

# JENDAMARK JUNCTION

MAKING OUR MARK IN GLOBAL AUTOMATION

ISSUE 10 | 2023

# Practical Digitalisation IN MANUFACTURING





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# Tech PEOPLE

Greetings! In this edition, we're cutting through the noise around Industry 4.0 to show you the practical applications of smart manufacturing technologies and how they can make a real difference to your business - and your employee productivity.

These days, it's not a question of gaining a competitive advantage - without digitalisation, you're simply not even on the same playing field as your competitors.

We know that all this talk of technologies, and the speed at which new offerings appear, can be overwhelming. That's why we're attempting to unpack the concepts and explain the real-world applications (page 2).

While a future full of dark factories and fully automated facilities strikes fear in many a heart, we still believe in the irreplaceable value that humans bring to the manufacturing space.

It's clear that our human-centric approach resonates with many companies, especially those operating in developing countries, which is why ODIN Manufacturing was recently named Technology Innovation of the Year at the 2023 Africa Tech Week Awards (page 10).

We take a deep dive into Jendamark's "people first" philosophy (page 4) and explain how our solutions support your operators and technicians, rather than replacing them (page 7).

But don't just take our word for it. See how ODIN Manufacturing is adding value to a customer's differential assembly line in the USA (page 12), while also ensuring process security during the complex assembly of electric vehicle components in India (page 14).

You'll also learn how we're preparing our children for this rapidly advancing digital future through our investment in ed tech (page 16 and 17). And we step away from our tech ecosystem into a natural one to explore how Seaview Private Sanctuary is uplifting the local community (page 18).

We trust you'll learn something interesting and valuable within these pages and be motivated to start or accelerate your own digital transformation journey!

*Himanshu & Yanesh*

Himanshu Jadhav | Yanesh Naidoo | Editors



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# Demystifying Industry 4.0



While there has been a lot of hype around Industry 4.0, the digitalisation of factories has not scaled up as expected. A fundamental misconception of what it's all about and a slow-to-change mindset are two of the major impediments to successful implementation.

A flood of new products on the market and a misplaced focus on the technologies themselves – rather than their practical uses – leaves many customers overwhelmed, says Jendemark innovations director Yanesh Naidoo.

“There are a lot of buzzwords, like the integration of IT and OT on the shop floor, and I think people get befuddled by all the jargon and consulting talk,” Naidoo says.

*“Simply put, Industry 4.0 is just a set of technologies that you can use to solve your manufacturing problems.”*

#### A TECH TOOLBOX

It helps to think of Industry 4.0 as a toolbox with a set of tools inside, he explains.

“However, having a toolbox full of tools mean nothing unless you do something with them. You must first understand the problem you're trying to solve in your factory, and then invest in the right tool for the job.

“A hammer has many uses, but how you apply it depends on your situation. Also, you may be trying to hammer in a screw, when what you really need is a screwdriver.”

For example, if frequent machine breakdowns are a problem, Naidoo says an anomaly detector could help to highlight a downward trend in performance, which could be addressed and fixed before it becomes a serious problem, avoiding unnecessary downtime.

#### PROACTIVE VS REACTIVE APPROACH

“Essentially, Industry 4.0 is about using tools to be more proactive, rather than reactive. But it all means nothing if our mindset doesn't change.”

Naidoo draws parallels with the preventative approach to health and longevity outlined in Dr Peter Attia's book *Outlived*.

“Medicine 2.0 has been extremely successful in treating lifestyle diseases such as Type 2 diabetes. You go to the doctor, they diagnose you and give you insulin, which has saved many lives.

“But this book argues for a transition to a more preventative approach to medicine. Don't wait to get diabetes; monitor your health, get the check-ups, make the necessary dietary and lifestyle changes, and prevent it from happening in the first place.”

#### FACTORY HEALTH SCREENING

Until now, manufacturers have not had the technology or toolbox to take a preventative approach to maintaining the overall health of their factory assets, but Industry 4.0 is changing all that. The difference, Naidoo says, lies in the data that comes from continuous measurement rather than a static, point-in-time measurement.

“A factory audit, like a glucose test for diabetes, is not an accurate reflection of your lived reality,” he says.

“For the glucose test, you fast the night before, then go for the blood test. If your results are just within the acceptable range, everything is deemed fine, so you revert to your bad dietary habits. You've prepared your body for the test but that's not how you live your life, and you can expect future problems if you don't continuously monitor your glucose levels and make lifestyle changes,” explains Naidoo.

Similarly, he says, a factory audit usually runs quality and production checks using the best operators, the best maintenance team, and the best raw materials on the line.

“It's a fake perception. What you need is live information from the production line that can be used to understand where the problems are and improve the process by making iterative changes.”

#### THE PROBLEM WITH OEE

With the right technology in place, everything on a production line can be measured continuously – from operator speed to press force and scrap rates. The problem, Naidoo believes, is that every plant manager's performance is measured on Overall Equipment Effectiveness (OEE), which is a widely used, retrospective, reactive measurement.

*“It tells you what happened yesterday, but nothing about what is going to happen tomorrow. Plant managers should be measured on what is going to happen, because they can still have an impact on that.”*

Like the human body, all production lines are not the same, so trying to meet a set OEE key performance indicator of, say 85%, might not be practical, given the age of the line, or the quality of the incoming raw material.

“The measurement needs to be unique to a particular production line. As the line gets older, there's more wear and tear, and breakdowns. So, you need dynamic baseline data that reflects the current situation and can be improved year on year.”

Naidoo says technology can help to predict the risks associated with the people, machine, and product parameters on the shop floor. “Then you can proactively do things to mitigate the risk before it happens.

“We know everyone is under pressure to produce. But at some point, when you see the data trends going in the wrong direction, a manager must have the foresight to make the decision to stop the line and fix the problem, knowing it's eventually going to hit the limit.

“It's critical to be proactive because when it hits the limit and things break, you will stop the line. And you will have to make the time and budget to fix it. You'll have far less downtime if you make adjustments when you notice a spike in anomalies, even if they're still within tolerance.”

#### COMPETITIVE ADVANTAGE

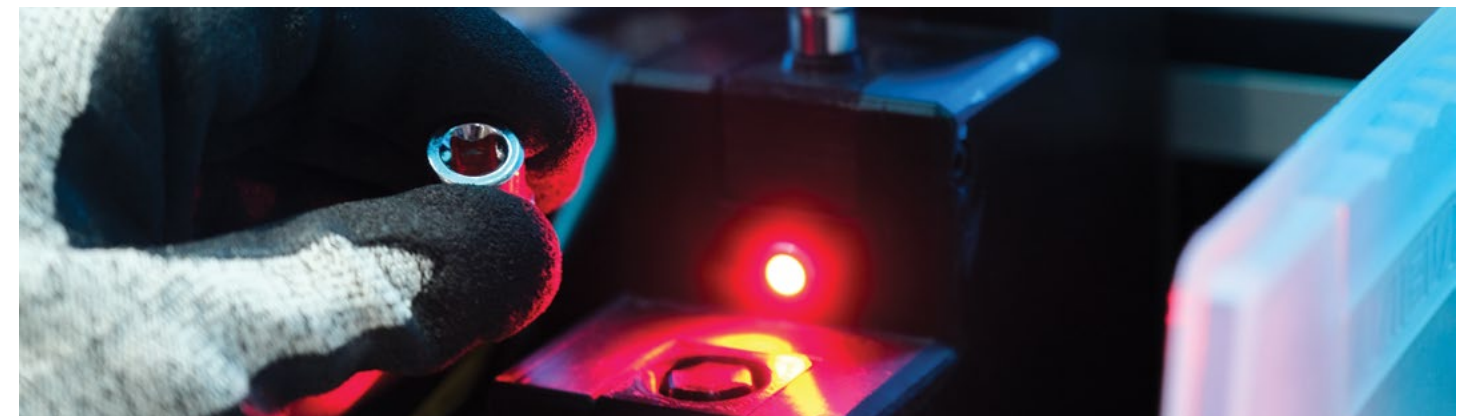
Ultimately, Naidoo says, Industry 4.0 is a must for manufacturers who want to remain in business in a rapidly changing environment.

*“The world is getting far more competitive. You have to squeeze every single cent you can out of your production process. One of the key things is to become more agile because variation of product, or mass customisation, is now a demand from customers. Your production line needs to be able to adapt quickly and effectively, and also manage fluctuating volumes, without massive capital cost or too much downtime.”*

So, what does practical digitalisation look like and where does one start?

If a customer is still hesitant to make changes on the production side, Naidoo says one easy entry point is digitising the maintenance function to facilitate the scheduling of tasks and a more preventative approach to asset health.

“Then once you start seeing the benefits, you can start optimising your assembly process efficiencies by introducing, for example, operator guidance systems. If you choose the right supplier and technology, digitalisation is designed to start small and grow with you step by step, so you get your return on investment.”







# Putting people first



While many equate Industry 4.0 with robotics and full automation, Jendamar's human-centric approach puts people at the beating heart of the manufacturing process. Humans will always have an important contribution to make - despite the rise of artificial intelligence (AI).

When it comes to a realistic assessment of the role that humans play, one must first acknowledge that humans have been, and will continue to be, an integral part of manufacturing, argues Jendamar India director Himanshu Jadhav.

*"Throughout history, humans have solved problems and created technologies to make life easier - to meet a need. Even with the smartest manufacturing facilities, it is the humans in that environment that make it a success," says Jadhav.*

"This is especially true when it comes to complex, qualitative scenarios,

which require all facets of human intelligence to resolve."

**EMOTIONAL ADVANTAGE**  
On the one hand, machines, unlike people, do not get emotional, and their output is not dependent on how they were feeling at the start of the working day, he says.

"Like their human co-workers, machines with AI can now identify production problems and stop the process until the problem is rectified," concedes Jadhav.

But, he says, arriving at the solution to that problem involves choosing the best method with the least impact, identifying the priority actions, and possibly weighing up several variables.

These are complex scenarios that require creativity, emotion and sound judgement. Many situations can't be solved by an algorithm.

*"We rarely see EMOTION as an admirable human quality. But, in manufacturing, it is often the difference between doing something wrong and creating a viable alternative solution."*

Emotion, it seems, is the human motivator for problem solving. We engage in out-of-the-box critical thinking and do "impossible" things because of emotional drivers, such as passion and curiosity.

**ECONOMIC CONTRIBUTORS**  
With the populations of developed economies declining, and the number of skilled workers in the manufacturing sector declining with them, autonomous production processes fill a real need by doing more with fewer human resources, explains Jadhav.

"Having said that, it takes a highly skilled human to develop, operate and maintain an automated machine. While humans are less involved, they still have a critical role to play as the process demands a more advanced skill set."

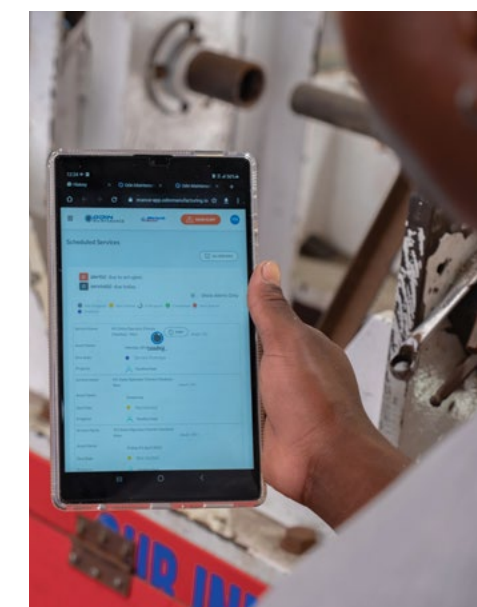
*Technology is getting smarter every day, so keeping up with and implementing it is the main role of humans in so-called first world countries.*

In developing economies, which tend to have much larger, less skilled populations, Jadhav says less automation along with more employment and job creation are critical to improving socio-economic conditions and general living standards.

"Here, humans must be more involved in manufacturing, being in control of mostly manual production processes, to facilitate overall economic advancement."

As production systems evolve, he says, people and technology are being integrated more closely and intensively than ever before.

"It's essential that we fully understand how to best design and operationalise both human and technological functions."





### Why Jendamar's human-centric approach works

#### LET'S REVIEW THE NUMBERS

- 3:** The decades of machine-building experience that Jendamar has
  - 3000+:** The number of assembly facilities built
  - 95%:** The average efficiency rate of our machines over a period of time
  - 75%:** The average efficiency rate of human operators over that same period
- Production output = human efficiency rate x machine efficiency rate**

#### IMPROVING OVERALL EFFICIENCY

For machine builders such as Jendamar, it is relatively easy to improve machine efficiency using smart technology. But this will not significantly improve production output if the human efficiency remains low.

That's why ODIN Manufacturing solutions focus on supporting humans through worker guidance and process security solutions to eliminate errors and improve the overall quality and quantity of the end product.

We understand that literacy levels, skill sets and expertise vary, so our software

solutions make it extremely easy for even novice operators to complete assembly tasks with fewer errors and highest efficiency.

#### PROCESS SECURITY

By connecting field devices like cameras, sensors and machines, we create an ecosystem that ensures that none of the assembly process steps can be skipped. These process security checks also apply where collaborative robots are employed in conjunction with ODIN Manufacturing. Where the robot is assigned to a particular station, the camera will check the process security measures, which are recorded in the ODIN system.

#### MUST-HAVE SOLUTIONS

By implementing these two core solutions, customers can improve not only production efficiencies but also the efficiency of the plant.

#### ODIN Workstation:

Ensures that even a new operator is able to do an assembly task with minimal or no training. Unless every process step is correct, the part does not leave the station.

#### ODIN Checkpoint:

Ensures that the machines are well looked after. This is a cloud-based maintenance solution for scheduling tasks and guiding inexperienced technicians to perform complex maintenance tasks.

*For a more detailed breakdown of these core products and their add-on solutions, please turn to the Product Focus on page 7.*



Two paths to **success**



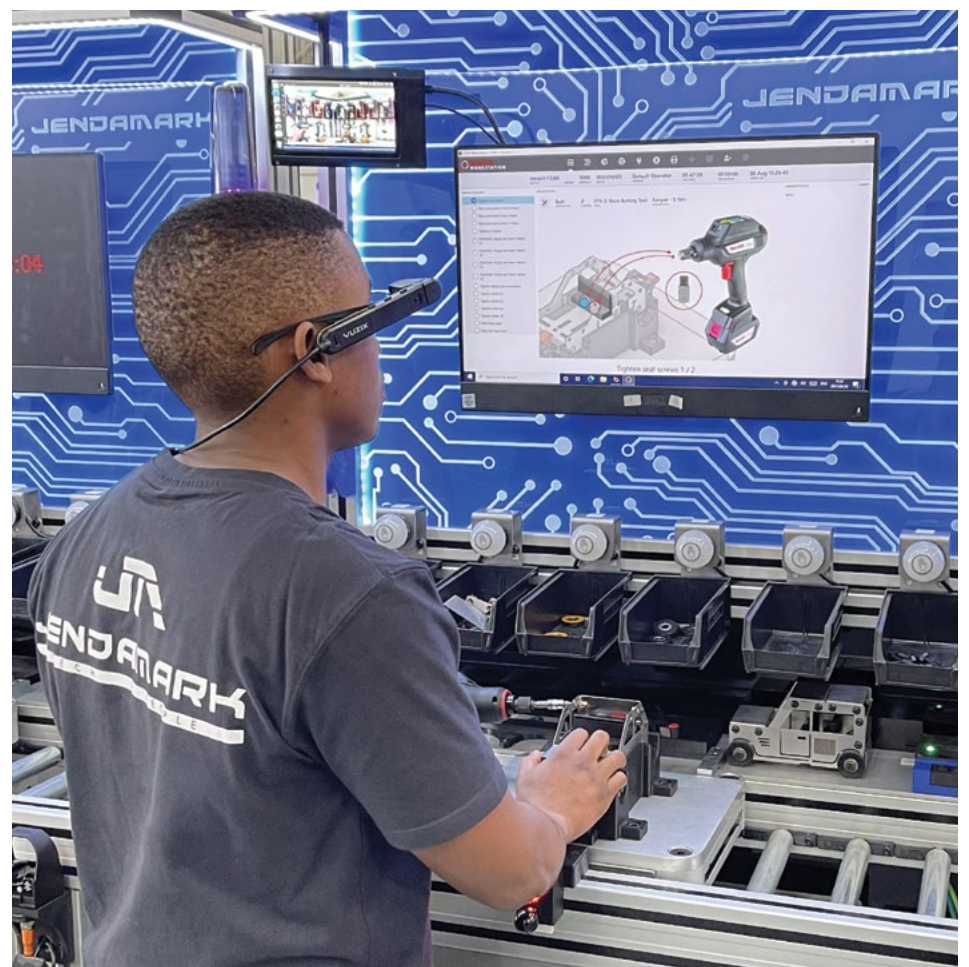
Jendamar's ODIN Manufacturing is designed to provide digital solutions to real-world problems on our customers' factory floors. To make the ecosystem more accessible and easier to implement for customers, the offering has been restructured into two distinct clusters of support.

Head of ODIN Manufacturing Juane Schutte says the solutions can be broken down into those that support complex, discrete manufacturing processes and those that support critical maintenance and shopfloor tasks.

"We've identified these two distinct problem areas where our customers need support," explains Schutte.

*"If you need support for your production process, we recommend the base product, ODIN Workstation, and if you are looking to digitise your maintenance function, then we start you off with ODIN Checkpoint."*

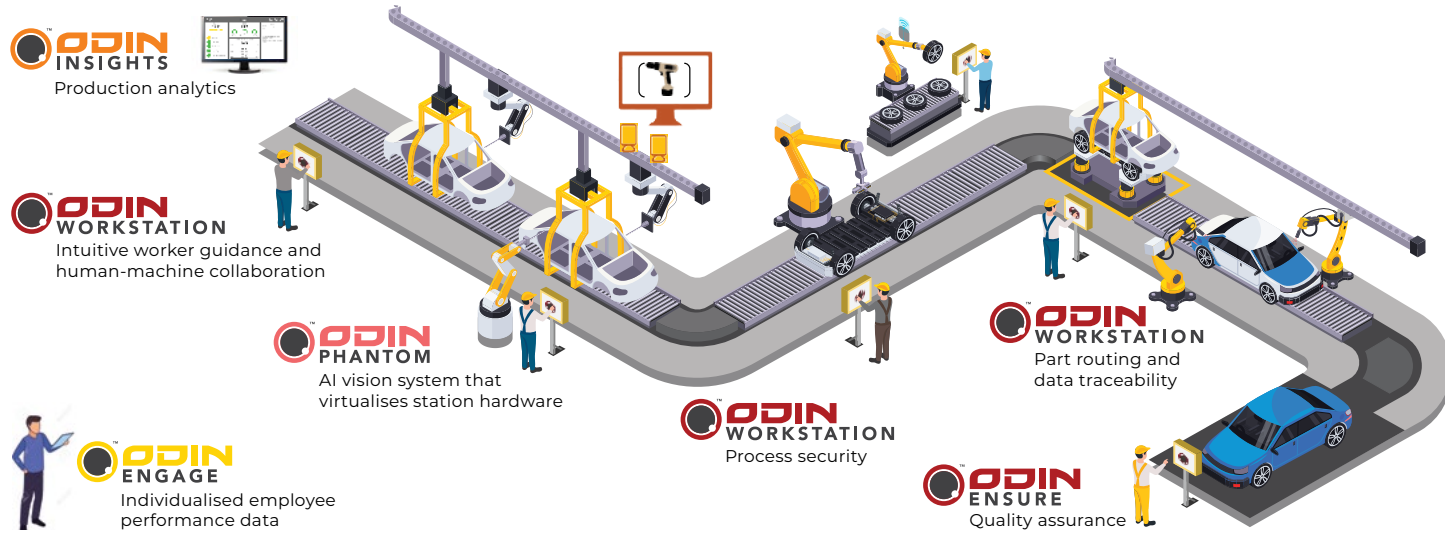
Depending on the customer's unique situation, Schutte says, a combination of various add-on products can be incorporated to provide a tailored solution. Below is an overview of how ODIN Manufacturing can solve common production or maintenance challenges.





PRODUCTION SUPPORT

FOR: Manual Operations Automatic Operations Semi Automatic Operations

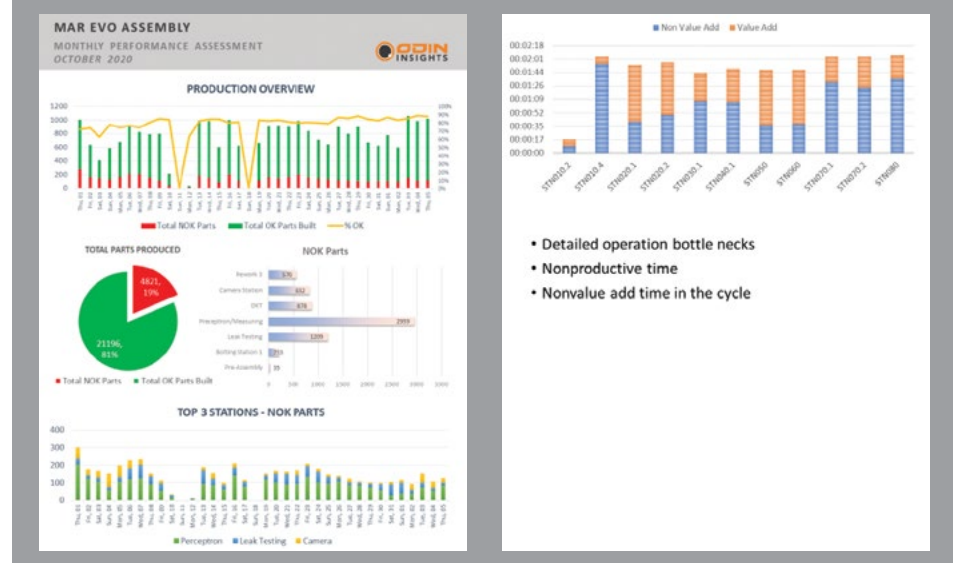


When it comes to production processes, the base product is ODIN Workstation - a digital infrastructure solution that increases efficiencies on your production line. Its core features are enhanced operator guidance, quality assurance, direct device integration and production planning. (Read how it improved a customer's new differential assembly line on page 12.)

As a standalone product, ODIN Workstation provides a multitude of capabilities and features, while its add-on solutions unlock further potential.

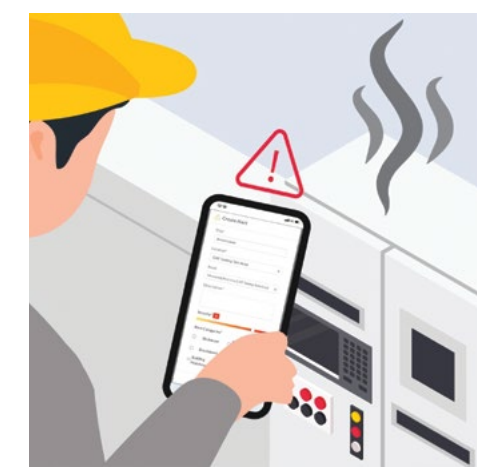
For example, if you are struggling with defective parts due to incorrect orientation during assembly, the ODIN Phantom AI vision system could assist with process tracking, while ODIN Ensure digitises your end-of-line checklist to improve traceability and process security for your quality assurance process.

ODIN Engage tracks the performance of individual operators, so that you can support them by identifying areas for improvement and training, while ODIN Insights provides comprehensive production-level reporting to accelerate root cause analysis when there are problems and to minimise downtime.

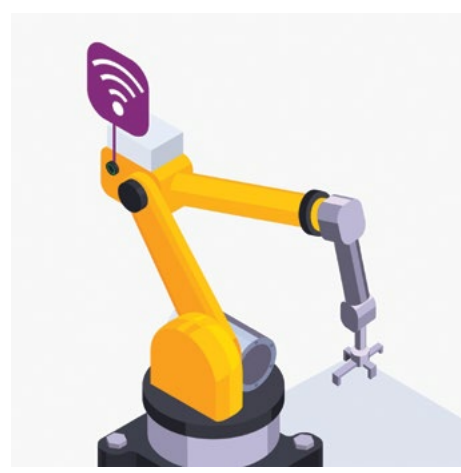


MAINTENANCE SUPPORT

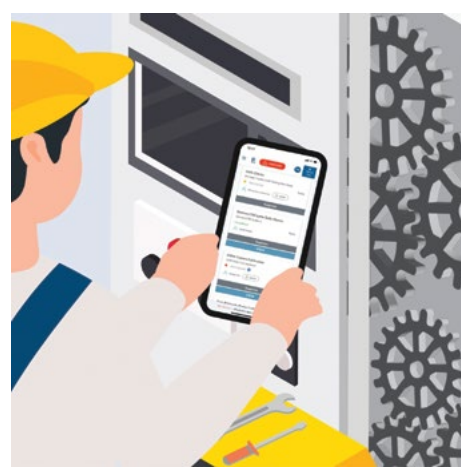
FOR: Preventative Maintenance Safety Checks Verifications & Calibration Breakdowns



**Raise Alert**  
Raise alert feature for urgent, unplanned tasks. WhatsApp notifications.



**ODIN IOT & RAVEN**  
Machine vibration monitoring and anomaly detection. Auto scheduling of tasks. WhatsApp notifications.



**ODIN CHECKPOINT**  
Interactive guidance on SOPs and task scheduling. Analytics dashboard for performance monitoring.

As the stand-alone base product to improve the support processes around your factory, ODIN Checkpoint is a user-friendly, cloud-based solution for preventative and predictive maintenance. Set, track and control all your maintenance and service tasks to prolong the lifespan of your assets.

You can assign and schedule planned maintenance activities without reams of paperwork. If your senior technicians are not available, digitised work

instructions can help junior members carry out more complex service tasks.

When it comes to urgent, unplanned breakdowns, the Raise Alert system can be used to notify relevant team members of the problem and assign someone to take action. ODIN Checkpoint helps your technicians become accountable for performing planned maintenance tasks effectively and in time and

for managing unplanned incidents. Detailed reporting and analytics gives managers a clear picture of both the technicians' performance and the health of all assets in your factory.

The addition of the ODIN Raven sensor, which works with our ODIN IOT software, turns machine vibration data into useful information that allows your team to detect anomalies and take pre-emptive action.





# On a winning STREAK



Jendamark's manufacturing technologies have been independently recognised for a second consecutive year by the prestigious Africa Tech Week Awards in Cape Town.

At the ceremony in May, Jendamark won the Technology Innovation of the Year category for our ODIN Manufacturing software, making it two in a row after being named Technology Company of the Year for 2022.

Innovations director Yanesh Naidoo says the award, judged by an independent panel, serves as a confirmation that the manufacturing technology developed by Jendamark is meeting a real need for small to medium enterprises.

"For us, it's not about developing technology for technology's sake, but about understanding the customer's challenges, and creating digital solutions to solve those challenges.

"Last year, the award was about our company; this time it's for our products. So, it's a massive win for us," says Naidoo.

For developing countries such as South Africa and India to prosper, he says, there is a need to focus on building a strong manufacturing-based economy.

"That's why we developed ODIN Manufacturing - to help digitise and improve production efficiencies, and create opportunities for the massive human capital that we have.

"Our solutions take a human-centric approach to Industry 4.0, meaning they don't take people off production lines but rather use tech to support people to do their jobs more accurately and efficiently."

Jendamark's ODIN Education division, which creates the tech infrastructure to bridge the digital divide in underprivileged schools, was also named a finalist in the ed-tech category.

*"Although they may seem unconnected, we created ODIN Education to help transform the education sector, so that the next generation can be equipped and ready to take on this manufacturing challenge amid the rapidly accelerating pace of Industry 4.0 technologies," says Naidoo.*

# TEST DRIVE OUR TECH

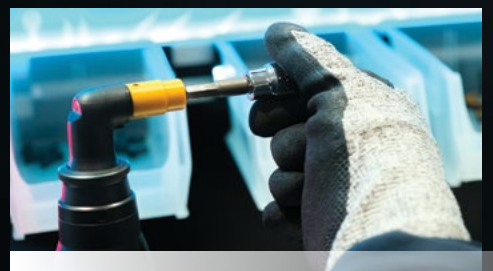
Talk to us about trialling **THE RIGHT DIGITAL SOLUTION** for your specific production or maintenance issues, and reap the benefits of:

- WORKER GUIDANCE • ACCOUNTABILITY • TRACEABILITY
- REPORTING AND ANALYTICS • LIVE FEEDBACK

## ODIN WORKSTATION

### COMPLEX ASSEMBLY STATION

Support and guide semi-skilled operators to perform complex assembly tasks using visual work instructions. Get real-time production data straight from your line and optimise your set-up with no-code configuration.



## ODIN CHECKPOINT

### TASK MANAGER AND ALERT SYSTEM

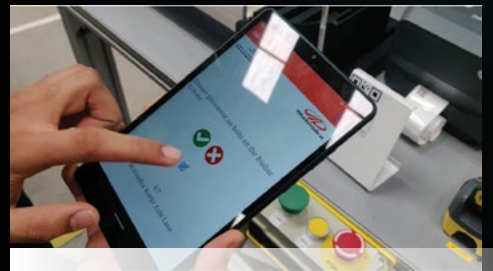
**Planned maintenance:** Digitise the maintenance activities for every asset via a central portal – without reams of paperwork. Schedule and assign tasks, with work instructions, to specific technicians.  
**Unplanned breakdowns:** Record the details and use the RAISE ALERT feature to notify relevant team members to take appropriate action. Monitor the ALERT Kanban and assign accountability to the right technician.



## ODIN ENSURE

### QUALITY BUY-OFF STATION

Digitise your end-of-line checklist by taking and uploading supporting images of each critical quality assurance element.



## LET'S GET YOU STARTED!

Scan to submit your product enquiry to our team of solutions engineers

odinmanufacturing.io



# Digital gains for ZF assembly process

The introduction of ODIN Workstation on a new differential assembly line for our customer, ZF, at their plant in Gainesville, USA, has made a big difference to the operators on the shop floor.



According to ZF's senior production support specialist, David Pirkle, the human-centric approach is not only helping operators to do their jobs better but is also helping the plant to achieve its overall key performance indicators.

"We concentrate on four Lean manufacturing principles: We want a safe plant that doesn't put the customer at risk, that makes good quality products, and we want to be able to do this at a good cost, and in time. If we achieve those four KPIs at a high level, then we'll have customer satisfaction."

Pirkle says taking a human-centric approach by first supporting operators is essential to achieving this success.

"If we continue to make their job easier, we'll get the KPIs we want."

**PAPERLESS WORK INSTRUCTIONS**  
While some were initially resistant to the switch from paper-based work instructions to a step-by-step digital process, Pirkle says even the longest serving operators have seen the difference it has made, since they no longer have to memorise the steps.

*"One operator, he's a little old-school, came back and said this was actually easier than paper. So I was happy to hear that because I really value him - he's been with ZF for 35 years."*

Pirkle said ODIN Workstation provided practical support for operators, helping them follow a set sequence to build quality products in a safe way, within cycle times.

*"ODIN is right in front of them, showing them what to do. The operators can basically build and look at the same time."*

"It also allows you to train less, because the work instructions are in front of you, they're easy to read and simple to understand. If something doesn't go right, ODIN tells you what you've missed. It won't allow you to move to the next step unless you do the previous one."

Aside from work instructions, ODIN Workstation secures the process via validation of parts and sub components. Traceability of every step allows visibility into process, product and machine trends generated from automated, semi-automated and manual operations.

**TPM AND 5S CHECKS**  
ZF also worked with Jendemark to develop a new system within ODIN for ensuring that operators complete their required Total Productive Management (TPM) and 5S System checks, to ensure that their space is clean and organised so work can be performed efficiently, effectively and safely.

"The operator comes in in the morning, and they'll do their quick 5S checks. Then they click 'Yes' to accept responsibility for the state of their work area and start their shift. This drives accountability, and we've seen a really good response," explains Pirkle.

"The supervisor loves it because he doesn't have to walk around the line and he doesn't have to check the boards; the information comes to him. Because a lot of the data is in ODIN, which can produce graphs and charts for reporting, supervisors can actually supervise again and not be so tied down with admin."

Given the benefits that the Gainesville plant has seen, ODIN Workstation will also be adopted at its sister facility in Marysville.



## GLOBAL TEAMWORK

This assembly line was an example of Jendemark's global teamwork - designed, built and installed by our South African team, with the high quantity workpiece carrier units manufactured in India.

It was also installed in record time - 7.5 weeks from the time the first box arrived until the last button was pushed and final sign-off achieved.

Project manager David Boshoff says the recipe for success was testing and more testing. "Through proper strain testing at our home premises, we could de-bug the line and avoid a costly, extended installation."

"This was our first time using VMT to scan and evaluate the sealant bead. Getting the spintop working on site brought many unknowns and was challenging, but the team dug in and resolved all issues."

Boshoff says pandemic-related visa restrictions meant that all installation team members had to climb in to make it happen. "We had controls guys wiring panels, mechanical building parts and electrical helping with line layouts."

A further headache was the delayed arrival of a third-party supplier's robots.

*"It was a challenge placing the conveyor in the exact location, within 10mm, to ensure that they could reach pick-up and drop-off. We had to measure and re-measure many times before placing the conveyor and then all the facilities. Moving the entire line again was out the question."*







# Process Security is paramount

The Government of India has introduced a new set of rules under the AIS 156 banner, designed to regulate electric vehicle (EV) assembly, given the complexities and incomplete technical expertise of this burgeoning industry.

Electric vehicles have been holding their own since entering the global market, as they offer significantly lower running costs and less environmental pollution than internal combustion engine (ICE) vehicles. An EV consists of many electronic parts and a large cluster of wires connecting them to the battery and motor, which contributes more than 50% of the vehicle's total weight and price.

Because battery packs tend to have more safety and operational issues than other components, the new AIS 156 regulations call for a data-driven assembly process and more control over the manufacturing of EVs.

#### STANDARD REQUIREMENTS

The AIS 156 standards require manufacturers to store cell grade and quality data, like Open Circuit Voltage (OCV) and Internal Resistance (IR), as well as the cell manufacturer data, against the serial number for each cell prior to assembly.

After assembly, the total battery pack OCV and IR must also be recorded, as it is mandatory to put the same

grade of cells in a single battery pack. This is essential for maintaining the quality and safety of the EV.

According to Jendamar India director Himansha Jadhav, Jendamar has put automation solutions in place to help manufacturers measure these values and place cells as per their grading.

"ODIN Workstation records the data with which it controls the process to ensure that the graded assembly of battery packs is followed."

"Another parameter is Ingress Protection (IP X7) standards for water and dust-resistant packaging of battery packs. Manufacturers will have to perform leak testing for which we provide automation, process security, and data capturing of leak and pressure values," explains Jadhav.

In addition, AIS 156 also lists testing requirements for battery management systems, thermal management and charge-discharge of battery packs.

"For this, we have successfully integrated with the testing machines, and store data to decide whether

the battery pack is built as per requirements. All this data can be seen against the serial number of each battery pack."

#### SUPPORTING COMPLEX ASSEMBLY

"In India, up to 75% of workers are contract based, which results in an untrained and inexperienced workforce. Add to that the revolutionary and complicated nature of the EV product, and there is a clear need for extensive operator training and guidance," explains Jadhav.

A process security system that will ensure product quality and protect the operator from harm is essential, he adds.

"In this era of Industry 4.0, manufacturers need data traceability, providing analytics for each process, and to be able to manage different variants on a production line.

**"Jendamar's homegrown software solution includes Odin Workstation, which handles all these complexities and ensures right-time assembly every time."**

Step-by-step operator guidance on an interactive touch screen allows workers to easily follow the set process for assembling each type of battery or variant, while enabling companies to spend less time on training.

**"We've seen companies putting a lot of time, money and sweat into developing products and building prototypes necessary for the certification to launch the product, but that doesn't always translate into the production being done with the same amount of care, comfort and expertise," cautions Jadhav.**

"We know there is a need to meet production volumes to fulfil market demand, but an incorrectly assembled product can be disastrous for any company, leading to product recall campaigns."

Because ODIN Workstation is integrated with on-field devices like cameras, tightening tools, sensors and leak test machines, it will not allow the operator to skip steps. This ensures that products are correctly manufactured every time.

#### LOOKING AHEAD

Jadhav expects data-driven process control to become a required norm in the near future.

"Manufacturers are already upgrading the manufacturing process to include a mix of automation and process security for their assembly line. This ensures

optimum use of investments and 100% right production output.

**"Jendamar, having developed and deployed such solutions, is already ahead and ready to deploy more such solutions. We have also dedicated substantial resources and already offer our customers new technology solutions such as AI-based vision systems, collaborative robots, and IOT sensors in proof-of-concept stage."**

Interested in our process security solutions? For more details, contact [shashikant@jendamar.in](mailto:shashikant@jendamar.in)



## COMPLEX EV ASSEMBLY SOLUTIONS

Jendamar provides customised solutions, with built-in process security, for these EV assembly challenges:

- Potting and dispensing of phase-changing material in battery packs
- Cell sorting, grading and cell formation
- Laser welding of busbars to cell terminals
- Motor magnet dispensing and motor winding
- Handling electronic components with minimum manual intervention
- Thermal pad compression and strapping of battery packs
- E-transmission with gauging and shim selections or integrated drivetrains
- Torquing, traceability, testing and integration of all systems in one



# Transforming EDUCATION



Educational technology, or ed-tech, is not a new concept, but the radical infrastructural approach that ODIN Education has developed is successfully bridging the digital divide in classrooms across India and South Africa.

Right now, there is a huge opportunity to transform education in developing countries, the head of ODIN Education, Ajit Gopalakrishnan, believes.

"The need for change in education isn't new. Ed-tech itself isn't new - some companies have been doing it for close to 20 years," says Gopalakrishnan.

"But there are significant infrastructural challenges in developing countries that widen the digital divide. At ODIN Education, we believe we can fill in the gaps in accessibility to education and technology. Our aim is to be a complete infrastructure solution, and to develop a way for ed-tech to be implemented at scale."

### FULL STACK SOLUTION

Gopalakrishnan describes ODIN Education as a "full stack" solution.

"We put the entire infrastructure in place - everything from hardware to software, and we also provide support for what we call warmware - the students and teachers themselves."

ODIN Education deploys ed-tech devices, personalised for every learner and pre-loaded with educational resources, which are all connected to the cloud server.

"It's a safe, managed solution. Our system is closed, and the children can access only what we open to them," he says, adding that analytics currently show substantial engagement - an average of 51 minutes per learner per day.

Where there are larger constraints such as poor connectivity in far-flung rural areas, the system provides a mix of online and offline resources.

### HOLISTIC EDUCATION

"We don't believe that fully online learning and teaching is the solution, but at the same time, traditional ways of teaching are outdated. So, our approach is a hybrid one, deploying tech into schools to sustainably augment the learning process."

Essentially, Gopalakrishnan says, there are two problems to solve: access to resources and the education system itself.

*"We cannot treat every child the same. We need a dynamic, personalised curriculum that understands the child and the environment they are in."*

"I don't believe we have a shortage of talent or passion. What we are creating is the infrastructure to find the talent and nurture it.

"The integration of AI helps us figure out what a particular child is good at and interested in, and then to connect that child to the resources they need to develop their talent. We can be pioneers in a new way of educating."

ODIN Education is currently being rolled out with the support of private companies who have the vision to invest responsibly and sustainably in the future.

# Ed-tech gives children a chance



As part of a social investment partnership with Rotary International, Jendemark India and suppliers recently sponsored 38 Odin Education tablets to 8th grade students at the SAMPARC Gramin Vidya Vikas Kendra School in the village of Bhambarde in Mulshi Taluka.

SAMPARC, which stands for Social Action for Manpower Creation, is the brainchild of Shri Amitkumar Banerjee, who started this organisation of hope in 1990 for children of sex workers as well as orphans and destitute children. It works in Jendemark India's home state of Maharashtra and in Rajasthan, West Bengal and Uttar Pradesh, offering services ranging from children's homes to community education support programmes, industrial and vocational training centres, and schools.

SAMPARC started its second centre in Bhambarde to give poor children from nearby rural villages a chance

to attend school. Recently named the best school in Mulshi Taluka, the award-winning Bhambarde Gramin Vidya Vikas Kendra now has a hostel and facilities for 281 students from the 5th to 12th grade and offers the finest computer class in the district.

Rotary Club of Pune Wisdom identified the school as the right fit for this ed-tech sponsorship. The 8th grade students were introduced to the Odin Education ecosystem and received their ed-tech tablets, which were pre-loaded with their syllabus content and related educational resources and learning platforms. As individual students engage with the device, they

will also be served with content about specific subjects and activities they are interested in that don't form part of their curriculum.

*Special thanks to Jendemark India's partners in this project: Sandesh Cargo Movers, S.P. Engineering, Sai Industries, Shree Ganesh Packers, Santech Systems, Shruti Transport, Swiftin Corporation LLP, Access Industrial Sol, Sigma Tools & Machine Solutions, Swara Industries, and S.B. Rubber & Engineering Industry.*



# Gqeberha communities get a helping hand

After purchasing the controversial Seaview Lion Park in October last year, Jendamarck has quietly set about transforming the revitalised Seaview Private Sanctuary into a haven of environmental conservation and upliftment that extends into the communities who live near the park boundaries.

Currently, the Sanctuary is in the process of being redeveloped as an outdoor eco-retreat for the company's employees and customers. To this end, all the big cats have been rehomed, a dam has been constructed and various free-ranging wildlife species have been introduced.

Jendamarck operations director Siegfried Lokotsch says that, while the park will not be open to the public, it is important that the wider

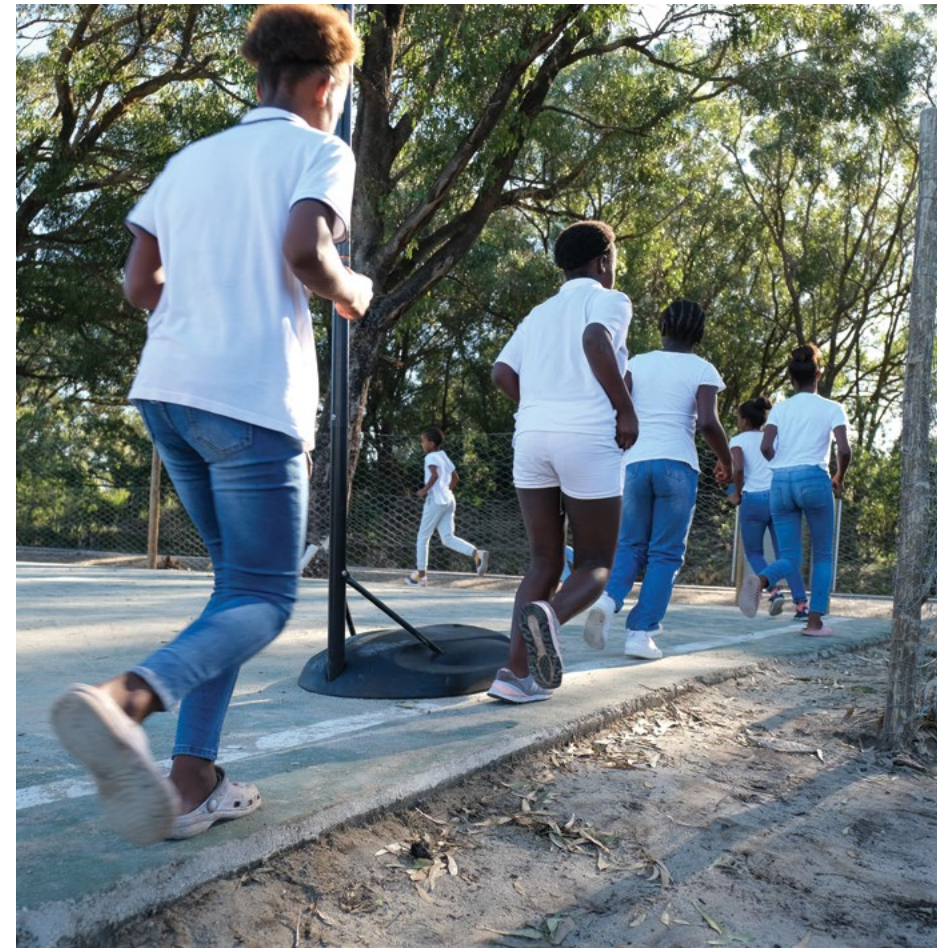
Seaview community - including the informal settlements of New Rest and Zweledinga - benefit from it.

*"Wherever Jendamarck operates, we always try to involve the community and make a difference."*

"It's important for us to give back not only to the animals but also to the people nearby."

Creating awareness about taking care of the environment and keeping the surrounding area free of waste is an important first step," says Lokotsch.

Five people from the local community have been contracted to carry out bush clearance and maintenance activities in the Sanctuary, while two more have been employed to do daily roadside litter clean-ups and assist people making use of the two municipal waste transfer sites in the area.



## WASTE MANAGEMENT

Seaview ward councillor Jason Grobbelaar says the relationship between Jendamarck and the municipality began in January this year when he received a call from Lokotsch about the state of the Zweledinga waste transfer site.

*"There was lots of dumping around the overflowing waste skip. I mentioned the issues to him that led to the surrounding litter and that it had been reported and would be attended to. I did not expect his next message: 'Anything I can help with?', which is where this journey started," says Grobbelaar.*

After securing permission from Nelson Mandela Bay municipal officials, Jendamarck sponsored an additional skip for each of the Zweledinga and New Rest sites, as well as informational signage indicating what may or may not be dumped there.

"The assistance provided by Jendamarck is filling the gap, as the municipality does not develop informal

settlements where they will be moved to a new location in the near future, which is the case for Zweledinga," explains Grobbelaar.

"It also closes the gap where the municipality at times battles to service the area over weekends and public holidays, or when truck breakdowns occur."

## A SPORTING CHANCE

Residents of the two informal settlements, who number around 800 in each, are also benefitting in other ways.

After Sanctuary custodian Jo-Ann Meiring noticed a young girl pouring paint in the dirt to outline a rustic netball court, the Jendamarck team returned to lay and paint a permanent court, complete with hoops and inspirational signage. Two mobile action soccer nets were also sponsored, turning the court into a flexible sporting arena that is used daily by both young boys and girls in the area.

Zweledinga netball manager Jane Manisa says, "We are truly grateful for the wonderful and magnificent work that Jendamarck has done for us."

## CARE CENTRES

In preparation for the cold winter months, Jendamarck also responded to a request for mattresses, blankets and an oil heater for the Sibabalwe Daycare Centre, along with a restored jungle gym from the park. Meiring says plans are underway for a similar care centre project at New Rest.

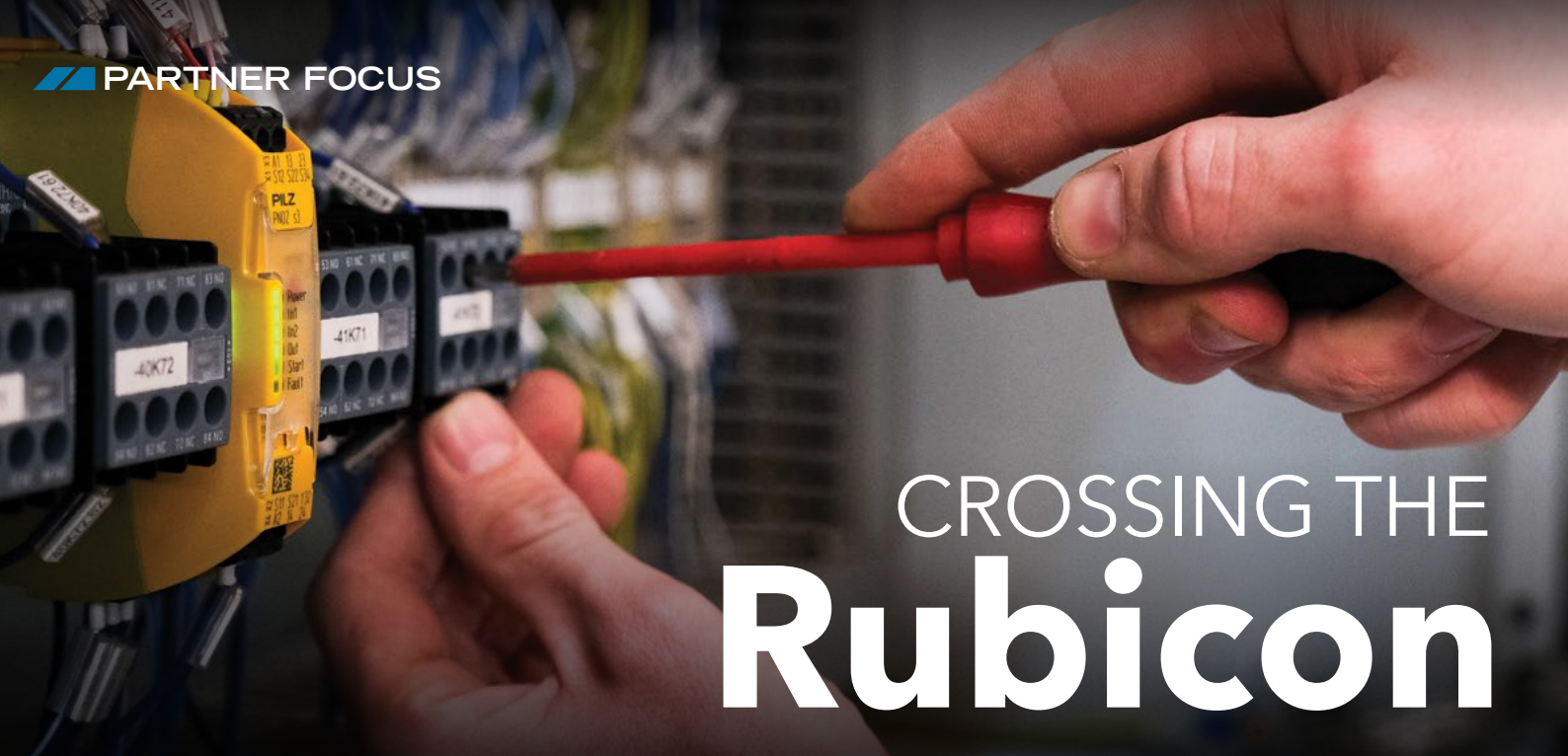
New Rest community leader Zoliswa Mkrayi says the people are very appreciative of the interventions and the positive impact so far.

"They built the sport field for our community, which is very beautiful, and employment opportunities decrease the number of unemployed in the area [which averages around 35%]. We are still looking forward to working hand in hand with Jendamarck in the future."

Lokotsch says giving people a hand up, not a hand-out, is central to Jendamarck's sustainable support strategy.

*"If we can create a community where we uplift each other, and where each person thinks about the next person, we can build a much better place for everyone."*





# CROSSING THE Rubicon

Jendamarck and Rubicon have been working together to serve our customers since the dawn of this millennium. The Covid-19 pandemic saw the partnership tested as we found new ways to overcome the ensuing supply chain problems. We asked the director of new business for the Rubicon Group, Dylan Schnetler, about how the partners rose to the challenge.

**Q: When it comes to this partnership, what does each business bring to the table?**

**A:** Rubicon supplies Jendamarck with different technologies that add value to the solutions Jendamarck builds for their customers. Our role is to keep Jendamarck abreast of the latest technologies in the automation space. Once the tech is adopted by the Jendamarck engineers, then Rubicon's role is to ensure competitive pricing and secure supply both during and after the project. Our roles are complementary. By adding value, we enhance the offering and assist in growing Jendamarck's business, which in turn grows our business.

**Q: During the pandemic, there were massive global supply chain issues. Tell us about the nature of these challenges and how you overcame them.**

**A:** We had significant supply chain challenges due to component shortages globally and also stress on the logistics chain. This had both cost and timing implications in ensuring that Jendamarck could meet their project timelines. Rubicon has a comprehensive automation offer, so we could always look within the group at alternative product sets to overcome these issues. With Jendamarck's support, we could motivate with supplier management


teams to prioritise our shipments and their importance. Siemens products were a prime example, where we could leverage both historic and forward-looking demand to pre-empt stock at Rubicon specifically held for Jendamarck.

**Q: What is the most important thing when it comes to supporting Jendamarck customers?**

**A:** The most important aspect of this longstanding relationship is trust and transparency. Both Rubicon and Jendamarck have always taken the approach of working together as a team to win for the mutual benefit of both companies. It is this foundation that leads to excellent communication between our companies on all levels and it starts from the top down. In addition, both companies are very proud of the fact that we originated in Gqeberha (formerly Port Elizabeth) and are truly local companies. We have embraced and not been intimidated to take our vision and ambitions to the global market.

**Q: Do any stand-out projects come to mind?**

**A:** The ELSD assembly line project for a customer in the USA. Jendamarck had challenges with implementing vision systems that struggle with changing light conditions even when a fixed light source is introduced. A lack of

support from suppliers in assisting with these issues was also a major concern. Rubicon proposed the Cognex vision system, which has now become an in-house standard at Jendamarck, as it is more stable and easy to set up. Rubicon provides training and support to ensure the successful application of these solutions. 

## TECH TWIST

In an interesting twist, Rubicon is now implementing Jendamarck's ODIN Manufacturing solutions at its new inverter production facility in Cape Town. Rubicon chief product officer Nick Roche says:

*"We're looking at how we can improve the previous production methodology with the goal of better efficiencies, better production quality and higher throughput. We believe that the ODIN technology fulfils these requirements and are looking at installing a proof of concept trial. Should that be successful, we will consider a larger investment in a full roll-out of the technology across the production facility."*

# Growing OUR GLOBAL BUSINESS



**INDIA**  
Jendamarck India now boasts not one, not two, but three assembly halls to handle growing projects for customers. Our newest addition at the Pune head office includes a tech centre and display area featuring the Dobot collaborative robots.



**SOUTH AFRICA**  
This year, the manufacturing, assembly and design team celebrated the unveiling of their new mural. The giant artwork at the department entrance was created to spotlight the importance of the technical trades in growing Africa's industrial sector and depicts Jendamarck's pride in our artisans.



**GERMANY**  
Jendamarck's sales and service office in Penzing has been expanded and upgraded to provide a warm and welcoming base from which to serve our European customers.



**COMING SOON**  
Plans for the opening of our USA office are at an advanced stage, and we look forward to welcoming and serving our North American customers in the near future.



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