



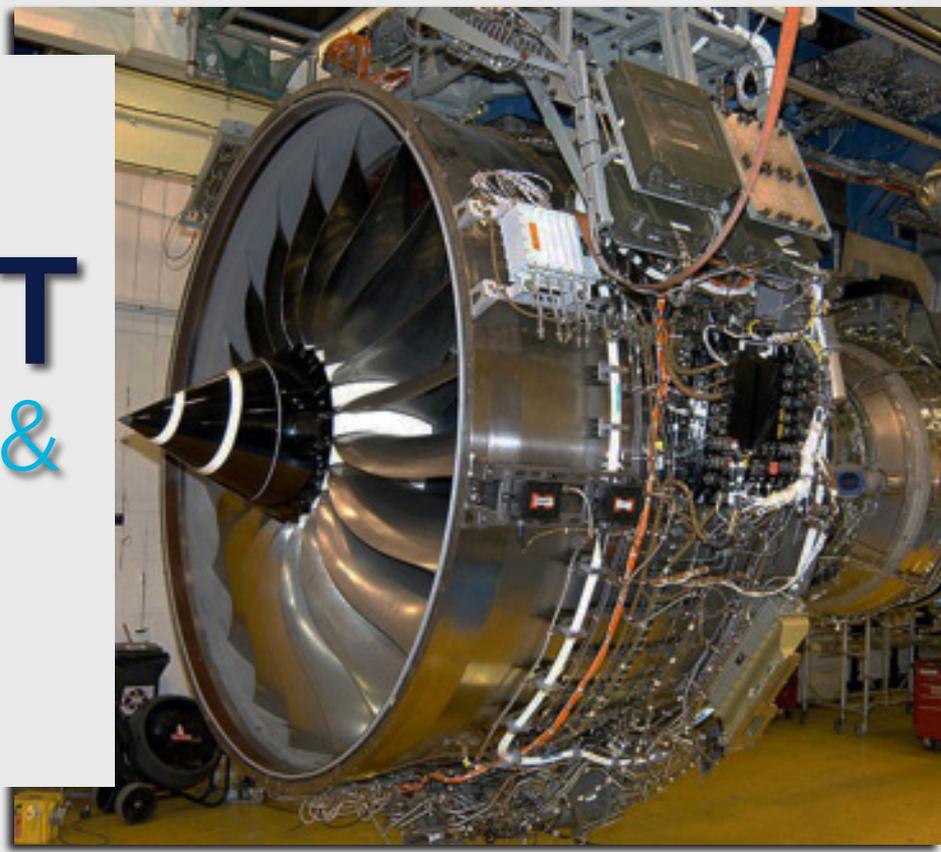
CUSTOMER SUCCESS STORIES

NOMUDA VISUALFACTORY

SIMPLIFY / STANDARDIZE / AUTOMATE



MEGGITT AEROSPACE & DEFENCE



Operating within the Aerospace Industry, Meggitt's production process needs to be transparent, requiring heavy documentation and full traceability at multiple stages of the assembly line.

Before NoMuda VisualFactory, operators would spend a vast amount of time signing paperwork and archiving documents to record serialisation, performance and other vital measures.

This time consuming activity restricted available capacity and required careful management to ensure operators were always working from the latest version of the work instructions.

Meggitt took the decision to move to a digital process and engaged NoMuda to deploy VisualFactory into their manufacturing facilities, led by digital programme Manager, Chris Perry.

You will now find VisualFactory on over 100 Workstations in Meggitt's Ventura County, USA facility as well as Coventry, UK. The software is currently being used on just one product line, but Meggitt is already reaping the benefits.

Work instructions are now displayed on screen, guiding the operators through the process and ensuring the latest version is always available, immediately at point of use.



8%

INCREASE IN
PRODUCTIVITY

20%
*INCREASE IN
CAPACITY*



Manufacturing history and testing are now recorded within VisualFactory, removing the time needed to sign and archive documentation.

“Test rigs are linked directly to VisualFactory, displaying the results on screen for the operator. By use of parameters VisualFactory also clearly indicates to the operator whether the unit has passed or failed test and automatically stores the result” added Chris.

“We have identified our “hidden factory” with the vRework module that has helped us to understand, document and improve first-pass-yield.”

“Operators are happy as they see VisualFactory as an investment in them, making their job easier and helping them to work in the most effective way.”

On just the initial product line, VisualFactory is on target to save Meggitt 2,500 labour hours, increasing capacity by 20%. Moving from a paper-based process has also saved them the £750,000 cost that came with archiving documentation. Productivity has improved by 8%.

Meggitt has a digitalisation plan for all of their 34 locations across the Americas, Europe, Middle East, and Asia Pacific. NoMuda VisualFactory is a key player in this. Meggitt are currently in the process of increasing to 250 vScreens in their Ventura County, USA facility, 8 vScreens in Coventry, UK and 12 in Birmingham, UK.

As Meggitt learns more about NoMuda VisualFactory’s capabilities, they plan to explore additional modules. The demand for VisualFactory is growing at Meggitt, as each location learns what it can help them to achieve.

VENTURA COUNTY, USA FACILITY

2500

*LABOUR HOURS
SAVED*

£750k

*SAVED BY NO
LONGER
ARCHIVING
DOCUMENTATION*

ERLANGER, USA FACILITY

1

*FULL PALLET
OF PAPER*

6.6%

*IMPROVEMENT
IN YIELD*

FRENCKEN MEDICAL



Frencken Mechatronics specialize in high-mix, low-volume, high-complexity, and high-flexibility production of assemblies and systems for the medical, analytical, and semiconductor markets.

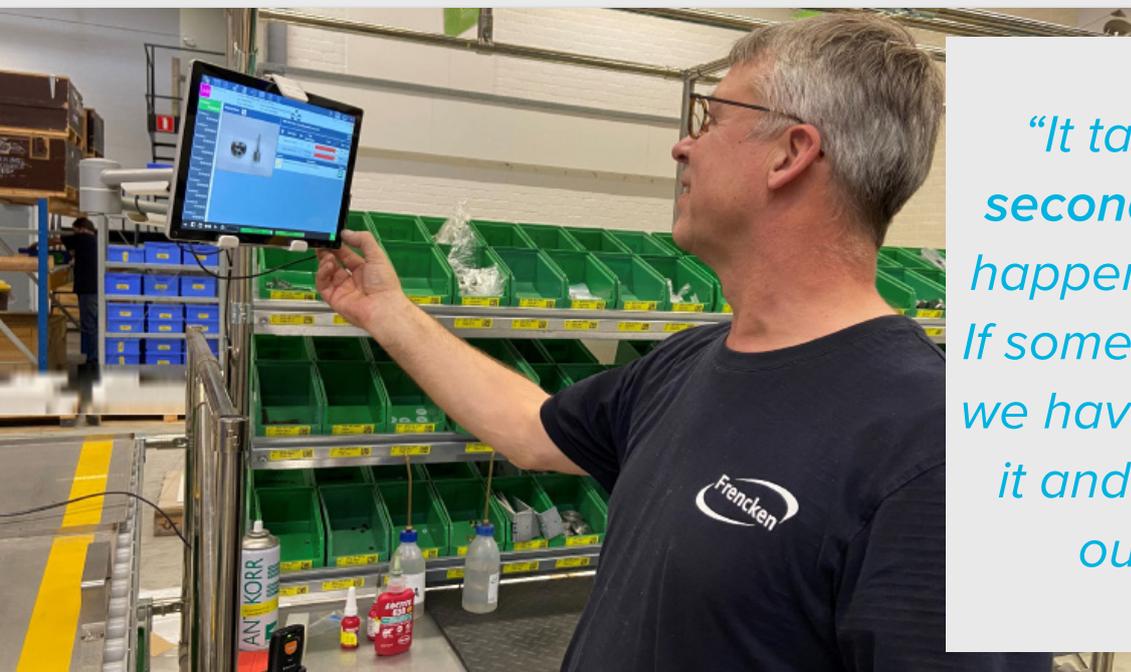
Before NoMuda VisualFactory, Frencken's process was paper-based with operators often choosing their way of building to avoid sifting through paper work instructions. The production team found it hard to document everything and provide traceability for their products to meet FDA guidelines.

In the search for the right Lean Manufacturing System, they found NoMuda VisualFactory to be, "very intuitive and a lot less rigid than their competitors. VisualFactory had a natural feel that it would do perfectly what we needed it to" says Production Engineer, Jaap Schuit.

"We had a dedicated rollout team to implement NoMuda VisualFactory across our medical device production. It was both exciting and difficult to begin with, but it got easier as we introduced more lines and transferred our paper work instructions to VisualFactory."

"NoMuda VisualFactory helps our medical customers in multiple ways. We now keep a digital record of all of the production data and checks. It also helps us track the traceable items that we have in our products, so we have a clear overview of what has happened to a particular product."

"Now that it is digitally logged, it takes a matter of seconds to locate what happened in production."



"It takes a matter of seconds to locate what happened in production. If something goes wrong, we have the data resolve it and help us improve our processes."

“If there is a production issue, it is highlighted on the dashboard instantly for the team leader to resolve, reducing our response times.”



If something goes wrong, we have the data to resolve it and help us improve our processes in the future.”

“The benefits for Frencken are the reduction in paperwork and the speed at which we can now release work instructions to the shop floor. There is no manual distribution and sign off and we can ensure that the most recent versions are always being used.”

“We are able to use the VisualFactory vRelease module to support our Work Instruction authorization. When we make an instruction, it’s sent to a team leader on the shop floor to agree before it is approved by the manufacturing manager to ensure that it meets the needs of the FDA.”

“In my role as a Production Engineer, I have a clear overview of the Work Instruction changes as we can look back to the oldest version even if it was 2 years ago.”

“VisualFactory makes you write work instructions intuitively with only the information that is required with tools and other functions highlighted. This makes it easier for us and reduces the amount of work we need to do to keep our work instructions up to date.”

“We use VisualFactory dashboards on one production line that works in takt.

Every hour the product moves from one station to the next and using the dashboards we can project the tact time and figure out whether we are ahead of schedule.”

“If there is a production issue, it is highlighted on the dashboard instantly for the team leader to resolve, reducing our response times.”

“In the beginning, there was a slight resistance from operators saying, ‘we have to work in a different way’ and ‘I have to adjust to become a robot and follow the steps’.

The feedback now is that VisualFactory isn’t prescribing exactly what they have to do, it is additional support to ensure that they don’t miss critical steps. It helps them have a better view of what they are doing.”

“I would recommend NoMuda VisualFactory as it gives you one standard way of working. There is so much data available that we couldn’t register before due to the paperwork. We can now visualize our KPIs and use to improve our production processes.”

Frencken is currently adjusting its work instructions for further compliance with the FDA. Once this is complete, they will be expanding VisualFactory to other lines and areas to help operators in other parts of the business.

RHOPOINT INSTRUMENTS

HIGH-INTEGRITY MANUFACTURING



Rhpoint instruments manufacture Test equipment that primarily focuses on appearance quality. Managing Director, Tony Burrows realised that shop floor productivity was falling short of his expectations.

Their previous production process that used traditional batch building methods, complimented by paper and PDF work instructions was preventing them from achieving their full potential.

Tony reached out to a consultant for support with moving to a lean production process that included six sigma and Kaizen practices, initially to improve just productivity.

A large part of this transformation included the implementation of an MES.

After comparing a variety of MES providers, including some of the larger software companies, they found NoMuda VisualFactory to be the fastest, leanest and most flexible.

NoMuda also gave them the opportunity to take the time to really consider how it will work with a pilot project, which was a bonus for them.

NoMuda VisualFactory was implemented in-house using existing staff who had to learn through the training pages and online support provided by NoMuda.

However, Tony admits “mistakes were made during implementation that would have been less painful if we had paid for additional training that would have helped us in the long term.”



35%

INCREASE IN
QUALITY

70%

FALL IN CUSTOMER RETURNS



Almost two years since implementation, VisualFactory can be found in production on 80% of Rhopoint products.

Tony has really noticed a difference in the way his team works, “each Workstation is equipped with a vScreen, displaying digital work instructions that provides the operators with visuals to identify the tools and bin location.”

“VisualFactory has been really useful for us and has allowed us to improve productivity and grow without the need to expand our workforce.”

“We can now record check points across the entire operation, which has forced us to look at our products and build in a better way. Following our lean transformation, an instrument that used to travel 1850m through the production process now travels just 26m.”

“Staff morale has also increased, as the operators themselves are much happier.

The move from PDF to interactive vScreens has made their job easier, with clearer instructions on what tools they need to be using and when.”

Rhopoint’s initial motivation was to improve productivity, but one of the biggest improvements has been to Quality Assurance.

Product quality is up 35% and customers are visibly happier with their products, as returns are down 70%. External audits are now much easier given the level of traceability they have with VisualFactory.

In the future, Rhopoint Instruments plan to roll out NoMuda VisualFactory across all Workstations on the shop floor and with any new products.

Tony wants to squeeze productivity even further by digging deeper into statistics in areas such as production issues and tac time to make continuous improvements.



“Following our lean transformation, an instrument that used to travel 1850m through the production process now travels just 26m.”

EPIROC

DISCRETE ASSEMBLY



Epiroc drilling solutions is a Leading manufacturer of mobile drilling rigs for open pit blasthole mines, water wells, oil and gas. They describe their method of assembly as ‘low volume, high mix’, but their previous process didn’t support this.

Prior to NoMuda VisualFactory, operator Work Instructions consisted of a process book, a Bill of Materials (BoM) and a set of drawings. Instructions were written at a high level and made generic to cover all the options a rig requires.

This was confusing and time consuming for operators, as there was no link between the BoM and approximately 300 drawings.

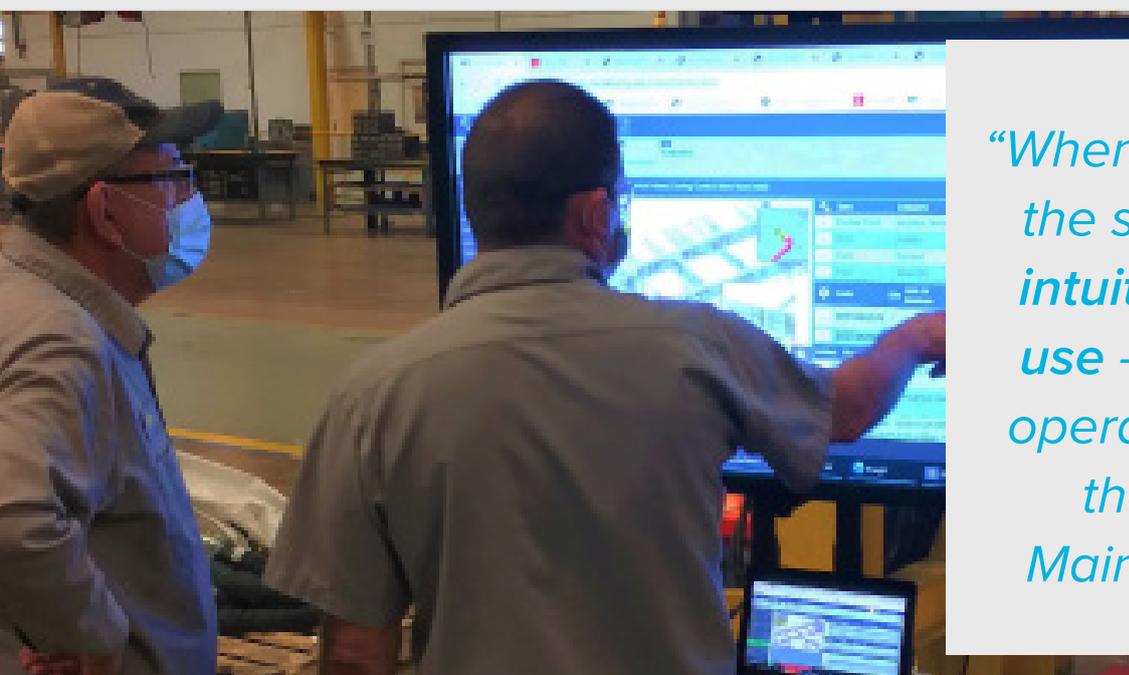
Epiroc relied heavily on experienced operators to remember the routes.

Each operator followed their own sequence of steps, which resulted in an inconsistent process with varied quality.

The most experienced operators would then spend a lot of time sharing this inconsistent knowledge with new staff, further embedding variability into the process.

Epiroc’s production team discovered that a Manufacturing Execution System (MES) could help them bring consistency to their process.

After extensive research into the market, NoMuda’s Lean Manufacturing heritage caught their attention. NoMuda has over 20 years of experience in developing VisualFactory that became Epiroc’s MES of choice.



“When I train people on the shop floor, it’s so intuitive and easy to use - not only for the operators but also for the authors and Maintenance team.”

10%

Reduction in Man Hours



“NoMuda VisualFactory met our initial requirements but was able to offer us features that we didn’t even know existed.” says Industrial Engineer Lead, Dario Padilla.

VisualFactory has been integrated with Epiroc’s ERP to export the Bill of Materials (BoM) and Work Orders.

This makes it easier for their skilled engineering team to create a set of standardized Work Instructions for their Operators.

The Work Instructions are now used on subassembly areas and the main flowline in the facility, which accounts for around 70% of their production volume.

“Our environment is now cloud based and we can use a superBoM to configure our low volume, high mix production” said Industrial Engineer Supervisor, Ryan Krueger.

“Initially there was some pushback from the shop floor as they were used to the paper process, but the more they used VisualFactory they realized the benefits. It tells them exactly what needs to be done - there’s no guessing.”

Dario continued to explain, “what helped us change the mindset on the shop floor is how user friendly it is. When I train people on the shop floor, it’s so intuitive and easy to use - not only for the operators but also for the authors and maintenance team.”

Ryan added, “We have achieved a more consistent build sequence, with quality and time improvements.”

“We have taken on some of the additional modules and functionality. For every Engineering Change Note released, we can create a corresponding Manufacturing Change Note to update the Work Instructions. We are able to assign responsibility to individuals and track the work being done.”

“We currently have one type of production issue that makes it much easier for operators to communicate issues directly to the responsible department. We plan to add several others soon.”

“Test values and data collection are easy to set up and provide flexibility for different types of data to be created. The reporting tool has allowed me to transfer data on production issues and manufacturing change notes from VisualFactory to Power BI. I can now view and share our live data on a dashboard.”

Epiroc are expecting at least a 10% reduction in man-hours as a result of VisualFactory.

VisualFactory has provided a consistent assembly sequence, presenting the required work instructions and tools used in the assembly process. This consistency has reduced the number of identified defects with the goal to eliminate all defects.

SAAB SEA EYE ROBOTICS



Saab Seaeye is the world's largest manufacturer of Electric Remotely Operated Vehicles (ROVs), which includes their underwater range for the Defence Industry.

Saab Seaeye wanted to take control of their work instructions and get the knowledge out of the operator's heads.

They were very much reliant on experience as products were built from people's knowledge with limited written or detailed instructions, which were very often in people's own notebooks.

If those people leave, so did their expertise. Training new staff was a time-consuming process, and productivity and quality inconsistent.

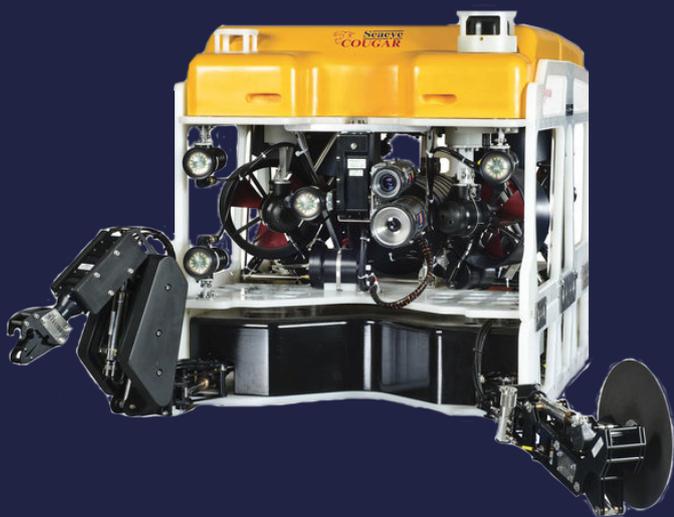
Operations Director, Mark Exeter who led the project said "VisualFactory has had a huge

impact on productivity and quality. It has given us control back.

"VisualFactory has allowed us to consistently build to cost, quality and time targets on our products. Since using VisualFactory to create our build instructions correctly, a large percentage of our problems have gone away – because we can now consistently control the product build process and its quality."

Saab Seaeye has reaped the benefits with Reworking costs slashed from £268,000 to £52,000.

85% of this fall can be attributed to VisualFactory helping Saab achieve right first-time quality. Rework costs are projected to fall by 90% of the original value in the following year to £28,000.



"Reworking costs have been slashed from £268,000 to £52,000"

RACAL ACOUSTICS

HIGH-TECH



Racal Acoustics is a manufacturer of specialist acoustic ancillary equipment, mainly for military and emergency service markets.

Racal acoustics was struggling with the maintenance of over 13,100 pages of Manufacturing Instructions and coping with the manufacturing problems that errors and omissions created.

Racal provides a range of unique products with over 570 product variants (each averaging 23 operations) needing to be documented.

They had to interface with many different systems, each interface had to be tailored mechanically and electrically to suit each customer's needs. Racal also had issues with assembly variation within the same product family, response times for Work Instruction updates, and increased learning time taken by operators due to inconsistency.

NoMuda's experience with implementing mass customization helped in developing a new, leaner approach.

The number of Work Instruction pages has fallen from 13,100 pages to 1,200 pages, representing a total saving of 90%.

The equivalent estimated time to generate and maintain production documentation for the 570 variants has fallen to around 5.1 man years of work, over a ten year product life with NoMuda VisualFactory. This represents a saving of almost three man-years of labour.

Racal can now track any change in assembly procedure, down to operation level. Subcontracting assembly partners can now access Racal's work instructions, avoiding costly document preparation and administration on-site at Racal.



5.1

*Man-years of work
saved*

VOLVO CONSTRUCTION EQUIPMENT

MACHINERY & EQUIPMENT



Volvo Construction Equipment Manufactures heavy duty equipment to use across a multitude of industries including; Construction, Infrastructure, Manufacturing, Transportation, Energy and many more.

VisualFactory has played a vital role in allowing them to implement a standardized, lean philosophy towards their Work Instructions.

Volvo wanted to move with the times in their factory and employ a paperless system for their Work Instructions.

“We were looking for a package with scope to integrate more aspects of our business with one system” explained Manufacturing Engineer, Garry Moore.

“We relied heavily on the use of Microsoft Office products to produce our Work Instructions. This proved time consuming when trying to keep on top of all of the engineering changes that occur in our environment.”

“The benefits of utilising VisualFactory were instant. The ease on the workload of the process engineers is very notable, allowing for other responsibilities to be given more time.”

“Introducing VisualFactory was a pleasantly easy experience. The level of assistance from the guys at NoMuda was outstanding and the continuing support offered is second to none.”

“Since VisualFactory has been installed here we have developed more in-depth Work Instructions and have been able to implement changes on the spot and ensure our Work Instructions are always up-to-date, eradicating errors.”

“The team at NoMuda are always available and exceptionally helpful, listening to any changes or additions you would like in future updates.”

“The possibilities are endless with the constant development of new modules – it is truly a one stop shop for all your lean manufacturing needs.”

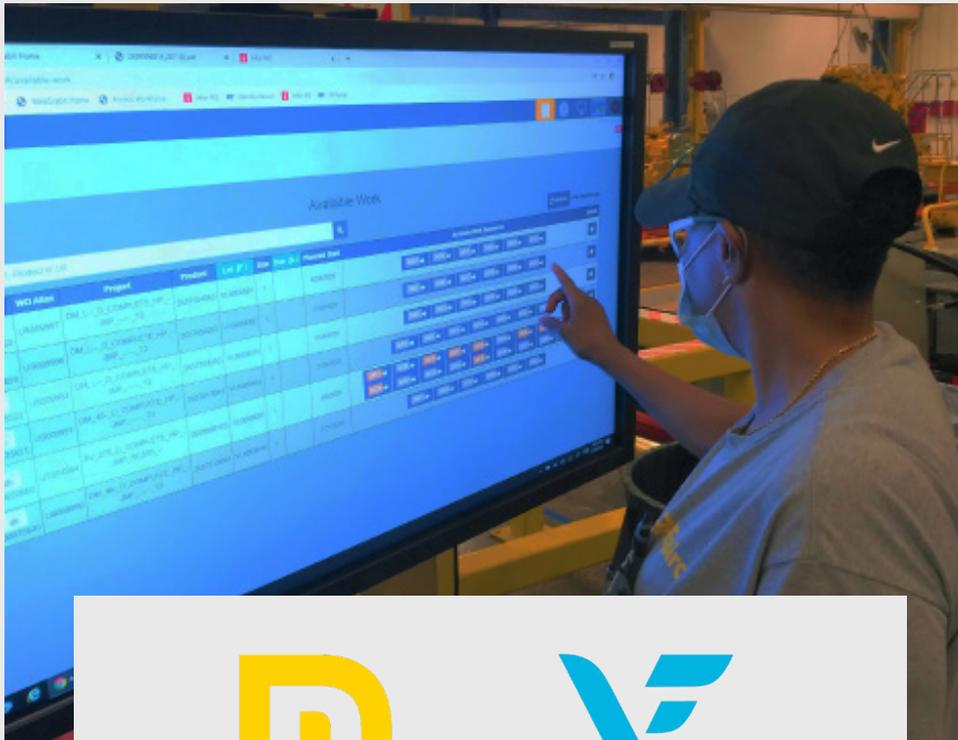


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