

# Industry Trends.

StocExpo  
report

**StocExpo** 

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by **EASYFAIRS**

# Welcome.

StocExpo exists to bring together the global tank storage sector to enable networking, collaboration, communication, and opportunity. On top of that, wherever we can, we strive to provide extra value to our delegates and exhibitors by making use of our vantage point, as we are connected with essentially the entire market.

In 2020, we did just that, publishing our first ever Industry Trends Report, a birds-eye view of the industry informed by all the market leaders we have contact with. The report provided insight into the biggest present-day trends and went some way to speculate how these trends would progress in the near future. It's still available for free download on our website.

Since the time of publication though, things have changed, and quite drastically. COVID-19 has been a significant disruption to the global tank storage industry. In fact, it has disrupted every industry, and it stands to reason that many of the trends identified in the Industry Trends Report have changed, or never came to pass.

It's not the case, though, that the Industry Trends Report is now obsolete; many of the trends identified have continued or will do so post-pandemic. The problem is, it's very hard to guess how the trends that have continued, such as the increasing investment in oil and gas, digitalisation, and process automation have been impacted. It's fair to say these things may have been slowed by the pandemic, but equally the threat of COVID-19 may have encouraged the industry to move faster on them.

So, we approached a handful of industry experts to give us their views and news. In the following pages, we have updates and analysis from the industry's best and brightest, looking at the landscape changes in the oil & gas market, the accelerating adoption of automation, and how the importance of digitalisation is skyrocketing in a post-COVID-19 world.

Brought together, the updates and analysis form a supplement to our 2020 Industry Trends Report that hopefully gives you a clear indication of how the industry is coping with COVID-19

I do hope this insight benefits you and I look forward to a time we can all meet up again soon – I have to say, our digital events have been wonderful substitutes, but they're just not the same as live events!

**Rikki Bhachu, Head of Marketing, StocExpo**

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# 2020 Industry Trends Report - a Brief Recap.

Before we turn to our industry experts for their assessments, let's remind ourselves of the key findings of the original Industry Trends Report.

Towards the end of 2019 we surveyed the opinions of key decision makers at businesses across the bulk liquid storage supply chain.

While you might expect high profile issues of the time such as volatile markets and competition from new-age market disruptors to dominate agendas, 46% saw the skills shortage caused by ageing workforces and a lack of fresh young talent as the biggest challenge facing the industry.

Despite this, far more work was being done to maximise basic profit levers than to address upskilling and attracting the next generation of workers. Reducing costs and boosting capacity were perhaps seen as relatively easy and short-term ways to solve the complex and abstract "people-problem".

The report also identified and explored trends like the growth of LNG and hydrogen. It found the latter on the diversification agendas of more than half of storage terminal respondents, but only 22% and 6% were at that point storing LNG and hydrogen respectively.

The research also highlighted the rise of niche storage areas with these expected to grow over the next two years, including chemical and speciality chemical storage according to 48% and 43% of respondents respectively, as well as the storage of biodiesel (43%) and vegetable oils (28%).

With environmental concerns driving change in almost all the world's industrial markets, it was not surprising that 40% listed sustainability and environmental performance as a key, and current, business issue, with carbon and sulphur reduction playing on the industry's collective mind. Despite this, only one in ten chose sustainability and environmental performance as their single main priority.

A further third (31%) were prioritising digitalisation and process automation, with over a fifth viewing it as key to improving the operation of assets and maintenance. The vast majority (85%) said they were on their way to implementing digital solutions across their businesses, with over a third reporting that the process was either complete or near completion. Artificial intelligence (AI) was the one technology exception to this rule.



Digital solutions go part of the way to address people-centric issues like human error, but they also create their own challenges. New digital technology requires very different types of workers to operate and it was this observation which brought the report full circle. With an ageing workforce and a lack of fresh faces, it was easy to see why the skills shortage was such a key issue for the pre-COVID-19 industry.

# The Impact of COVID-19 on Oil & Gas.

Charles Daly, Chairman, Channoil Consulting, predicts the long-term impact of the pandemic on the global oil and gas market...

Looking back to the start of 2020, it's almost baffling how our plans and predictions have been completely thrown out the window by the pandemic. Our neatly worked out forecasts and algorithms have all since landed in the bin and we start all over again.

And not for the first time. We tried to stabilise and make new predictions in the summer, when we had no vaccine on the horizon, but still an over-optimism in terms of how long this would all last. Those predictions have also been binned. But at least now we can look ahead with a realistic chance that by the end of 2021, we will have a large section of the population vaccinated and economic growth.

So, what impact has COVID-19 had? This was the question I was pondering while pruning a honeysuckle bush that stands by my front door last weekend, and it struck me that there could be a distinct comparison between my pruning and what is happening to the economies of the world, as a result of the pandemic.

It might sound brutal, but the strategic damage caused by pruning can refresh a plant and stimulate stronger growth in the future – losing a limb here and there is traumatic, it is a painful loss, but one that makes it stronger in the long-run.

We have seen several efforts and a lot of government borrowing to maintain the status quo, but unfortunately, individual companies and in some cases, entire industries that may or may not have been weak before the pandemic, have not survived it. Obviously this cannot be called positive, but becoming a cashless society, combatting air pollution, reversing climate change, shaking up the globalisation of supply chains, these are all positive changes seeded before the pandemic struck that have been accelerated by it. So, there are benefits to be had.

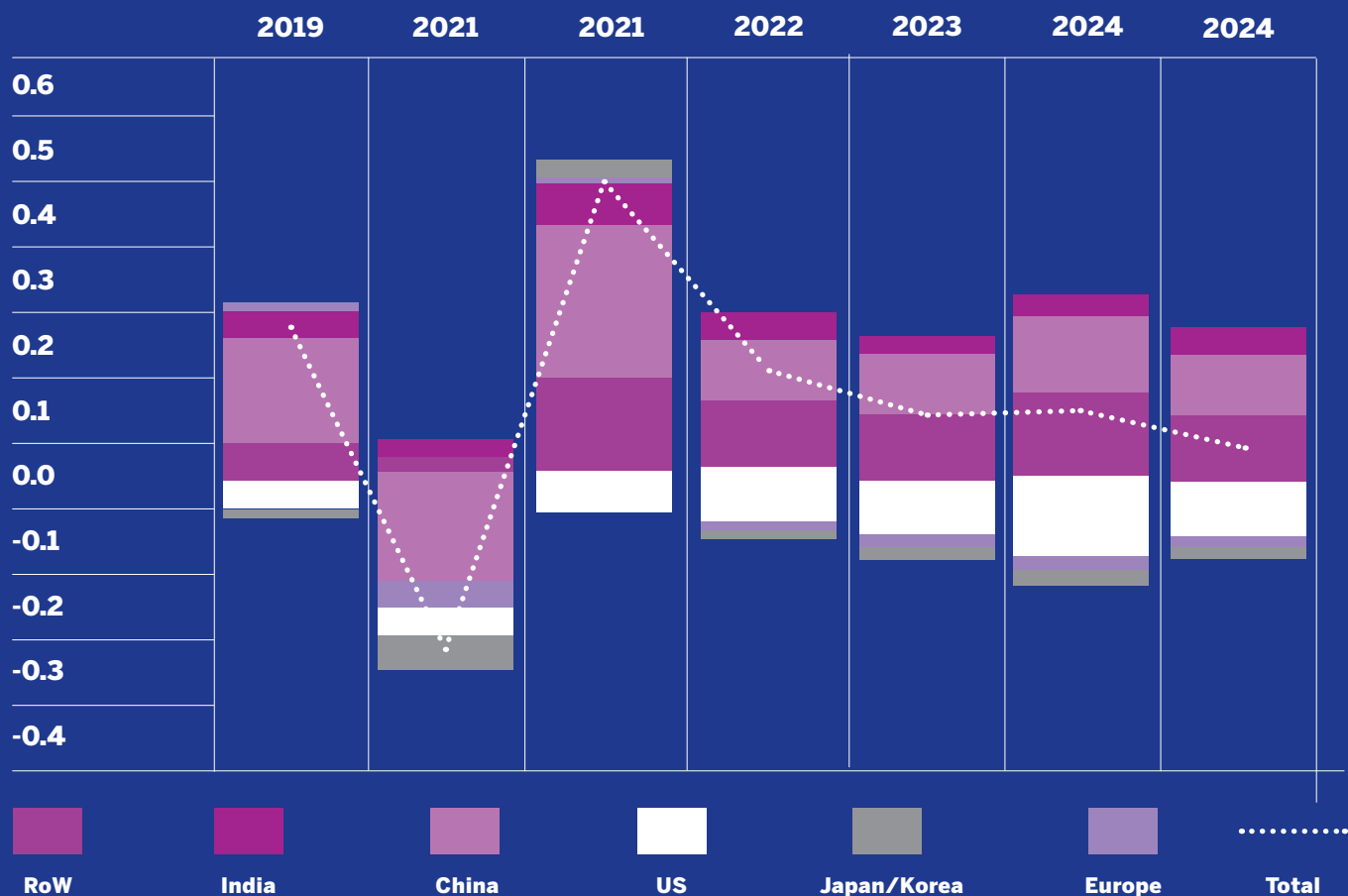
Has the same happened in the oil and gas industry? Let's explore what happened...

## **Demand Fell Off a Cliff**

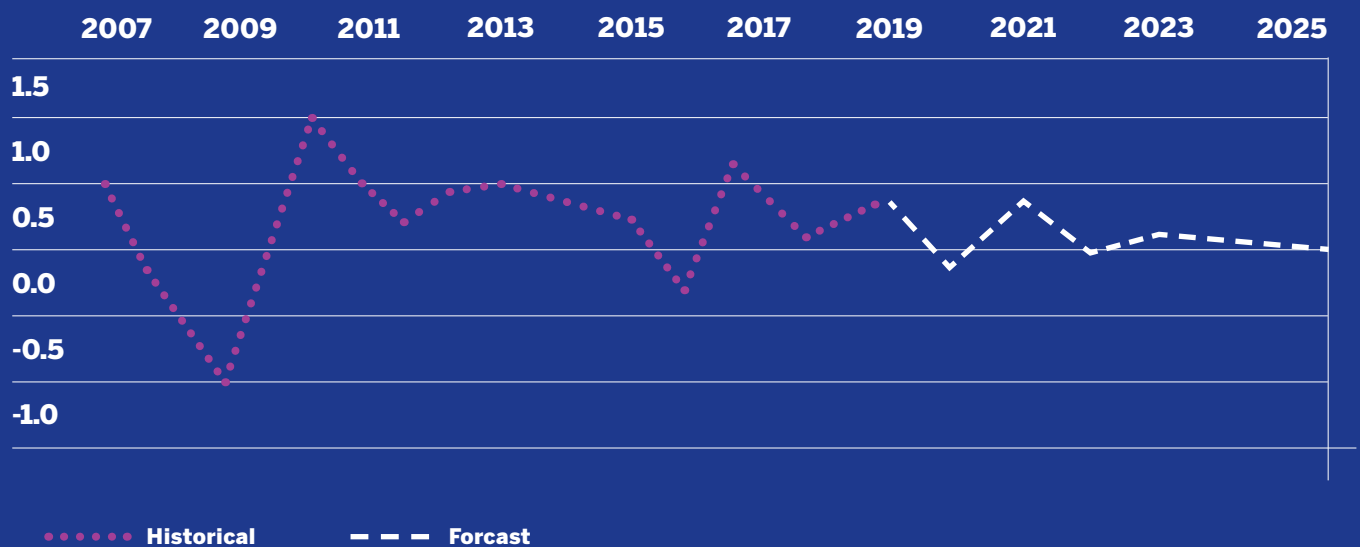
It does not take any sophisticated analysis to know that demand for oil and gas fell sharply as a result of the pandemic. Aeroplanes and cruise liners are laid up. Jet fuel demand in Europe was down to about 40% of normal during the summer. The hospitality industry, hotels and restaurants denuded of customers. All this reduced activity, results in reduced oil and gas demand. The figures below set out the IEA's latest data and forecast.



## Gasoline Demand Growth by Country (Y-O-Y)



## Middle Distillates Demand Growth



## Refineries Were Hit Hardest

Oil producers managed this drop in demand deftly by cutting back, keeping supply and demand roughly in balance, with a helping hand from the tanker industry hiring tankers out as floating storage. Since then, demand in the East has picked up very quickly, but the West is still suffering.

The major impact of the demand drop was felt by the refining complex. Refineries were hit by two major effects, the reduction in the demand and the change to 0.5% sulphur fuel oil for the bunker market. This resulted in refinery net backs for complex refineries, particularly those without chemical plants attached, falling dramatically, whilst net backs for simpler hydro-skimming refineries stayed stable, albeit not profit-making. Therefore, those simpler refineries that had been operating on a shoestring for some years started to get shut down.

This is another example of COVID-19 acting as an accelerator, it was a long time coming, and given the new refineries in the Middle East, India and China being built with much larger capacities and more complexity, the smaller refineries, some over 60 years old, would and should inevitably close.

The chart below shows the demand on the refining system and the new capacity coming on stream as well as the closures. It does not look as though refining margins are going to improve anytime soon.

### Changes in Oil Demand, Refined Products and Refinery Capacity



## Storage implications

Storage has also been impacted. In the last decade we've seen a spate of storage company purchases by infrastructure funds. Some of the price tags made oilmen's eyes water.

However, the pandemic showed that storage rates can go down as well as up, undermining the investment. With the closure of refineries, there was naturally an incentive to turn them into import terminals, thus creating more competition for the traditional warehouse.

In the recent past we have seen some of the nimbler funds sell out but nonetheless it has become clear that storage installations are not the cash cow that was expected by the buyers.

So, what is the future for storage companies as we look forward to a world driven by the push for sustainable green fuels? The obvious answer is biofuels, particularly of the liquid sort, as compared to biomass. But this stream of fuels is likely to be limited in its volume substitution for fossil fuels, since agricultural and crop based biofuels need land to be produced, land that is getting increasingly competitive as the global population grows. The availability of used cooking oil as an alternative feedstock for biofuels production is therefore limited.

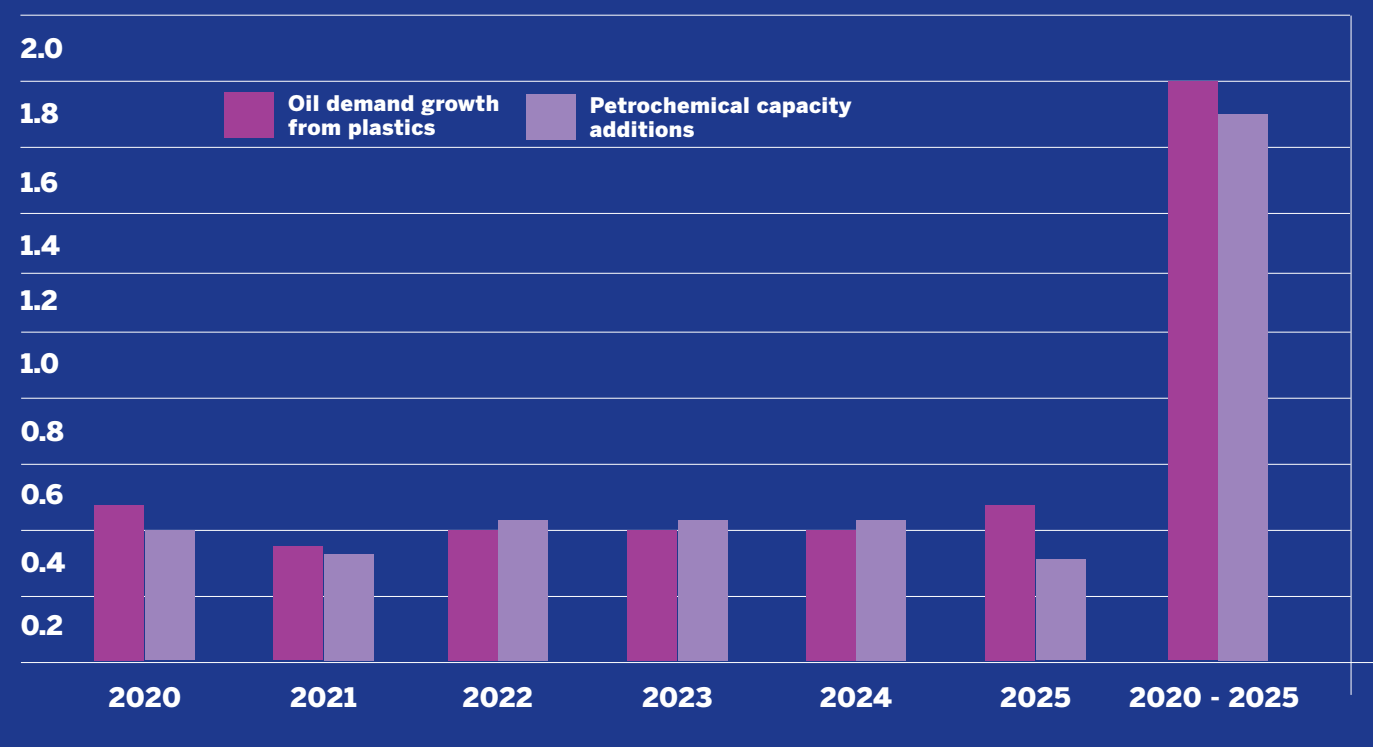
Biofuels are likely to only be an interim fuel. The next generation of vehicles is forecast to be electric and the death knell of the internal combustion engine has already been sounded. If wind or solar power is to be the main driver of power in the future, then a competitively priced storage system for this intermittent power must be found. Here the storage industry should start to look at how it can influence as well as compete for storing power. This can be in the form of liquid hydrogen and air, ammonia or methanol.

## Where next?

There is never certainty in forecasting and things could still change, but it is relatively safe to say the political pressure is on for companies to be conscious of their commitment to climate change. They will inevitably need to reduce their emission of GHGs. After COP 26 in 2021, there will be a strong push to increase the penalty for emissions. This will bring with it a push for carbon capture, utilisation and storage (CCUS).

It is also relatively safe to say that we will continue to see demand for naphtha maintaining an upward trend in the medium term, together with demand for ethane and propane. Even if we do eliminate single-use plastics, there can be no doubt that the expanding world population will continue to demand plastics. Interestingly this is exactly what we were saying in our now binned forecasts from before the pandemic struck.

## Oil Demand Growth From the Plastics Sector, Petrochemical Capacity





### **Spring, a Time for Plants to Grow Once More**

So, in conclusion, things haven't really changed, or rather they have changed, but exactly as we expected them to. The real impact of COVID-19 has been that these changes occurred faster than we expected them to.

Once the pruning effect wears off and we get vaccinated, we will bounce back stronger and better and we will all see clearly which industries have survived and which have died. Let us attend the funeral and then go home and think of how we can strengthen the living.



# **Oil & Gas During COVID-19 - a Shift in Priorities After Covid - New Ambitions.**

Nadine Herrwerth, Managing Director, TWTG, explores the shifting priorities in oil & gas as a result of the pandemic...

Since the global pandemic was declared, optimism within the oil & gas industry has made way to a more subdued mood. The oil price outlook for 2021, although somewhat recovered from 2020, is 15% below the 2019 average price. Fortunately, tank terminals have benefited from this situation in certain aspects and hopefully will continue to do so.

However, for the broader oil & gas industry, the impact has been more severe, and this is beginning to have implications for tank storage.

In the previous few years, the energy transition had been the key driver for change. Although this transition remains the defining vision for the future of the industry, there has been a shift in priorities and profound changes in behaviour. We now have increasing demands for greater efficiency and increased automation as a strategy to reduce costs. New technological innovations have made previously difficult to attain levels of automation more realistic and affordable.

The combination of the pandemic and low oil prices has led to mass restructuring and, unfortunately, lay-offs, which means having to do the same jobs with fewer people. When we look around the industry, cuts in the workforce of 10% or more are not uncommon.

Put simply, for oil and gas organisations; this is the beginning of a race for the survival of the fittest. Only those that transition effectively and manage to keep pace in the current climate will emerge as leaner, efficient, technologically savvy corporations, better prepared to guide us into a new era of energy generation.

In an ever-increasing technological society, with a global desire to see companies take real responsibility and

begin to produce energy that is politically acceptable, many stakeholders throughout the supply chain will need to adapt and modernise their operations.

At TWTG, we believe that this change is already underway, and while many tank storage companies have begun evolving methodology and systems, many still have some way to go. The conclusion is that when the pandemic subsides and the oil and gas corporations re-prioritise their strategies, this will gradually affect the tank storage sectors in a variety of ways.

As part of a bigger supply chain, tank storage companies will be obligated to be part of the globally orchestrated, industry-wide greener vision for the future and ensure their environmental footprint is on par with their customers'.

In the near future, tank storage companies will need to view themselves as only part of a more extensive data solution and have the ability to feed data to their customers when required.

As part of this evolution, and to be leaner and more efficient, tank storage companies will need to digitalise much of their operation. Companies will need to learn how to make sense of this data and understand how to utilise it to their best advantage, making it a differentiator towards their customer set, due to added value in terms of insight, certainty, and safety.

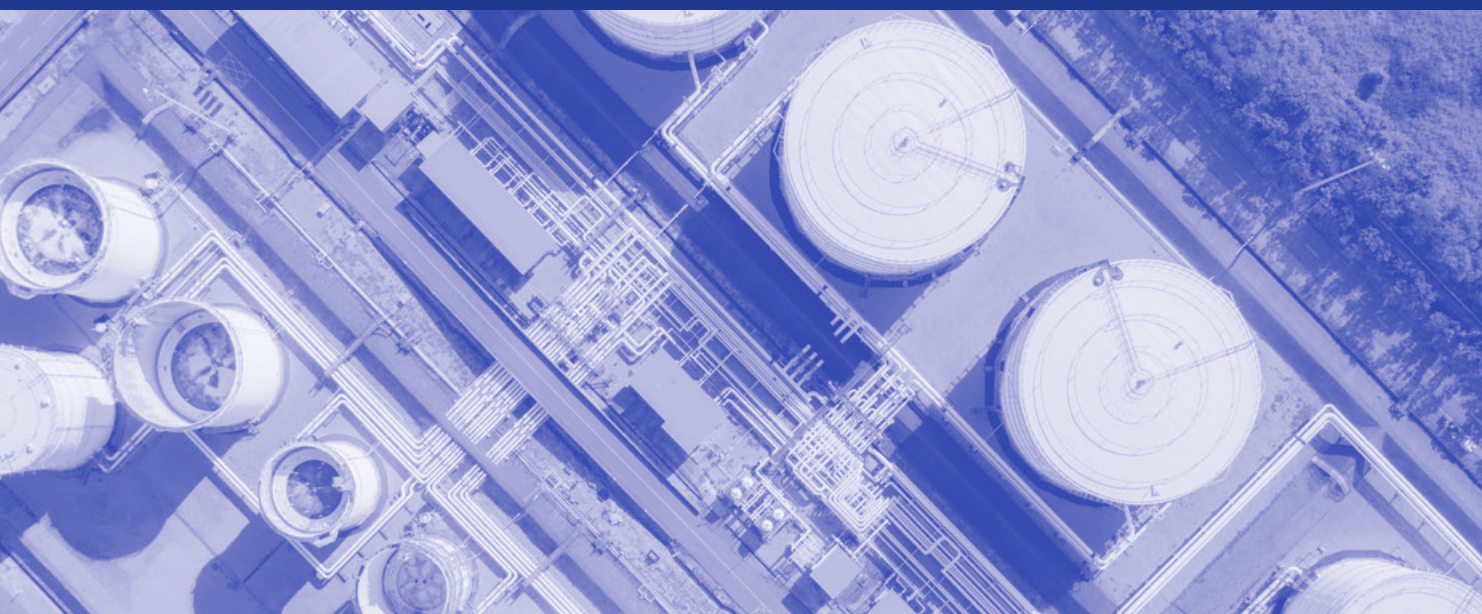
Tank storage companies will have to explore the possibility of employing automated solutions within their operation.

Simple trickle-down economics will mean that tank storage companies will need to be more competitive. Companies will need to be leaner, more efficient and pass the financial benefits on to their customers.

So, whether its first steps in exploring the concept of digitalising a facility or an expansion to existing capabilities, TWTG are perfectly placed to help companies achieve much of this transformation.

Not only can we help with the basics like planning and installing new or additional LoRaWAN networks, digitising existing assets and infrastructure, but we are also there to help our customers with more complex problems, such as automation and exploring ways to access and monetise their data.

Creating digital solutions is what TWTG is about.



# Real Estate Disruptors E&V Houston Enter Oil & Gas.

US real estate firm Engel & Völkers of Houston (E&V Houston) has expanded into the global industrial real estate market, including the vast oil and gas industrial market.

E&V Houston says that no matter the size of the company, its team of strategic consultants will offer flexibility and commitment. The E&V Houston development team is able to assist existing business project development personnel in larger firms such as major terminal providers, or fill the role of a business development team for smaller independent companies which do not already have that facility. The initial consultation is free of charge and can be confidential.

Brooks Ballard, the real estate firm's broker, is excited about the opportunity. Brooks Ballard leads an award-winning team of consultants in luxury homes, global relocation services, commercial and residential real estate, and new construction, built on relationships and an understanding of clients' needs.

Timothy 'TC' Curl is taking charge of E&V Houston's industrial real estate market. Curl and the team bring a vast array of technical knowledge and experience to a market table believed by E&V Houston to be grossly under served by the current commercial real estate market providers.

A graduate of Houston's Jones College of Real Estate in 1983, Curl received his first real estate licence doing sales and marketing of multi-family housing projects in Houston, along with site location, acquisition, and development of retail and fast-food sites. Curl has also served as the president and CEO of Global Environmental & Marine Services, CEO of Nature Group's US division, CEO of RedFish Barge & Fleeting, and CEO of Global Energy Recovery Systems.

The E&V Houston team of consultants will focus on developing world-class industrial projects for clients. The highly qualified technical consultants can provide a turn-key international development solution to its global customer and client base. No matter what the needs are, E&V Houston is well suited to accommodate them.

E&V's diverse team of consultants and strategic alliances is comprised of three different market disciplines. Firstly, the process of real estate site locating, vetting, and evaluation. E&V Houston's personnel will have access to a database of advisors tuned into an extensive global market, enabling them to best serve terminal and industrial operators.

Secondly, E&V Houston has formed an integral strategic relationship with the highly experienced consulting group of Global Energy Recovery Systems (GERS). GERS is a logistics, environmental systems and permitting consulting group; always an important part of the due diligence process pertaining to any industrial project regardless of the project location. The GERS team can evaluate locations based on the access to the global market via air, deep water seaport, rail, road/highway systems, and inter-coastal waterway connections. The other area of development expertise offered through GERS is their ability to provide environment concerns and permitting advice.

Finally, E&V Houston has a relationship with Corpus Christi-based JM Davidson Industrial Solutions Group (JMD), a second-generation marine construction, industrial components, and industrial terminal design and construction company. JMD can assist the potential project developer with possible design ideas or pitfalls. They can provide the preliminary budget and financial projections needed to evaluate the potential success of the overall project value to the developer, as well as being open to bid as a qualified general contractor, or high-level sub-contractor.

*Reprinted from Tank Storage Magazine, 3 March 2021.*

# The Case for Automation Transformation in a Post-Covid-19 Age.

Manuel Arroyo, Director of Oil and Gas Industry Programmes, Emerson Automation Solutions, discusses how terminal operations can leverage process automation technology as a business strategy to good effect in 2021, increasing capacity, enhancing safety, and improving profitability.

## The Market

While COVID-19 threatened to seriously damage the global liquid storage terminal market, the fact is that today, markets are stabilising. The market is still growing and it's projected to be worth around \$37 billion by 2027. Storage capacity is expected to grow by eight percent from 8.3 billion barrels in 2020 to 8.97 billion barrels by 2024. So, how can terminal operators make the most of these positive forecasts and achieve operational excellence in a post-COVID-19 world?

## Safety, Efficiency and Performance

With the increased size and complexity of today's storage terminals, mitigating risks for employees, assets and facilities is quickly becoming a major focus among terminal operators, especially as incidents can affect the overall supply chain. While terminals are already beset by extensive safety regulatory requirements, the rapid industry growth has forced operators to attempt to remain compliant without necessarily increasing personnel. The handling and storage of hazardous liquids has always been inherently risky, and with the industry continuing to grow, it's essential that today's terminals are safe as well as operationally efficient.

This requires a reversal of the traditional industry mindset of maintaining the status quo, which has fostered a sceptical approach to automation and digitalisation where risk-averse companies sometimes believe new technologies are too difficult to adopt or are not practical for day-to-day operations.

This attitude leaves many terminal operators stuck in a cycle of using outdated, unreliable, and inefficient systems to perform some of their most important work. This can cost such operators millions in unrealised revenue as well as millions in regulatory compliance fines – of course, this only puts them further behind the more forward-thinking competition; not only in terms of profit margins, but also operational efficiency and workplace safety.



## Digital Technologies

So, let's take a look at the four main areas where digital technologies can help terminal operators achieve operational excellence:

- **Safety** – remove workers from high-risk activities like climbing tanks for manual readings, avoid the potential for product contamination and the loss of primary containment.
- **Capacity** – eliminate time-consuming manual processes that harm asset capacity, inventory turnover, custody losses, terminal throughput, and revenue capture.
- **Reliability** – employ technology to gain predictable capacity available data, lower maintenance costs, and reduce risks due to equipment failure events.
- **Energy** – use technology to become more sustainable by lowering energy usage, reducing emission levels, and reducing overall energy costs.

## A Path to Digital Transformation

Certainly, there are best practices that terminal operators should follow when implementing a digital strategy in order to maximise a return on investment. The best performing terminals are those with a cross-functional integration of digital technologies, software, service, and expertise that optimise asset utilisation while maximising revenue.

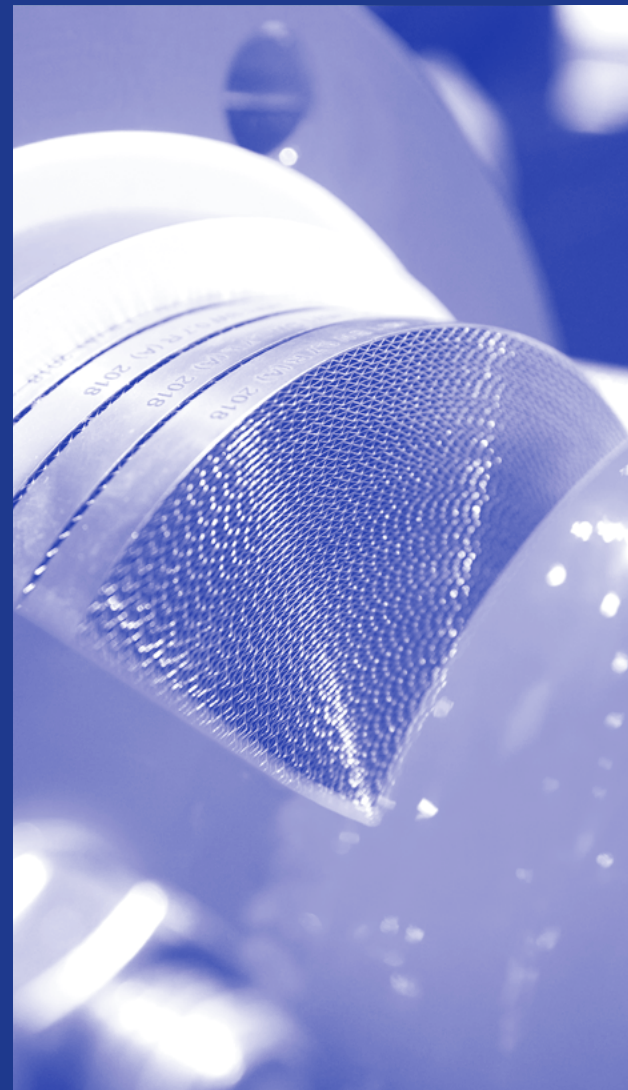
A successful path to digital transformation starts with a clear business case in an area with potential for improvement. Then, terminals should leverage industry and technology experts to identify proven methodologies of improvement. Finally, decision-makers should ensure that their investment considers organisational readiness and its connectivity to company culture.

In response to the industry's demand for clear guidance on facilitating digital transformation, Emerson developed its Digital Transformation Roadmap. It is intended to help companies develop and execute a tailored digital transformation plan to ultimately enable top-quartile performance driven by operational excellence.

Any roadmap should consist of two primary focus areas – impact domains and enabling domains. Impact domains cover capabilities and performance relative to industry benchmarks. Enabling domains focus on capabilities in organisational effectiveness, systems, and data integration. This approach provides terminal operators with a clear starting point to realise quick wins and maximise ROI.

## A Conclusion

While the cost and complexity that comes with implementing an automation and digitalisation strategy can be daunting, such concerns are usually allayed when you consider the cost of not getting with the times and not using digital technologies. In a post-COVID-19 world, it is going to be the terminal operators that embrace the times that demonstrate best industry performance.





# Q&A with Terra Inspectioneering.

## How did Terra get Started with Drones?

After working for big companies in the process industry for more than 40 years, I started my own company in 2012, because I had a vision that in the new era of inspections in dangerous confined spaces, we should replace the people with robotics.

It's very, very difficult to make changes in the process industry and initially take-up was low. Acceptance was hindered by legislation. Which is far behind what you can actually do with drones. In 2016 I came together with two other companies and we founded a company called RoNik Inspectioneering. We had three sets of expertise. One company specialised in inspections compliance with the rules and regulations for the process industry. One company was a start-up company developing drone hardware and software for the process industry, because normal commercial drones are not suitable. And then there was myself. After many years I know all the big customers in the industry and I had my network. By bringing those three elements together we could give our customers in the process industry a total service package. From that time, we were already very specialised in confined spaces. We started our own research and development department developing hardware and software with one theme – to develop full inspection procedures in the process industry.

In 2019 we were approached by Terra Drone, a worldwide drone inspection company headquartered in Tokyo in Japan. They already had their own drone inspection companies in about 30 countries, but they were all related to outside inspections, for example for flare stacks and infrastructure like bridges and power lines. None of those companies had anything on confined spaces, so Terra took a stake in the company and from that moment our technology, that we developed here in the Netherlands, has been deployed over all of those existing 30 countries.

There has been a lot of reluctance when it comes to drones, but in 2018 the CEO of Dow, Jim Fitterling, announced that by 2025 there will be no more people in confined spaces in Dow. Everybody had been avoiding drone technology because they thought it was risky but then Dow made it a directive. Shell followed and BP followed, and others, under the new wave of acceptance.

## What are the Main Advantages of Using Robotics and Drones for Confined Spaces?

A key driver for using drones is safety, because you don't want to have people in these dangerous environments. 80% of the accidents that happened in the process industries are either working in a confined space, or working at height. If you have a very high storage tank of about 30 metres you are in a confined space and you have to work at height. We can eliminate this.

The second thing that is very important is the time reduction on the inspection cycles. If you have a tank of about 60 metres in diameter, normally you have to bring everything in piece by piece through the manhole to build the scaffolding, and then have everybody working on the inspection. One example is a customer in the Netherlands who would once inspect their big tanks by means of rope access. That would take three weeks with five people to do the complete inspection internally. Of course, they had all the issues of five people being continually in the confined space so it was the highest risk, and the work permit process was very complicated with trying to guarantee the safety of all those people.

By doing this with drones, inspections now take just three days with only a maximum of four people. This kind of huge difference is feasible right now.

Also, because the inspection time is much less, the uptime of your asset or your tank is much higher. Another example is a big terminal that was in discussions with the authorities about the status of the tank, the predicted lifetime and suitable inspection intervals. We introduced a fully detailed plan and digital inspection method. The authorities were astonished. There is so much data available using this method compared to the data that is usually taken manually. Also, because this data is taken automatically, the quantity is much better and it's repeatable. Normally when an inspector goes in a tank, he has a piece of paper and writes down the values. He may take photographs but that's it. Perhaps when he comes back in the office, the original value was 6.3 but he can't read it so he enters 6.8 into the Excel sheet. Secondly, maybe he can't remember quite where he was in the tank when he took a particular picture. The drone takes thousands of measurements, so the data is much better. By proving this to the authorities we were able to reschedule the inspection interval from 10 years to 17 years.

### **What Changes do you Think we can Expect in Drone Technology?**

Our approach is to focus on digitalising the inspection process, particularly the report for the customer that's given to the authorities to prove compliance with legislation, and also the safety report. These reports are much more reliable using digital technology. The first step is improving the data capturing. The interest is not so much with what drones we're flying.

When a drone enters a tank, it is effectively flying in a Faraday cage, with no compass or GPS. At this moment, when we do non-man entry, we still have to rely on pilots and a lot of the quality is determined by their capability. We are working now to fully automate these drones so they can fly on their own. We are building a network right now that will allow an operator to go to a screen, give it the code, put the drone inside the tank and then it flies on its own exactly where you have determined that it needs to fly. The inspector doesn't have to be in the field, you only need one operator to make sure that everything is going okay with the drone. The inspector can still say behind the screen and see the real data streaming from the drone. This is a new shift in the whole inspection methodology. We've started that already but it's still in development.

### **Is There Anything Else You Think People Should Know About Terra or Drones?**

There is a lot of resistance to drones, because the culture of the process industries is so conservative, so we have to fight against this. One of the hurdles is that people automatically think that the drones are dangerous. On the other hand they consider it safe to have people working up scaffolding on ropes at 30 metres in a confined space because they've known this and been used to it for 20 years. When you take a realistic view of this, it's complete craziness to send people into a dangerous environment, just because you're used to it.

A new maintenance trend that a lot of companies are implementing is risk-based inspection, (RBI). This can give very good results, and also one of the things it predicts, amongst others, is the lifetime of your asset using using a model. If you don't have the data these RBI systems are unreliable, or they predict values with a much broader spread, for example an asset life of 12 and 16 years, but which is it? You need the right data and the right quality of data. Drones can give 1,000 times more data than manual means. If you feed this into an RBI system you can do a very precise prediction as to what your lifetime will be, instead of giving a spread of four years. The next step will be to bring the value-adds of this kind of calculation. The people who take RBI seriously should realise that they need quality data, and that drone technology is the best alternative.

Marien van den Hoek, Commercial Director, Terra Inspectioneering

# How RBI Inspections can Reduce Overall Compliance Risks & Costs.

Electrical equipment in hazardous area inspection campaigns often begin with a clean slate, with little or no historical design, equipment certification and inspection information available to the inspection personnel. Inspectors head out into the field with little more than an equipment list and inspect the installation 'as they see it.'

Unsurprisingly, this approach generates large numbers of unnecessary defects and follow up actions during inspections. For example, where certificates, declarations, specific conditions for safe use, justifications for use or intrinsically safe circuit descriptive system documents are not available to the inspector, defects or follow-up actions are usually recorded.

Alternatively, the inspector may leave the checks on hold until this information can be located and confirmed. Lack of in-field access to compliance documentation thus results in inefficient, ineffective inspections, where actual defects risk being lost amongst the flood of spurious items raised due to uncertainty and poor information availability. Often the same spurious items are raised repeatedly in subsequent campaigns, for the same reasons.

Certified tablets combined with Ex inspection and dossier management platforms such as Ex-Online have provided a step change opportunity to improve the effectiveness of inspection campaigns and verification dossier management. Such systems can provide in-field access to engineering and compliance data, allowing faster inspections with higher quality, more consistent data capture, automation of reporting, and much lower levels of follow up activity. This not only translates into immediate cost savings but can also provide a platform for implementation of Risk Based Inspection (RBI) methodologies to unlock further efficiencies.

Rhys Davies, General Manager, Ex-Online, QGE Australia.

*Reprinted from Tank Storage Magazine, 3 March 2021*

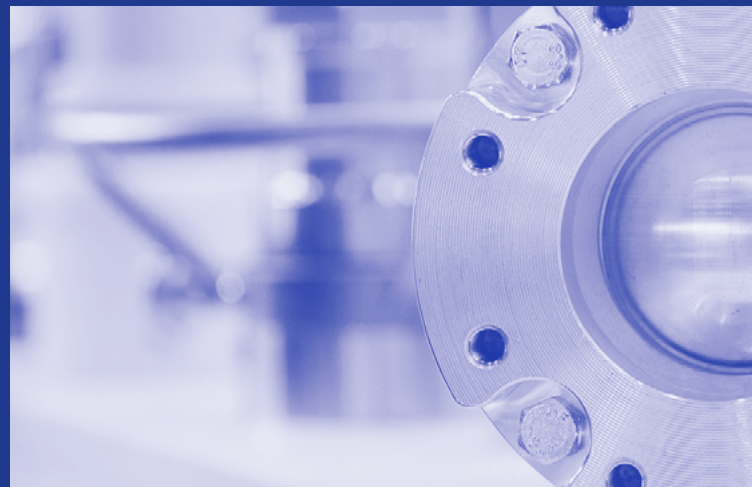


# Emerson to Launch New Mobile Inventory Management System.

For tank farm operators, inventory data is critical to run efficiently. All the way from accepting orders, receiving shipments and filling and emptying tanks to closing books at the end of each month. Inventory status is what underpins operations and business decisions. Modern inventory management software enables more people to access information they need by providing live data at any time, and any place.

Emerson's Rosemount TankMaster Mobile inventory management software is a web-based app optimised to work seamlessly across smartphones, tablets, and computers. It is easy to use and provides instant inventory overview as well as quick access to tank details. Gone are the days of siloed information that would not reach outside of the tank farm control room. Instead, shared inventory insight provides the opportunity to increase efficiency, drive productivity and improve communication throughout the supply chain.

*Reprinted from Tank Storage Magazine, 10 Feb 2021*



# Implementing Digitalisation for Covid Recovery.

Joe Nassif, President, Noon Advisory Group, explores how terminals can implement digitalisation to help them tackle COVID-19 if they haven't already...

The COVID-19 pandemic has had an impact on all areas of business operations and overall performance.

In the oil and chemical storage industry, global lockdowns have forced site and corporate management to rethink their strategy, particularly for functional areas such as environmental, health and safety management, labour deployment; and the use of automation systems in support of these new strategies.

Naturally, environmental, health and safety has expanded across the board with a greater focus on industrial hygiene related to infection prevention. Digitalisation has had to play a key role in constructing and managing workspace strategies and rules for operators, managing testing and contract tracing, all to ensure healthy workers and work environment.

But digitalisation can go further and help with manpower planning. Even with all the precautionary measures taken, there will inevitably be positive tests amongst staff, leading to time off and quarantining for a period of two weeks or more.

In cases where the affected employee is out for extended periods of time, due to illness complications or worse, the workforce at the site experience reduced manpower availability, driving up overtime hours and costs for the terminal company. Of course, hiring and training new operators takes time and money; making the complete availability of replacement manpower unrealistic, at least in the short-term.

To tackle this issue, terminal owners/operators can seize the opportunity to optimise labour through the development and adoption of digitalisation strategies that aim to reduce the strain in both routine and emergency work, while increasing the level of operator training and upskilling.

Why training and upskilling? Well, the greater the level of training for operating and technical employees, the lower the level of reliance on a subset of knowledgeable manpower to effectively and safely operate and respond to unplanned events.

For routine work, terminal operators should develop a list of work activities that consume a greater amount of labour than others; for example, tank gauging and other related tank top activities that require time to climb up/down tanks to perform.

Once you identify these areas, explore the technologies that could eliminate the labour involved. A suitable technology for tank top activities would be the adoption of custody transfer type gauging systems that eliminate the need for a good portion of labour that would be needed for physical gauging. Or, for oil products, you could just adopt devices that automatically readout the interface level between water accumulated in tank bottoms and the oil products sitting on top of it. You can then use the newfound labour hours to offset any higher demand for any lost labour hours as a result of COVID-19 positive testing and/or quarantining, or processes where such automation is not possible.



For emergency work, it's a simple process of identifying and ranking what unplanned events could occur in the future that will place a huge amount of demand on labour resources, e.g., accidental releases to the air as a result of internal vapour build up inside the storage tank, or the unintended release of liquid or gaseous products to the environment as a result of pipe corrosion. Then develop a digitalisation strategy designed to anticipate and prevent them.

The key to such digitalisation technology is to use actual real time field data read from installed devices that would signal the eventual occurrence of unplanned releases and similar unplanned events. Such a digitalisation strategy would include field devices to read internal tank pressures and transmit them to the control room on a real-time basis, giving operators plenty of time to respond to any anomalies before they become more serious events requiring manpower response at all levels in the organisation.

Accounting for such risks will have the effect of mitigating the surprise events and their significant demand on labour and operating and technical staff, and reduce the need to rely on and cost for the use of third-party contractors to respond to them.

Even before the pandemic, successful digitalisation strategies needed to be dedicated to increasing the wellness of plant personnel, protecting the environment, upskilling the level of training for operations, maintenance and engineering teams, reducing capital asset and resource use, increasing productivity in terms of both labour and capital and increasing the level of services offered to customers.

It's easy to see why adopting a digitalisation strategy of this nature is a great way to streamline operations and help deal with the strain caused by COVID-19. But the bigger benefit is it will also make your operations more robust into the future.

I've often said, as an industry we should be grateful that the pandemic did not occur ten or twenty years ago when field signal technologies, Internet of Things (IoT) enabled devices and other solutions were unavailable.

# A Better Way to Handle Data.

Sam Reid, CEO of Dearman Systems, explains why multi-terminal data unification should be a part of your digital transformation strategy.

Founded in 1988, Dearman Systems is a global leader in terminal automation and enterprise management software for the bulk liquid storage industry. From its offices in Tucson, Arizona and Houston, Texas in the US, Dearman serves nearly 200 customers worldwide.

## **Terminal Automation Systems and a Data-Focussed Product Strategy**

Dearman's software handles a wide variety of terminal types including bulk petroleum, chemical, renewable fuels, aviation, liquified natural gas (LNG) and liquified petroleum gas (LPG) terminals. The company offers two implementations of its terminal automation software depending on the size and scope of the operation: RTG (Ready-To-Go Terminal Automation) for small/medium sized sites and TAS.net for larger sites.

Both offerings are flexible and open to integration with other siloed systems and hardware, including meter skids, weight scales, tank gauging systems, and secure access control systems. Dearman's highly qualified technical sales staff helps customers choose the ideal system for their terminal, based on the number of devices that need to be integrated.

Through its Terminal Graphics Builder module, Dearman enables customers to take complete control of their terminal's process management functions and monitor product movement in real time. Users can see terminal overview graphics, specific loading or unloading bay activity, and current product storage location information.

Knowing that terminal configurations and their level of existing automation can widely vary, Dearman is committed to offering adaptable terminal automation systems that do not impose any hardware requirements. Dearman has pre-built connectors to more than 25 popular field devices and has built its core software with a modular design so it can be efficiently customised and tailored to customer needs. Once field devices are integrated, Dearman's software ensures secure access to the terminal, accurate product movement and measurement, and the appropriate documentation and reporting is available for all entities involved in the transaction.

Additionally, dedicated, hands-on support is a critical component of the Dearman customer experience. The company employs a well-trained customer support staff and offers 24/7 support to ensure operations go uninterrupted allowing product and its related data to keep flowing.

### **Multi-Terminal Data Unification**

Aside from helping customers automate processes such as load authorisation, product movement (via multiple transportation methods), product measurement, documentation, and reporting at the individual terminal level, Dearman also enables its customers to continuously push their terminal data to a centralised location.

Dearman's UNITY product is a complete multi-terminal data unification platform that enables companies to share data between a central office and any number of terminals. UNITY can accept data feeds from a wide variety of open systems and protocols.

UNITY securely unifies data into a central hub and provides a reliable backup of on-site servers running RTG and TAS.net terminal automation systems. Dearman's philosophy is that it is generally beneficial to run terminal automation systems on-site, near the origination point of field device data, to ensure all communications are captured and utilised by the terminal automation process control. This distributes edge compute resources to each terminal and ensures operations are not interrupted by an internet outage. At the same time, all terminal data is passed to UNITY and UNITY has write access to individual terminals that are connected to the system.

### **A Centralised Data Source Means More Powerful Business Applications**

UNITY knocks down data silos between terminals and serves as a platform for running business applications that draw on near real-time data from all your terminals. Instead of having to manually share data with the corporate office, data is automatically passed to a central system which saves time and improves accuracy. UNITY can effectively eliminate the tedious task of sharing stale spreadsheets from siloed data sources.

Accounting and reporting: Accounting and reporting is primarily an accountant interface that provides access to, and reporting functions from, the UNITY database transactions records.

Contracts and pricing: The contracts and pricing component of UNITY allows for the management of complex and diverse contracts and pricing mechanisms including buy side, sell side, throughput, fee based, hourly based, and non-monetary price items. It establishes contract governance policies in accordance with an organisation's established business rules ensuring consistency, accountability, and improved visibility to authorised personnel.

Invoicing: The invoicing component of UNITY allows users to generate invoices for monetary and time value of products and services. Invoicing can take place automatically or can be presented to managers for final approval before billing action occurs.

**Inventory management:** Inventory management is a fully functional dual entry system that provides a full audit trail for complex bulk liquids distribution inventory and reporting requirements. Immediately know which position holders have what products across all terminals.

**Scheduling and customer orders:** Batch, block, and single orders for any type of transport provide your customers with the ability to pre-determine the shipment or transfer of products. Simple authorisation workflows, self-service scheduling, and real time status listings improve transparency in the supply chain and reduce the need for manual communication.

**Enterprise reporting:** Dearman has recently built a simplified data structure for accessing all your terminal data in the business intelligence solution of your choice.

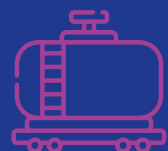
## Transport Methods



Truck



Barge/Vessel



Rail



Scheduling and customer orders app view

## Order by order, real-time status listing

### Why UNIFY?

Aggregating terminal data into a single system might sound like an excellent digital transformation move, but is there a catch? What are the actual business benefits for setting up a centralised platform?

Central data source to draw on: Whether you use Dearman-built business applications or third party applications, you have a single database to pull from.

**Data resiliency:** If a server goes down at a terminal, you can fire up a new server and restore the data from the central system.

**Powerful insights:** When you can slice and dice all your operational data in one place, you can unlock insights. At the very least, business reporting will be much less time consuming.

**Security:** Dearman has deep expertise in securely transmitting and storing aggregated field device data. UNITY's architecture makes it a safe place to keep all your data.

After considering the benefits of multiterminal unification, it is clear that bulk liquid storage companies can enhance their operations by having all data in one place. Ultimately, companies that make multiterminal data unification a key part of their digital transformation strategy will have a leg up in the years and decades to come.

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# Embracing the Digital Future of Tank Terminals With the Newest Cloud Services.

The disruptive nature of today's downstream industry presents oil and gas companies with big challenges: market volatility, oil price fluctuation, value chain fragmentation and energy transition. To stay ahead of the curve in this hard-to-predict environment, oil and gas companies must constantly turn the knobs, e.g. by adapting business models in a highly flexible manner, automating work steps, minimising operational costs and increasing customer experiences.

Implico sees cloud-based micro services as a key means for oil and gas companies to achieve this. These smart, digitised auxiliaries are lean, flexible and readily available. They neither require a huge investment nor a long implementation upfront. They build upon shared best practices and common industry standards. They are designed to make an immediate yet lasting impact. And they are part of a broad, open framework called the Supply Chain United.

*Thomas Fahland, Head of Product Management, Implico*



# Cea Systems Helps Terminals Manage Asset Data Remotely During COVID-19 Isolation.

Netherlands-based CEA Systems offers a software solution with a data-centric approach for asset data management.

Last year the pandemic struck and the tank storage industry, like many others, succumbed to social distancing. Even though physical assets are the most important items, supporting data grew in importance with global lockdowns. Conducting field checks to prepare for maintenance, inspection or engineering work would take hours taking social distancing into consideration.

CEA Systems' Plant4D software makes it unnecessary to go outside. It digitises assets in such a way that users have point cloud scans, 3D-models, P&IDs and flat data from any secure environment at home.

This makes the need for physical field checks unnecessary and saves users a lot of time. Having the correct specifications in a system is of great importance. Organisations often store asset data in various places in their offices and in different software systems resulting in departmental silos. Research and customer interviews showed that collecting simple as-built data is the most time-consuming and frustrating thing.

With Plant4D this is a thing of the past. You enter everything into the software once, and that is the place where you make all your updates, wherever you are. From now on you can get a clear insight into your asset data at any time, from any location, trusting that this information is 100% up-to-date, validated and complete. Whether this is related to Piping & Processes or Instrumentation & Electricity, Plant4D provides an overview.

*Reprinted from Tank Storage Magazine, 2 March 2021*



# Conclusion.

COVID has not completely devastated the global tank storage sector, it has just accelerated the trends that were already underway.

Companies that were already failing before the pandemic are, unfortunately, failing faster, if they haven't gone completely bust already. But forward-looking companies are innovating faster too.

As we progress through 2021 and vaccinations bring a glimmer of hope and optimism, we must not expect the shockwaves of a year of almost complete shutdown to just peter out without a trace. The economic impact will be felt for a long time to come.

But the overwhelming consensus among experts in the industry is that we will bounce back. The industry will march on, with more investment in oil and gas, more automation and digitalisation than ever before, and a more efficient way of working and better health and safety because of it.

Let's hope that post-COVID-19 recovery is as swift as it can be, and let's come together in the meantime to share ideas, innovations, views and news to make that happen!

**Rikki Bhachu, Head of Marketing, StocExpo**