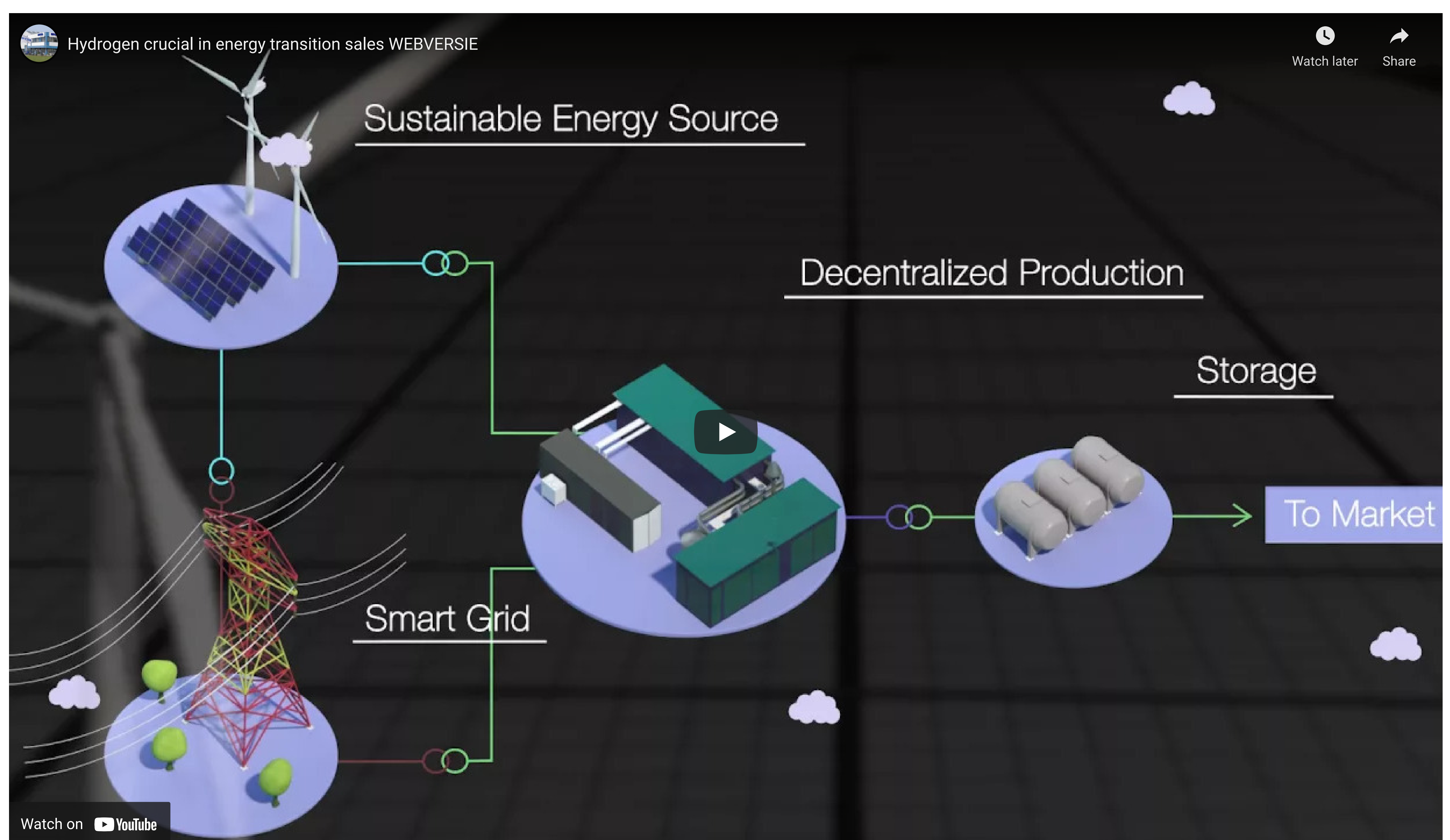
Developing and scaling up electrolyzers in the Netherlands together

The Electrolysers Makersplatform NL aims to develop and scale up the production of electrolyzers - or components for them - in the Netherlands in order to be able to supply more green energy.

We do this by creating an interactive community in which the process and manufacturing industry, knowledge institutions, government and the energy sector work together. With the platform, we create the necessary preconditions for making Dutch breakthrough innovations and technologies actually applicable on a large scale and bringing them to the market. The platform plays an important role in the development, international strategy and matching of supply and demand, by making a link between the manufacturing industry, the process industry and the energy sector.

Potential for hydrogen as an export product

Hydrogen technology has the potential to become an important export product of the Netherlands. The Netherlands has an excellent gas infrastructure that can be reused for the transport of sustainable hydrogen and a considerable potential of offshore wind for the production of green hydrogen. Hydrogen can not only help achieve the Dutch climate goals, but can also create sustainable economic growth and jobs.





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Special Advantages:

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Applications:

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Website: www.adcanvas.com.sg

EMERSON™ WIRELESS 1410S GATEWAY WITH 781S SMART ANTENNA

The Emerson Wireless 1410S Gateway is the next generation of wireless infrastructure. Network flexibility allows users to strengthen or add to WirelessHART™ networks seamlessly, while connecting with host systems and data applications. The gateway uses the 781S Smart Antenna to enable flexible remote antenna locations of up to 1300 feet (400 m) allowing the gateway to be in an easily accessible location, while the 781S Smart Antenna can be in hazardous areas near your data points.

Specifications

Communication Protocol: WirelessHART, ISA100

Network capacity: Up to 200+ WirelessHART devices (or) 200+ WirelessHART & 100 ISA100 devices

Power Supply: 10.5-30Vdc or IEEE 802.11 PoE

Certifications/Approvals: USA, Canada, ATEX, IECEx, China, Japan, INMETRO

Network Reliability: >99% data reliability with industry proven security

Hardware Options: Lightweight, modular: design for greater deployment flexibility

Weight: 2.76 lbs

Mounting: Pole mount Modular



Features

- Gateway connects the WirelessHART self-organizing networks with any host system
- Easy integration into control systems and data applications through serial and Ethernet connections
- > 99% data reliability with industry proven security
- Simple configuration and management of self-organizing networks
- Ability to leverage sensor data from critical assets to eliminate blind spots, and improve productivity and safety of operations
- The 1410S Gateway with the 781S Smart Antenna and the Cisco Catalyst IW/6300 Heavy Duty Series Access Point together make the Emerson Wireless Access Point, delivering the next evolution of IIoT connectivity in a single solution

SAFETY MAGNETIC SENSORS FOR DESIGN FLEXIBILITY



The new MC88C Series of magnetically coded REED safety sensors are the ideal solution to monitor the position of sliding, hinged and removable safety guards. When connected to a safety module, these sensors are suitable for safety gate applications up to PLe/Category 4 according to EN ISO 13849-1. They are designed to stop or disconnect dangerous motions when mobile protections are opened or displaced. These applications are common in the industrial Food & Beverage, Door & Entrance, Plastic & Rubber, and Material Handling market segments.

Features of the MC88C Series include:

REDUCED DOWNTIME:

- High tolerance for misaligned doors / gates due to assured switching distance (Sao) of 5mm, 8mm, or 18mm depending on the selected actuator
- Concealable for tamper protection – magnetic sensors can be hidden behind any non-magnetizable material for seamless design
- Application flexibility due to operating temperature range of -25°C to 85°C (-13°F to 176°F)

LONG LIFETIME:

- Non-contact actuation means no wear and tear
- Low maintenance with IP67 protection rating and magnetic technology insensitive to dirt and dust.

EASE OF USE:

- Left or right mounting available for any customer design
- Industry-standard housing dimensions of 88 x 25 x 13mm
- LED indicator (optional) for simplified installation and diagnostics
- Ready for standard application with CE and cULus approvals as well as safety applications with SIL3 and Cat. 4 PL e (ISO13849-1)
- Variety of configurations with an operating voltage of 12-24 VAC/DC, REED switch with two outputs, and connection options of cable, M8 connector, or M12 pigtail

SCHNEIDER ELECTRIC RELEASES GALAXY VL 3-PHASE UPS, FOR EFFICIENT, RESILIENT INDUSTRIAL POWER PROTECTION



- Modular and scalable 3-phase UPS design supports both energy and process efficiency
- 50-percent more compact than industry average for space constrained industrial environments
- Patented 'Live Swap' touch-safe design for enhanced employee protection and business continuity for critical applications

With Galaxy VL, Schneider Electric introduces 'Live Swap', a pioneering feature which delivers a touch-safe design throughout the process of adding or replacing the power modules while the UPS is online and fully operational, which offers enhanced business continuity and no unscheduled downtime.



Additionally, Live Swap's touch safe design offers increased protection for employees who no longer have to transfer the UPS to maintenance bypass or battery operation during the insertion or removal of the power modules.

“The new, energy-efficient Galaxy VL sets an extremely high standard for UPS innovation and is designed to help industrial customers maximize production outputs while minimizing downtime and total cost of ownership,” said Mustafa Demirkol, VP, 3-Phase Global Offer Management for Schneider Electric. “It is in keeping of our focus on the future requirements for industrial organizations, driving energy and process efficiency, while improving resiliency and production line reliability. As a Green Premium product, it also delivers best-in-class power protection while being designed for sustainable operations and inclusion within recycle, reuse, circularity, and traceability programs.”

Key Benefits of the new Galaxy VL:

- **Maximize space for critical production equipment:**

Galaxy VL is the most compact UPS in its class, 50-percent more compact than the market average at 0.8 m², meeting the demand for uninterruptible power in space-constrained industrial environments. Additionally, Galaxy Lithium-Ion Battery Cabinets deliver total space savings of up to 70-percent compared with VRLA battery solutions.

- **Rugged design for harsh environments:**

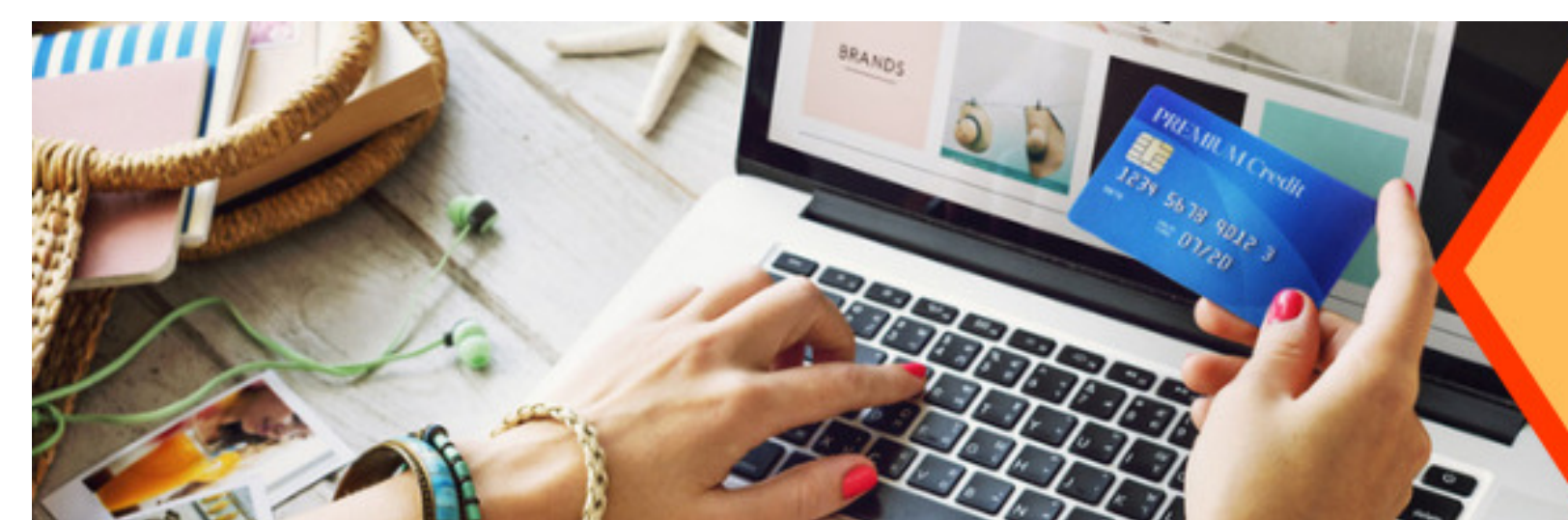
Includes high operating temperatures of up to 40°C, dust filters, conformal coating on critical PCBA boards and seismic-ready system protection.

- **Reach sustainability goals:**

Up to 99-percent efficient in EC On version mode for a full return on investment within two years in energy savings (€26,280 EUR annual electricity savings)². As a Schneider Electric Green Premium product, it also includes the option for long-lasting Lithium-Ion batteries.

- **Increased Reliability through EcoStruxure:**

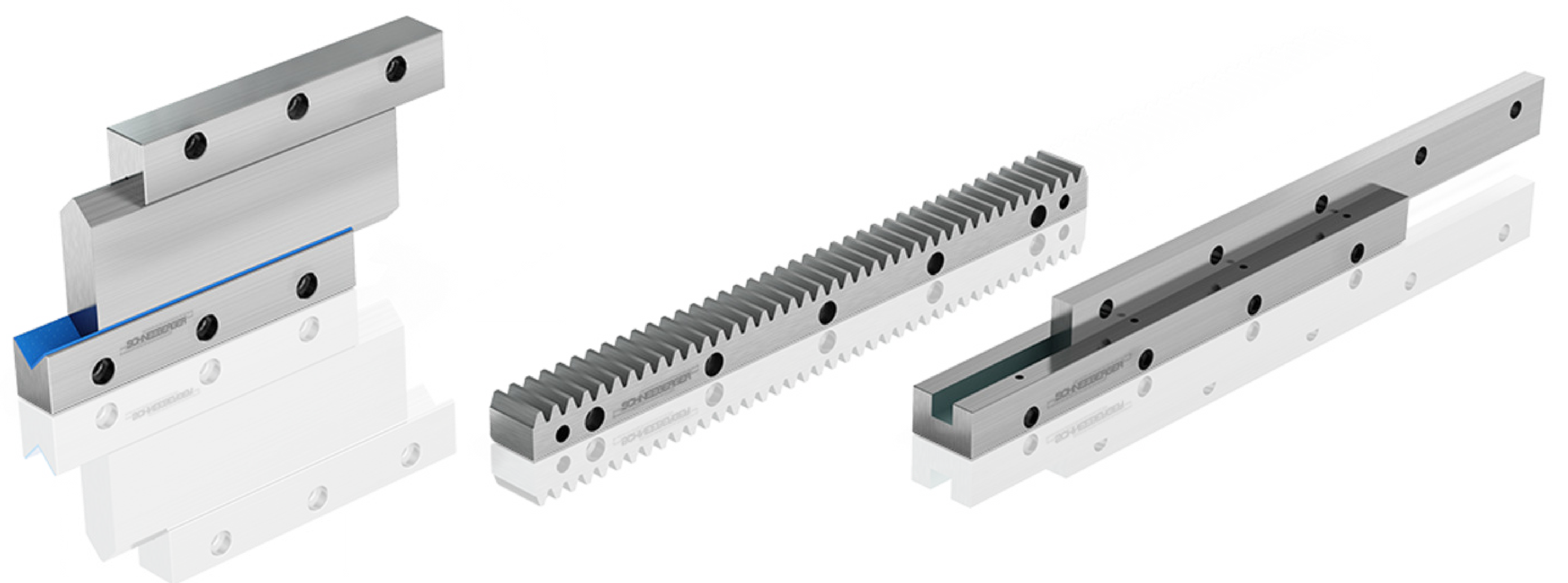
By connecting Galaxy VL to EcoStruxure—Schneider Electric's open, interoperable, IoT-enabled system architecture and platform—industrial operators can benefit from EcoStruxure™ IT software and services. These EcoStruxure offerings enable customers to monitor, manage, and model their IT infrastructure and get service support 24/7 anywhere, anytime.



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SCHNEEBERGER GEAR RACKS

The standard length of a gear rack is usually 1000 mm. During assembly, these are installed one after the other. Gear racks from SCHNEEBERGER, on the other hand, are available in lengths of up to 3000 mm (2000 mm for Q5). This inevitably leads to tolerances that are reflected in the form of a pitch error, which in turn leads to increased wear. With increasing axle length and the associated increasing number of gear racks to be installed, this error becomes even greater.



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The main benefit is:

- Fewer gear racks have to be installed per machine axis. This reduces installation time.
- By reducing the number of gear racks required, the pitch error is minimized, thus increasing the service life.
- The price per meter of gear racks decreases with increasing length. This allows our customers to save money.

Furthermore, SCHNEEBERGER gear racks feature the option of any desired cross-section with different types of attachments, entirely according to the customer's requirements.

The excellent performance – and technical superiority – of SCHNEEBERGER gear racks are due to careful manufacturing, the company's many years of experience and the constant search for additional possibilities for optimization.

Potential applications vary widely. Whether linearly moving a machine tool gantry weighing several tons, positioning a laser cutting head at top speed or driving a jointed arm robot with maximum precision for welding operations – gear racks from SCHNEEBERGER ensure accuracy, dynamic motion and efficiency at all times.

450L GUARDSHIELD POC SAFETY LIGHT CURTAINS



450L GuardShield™ POC safety light curtains are unlike traditional safety light curtains, which are based on separate transmitter and receiver units. Patented technology allows each transceiver to be used as a transmitter or receiver via an innovative plug-in module. The 450L-B is the basic model with on/off functionality. The advanced 450L-E model features integrated laser alignment, cascading, blanking, and integrated muting.

What's New?

The advanced 450L-E model now features blanking and integrated muting. Connection over EtherNet/IP makes the 450L-E light curtain a smart safety device that enhances safety while providing connectivity through The Connected Enterprise®

Overview:

- Connection over EtherNet/IP makes the 450L-E light curtain a smart safety device that enhances safety while providing connectivity through The Connected Enterprise®
- Includes patented technology that allows each transceiver to be used either as a transmitter or receiver via an innovative plug-in module
- Features an active protective field that senses over the entire length of a transceiver.
- Offers a wide range of protection heights 150...1950 mm (5.9...76.7 in.) in increments of 150 mm (0.5 ft)
- Offers a wide range of protection heights 150...1950 mm (5.9...76.7 in.) in increments of 150 mm (0.5 ft)

PRODUCT COMMUNIQUE

- Provides easy configuration of the start mode, external device monitoring (EDM), and scanning range by DIP switches on the plug-in modules
- Provides basic on/off functionality (450L-B only)

Bulletin 450L-E Safety Light Curtains:

- Offers enhanced features including integrated laser alignment, longer operating range and options for cascading, blanking and integrated muting.

- Features integrated laser alignment for fast and reliable installation
- Offers built-in cascading, blanking and integrated muting capabilities



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PHOENIX CONTACT NEW CLASS 100 MACHINE LIGHTS

The new PLD M 140 W.../D25 and PLD M 140 W.../D35/SC class 100 machine lights extend Phoenix Contact's range of machine lights.

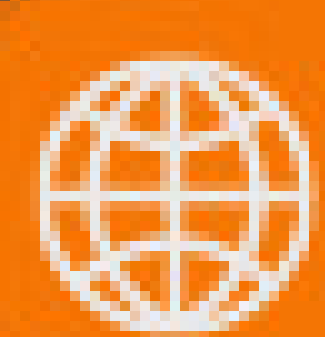
The PLD machine lights with IP54 degree of protection stand out due to their very narrow design. This means that they are ideal for integrating into machines with moderate ambient conditions, such as packaging machines, even when there is little space. The lights provide extremely good illumination of surfaces at short to medium distances. Four lengths from 195 mm to 895 mm are available, each with a diameter of 25 mm (... /D25) or 35 mm (... /D35).



In the medium term, the PLD M140 W... lights will replace the previously offered PLD M 160 W... lights. The new lights provide 2 to 3 times higher lumen output than previous products. Moreover, the 35 mm diameter lights can be dimmed and connected in series. Those wishing to change over to the new "140" series lights will not face any difficulties because the products are easy to exchange since the clearance between fixing holes is the same.



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SICK LAUNCHES SOLID STATE SAFETY SOLUTION FOR LINE-GUIDED SMALL VEHICLES - SCANGRID2 BOOSTS THE PRODUCTIVITY OF SMALL AUTONOMOUS AGC'S TO SAFE SOLID STATE LIDAR TECHNOLOGY



SICK

Sensor Intelligence.

The scanGrid2 safe multibeam scanner from SICK is the first of its kind in the world. The compact sensor uses a novel and in-house developed solid state LiDAR technology to increase the productivity, in particular, of small autonomous and line-guided transport vehicles, so-called Automated Guided Carts (AGCs). Certified as a Type 2 / SIL 1 safety sensor according to IEC 61496-3, the scanGrid2 can protect hazardous areas up to performance level c and can be used for collision avoidance.

An app and cloning function also ensure a high level of usability and fast commissioning of the sensor solution.

SICK employed its novel and in-house developed solid state LiDAR technology for the first time when developing its first scanGrid2 safe multibeam scanner. "We are seeking to offer manufacturers of autonomous and line-guided AGCs, in particular, a cost-effective safety solution that they can use to boost the productivity of their applications. Specifically, this means increasing the speed or payload of the vehicles, or being able to eliminate mechanical barriers such as fences",

explains Marco Faller, Strategic Product Manager at SICK AG. Conventional safety laser scanners are often not a suitable solution for these very simple and exceptionally cost-effective small vehicles for economic reasons.

Users have therefore often been faced with the choice of limiting the speed or payload of their AGC or avoiding operating them in unfenced areas in order to minimize the risks associated with the vehicles. scanGrid2 now offers users new possibilities for successfully increasing the productivity of their small autonomous and line-guided carts. Thanks to the rapid return on investment, switching to a safety sensor is now a viable option with initial installations showing productivity increases between 50 and 70%. Reduced to the essentials, scanGrid2 offers users exactly those functions they require for safe operation: the sensor safely detects objects of a variety of sizes within the freely configurable protective field zones, can evaluate multiple fields, and can execute configurable monitoring cases.

A warning field zone extending up to four meters beyond the safe working range can be employed for non-safety actions. The solid state LiDAR technology is based on the principle of time-of-flight measurement and eliminates all moving parts. Instead, the device uses only semi-conductor elements in conjunction with geometrically arranged optics modules to span a protective field of 150 degrees. Within the defined protective field zone, scanGrid2 can solve Type 2 classified, performance level c safety requirements in the context of safety applications

App and cloning function ensure a high level of usability and fast commissioning

"When it comes to the use of safety sensors, easy configuration, fast commissioning, and diagnostics are the key aspects our customers are looking for. Ensuring fast servicing also saves valuable time and money," explains Faller. That is why SICK redesigned the configuration and diagnostics features. Besides the tried-and-proven infrastructures and tools such as

the Safety Designer software, the engineers at SICK have implemented an additional Near Field Communication (NFC) interface. This, in conjunction with the Safety Assistant app, enables diagnostics to be performed on the sensor quickly and easily, e.g.,

via a smartphone. The advantages of this approach are also readily apparent during commissioning or servicing: sensor configurations can be transferred wirelessly and easily from one sensor to another thanks to a cloning function in the app.

FREE PEOPLE FROM MONOTONOUS WORK! OMRON RELEASES FH-SMD SERIES 3D VISION SENSOR FOR ROBOT ARMS - HUMAN LIKE FAST DETECTION AND FLEXIBILITY FOR AUTOMATING PART PICKING

OMRON Corporation (HQ: Shimogyo-Ku, Kyoto. President and CEO: Yoshihito Yamada) announced the release in March of its new FH-SMD Series 3D Vision Sensor. The FH-SMD Series can be mounted on a robot to recognize randomly placed (bulk) automotive parts in three dimensions, enabling space-saving assembly, inspection, and pick & place, which are difficult with conventional robots, and improving productivity. OMRON continues to contribute to bringing innovation to manufacturing sites through total solutions combining robots and automation devices.

Production workers are hard to come by these days, and labor costs have risen sharply. Manufacturers are now facing intense pressure to automate processes that rely on the senses of experienced human workers. Moreover, production workers now need to work harmoniously

with machines to raise productivity amid the COVID-19 crisis. In particular, the automotive industry requires vision sensors as the eyes of robots that are indispensable for automation because it is difficult for machines to recognize positions and postures of various complex shaped parts. However, conventional large 3D vision sensors take a long time to detect status of targets as well as needing large spaces and large mounting equipment. These are barriers to installation into preexisting spaces and automation that provides human-level performance.

The new FH-SMD Series 3D Vision Sensor is small and light enough to be mounted on a robot arm, eliminating the need for special mounting equipment and thus saving space. This sensor can be moved to change the viewpoints and easily recognize parts, reducing blind spots and providing reliable detection.



The FH-SMD Series mounted on OMRON's collaborative robot recognizes bulk parts in three dimensions

In addition, the newly developed 3D measurement technology enables part detection in approximately 0.4 seconds*1 regardless of the shape and location. Bulk parts assembly can be automated smoothly.

OMRON set forth a strategic concept called "innovative-Automation" consisting of three innovations or "i's"—"integrated" (control evolution), "intelligent" (development of intelligence by ICT), and "interactive" (new harmonization between people and machines). By providing productive automation solutions combining the FH-SMD Series and robots, OMRON accelerates the creation of "interactive" manufacturing sites—key to the materialization of "innovative-Automation"—together with its client companies.

For the third "i," "interactive" (new harmonization between people and machines), OMRON pursues the development of a new harmonious relationship between human operators and machines; as they work together in the same workspace, machines will be able to assist human operators by recognizing human thoughts and behavior in a way that only OMRON, a specialist control equipment manufacturer who knows production floors inside and out, can realize.

Specifications

FH-SMD Series 3D Vision Sensor

Installation distance: WD : 400mm

Measurement range (X, Y, Z): 400×300×200mm

Transmission method: GigE (1000BASE-T)

Dimensions: 53 x 110 x 77 mm (H x W x D)

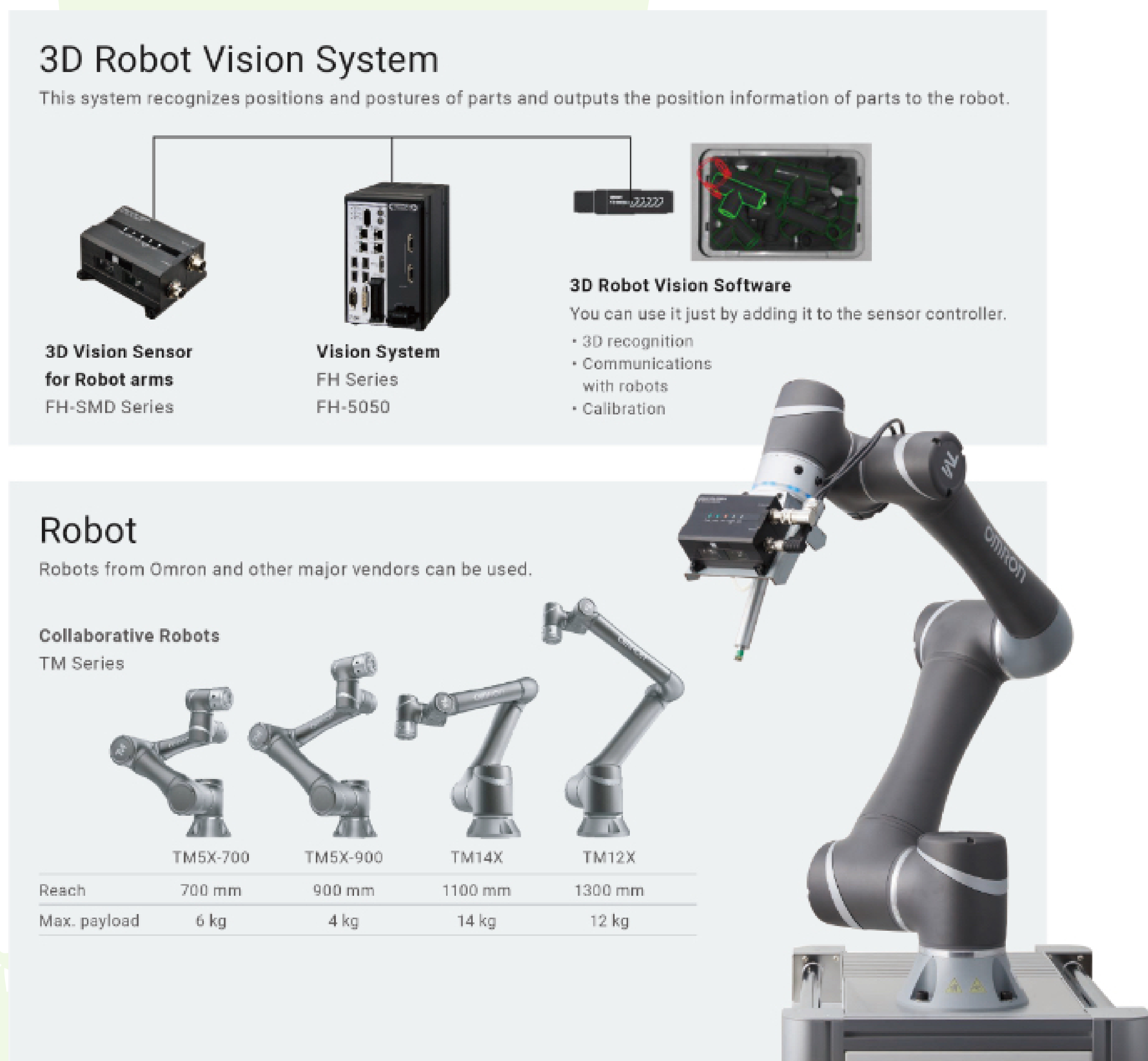
(Excluding protrusions and connectors)

Weight Approx.: 570 g

Supply voltage: 21.6 to 26.4 VDC (24 VDC±10%)

Current consumption: 2A max.

3D Robot Vision System
This system recognizes positions and postures of parts and outputs the position information of parts to the robot.



3D Vision Sensor for Robot arms
FH-SMD Series

Vision System
FH Series
FH-5050

3D Robot Vision Software
You can use it just by adding it to the sensor controller.

- 3D recognition
- Communications with robots
- Calibration

Robot
Robots from Omron and other major vendors can be used.

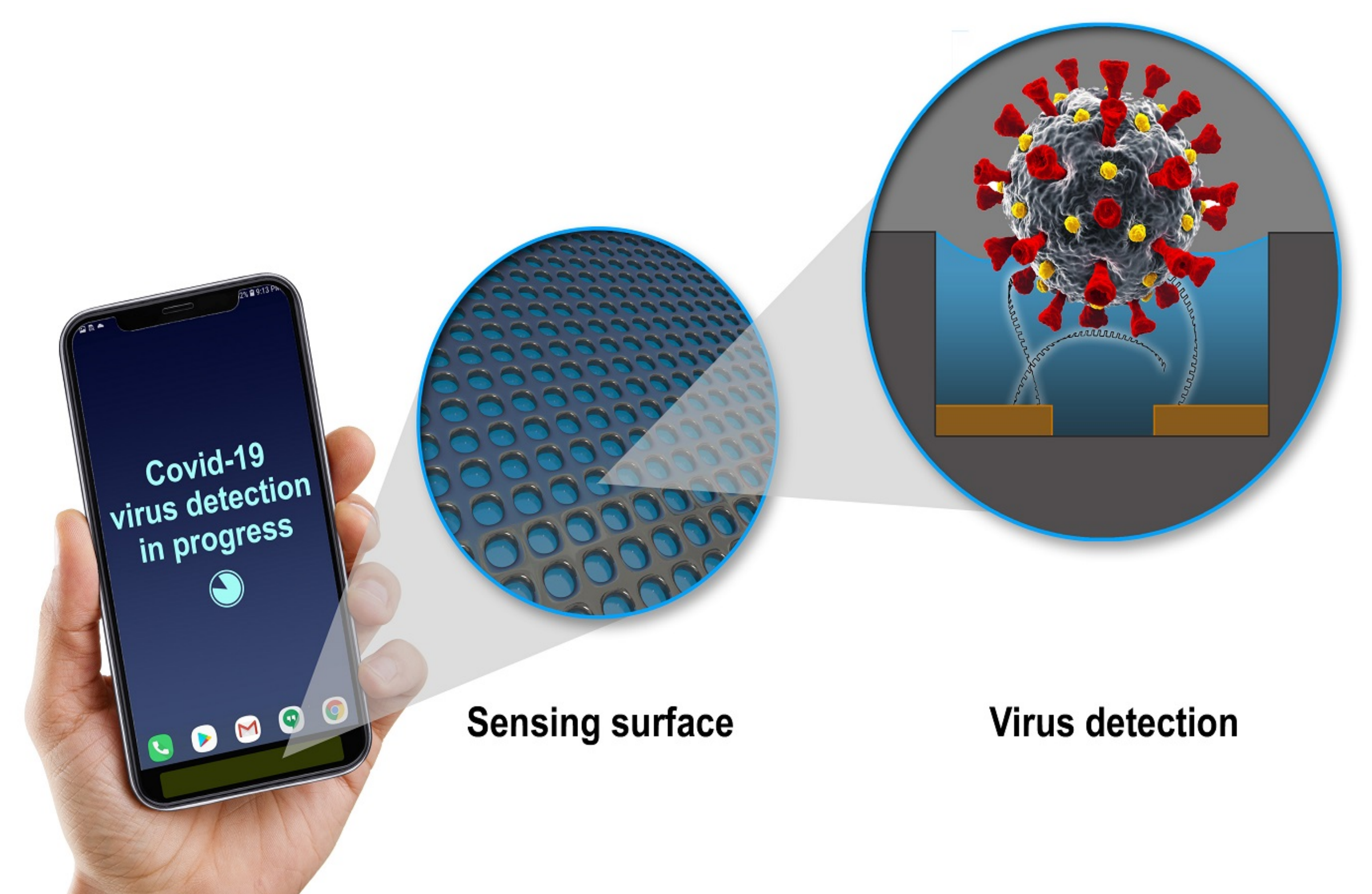
Collaborative Robots
TM Series

	TM5X-700	TM5X-900	TM14X	TM12X
Reach	700 mm	900 mm	1100 mm	1300 mm
Max. payload	6 kg	4 kg	14 kg	12 kg



GE SCIENTISTS DEVELOPING TECHNOLOGY TO ADD COVID-19 VIRUS DETECTOR TO YOUR MOBILE DEVICE

- Awarded National Institutes of Health (NIH) grant to develop tiny sensors smaller than your fingertip that can detect the presence of COVID-19 virus nano-particles on screens, tables and other surfaces
- Multi-disciplinary team from GE Research will draw from years of development and commercial success with physical, environmental, gas and biosensors for industrial monitoring
- The Team's work has been featured in journals Nature Electronics 2020 and Lab on a Chip 2021



Caption: Shown is a concept for the direct detection of minute levels of COVID-19 virus particles on surfaces by using engineered bioreceptors attached to electronic nano-sensors. GE scientists are developing sensing technology as part of the NIH project, which could potentially be integrated into mobile devices (e.g. smartphones, smartwatches) and other types of surfaces (e.g. fingerprint scanners, computer keyboards, wall-mounted sensors).

“One of the first lines of defense against any virus is avoiding exposure, which is easier said than done when you can’t see it,” said Radislav Potyrailo, a principal scientist at GE Research and principal investigator on the NIH project. “Through our project with the NIH, we are developing a sensor small enough to embed in a mobile device that could detect the presence of the COVID-19 virus.”

Potyrailo added, “We all come into contact with different surfaces during any given day, from computer screens and conference tables to kiosks at the airport and of course, credit card machines at stores while running errands. While everyone does a great job keeping these surfaces clean, we want to add an extra layer of safety by being able to detect the presence of the virus.”

Building on a suite of successful sensing technologies that have resulted in-field demonstrations and a commercial launch for industrial monitoring, GE Research has been awarded a 24-month NIH grant (U01AA029324) of the RADx-rad program to develop miniature sensors that can detect the presence of the COVID-19 virus nano-particles on an array of different surfaces.

Over the past decade, Potyrailo and the sensing teams at GE Research have made tremendous strides in developing miniaturized sensing technologies that deliver the superior performance and acute sensing capabilities similar to high-end, large analytical instruments you would find in a typical lab.

“We have developed tiny sensors smaller than a fingertip that have the same detection capabilities as the high-end analytical instruments the size of a microwave oven,” Potyrailo added. “By delivering this exquisite detection capability of a conventional high-end analytical instrument in a such a small form factor, we can now consider sensing applications that you could envision being implemented as a sensor surface on a mobile phone or on a device even smaller than that.”

Potyrailo noted that the breakthrough sensing technology being developed is extremely reliable and good at isolating the detection without the interference of other elements. “Our sensors are sort of like bloodhounds,” Potyrailo added. “We train them to detect a specific thing, and they are able to do that well without being thrown off the trail by something else.” As part of the two – year project, the sensing team will demonstrate the reliable detection of a few nano-particles of concern such as those related to the COVID-19 in the presence of diverse kinds of common interferences.

AMETEK MOCON LAUNCHES NEW CARBON DIOXIDE PERMEATION ANALYZER THE MOCON PERMATRAN-C® 4/30

The new AMETEK analyzer was designed for labs looking to perform fast and accurate carbon dioxide transmission rate testing for quality control (QC) or R&D applications. It takes advantage of the many great features offered by our Next Generation MOCON Permeation Analyzers, such as short test cycles, easy-to-use software, and automated control features.

The analyzer also features our two-cell cartridge testing system that precisely measures the carbon dioxide transmission rate (CO₂TR) of barrier films and packages. The analyzer’s simplified operation allows both experienced technicians and new users to easily obtain accurate and repeatable CO₂TR results on every measurement.

The removable cartridge system allows interchangeable use with MOCON's wide range of test cartridges, expanding the testing range and applications of the instrument. The C 4/30 analyzer comes standard with 50 cm² area test cartridges for barrier films. Also available is our PackRack Package Test Fixture and Capture Volume accessories, which allow bottles and container closures to be easily tested for CO₂TR with minimal preparation. Now CO₂TR measurements can be made with ease and confidence by any operator.

"The new PERMATRAN-C 4/30 Carbon Dioxide Permeation Analyzer measures the CO₂ transmission rate through films, packages, bottles, and package closure systems, so Research and Development and Quality Control labs know exactly how much CO₂ is permeating through their samples," said Jeff Jackson, Sr. Global Product Manager at AMETEK MOCON.



"Unlike other permeability testers that measure a surrogate for carbon dioxide, like gas pressure, we specifically measure CO₂ gas concentration using proprietary infrared sensing technology to directly determine the carbon dioxide transmission rate. As you would expect from a MOCON Permeation Analyzer, we measure CO₂TR to the lowest detection limits available in the market."

The PERMATRAN-C 4/30 Carbon Dioxide Permeation Analyzer complies with ASTM standard F2476. This analyzer provides very accurate and repeatable test results within a wide detection range from 0.5 to 8000 cc/(m²*day).



COGNEX INTRODUCES NEXT GENERATION OF HIGH-PERFORMANCE HANDHELD BARCODE READERS

DataMan 8700 Series instantly reads the most challenging codes

Cognex Corporation announces the launch of its DataMan® 8700 Series of handheld barcode readers. Built on a completely redesigned platform, this next generation of handheld readers delivers cutting-edge performance and ease of use with no tuning or operator training required.

"Cognex specializes in reading the most difficult barcodes at the highest speed and accuracy," said Carl Gerst, Cognex Senior Vice President and Business Unit Manager of Identification Products. "With the 8700 Series, we've developed the world's fastest line of industrial handheld readers, offering unprecedented response times and durability right out of the box."



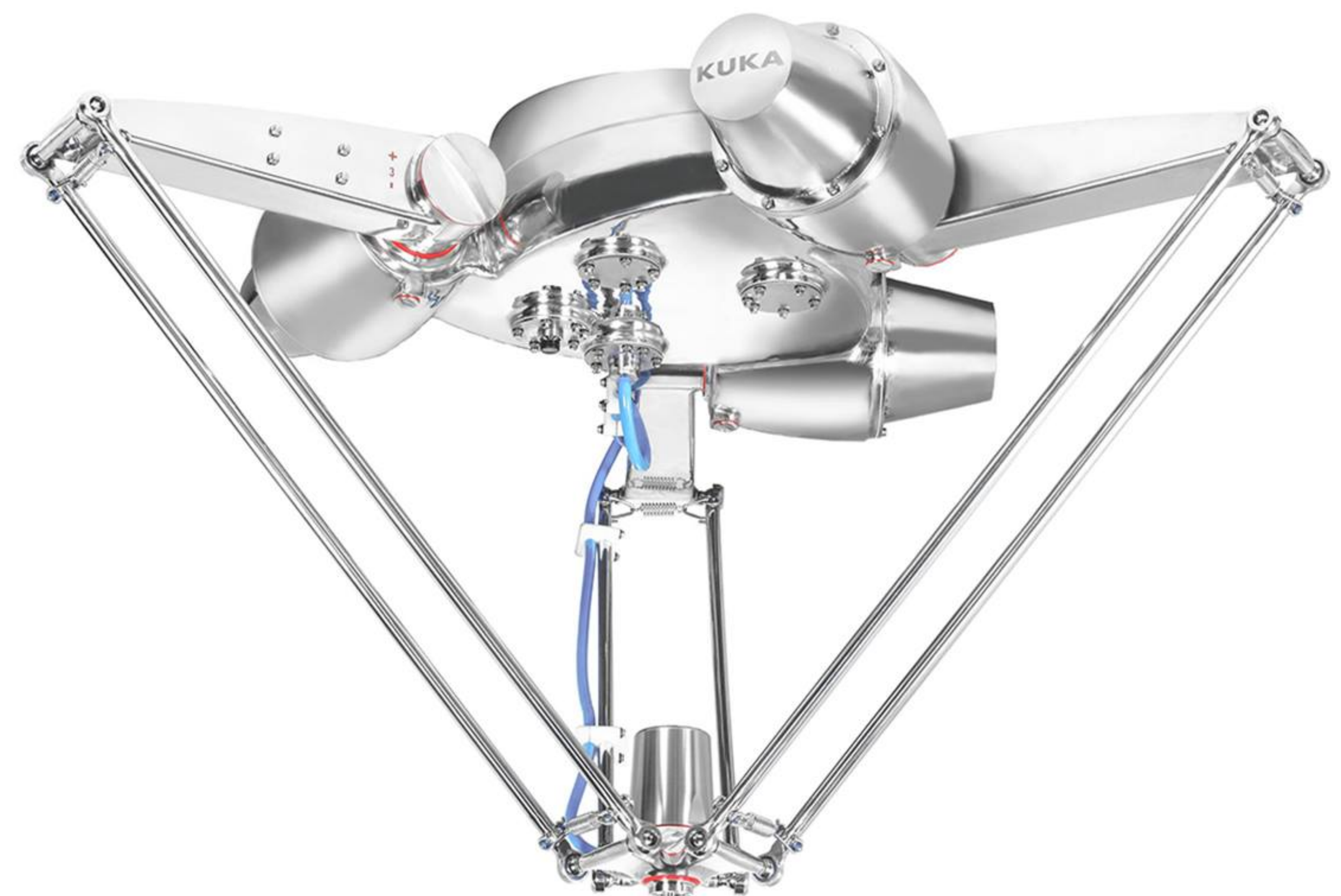
Featuring advanced image formation and quick processing, the 8700 Series can instantly read challenging direct part mark (DPM) and label-based codes, even when vital elements of the code are missing or damaged. Designed with oil-resistant and waterproof plastics, the readers are built to last in the harshest manufacturing environments. The new readers include built-in OLED display screens to enable quick setup and operator feedback, such as wireless signal strength, read string data, and remaining battery life. They also support a broad range of industrial protocols and wireless communication options to connect seamlessly and operate efficiently in any facility. The 8700 Series is ideal for improving factory efficiency, productivity, and component traceability across a range of industries, including automotive, medical devices, electronics, and aerospace.



THE NEW KR DELTA ROBOT IMPRESSES WHERE HYGIENE IS OF THE ESSENCE

Hygienic and with minimal maintenance requirements – the new KR DELTA from KUKA. Made entirely of stainless steel, the hygiene robot impressively performs challenging pick-and-place applications in the food and packaging industries. It also scores highly in the electronics and pharmaceutical industries with flexible application possibilities.

The new KR DELTA robot – the first of its kind at KUKA – offers outstanding performance at a great price. From April 2021, this robot type of the low payload category will be the latest member of the KUKA product family. With its parallel kinematic system and small footprint, the KR DELTA robot is particularly suitable for precise pick-and-place tasks. Thanks to its stainless steel body, it is ideally suited to operation in hygienically sensitive areas,



such as in direct contact with food or medicines. Furthermore, the KR DELTA robot is designed to require minimal maintenance: the gear unit is encapsulated and the ball joints are made of self-lubricating material.

**HIRE
THE RIGHT
CANDIDATES
TODAY.**



The high-performance hygiene robot has a precise grasp of things

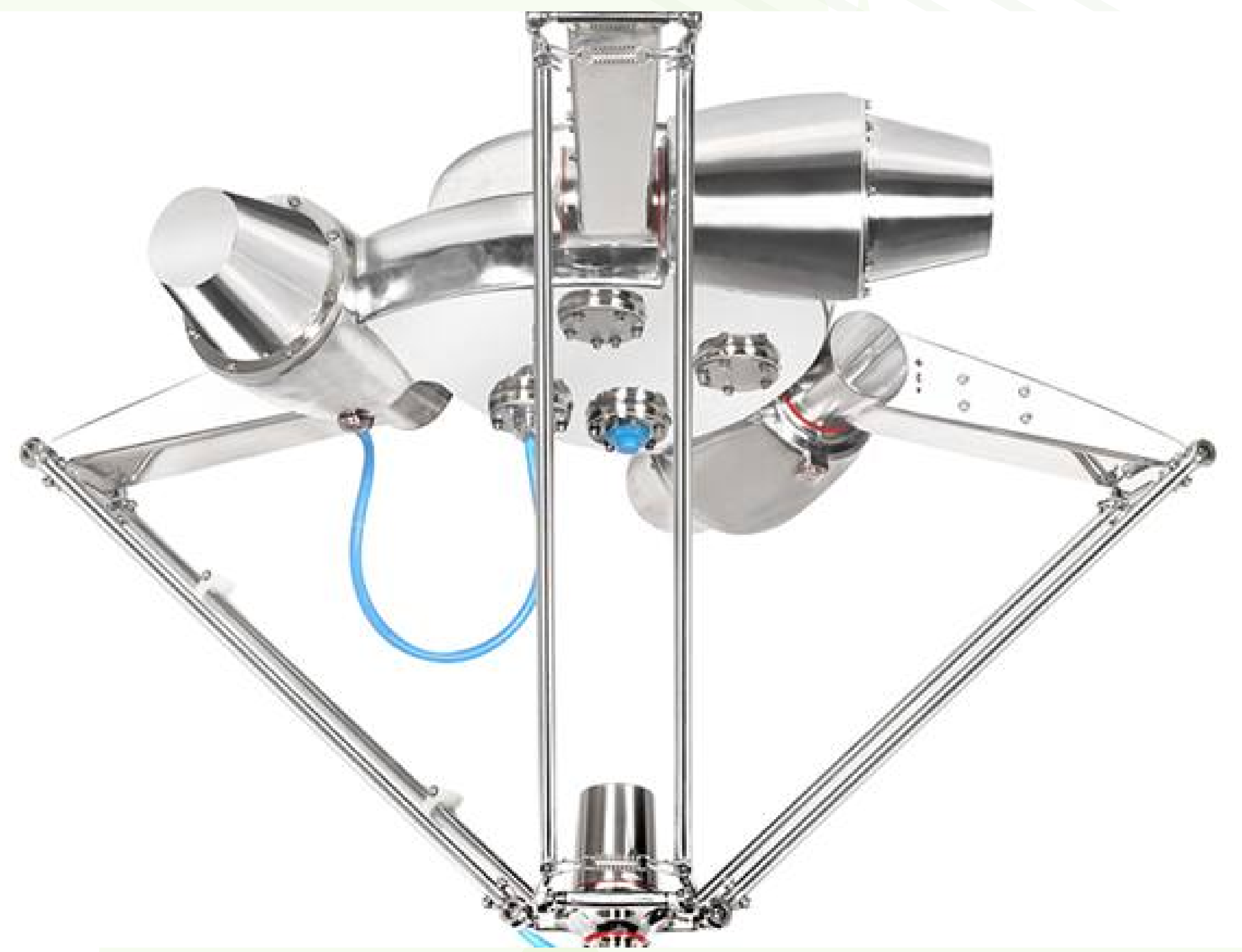
The parallel arm robot can be installed on the ceiling and stands out with a high degree of accuracy and a cycle time of 0.5 seconds (in the small Adept cycle) with a payload of 1 kilogram. With a reach of 1200 millimeters and a payload capacity of up to 6 kilograms, the KR DELTA robot offers first-class results in sorting and packaging applications. It is also designed according to the principle of “hygienic design” and is thus a veritable Mr. Clean.



TÜV-certified and easy to clean: the new KR DELTA hygiene robot offers many advantages.

Perfectly teamed up with KUKA.PickControl and KUKA.VisionTech

The small robot is controlled by the KR C5 micro – the latest control technology from KUKA. To enable it to perform its tasks even more efficiently in terms of resources, the KR DELTA can switch between different production scenarios, such as seasonal packaging variants. It is thus particularly suitable for the consumer goods industry, especially for fast-moving consumer goods. For this, the hygiene robot uses the software package KUKA.PickControl with conveyor tracking and integrated image processing. In combination with a camera and the KUKA.VisionTech software, which recognizes objects even in unstructured environments, even more flexible applications can be defined for the KR DELTA robot. These range from sorting to loading of different objects.



The hygiene robot enables precise pick-and-place operation.

A clean machine: hygiene as part of the design

Since its entire body is made of stainless steel, the KR DELTA hygiene robot is temperature-resistant and corrosion-resistant. With a protection rating of IP 67 for the entire robot and IP 69K for axis 4, it is easy to clean and disinfect – even using a high-pressure cleaner with a pressure of up to 100 kPA. The advantage: the simplified processes help companies to reduce downtimes that are otherwise necessary for cleaning and maintenance. At the same time, the new member of the KUKA portfolio meets the strictest requirements of the food industry. From its market launch, the KR DELTA hygiene robot will be TÜV-certified for compliance with the requirements of the US Food and Drug Administration and the German Food and Feed Code.

“Designed to resist: the new KR DELTA robot from KUKA meets the strictest hygiene standards and its ease of cleaning reduces downtimes for companies.”

ROLAND RITTER, PRODUCT MANAGER MECHATRONICS,
PLATFORM PORTFOLIO MANAGEMENT

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FESTO INTRODUCES THE VAEM VALVE CONTROLLER FOR MULTI-HEAD LIQUID DISPENSING

This new multi-channel valve controller raises micro-dispensing to a high level of performance and ease of use.

Festo introduces the new VAEM solenoid valve controller for multi-head micro-dispensing in pharmaceutical manufacturing and laboratory applications that require high speed and a low coefficient of variation (CV).

The compact and energy efficient VAEM provides individualized control and calibration of up to eight solenoid valves.

“As our life science technologists were designing the next generation of Festo multi-head micro-dispensing systems, they found that a more advanced valve controller was required, one that would meet their speed and precision goals,” said Craig Correia, Director of Life Science & Process Industries, Festo North America. “As development on the new valve controller progressed, the team also designed in energy efficiency, minimal heat generation, ease of use, compactness, and importantly, the capability to compensate for flow variations in individual valves.”

The VAEM can open a valve in under 2 milliseconds. Rapid and precise control of the valve decreased CV from 3% to less than .5% in laboratory benchmark testing. The VAEM enables users to easily and quickly calibrate flow through individual channels, which improves precision across multi-head systems.

The VAEM employs a “hit and hold” strategy to lower energy consumption. A short burst of high current “hits” the open position, and then the VAEM switches to a minimum current to “hold” the open position for a specified time. The strategy of using current rather than voltage to control valves diminishes heat buildup and aids in maintaining specified flow.

VAEM valve controllers are suitable for 2/2- and 3/2-way solenoid valves. They feature RS232 communication. Future iterations of the valve controller will have options for Ethernet, Modbus TCP, and IO-Link. A PC based graphical user interface (GUI) enables users to pre-calibrate the dispense heads and to save the control parameters for standalone operation. External 24 V trigger-input synchronizes the VAEM with other systems. The controller's dimensions are 3.6 x 3.9 x 1.1 inches (92 x 100 x 28 mm).



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My-PV uses photovoltaic power for thermal building component activation
Neuzeug, Austria. Solar company my-PV has developed a solar-power system using thermal concrete-core activation in commercial buildings: An electric underfloor heating system releases excess solar energy as heat to the building foundation. Thanks to this storage concept, my-PV utilizes saving operating costs.

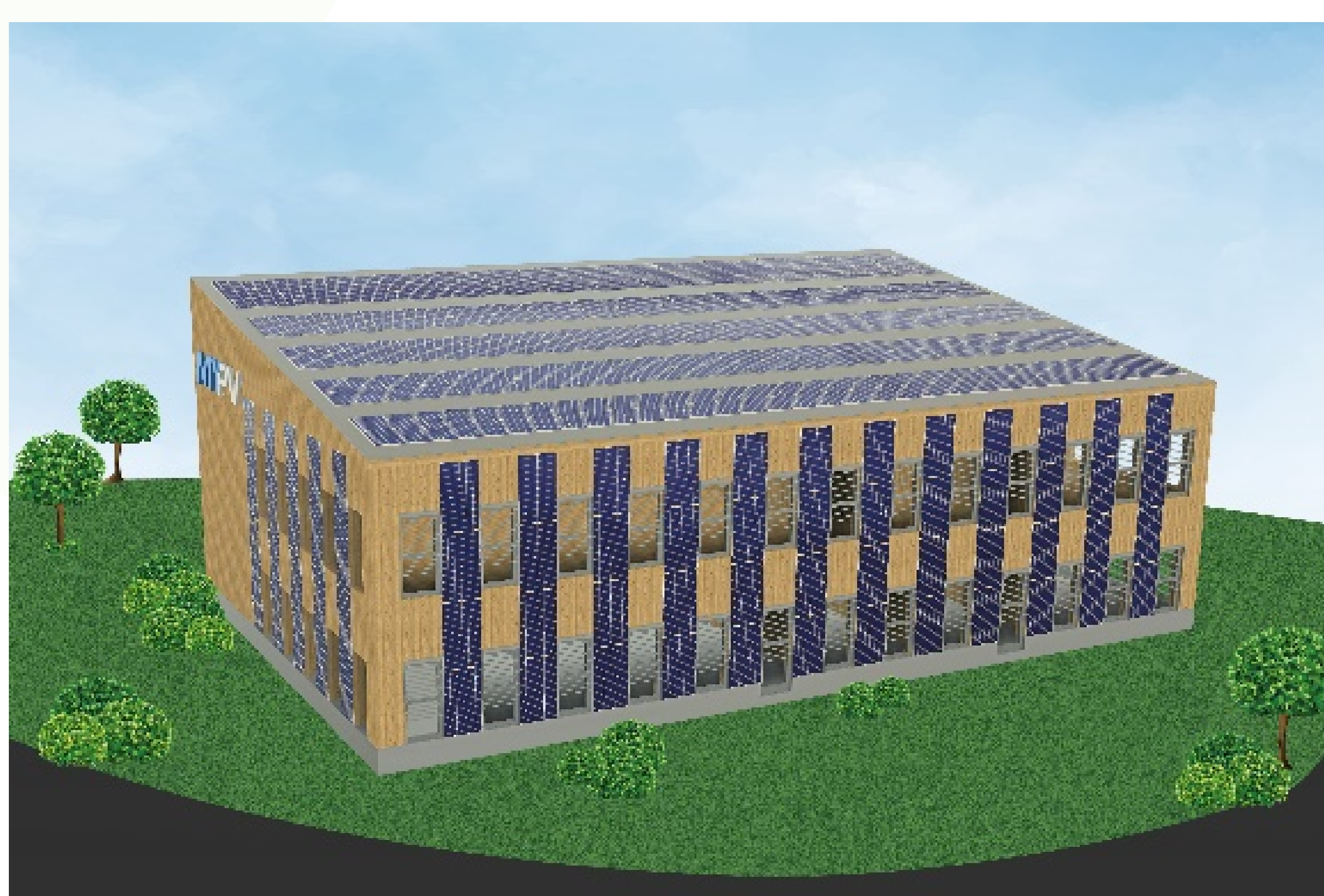
Since photovoltaic systems do not always produce the same amount of electricity and commercial buildings do not always require full heating power, buildings using solar-electric power need sufficient storage mass for surplus energy from PV. "Due to its high mass density, concrete is an excellent heat storage," tells Managing Director Gerhard Rimpler, explaining why my-PV thermally activates the concrete mass in the building foundation with surplus solar power. The solid construction element absorbs heat and releases it again with a time delay. This means that electricity does not have to be fed into the grid.

At the same time, load peaks are smoothed out.

Usually, water or air heat the building foundation. my PV's concept, however, provides for an electric underfloor heating system to transfer energy to the foundation concrete. "This way, solar energy is only converted into heat where it is needed, directly in the floor," explains Rimpler. AC-THOR gs power managers from my-PV regulate the heating power and are infinitely variable from 0 to 100% heating power.

Since there is no need for hydraulic storage tanks and distribution pipes, the financial and material demand for solar-electric heating technology is significantly lower than for water- and air-operated systems. Solar-electric heat generation is also completely silent and maintenance-free.

My-PV puts photovoltaic concrete-core activation into practice in its new headquarter



my-PV is implementing the concept for the first time in its new headquarter building in Sierning, Upper Austria. "It goes without saying that we are also proceeding completely according to our guiding principle of 'cables instead of pipes' for our new company headquarter," says Rimpler. In March, the electric heating wires were laid, which were then cast into 25- to 50-cm thick concrete. A 100 kWp photovoltaic system on the roof and facade produces enough surplus energy to be stored by power-regulated 40-kilowatt electric heating wires in the foundation and upper floor screed. The heating load of the low-energy house constructed with lightweight timber is significantly lower than 40 kW, but the excess energy can be temporarily stored by the construction element activation and released again later.

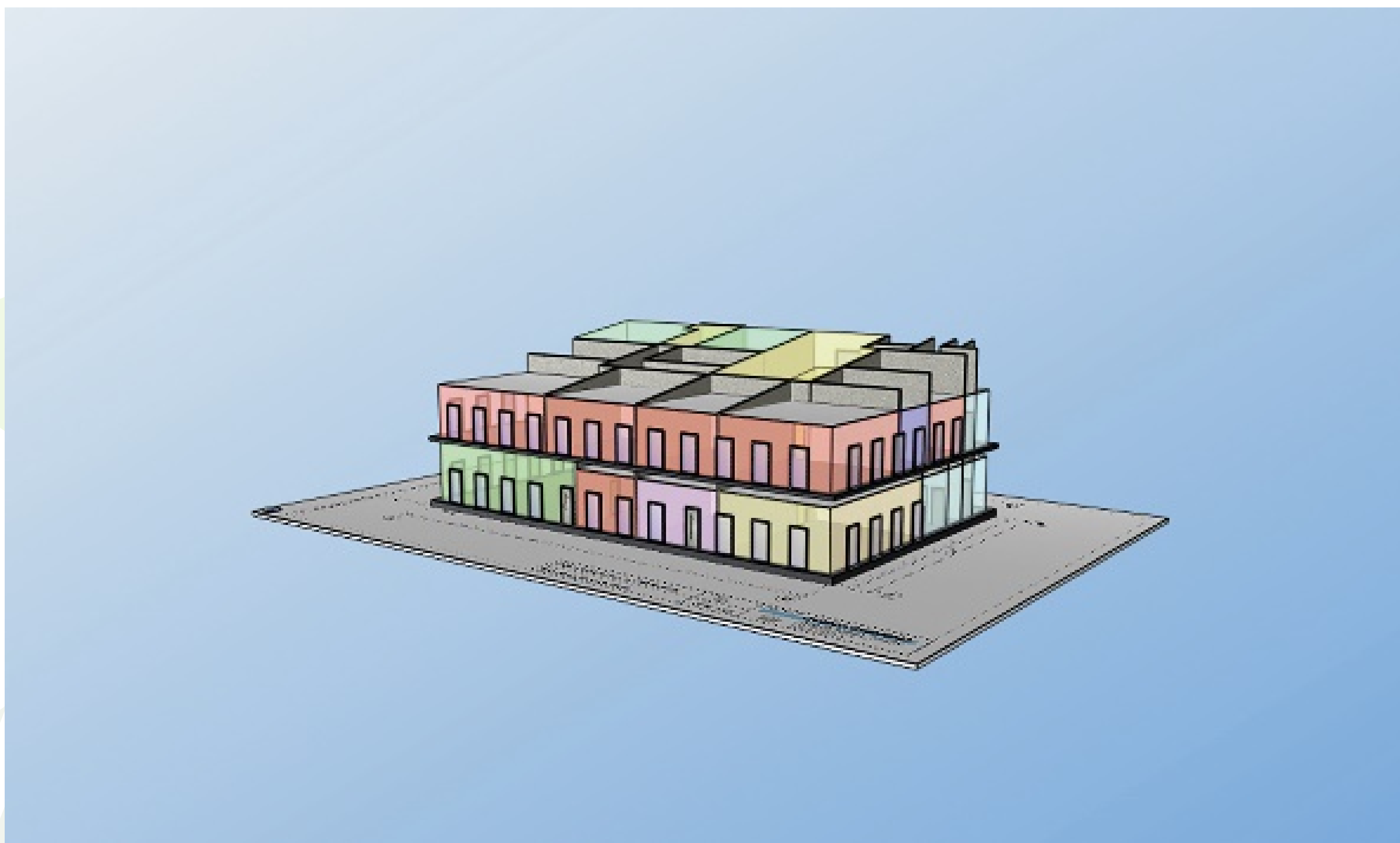
The annual costs for water and electricity for the building with a floor area of 858 square meters are expected to be around 2,100 euros. This is 67 percent less compared to conventional heating technology. "Operating a commercial building of this size at such a low cost is a novelty," emphasizes Rimpler.

The future company building in Sierning, Upper Austria.

"The house of the future is solar-electric"

In single-family homes and multi-story residential buildings, my-PV has already been successfully using the "cables instead of pipes" concept for years. However, this complete solar-electric building technology in a commercial building is also new to the my-PV team. The concept was extensively simulated in advance with several simulation tools. "The house of the future is solar-electric. This now also applies to heating in corporate buildings," says Rimpler.

A video (in German) of the electric floor heating installation can be viewed here:
<https://www.youtube.com/watch?v=BBEoYsegBaE>



Pilot project company headquarters: my-PV has simulated the concept in detail in advance.

It has grown into a major manufacturer of photovoltaic water heating systems. In 2012, the company launched its first research project in storage technology. In 2013, my-PV invented the DC ELWA for hot water with photovoltaics (ELWA stands for electric water heating) and successfully launched it in 2014.

In 2015, the AC ELWA model followed, which converts surplus electricity from grid-connected photovoltaic systems into heat. Since September 2016, AC ELWA-E has been available, which allows perfect surplus energy management in combination with battery systems, common inverters and energy management systems. With AC-THOR and AC-THOR gs, the company goes one step further and also supports space heating with solar electricity.



Electric heating wires will activate the concrete foundation of the building in the future.

Rohde & Schwarz validates first 5G RRM FR2 conformance tests with the R&S TS-RRM-NR test system

The Global Certification Forum (GCF) has approved the first two radio resource management (RRM) conformance test cases for 5G FR2 frequencies, implemented on the R&S TS-RRM-NR 5G RRM conformance test system from Rohde & Schwarz. The test cases have been validated in seven FR2 and LTE band combinations. With this success, Rohde & Schwarz is leading the way in validated test cases for the technically challenging FR2 mmWave frequency bands.

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PRODUCT COMMUNIQUE

Conformance tests are vital for mobile communications technology as mobile network operators worldwide rely on the GCF conformance certification to accept mobile devices in their networks. The availability of validated RRM conformance tests in both FR1 and FR2 frequency bands is crucial for a successful rollout of 5G NR technology worldwide. The GCF has officially accepted the R&S TS-RRM-NR as suitable for the 5G RRM FR2 requirements described in the 3GPP specifications. The GCF validation process requires PASS verdicts of the complete test case performed on two different end user devices. The updated version of the R&S TS-RRM, the successful family of RRM conformance test systems from Rohde & Schwarz, has now accomplished this for FR2. RRM testing is a combination of several protocol and RF test methods. It is used to determine the reaction time of a cellphone to changes in signal quality from the available sources, and the time it takes for the device to switch between different signal sources.

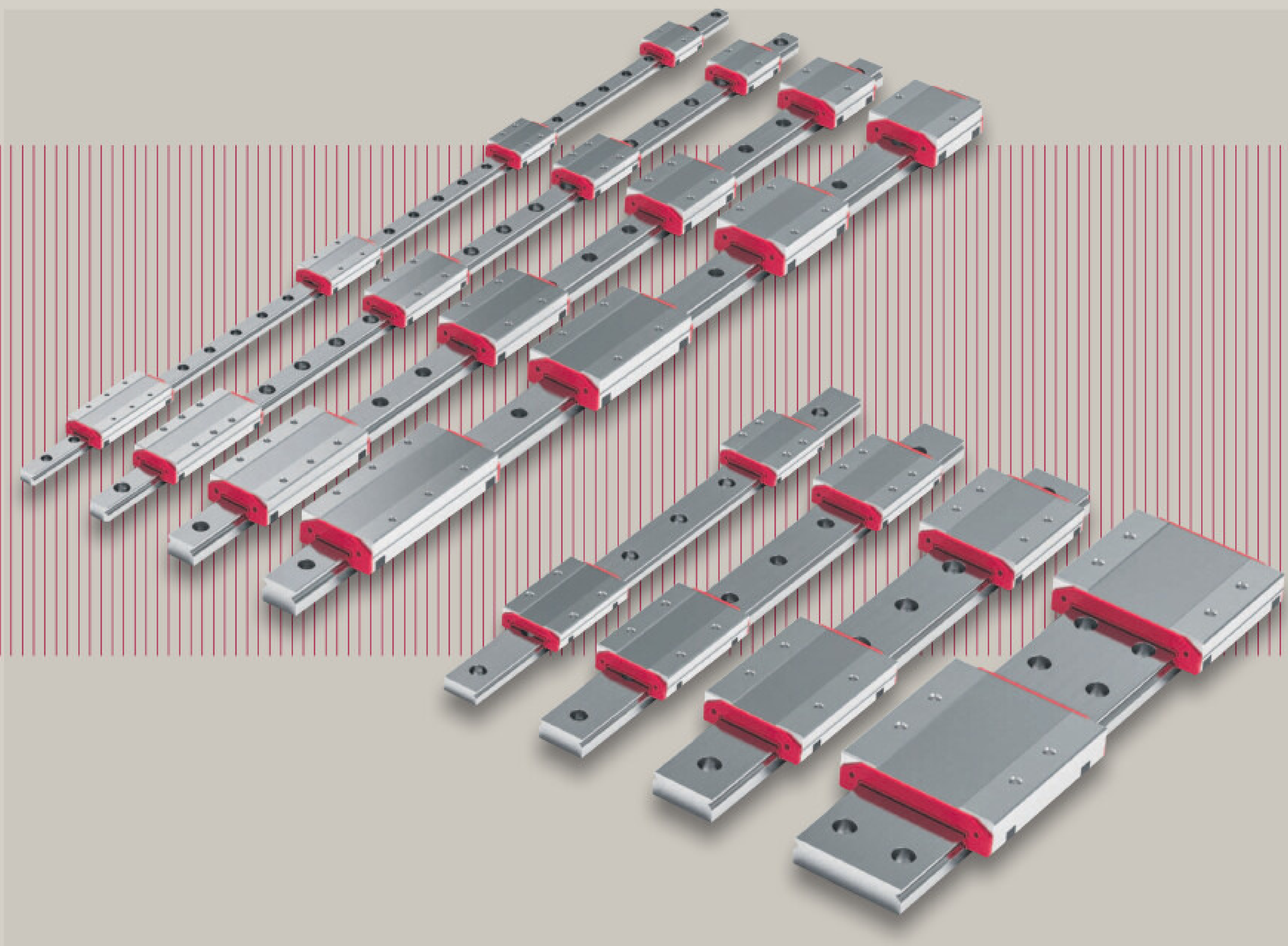
Rohde & Schwarz has been a leading one-stop solution supplier for conformance and operator acceptance testing throughout mobile radio from 2G through to LTE. The new R&S CMX500 radio communication tester has added 5G NR signaling functions for both FR1 and FR2 to the updated R&S TS-RRM-NR, which now covers LTE, WCDMA, and 5G technologies. The integrated test system is operated by the sequencer software R&S CONTEST and offers high efficiency and precise, reproducible measurement results. The 5G RRM test cases are also supported by the R&S TS8980, the unique integrated RF conformance test system supporting mobile technologies all the way from 2G to 5G including FR2.

For further information on RF and RRM conformance test solutions from Rohde & Schwarz, go to: https://www.rohde-schwarz.com/_103163.html



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EVs GO MAINSTREAM: PLUG INTO THE SUSTAINABLE ENERGY OF E-MOBILITY

The push for electric vehicles (EVs) may have shifted into overdrive, but it is going to take a serious overhaul of the entire transportation ecosystem to build a profitable and sustainable e-mobility business model.

Having sufficient charging stations is just the tip of the iceberg. The transportation network is facing a major reboot, forcing automobile original equipment manufacturer (OEMs), utilities, corporations, regulators, and retailers to collaborate for innovation as never before.

Networks Power E-Mobility Innovation

Compared to gas-powered cars, EVs and the services around them are far more interconnected. This demands a new kind of collaboration across the e-mobility value chain from corporate fleets, regulators, and smart cities to service providers and consumers. "The e-mobility network consists of multiple players from different industries and sectors with intertwined supply chains," said Ulrich Scholl, vice president of E-Mobility at SAP.

"To operate with flexibility and cost-efficiency they need to collaborate across stable, cloud-based industry networks that foster sustainable innovation around standardized processes, including invoicing and billing, as well as overall e-mobility management among partners."

EVs Spark New Business Models

As sustainability mandates and promises grow, one central question is how to make EV battery recharging as easy and convenient as refilling a gas tank. Utilities are drawn to bi-directional charging that simultaneously recharges EVs while adding the battery's stored energy back into the electrical power grid. This turns drivers into energy producers and cars into mobile power storage. Retailers are starting to monetize their solar panel energy, offering consumers free car charging while they shop, increasing customer loyalty. Meantime, corporate fleet managers are taking action by increasing EV and charging infrastructure investments that support company sustainability commitments.

For example, Hanno Klausmeier, Managing Director of SAP Labs France, received a Fleet Manager of the Year award for leading the electrification of the company's fleet of cars for hundreds of employees located across three sites.

Converting to EVs has been a seven-year journey at SAP, grounded in the company's global commitment to sustainability, as well as the initial battery limitations of early EVs. After eliminating gas-fueled vehicles as a choice for employees several years ago, over 90% of the cars in the company's fleet in SAP Labs France are now EVs. Convenient access to charging stations along with new fleet management operations were critical to the successful roll-out.



“We knew that employees would need more stations to charge their cars so we installed super-fast charging stations conveniently located across our facilities,” Klausmeier said. “We revamped fleet management to make sure we could supervise and optimize charging stations for uninterrupted operations. Connecting the e-mobility ecosystem on one transparent platform is the only way for organizations to keep pace with the rapidly-changing industry.”

Indeed, SAP Labs France developed new software to remotely manage the status of its charging stations, installing it on-site and at employee’s homes. Now available publicly, the solution helps corporate car fleet operations manage relationships with fleet management service companies, OEMs, and other suppliers that are involved with charging stations. Managers have real-time visibility into e-fleet charging station status and can quickly solve problems remotely for an easier

Add headingMarket Fragmentation Gives Way to Network Convergence

Entirely new competitors are emerging with EVs, including “roaming” providers, which help consumers locate reliable charging stations and pay for the electricity as validated users. This is likely a temporary stop gap because it is unnecessarily complex and more costly for drivers.

“We need to shorten the e-mobility value chain for cost efficiencies to charge point operators and an improved experience for customers,” said Scholl. “There’s no need to have another layer between energy providers and customers. With an open mobility platform, the whole ecosystem has the ability to build relationships for service convenience and affordable innovation, especially incorporating the use of renewable energy that’s produced locally and stored in EVs.”

Transforming the Transportation Sector

Just like the iPhone disrupted the cellphone industry, e-mobility redefines the purpose of a vehicle. Already some manufacturers tout EVs as self-powered RVs. Even bigger are the implications for large-scale innovations, such as vehicles that are able to provide uninterrupted power for tools at remote construction sites.

Similarly, transformations could be in store for energy retailers if OEMs bypass them to become energy providers themselves. On the corporate side, shared EVs could be part of an organization’s mobility budget for employees to spend as they see fit. EVs’ star is rising as sustainability nears the top of many consumer, corporate, and government priority lists. Over 80% of automobile manufacturers have committed to electrifying their lineup in the near future, and some plan to go all electric within the decade. Modernizing the transportation industry means rethinking mobility as concept to make sure EVs pay off on the sustainable promise. Source:SAP



BOSCH TURNS CONNECTED DEVICES INTO PERSONAL GUARDIAN ANGEL

An app for automatic emergency assistance – on the road and at home

• **Integrated solution:**

Help Connect combines automatic accident detection, emergency call function, and personal emergency response system

• **Now available:**

In conjunction with apps for e-bikes and motorcycles, Help Connect now ensures greater two-wheeler safety

• **Bosch CEO Dr. Volkmar Denner:**

“We are leveraging Help Connect to turn connected devices into lifesavers in all circumstances.”

One careless moment is all it takes for someone to crash their e-bike or lose control of their motorcycle. In Germany alone, more than 38 two-wheelers are seriously injured in accidents every day (source: Federal Statistical Office). That's when every second counts. But what if the person involved is traveling alone when the accident happens or if they are no longer in a position to call for help? This is where Bosch's connected emergency call solution comes in.

Help Connect accesses the sensors in the user's smartphone and other connected devices and uses an intelligent crash algorithm to automatically detect accidents. In the event of an emergency, the app alerts the emergency services via the Help Connect emergency call center and immediately directs them to the scene of the accident. This saves time, and potentially also lives. Two apps are now available for cyclists and motorcyclists and thus for several hundred thousand users: the COBI.Bike app from Bosch eBike Systems and the calimoto app for motorcycle navigation.

“Bosch is working flat out to integrate its emergency call solution into other products, including those of partners. We are leveraging the internet of things and algorithms and using Help Connect to turn connected devices into personal lifesavers in all circumstances – whether on the road, during sports, or at home,” says Bosch CEO Dr. Volkmar Denner. Bosch currently provides the Help Connect service for users with a German SIM card in eleven European countries

“Bosch is working flat out to integrate its emergency call solution into other products, including those of partners. We are leveraging the internet of things and algorithms and using Help Connect to turn connected devices into personal lifesavers in all circumstances – whether on the road, during sports, or at home.”

BOSCH CEO DR. VOLKMAR DENNER

One solution – triple benefit

Help Connect combines automatic accident detection, emergency call function, and personal emergency response system. In COBI.Bike and calimoto, for example, the crash algorithm evaluates smartphone sensor data about speed, acceleration, and rotation. Most of the smartphones commercially available today feature such sensors. The apps must be activated during the journey and the device must be attached to the handlebars. Help Connect works on all Android devices with version 6 or higher and all iOS smartphones with version 11 or higher.



BOSCH

Invented for life



More partners – additional applications

Bosch wants to make life safer and is integrating its emergency call solution into as many connected products as possible – its own or those of partners. “Help Connect is designed as an open IoT ecosystem so that different products with appropriate sensor technology can become personal guardian angels,” Denner says. For example, the startup company Tocsen is currently integrating Help Connect into its crash helmet sensor solution. Bosch is also preparing its own smart home services and products to integrate into the Help Connect service. In addition to fire and burglar alarms, this will also include the topic of water protection in the home in the future.

Apart from Germany, it is available in Austria, Belgium, France, Italy, Ireland, Luxembourg, the Netherlands, Spain, Switzerland, and the United Kingdom.

In the event of an accident, the solution uses the smartphone’s mobile data connection to transmit the current location, the severity of the impact and, depending on the app, optionally stored health data to a Help Connect 24/7 emergency call center. From the call center, specially trained emergency agents attempt to make contact with the person involved in the accident. Communication takes place in German or English, even in other European countries. If the person does not react and the sensor data indicate a serious fall, the emergency services are notified immediately. Likewise, relatives and friends are optionally informed. An emergency call can also be triggered manually at any time.

For motorcyclists, Bosch has also developed an accident detection that is permanently installed in the vehicle. Here, Help Connect uses the inertial measurement unit integrated into the Bosch motorcycle stability control (MSC). Via Bluetooth, it connects to the corresponding partner app and then transmits the data to the Help Connect emergency call center, just as with the smartphone-based solution.



NARROWING DOWN THE POTENTIAL IN THIS INDUSTRY

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UNIVERSAL ROBOTS DEVELOPS INTERFACE FOR SIEMENS ENGINEERING PORTAL

Integrating Universal Robots' collaborative robots into complex machines and manufacturing environments will soon be a process machine builders and systems integrators can seamlessly handle through one of the world's leading automation platforms; Siemens' TIA (Totally Integrated Automation) portal. The UR cobots will become part of the Simatic Robot Library within Siemens' TIA environment through an interpreter interface planned to be completed within the fourth quarter of 2021.

"Machinery and plant engineers as well as manufacturers with large production facilities will benefit from our cobots' TIA integration," explains Bernd Meier, Director of Global Key Accounts & OEMS at UR. "Thanks to the new interface, they will soon be able to apply our cobots' functional diversity, precision and repeatability within complex production lines, benefitting from all aspects of digitalized automation – from digital planning and integrated engineering to transparent operations."

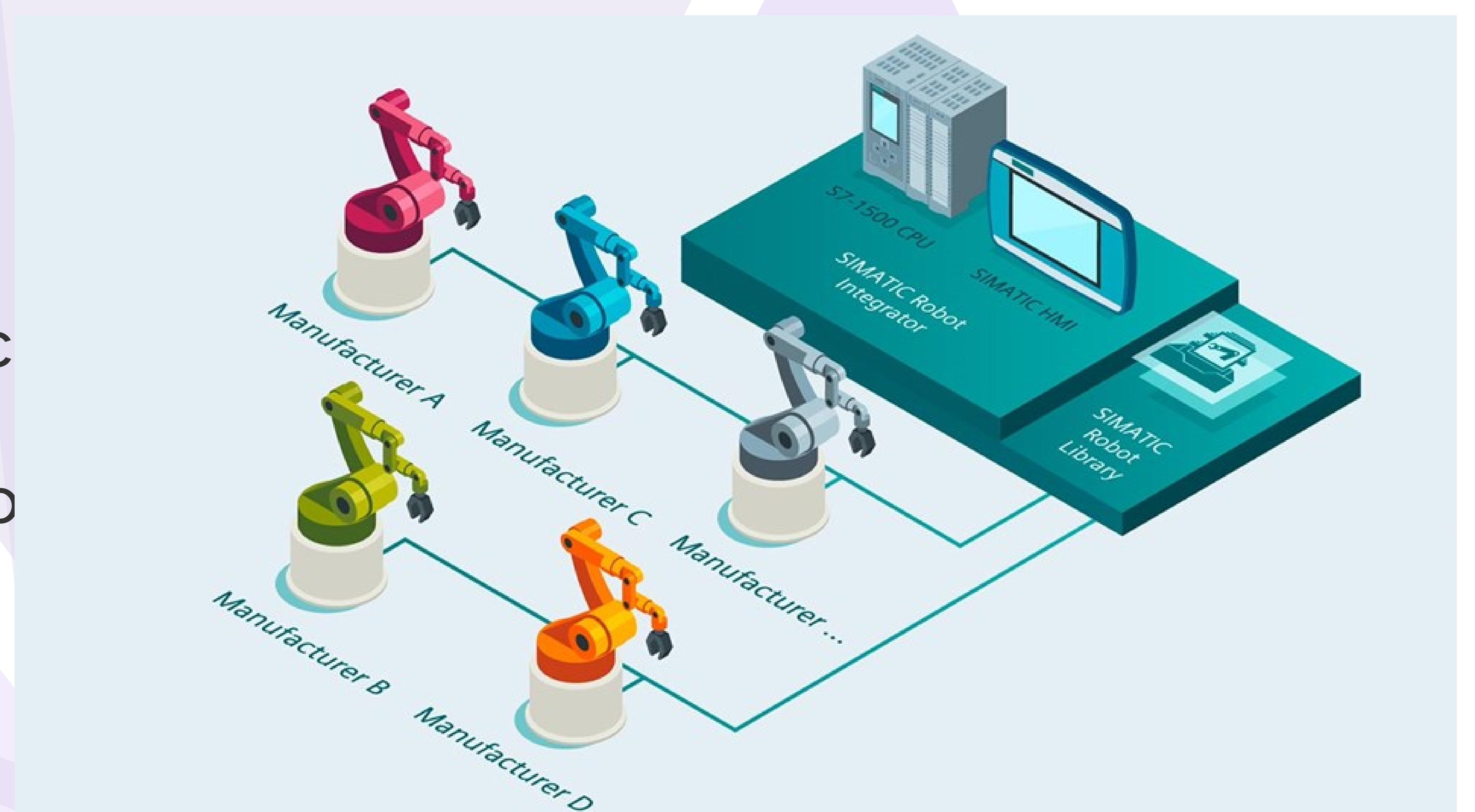
Line Integration: Simplifying Robot Deployment

The holistic TIA Portal engineering framework supports users in planning extensive manufacturing automation projects. In November 2020, Siemens presented the Simatic Robot Library as an addition to this application: The comprehensive 'robot library' allows users to program their cobots directly within the TIA Portal via a unified user interface and to include them in their planning, which will now also include UR's

s collaborative robots, greatly extending the range of companies benefitting from the cobot technology: Across industries, users will now encounter the UR cobots in the context of complete plant engineering solutions. "We are welcoming Universal Robots as a new partner just in time for the start of the new Simatic Robot Library's piloting," says Tobias Fengel, Marketing Manager at Siemens Digital Industries. "We are delighted that we will soon be able to offer our clients a forward-looking solution together with the cobot market leader."

Combine cobots with new technologies

Thanks to the TIA portal's integrated design, users can now independently implement the UR cobots within major production lines and teach them functions such as jog mode or path point creation. The new comprehensive library allows users to download programming examples and use them to control the UR cobots. "Our cobots have always been characterized by their intuitive handling," Bernd Meier explains. "Their integration into the TIA portal via the Simatic Robot Library now accelerates their integration and implementation into complex production lines. It also makes it easier to combine the UR cobots with technologies like Edge data analyses or cloud services and include them in the monitoring of plant conditions."



SMART ROBOTICS ENABLE FLEXIBLE PRODUCTION OF RAPID CORONAVIRUS ANTIBODY TESTS AT SENOVA

German medical technology expert Senova cooperated with Omron and Kraus Maschinenbau GmbH to pioneer the factory of the future. The coronavirus crisis has caused the untold damage to the personal health and finances of people throughout the world, as well as damaging national economies. However, industry has been able to play a key role in developing solutions that can mitigate the crisis.

Context

The coronavirus crisis has caused untold damage to the health and personal finances of people all over the world, as well as national economic deterioration. However, the industry has been able to play a key role in developing solutions that can alleviate the crisis. For example, the retail, manufacturing and utilities industries are increasingly turning to innovative robotics, sensors and artificial intelligence technologies to ease pressure on employees, speed up processes and improve compliance with hygiene requirements. The Technical University of Darmstadt reports that the acceptance of robots has increased significantly in recent months.

Companies that want to take advantage of this trend must act quickly to partner with organizations that have expertise in these areas. The power of this cooperation was recently exemplified by the German medical technology company, Senova, together with robotics experts from O and mechanical engineering specialists from Kraus Maschinenbau GmbH. Senova is a leading developer and manufacturer of rapid test systems for the labeling of biomarkers, viruses and microorganisms.

The three companies have worked closely together over the past six months to develop and build production machines that include intelligent robotics. They automated, sped up and improved the very long manual production of rapid antibody tests against the coronavirus. This fulfills a vital need, as the increase in people testing for the virus meant that the production of kits needed to be greatly increased. At the same time, production and packaging had to be more interdependent.

The quick and uncomplicated implementation of this complex project was only possible thanks to the perfect interaction and the right chemistry between the customer, the machine builder and the system and control supplier.

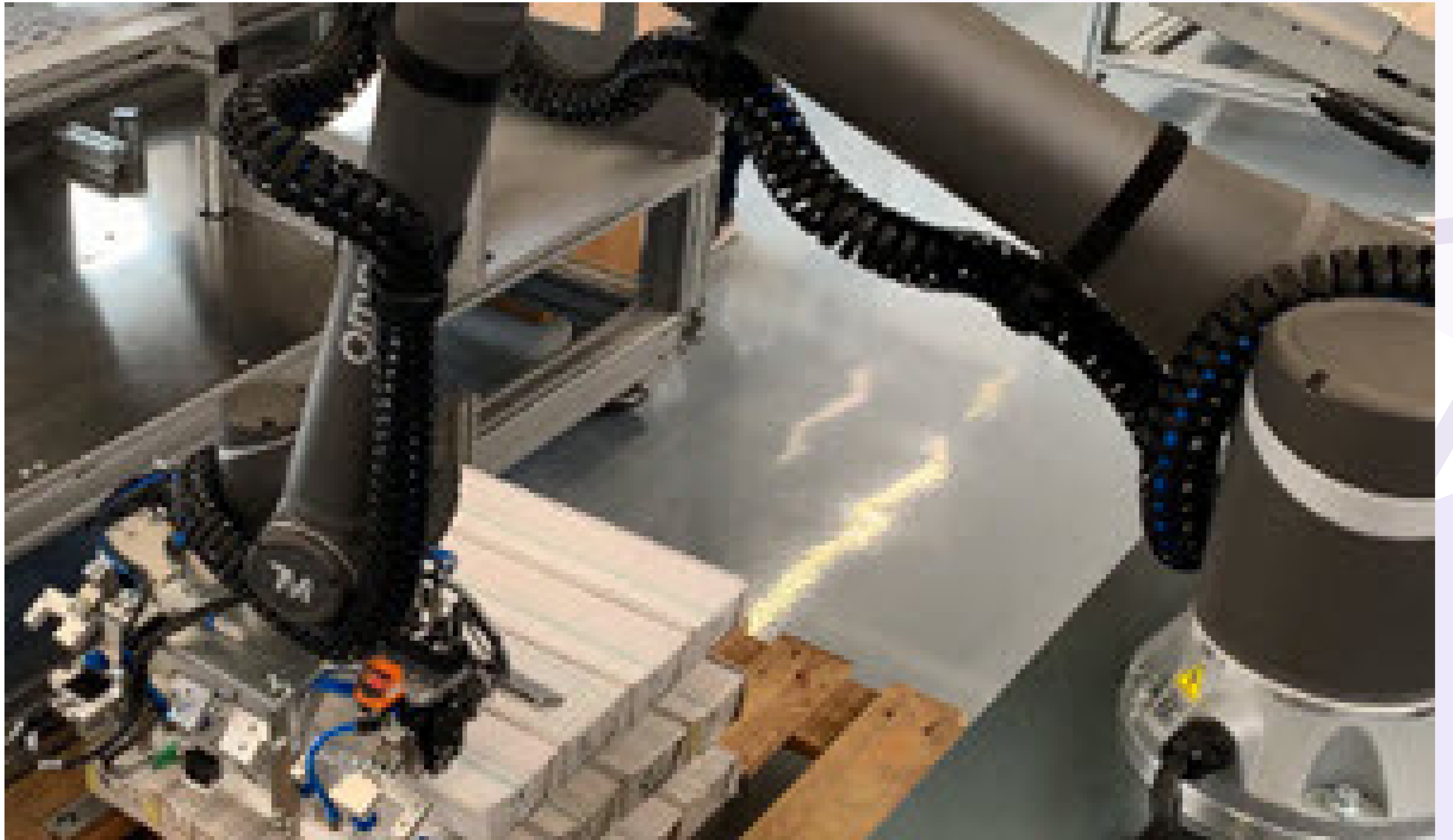
JOACHIM KRAUS | MANAGING DIRECTOR
KRAUS MASCHINENBAU, GMBH

OMRON robots enable precise material handling

The tests (which look like a pregnancy test) are produced using machines from Kraus, as well as eCobra600 robots from Omron, four-axis parallel robots Quattro 650 H, cobots TM5-700 from Omron, PLC controls, drives and sensors. Due to the increased production volume, Omron has already delivered other eCobra600 Pros and integrated them into the production line. These robots are particularly reliable, flexible and powerful.

The SCARA robots are ideal for handling, assembly and handling precision of materials used in medical technology. The four-axis robot has a reach of up to 800mm and can be easily adapted for different applications, such as test production. The eCobra technology also offers high repeatability and a maximum payload of 5.5 kg. Amplifiers and controllers built into the robot reduce the number of cables required. Its high mounting configuration allows efficient use of space, even in clean rooms, which is essential in a technological medical environment.

The control and operation of the cutting and packaging machines also comes from Omron and is integrated into the production lines of Kraus Maschinenbau. The other components of the flexible production of the test kit of the Covid-19 include parallel robot with four axes Quattro 650 H.



They can be controlled by Ethernet, using the usual programming language (IEC 61131-3) of NX / NJ machine controllers. The four-axis arm distributes the load evenly to the robot, allowing for quick and precise transport and assembly. The robots Quattro are designed for heavy payloads and multi-hand applications: multiple parts can be picked up at the same time. It also helps speed up the production of coronavirus tests.

OMRON



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COMPACT I/O MODULES REDUCE HARDWARE REQUIREMENTS AS WELL AS COSTS AND CUT EQUIPMENT ASSEMBLY TIMES IN HALF

In its solutions for automatic seed sorting, VMek relies on EtherCAT from the very beginning. The fast real-time communication technology optimally supports the high data rates of the vision-based sorters. With a switch in the I/O level to EtherCAT plug-in modules, the company succeeded in further reducing costs, device footprint and commissioning times.

In 2012, Kent Lovvorn, general manager of VMek™ Sorting Technology in Midlothian, Virginia, left his previous job with a clear vision: "I wanted to specialize in some segment of high-speed machine vision." The company he founded in 2014 offers numerous software and hardware solutions for optical sorting.

The machines, including the Metrix Analytic Lab Color Sorter™ and Element Analytic Production Color Sorter™, leverage new technologies meet the needs of customers in the agriculture industry, including the top three seed producers in the U.S.



The Metrix machine uses two full-color GigE cameras and offers a throughput of 600 seeds per second, while the Element sorter with four such cameras even achieves a throughput of 12,000 seeds per second. Unlike other color sorters, which only separate products into good and bad parts, the VMek systems are able to provide valuable data on every seed in real-time, as Kent Lovvorn explains: "Our software performs composite analysis using the front and back images of each item. The software isolates each part and mates them together to complete a 360-degree full-part analysis."

This data allows seed producers to analyze why individual parts were rejected and compare lab results with plant floor realities.

They can also use insights to plan for the future, Kent Lovvorn explains: "The seed companies can plan accordingly for the next grow cycle to either enhance or eliminate specific traits."

Continuous improvement for I/O solutions

From the beginning, company founder Kent Lovvorn believed that continuous improvement of these high-tech systems would only be possible by partnering with top-tier vendors: "When I started to lay the foundations for VMek, I searched for hardware and software partners that developed quality components the right way.

That's when I found Beckhoff." During a presentation on the EtherCAT industrial Ethernet

protocol, Kent Lovvorn learned about the network's ability to use PCs as real-time machine controllers. He decided then that in his opinion EtherCAT was the best technology to use in his high-speed vision machines, and this led to the the decision to standardize on EtherCAT I/O terminals from Beckhoff.

During a 2017 redesign of several systems, VMek set out to further reduce costs and space requirements but wanted to continue using EtherCAT hardware. This effort did not need to increase reliability, as the first machine that shipped in 2015 has operated continuously and reliably. The aim was rather to enhance the offerings and decrease time to market by reducing the amount of hardware modules and the requirements for point-to-point wiring.

EtherCAT plug-in modules reduce footprint, costs and assembly time

Through discussions with Beckhoff Regional Sales Engineer Chuck Padvorac, Lovvorn found a fitting solution: pluggable EJ series EtherCAT modules. These I/O modules are roughly half the size of standard EtherCAT Terminals, but they provide the same functionality. Together with the JST connectors selected by VMek for this application, they mount directly to custom-designed PCB boards, and the entire signal distribution

board connects to the larger PC-based system via prefabricated cables or coded plug connectors. Because the boards come essentially prebuilt, this makes series production more efficient and cost effective compared to traditionally wired terminals.

"The core benefits were logical and came down to the ease of use that enables us to build distribution boards with the exact functionality, size, connectors and labeling we need," explains Lovvorn. "Because the signal distribution board for each machine is customized for our designs and processes, we can build machines prior to buying the EJ components, which delivers benefits in terms of equipment costs and just-in-time assembly."

Sorting technologies advance through key partnerships

By implementing EJ series EtherCAT I/O modules with standardized signal distribution boards for each sorting machine, VMek was able to cut time to market significantly.

"We estimate that we reduced our equipment assembly time by 50%," Kent Lovvorn says. "We have also minimized service time, if it's ever needed." Small adjustments at the hardware level helped VMek cut costs by roughly 700 U.S. dollars per I/O segment, and the company reinvested these savings in R&D to continue to enhance its optical sorting machines and software.

"As leaders in agribusiness, our customers see our complex sorting algorithms and ability to gather data on every part as indispensable," says Kent Lovvorn.

Therefore, VMek will continue to focus on the continuous development of its solutions in collaboration with partners that work to lead in their fields as Beckhoff does.



VMek General Manager Kent Lovvorn (right) and Beckhoff Regional Sales Engineer Chuck Padvorac, P.E., collaborated closely on selection of EtherCAT solutions. (© Kevin Blackburn)

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ROBOTS IN THE FACTORY OF THE FUTURE: OPPORTUNITIES AND CHALLENGES FOR CABLE MANUFACTURERS

Today, manufacturing is hardly conceivable without industrial robots and their areas of use are increasing continuously. But due to the permanent three-dimensional movements in the automated factory, the cables that supply the robot are subjected to extreme levels of stress. A special challenge for manufacturers of cables and connecting components.

The International Federation of Robotics (IFR) predicts that by 2020 more than 1.7 million industrial robots will be working in factories worldwide. A huge worldwide market for robot manufacturers. To ensure that robots are supplied with data and energy without any interruption, it is worth taking a look at the cables that have to "go along with" the 3D movement of robots, which are on the move continuously. Robot cables for applications where the cables are subjected

to torsional stress have to be constructed and manufactured in a completely different way to cables for linear motion. They must be as compact and as closely braided as possible and have an outer jacket extruded at high pressure. The reason that this is important is because this special "hardness" enables the cable to follow the motion pattern of the energy chain.

In contrast, robot cables need force-compensating elements, loose braiding elements, different slip-planes and completely different shielding concepts in order even after several million movements involving torsional stress. This is because the cables used in robot technology have to repeatedly change the directions in which

they move. to ensure they function correctly. For example, the diameter of the braid structure can actually change with torsion angle. Cable specialist igus incorporates damping elements and torsional-force absorbing felt into the core groups, which are specially designed for use in applications involving continuous changes in torsional stress, in order to offset the forces acting on the cores.

The requirements for the shielded cable types are especially high. In order to ensure that the forces acting on the shield wires are not too large, the motion plastics specialist places gliding elements above and below the shields. These elements ensure that the shield can move freely in relation to the overall braiding as well as the outer jacket.



CHEMICAL COMPANY IMPROVES PRODUCT QUALITY, MEETS AIR PERMIT REQUIREMENTS WITH EMERSON WIRELESS

CHALLENGE

A producer of printing inks and pigments was using gauges on the filter housings used in ink production to measure differential pressure.

Operators would check the gauges periodically. If filters weren't changed in time, particles could pass into the ink being produced and result in lost product.

"Unfortunately, these filters are plugged much more frequently than a typical air filter," said the process engineer. "The degree to which the filters are plugged is reflected by the differential pressure (dP) across the filter housing. Once it gets to a preset level (40 psi) the filters are changed to prevent overpressure in order to meet ink purity requirements." Movement of robots, which are on the move continuously. Robot cables for applications where the cables are subjected to torsional pressure.

have to be constructed and manufactured in a completely different way to cables for linear motion. They must be as compact and as closely braided as possible and have an outer jacket extruded at high pressure. The reason that this is important is because this special "hardness" enables the cable to follow the motion pattern of the energy chain.

Robot cables, in contrast, need force-compensating elements, loose braiding elements, different slip planes and completely different shield concepts in order to ensure they continue to function correctly even after several million movements involving torsional stress. This is because the cables used in robot technology have to repeatedly change

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WHY A TOP U.S. INSTITUTION HIRED THE MC6 FOR CALIBRATIONS

Cornell University

Located in Ithaca, New York, Cornell University is a private, Ivy League research university that is widely and consistently recognized

as one of the top 10 research universities in the United States and one of the top 20 universities in the world. The school's mission is to make contributions in all fields of knowledge to help improve the quality of life in the state, the nation and the world.

Much has developed throughout the years since its foundation in 1865, including the property infrastructure. The university has created, maintained, and produced power and water for the campus for more than 100 years. Today, Cornell University's campus includes 608 buildings on more than 2,000 acres, enrolls 21,000+ students and employs 9,000+ faculty and staff.

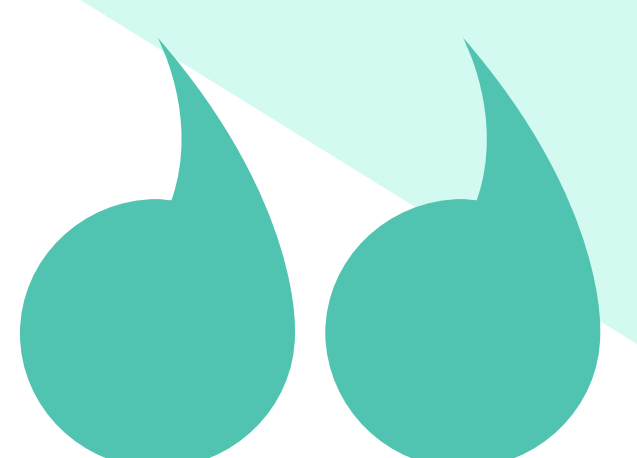
Cornell Energy Resources

Cornell represents 1/1000th of the state of New York's electricity load, which makes an ideal test bed for sustainable energy solutions. The Central Energy Plant (CEP) provides all the power and energy services, like steam and chilled water. Additional facilities associated with CEP include:

1. Central Heating Plant (CHP)
2. Combined Heat & Power Plant (CCHPP)
3. Co-generation facility (Co-Gen)
4. Lake Source Cooling (LSC)
5. Chilled Water Plant 3 (CWP3)
6. Water Treatment Plant (WTP)
7. Steam Condenser Building (SCB)
8. Maple Avenue Substation (MAS)



SO FAR, WE'VE AT LEAST CUT THE TIME IN HALF FOR MOST CALIBRATIONS AND SEEN THE BIGGEST DIFFERENCE WITH TEMPERATURE CALIBRATIONS. WE'VE CUT THE TIME IT TAKES TO PERFORM THOSE BY TWO THIRDS.



Cornell University, Ithaca, New York, USA

The maintenance group

Kristopher Welfel, Senior Instrument and Control (I&C) technician, has worked in the maintenance field for over 20 years. Currently, Kristopher, alongside a team of three additional I&C techs, maintains the 1,000+ primarily analog and HART transmitters and controls, including pressure, temperature, flow, differential pressure, level and switches, located throughout the CEP. Approximately 300 of the instruments are classified as critical and require documented calibration. Not only is the group responsible for maintenance, but they are also responsible for commissioning. And last year, two new boilers were commissioned. Needless to say, this small group stays busy and works hard to execute all assignments in compliance with Cornell's high standards, known as the triple constraints: safety, reliability and efficiency.

In short, as Kris emphasizes, "I am extremely proud to work for Cornell and proud of the amount of work we execute with our small team. We maintain all the utility buildings with just our group, which is unfathomable to some people. We keep the systems not only running, but reliable, efficient and above all, safe.

Calibration then and now

A few years ago, while attending a training class at the International Society of Automation (ISA), Kris experimented with the Beamex MC6 field calibrator and communicator and temperature blocks. Upon using this advanced technology, he realized that there was an opportunity to utilize more robust solutions to help improve the CEP's calibration program. Because, at that time, the CEP's process consisted of an assortment of equipment and technology:

- **Handheld calibrator**
- **Handheld communicator**
- **Hand pump (pressure calibrations)**
- **Decade resistance box (temperature calibrations)**
- **Handheld computer with asset management software**

Occasionally, calibration data was manually entered under the wrong instrument record, which caused data reliability issues. Keeping in mind the daily challenges at CEP and after experiencing this type of advanced technology while at ISA, upon his return to work, Kristopher was inspired and motivated to improve their processes. He began by outlining the objectives and specifications:

- Minimize the amount of equipment needed in the field
- Invest in reliable, accurate and easy to use equipment

- Utilize equipment that offers versatile and smart communication capability.
- Investigate calibration software to store detailed data and allow for instrument trending
- Eliminate manual entry of data to save time
- Automate the process to reduce the risk of errors.

After researching, requesting information, support, and quotations from major vendors, he determined that the Beamex integrated calibration solutions best fit their needs for several reasons:

- Multi-functional, "grab & go" capability of the MC6: calibrator and built-in HART communicator would allow them to take less equipment into the field.
- User-friendliness and intuitive nature of the MC6 allowed the technicians to perform basic calibrations without any training.
- CMX calibration software allowed detailed data storage capability and history trending functionality that was not possible in their current asset management software
- Automated data flow of calibration results from the calibrator to
- CMX would mitigate human error



When Kris presented his case for the new hardware to management, there were glaringly easy-to-see benefits of how an all-in-one, multi-functional, reliable piece of equipment could help the I&C team. However, with an asset management software already in place, they did not immediately understand the need for calibration software. With some effort, he was able to communicate the functionality differences between an asset management software and calibration software. Ultimately, management realized that the existing asset management software was not designed for their calibration needs.

There was more value in CMX from the automated data flow to history trending reporting, to calibration certificate generation that an asset management software simply could not offer. As Kris simply articulates, “the hardware is great and it could be used without the calibration software. But, I couldn’t imagine having to manually input the information into the asset management software like we used to. It would be a nightmare.”



Cornell University, Ithaca, New York, USA

DESCRIPTION

- Beamex MC6 advanced field calibrator and communicator
- Beamex CMX calibration management software
- Beamex professional services: product training

MAIN BENEFITS

- User-friendly and intuitive integrated solutions allow ease of use for all technicians
- Automated documentation of calibration results minimizes the risk of human error and saves time
- All-in-one functionality of the MC6 requires less personnel to perform calibrations and less equipment to be carried into the field
- Improved data management and historical analysis functionality with a dedicated calibration software allows effortless record keeping and enables better strategic decision-making

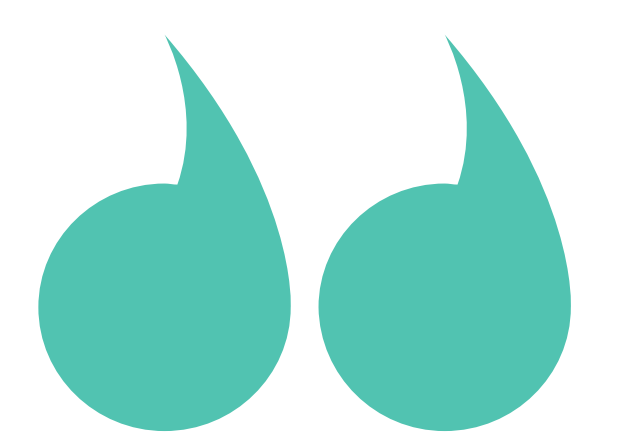
The results

Sometimes it best to hear it straight from the source. Kris states, “so far, we’ve at least cut the time in half for most calibrations and seen the biggest difference with temperature calibrations. We’ve cut the time it takes to perform those by two thirds. Who knows where we will be a year from now. Just this morning, we had to commission two Fisher Control valves.

The first one took a few extra minutes. The second one was done in a third of the time.” This example illustrates the quick proficiency that comes from using the equipment on different types of instruments. He goes onto explain, “Before the investment in Beamex solutions, we had discussed hiring another I&C tech. A short time ago, I asked my boss if we were still planning to hire more help. He said, we already did; we bought the MC6. All joking aside, he is right--- what used to take three or four of us to do in the past, can be done by one, maybe two of us now. Just the Beamex MC6 alone, is like having another technician on staff.”



WHAT USED TO TAKE THREE OR FOUR OF US TO DO IN THE PAST, CAN BE DONE BY ONE, MAYBE TWO OF US NOW. JUST THE BAMEX MC6 ALONE, IS LIKE HAVING ANOTHER TECHNICIAN ON STAFF.”



ENSURING RELIABLE DATA EVERY STEP OF THE WAY

End-to-end automation and consistent digitalisation of all processes are success factors in panel building and switchgear manufacturing because they enable efficiency to be optimised along the entire value chain. This user report of Bauer Systeme – a company based in Bretten, Germany – shows how successfully this model can be put into practice.

The Challenge

- High quality in production

The Solution

- Electrical design in EPLAN Electric P8, 3D construction design in EPLAN Pro Panel
- All other processes (purchasing, calculation, logistics etc.) are based on the generated data
- High level of detail as early as the planning stage
- Machining of enclosure on Perforex machine center.

EPLAN Electric P8 is used for electrical planning at Bauer Systeme. This is followed by 3D construction planning in EPLAN Pro Panel, during which a virtual prototype is generated.

“We already lay the foundation for automation in our workshop,” explains Oliver Martin, Head of Electrical Design at Bauer Systeme. All the other processes are based on the data generated. And not only in the workshop; purchasing, costing, inventory management, logistics and work preparation also access the same data. An appropriate planning quality is needed in order to achieve a high level of quality in production. Only when all data is correct, subsequent processes can run automatically.

A high level of detail creates efficiency

“We make use of a lot of functions in EPLAN Electric P8,” Mr. Martin explains: “There are very few other panel builders with a data density in P8 like the one we have to realise.” Consequently, both the electrical diagrams and the virtual prototypes display a high degree of detail and are correspondingly extensive. The wiring plan and virtual prototype form the basis for all the subsequent work stages. The more detailed the planning is, the more efficient manufacturing can be. Although the effort needed in the planning office is slightly higher, this all pays off during the subsequent production process. Overall though, the projects can be completed with lower personnel costs.

Workshop automation

The importance of high data quality can then be seen in the workshop where the enclosures are processed on a Perforex machining centre from Rittal Automation Systems. “The data for the Perforex machining centre comes straight from construction planning; in the workshop, processing can then be started with a few clicks of the mouse,” Martin explains.

In addition to enclosure machining, consistent data management also enables tasks such as assembling cables and cutting support rails and cable ducts to size. The extent to which Bauer Systeme has digitalised all its processes can be seen in the workshops: Both in the mechanical engineering and electrical workshops, all the staff work without any printed wiring plans.

The EPLAN database is the key in our engineering process and it is correspondingly maintained with a great deal of care.

Oliver Martin,
Head of Electrical Design

CLOUD: SMART PRODUCTION TRANSFORMS DAIRY PLANT

Embracing digitalization is helping Indolakto manage growth, uphold quality, optimize cost savings, and maintain its strong position in Indonesia's highly competitive dairy market. MindSphere apps as part of the Xcelerator portfolio help to make data useful – or “smart.”



Industry 4.0 technologies enabled Indolakto to increase production capacity at its Purwosari plant by 25 percent within two years, the plant also upped flexibility and efficiency (photo: Ralf Baumgarten)

Every year, well over 500,000 tons of dairy products roll off Indolakto's lines – milk, butter, ice cream, and more. While the majority of product is destined for consumption in Indonesia, Indolakto has also entered markets in Africa and the Middle East with its range of sweetened condensed milk and ultra-high-

temperature milk. But the home market holds the most promise. That's because dairy consumption is increasing in Indonesia, and market analysts see room for expansion. “Indonesia still has a gap to be filled,” sums up Steven Tan, Deputy Division Head of PT Indolakto. The Covid-19 pandemic has boosted demand further. But as Indolakto grows, it must not be at the expense of quality: consumers are discerning and expect nothing less than the best.



Well over 500,000 tons of dairy products roll off Indolakto's lines yearly – milk, butter, ice cream, and more (photo: Ralf Baumgarten)

Big savings and more within two years

Embracing digitalization is helping Indolakto manage growth, uphold quality, optimize cost savings, and maintain its second place in the country's highly competitive dairy market. The company's digitalization journey began at the Surabaya plant in the framework of a collaboration between Siemens and the Indonesian Ministry of Industry. In the meantime, Indolakto has opened a new plant in Purwosari, East Java – and it has been digital from the start. The results of introducing Industry 4.0 technologies here are impressive: aside from increasing production capacity by 25 percent within two years, the plant also upped flexibility and efficiency. Three major digitalization building blocks have been instrumental in Indolakto's digitalization efforts: MindSphere, Control Performance Analytics, and Simatic PCS 7.

MindSphere

Data has always been collected at Indolakto's factories. But it takes special tools to make that data useful – or “smart,” as Wahyu Widodo, GM Corporate Engineering at PT Indolakto, says. Specifically, the MindSphere Control Performance Analytics (CPA) which is used to analyze PID Control

Control Performance Analytics

The smart data is then made available to Control Performance Analytics, another cloud-based MindSphere app. Through data analysis, recommendations are made to improve energy efficiency and lengthen equipment lifespan.

Simatic PCS 7

Siemens' flagship automation system intelligently controls automated guided vehicles (AGV) and automated storage and removal systems (ASRS) to transport and store pallets. The benefits are an optimized manufacturing flow, reduced warehouse size and more flexible logistics processes.



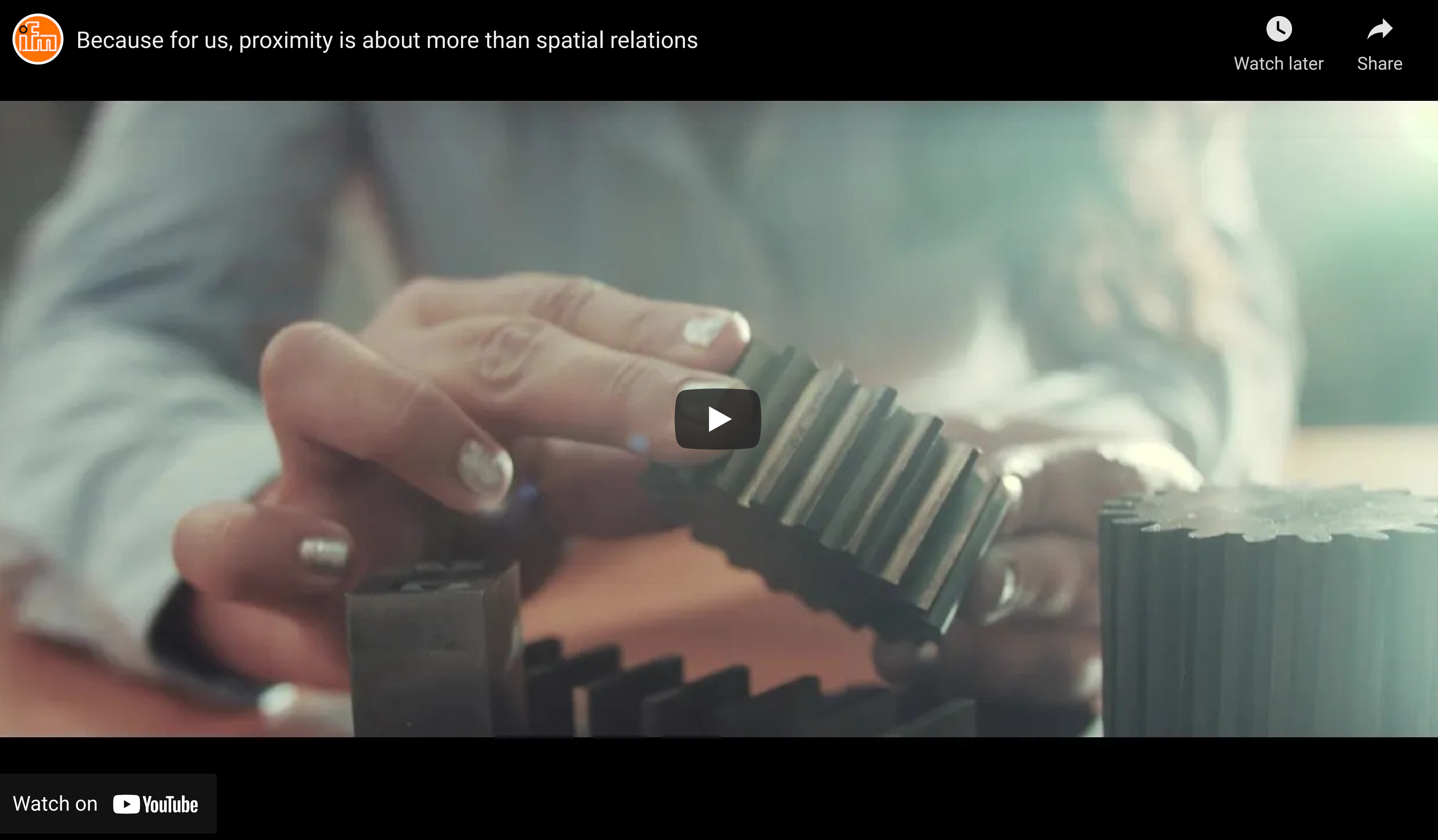
Indolakto makes use of Siemens' flagship automation system including HMI (photo: Ralf Baumgarten)

A strategy built on addressing pain points

Indolakto's management is committed to continuing the digitalization journey. The strategy is to start with the pain points and look for a technological solution that can address them. It's about technology with purpose. “Our vision is to be a role model of

the digital transformation in the dairy industry,” says Wahyu Widodo. So far, Indolakto is well on its way to doing just that.

Source: Siemens



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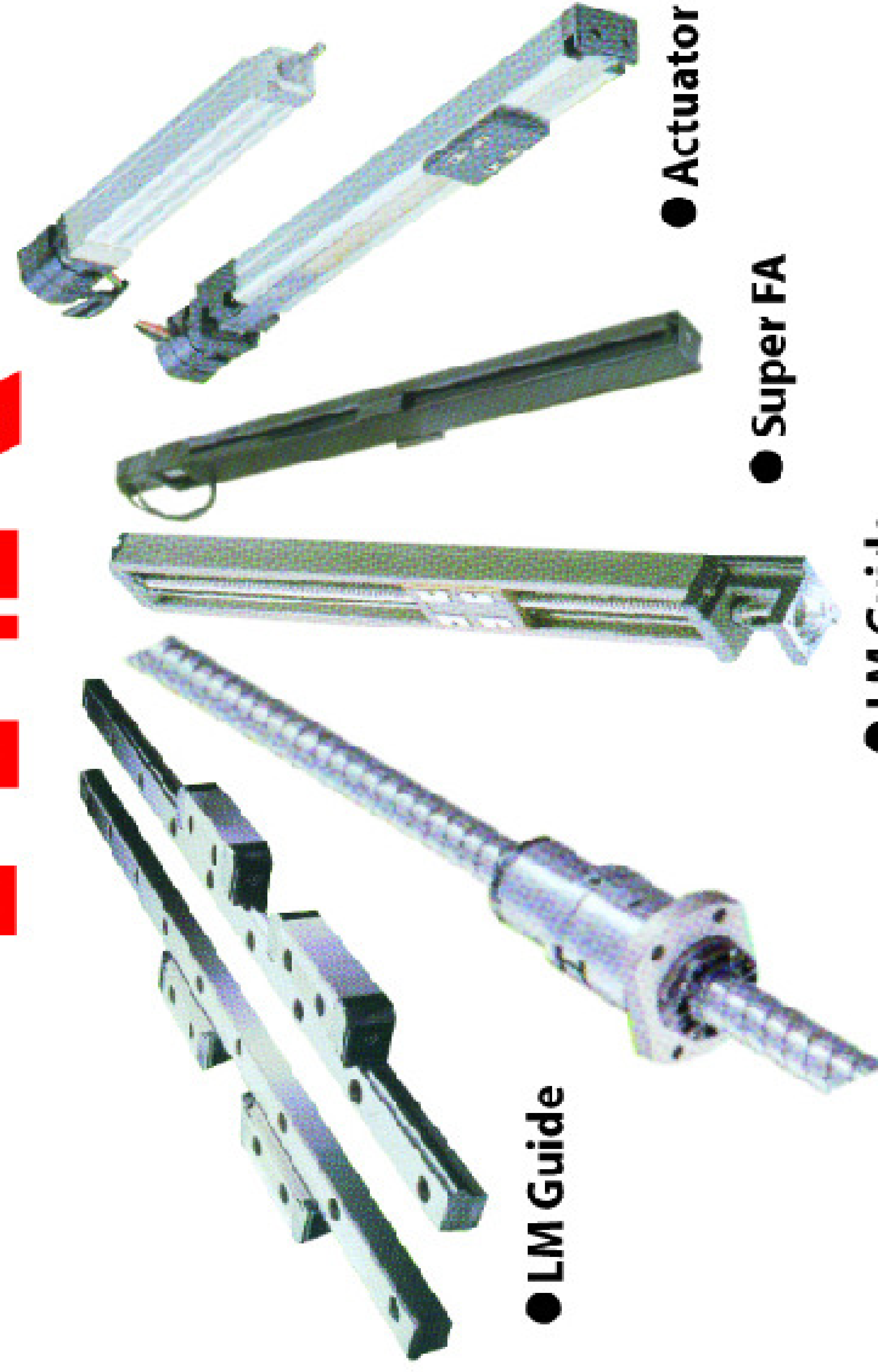
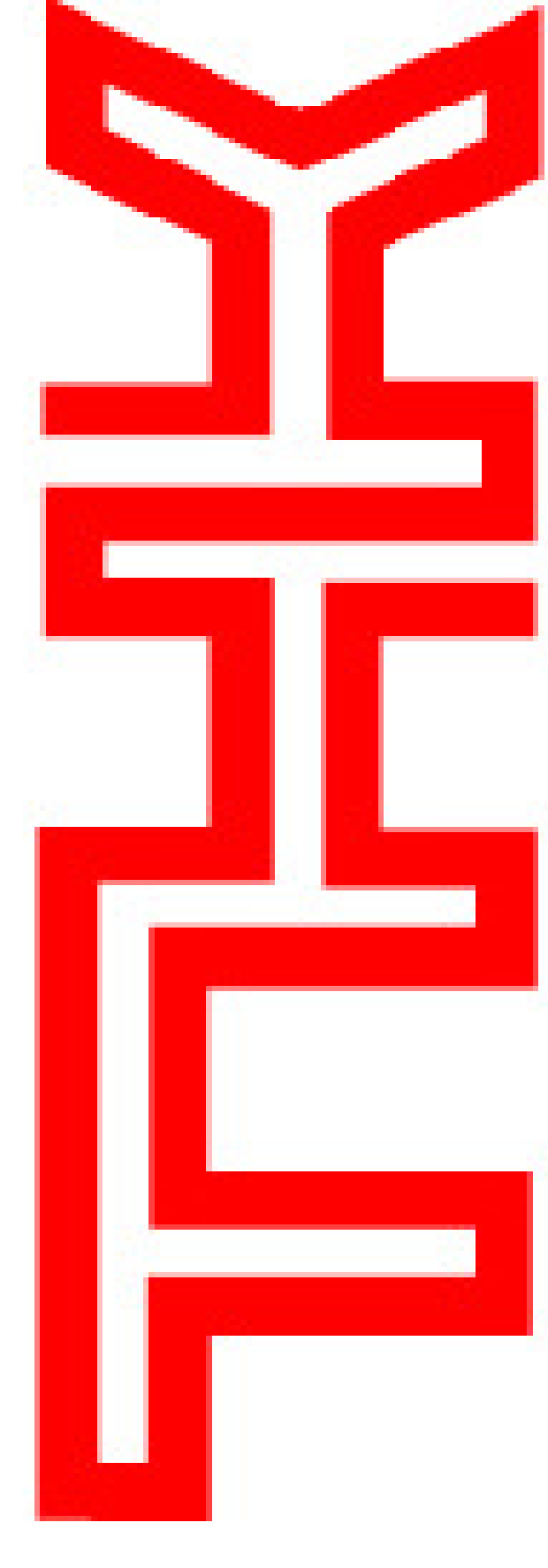
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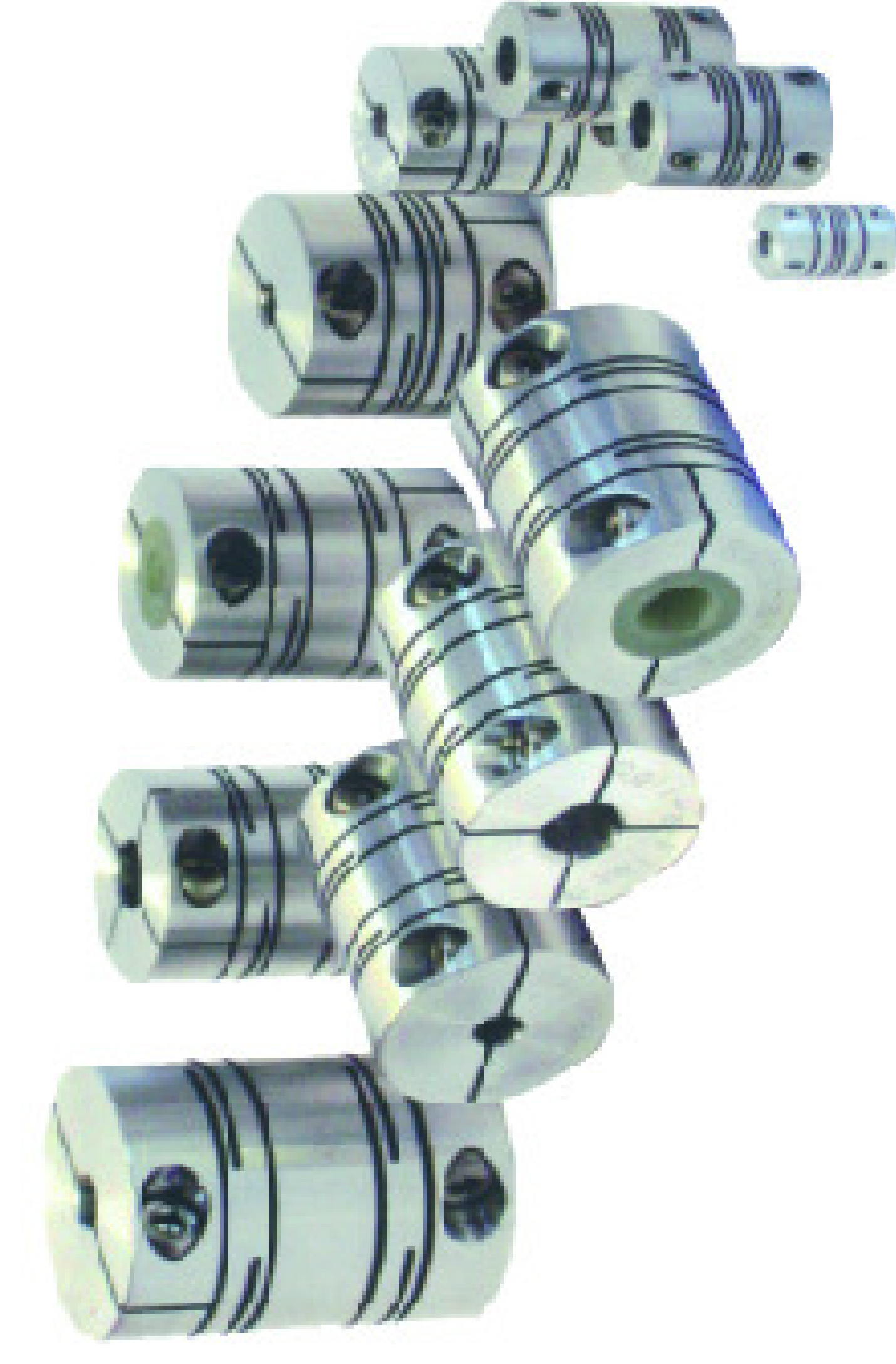
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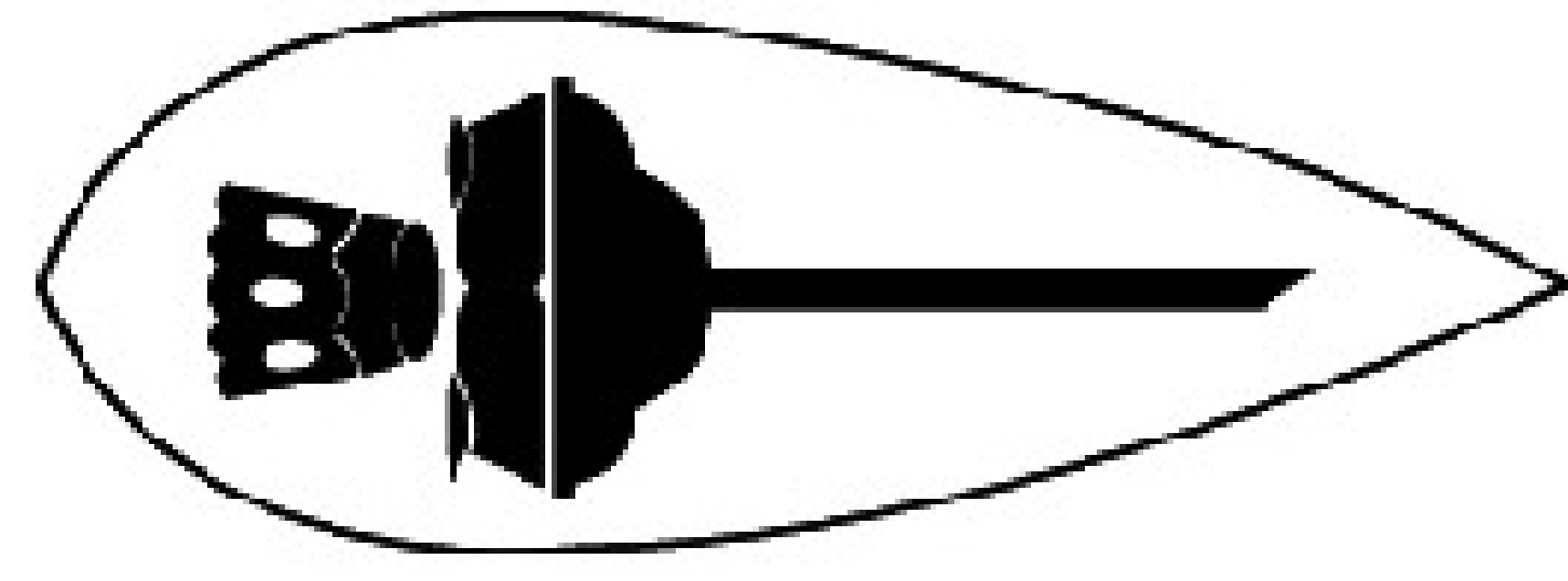
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