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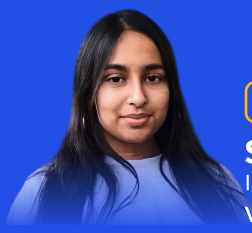

Speaker

Sayanh Alam
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Speaker

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Speaker

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Group CIO & Head Information system, Haldia Petrochemicals Ltd & MCPI

Control of Work in The age of AI

Webinar Transcript

Pankaj Pawan

Hi everyone.

Thank you for joining.

We are here to talk about something all of us really know.

Control of work systems have kept pace with how plants operate as of today and with how the demographics have changed.

And because of that gap, many leaders still struggle to decide how to go about choosing a platform.

For years, legacy controller work systems did an important job.

They solved the compliance problem.

But they also created a new friction, slow workflows, heavy interfaces, long implementation cycles, and poor adoption on the field.

The good news is

This probably is the best time in the decade to deploy and modernize control of work systems, with cloud-native systems available, UX-first engineering, and the emphasis on user adoption and AI that really understands industrial context, the way work should actually flow in asset-intensive industries.

Pankaj Pawan

I'm Pankaj, and my own background in AI and building mission-critical systems

And the one thing that has always stood out, that for the hardest and the highest risk jobs in the world, we as technology didn't do justice for the people who are doing this.

In my early experiences working with industrial teams, I was struck by how much the last mile person has to decide with isolations, permits, SIMOPS , hazards, and yet the tools that they were empowered with were not really

smart.

And we built years building the systems that solved compliance on paper, but didn't do much.

And people used to think them as burden.

And today, organizations are struggling with the mission, like missing data on the field that these systems have failed to digitalize and capture the context along with it.

And with the advent of agentic AI, we are happy to share how we can approach this problem.

And together, we are fortunate today to have two of imminent voices,
Mr. Sumit Duttagupta,

who is the group CIO and head of information systems at Haldia Petrochemicals and MCPI, and Sayanh who is the industry analyst at Verdantix, tracking how control of work systems is evolving in the entire ecosystem.

Over the next hour, we'll explore how control of work system, what control of work systems are,

how are they evolving, and how an AI-enabled approach can help deliver the promise of control of work, which it always had, making work safer and more predictable for everyone in the organization.

And with that, let's get started.

I would like to invite Sayanh to present how they look at Verdantix.

They're looking at the control of work evolution and what the leaders are struggling in terms of their challenges.

Sayanh, over to you.

Sayanh Alam

Great.

Thank you for the introduction Pankaj

So hello everyone.

I'm Sayanh.

I'm an industry analyst working at Verdantix and I've been looking at control work solutions for the past two years at least, but we have control work research spanning back the last 10 years.

And I'm really looking forward to contributing to this webinar with some of the recent insights and research that we have done at Verdantix around control work and how AI is shaping the market.

Next slides.

Before we dive in, just wanted to give you a bit of background on Verdantix and what we do.

Verdantix is an independent research and advisory firm with expertise in industrial tech and EHS, amongst many other things like ESG, risk management, and others.

Our services can be summarized in these three verticals that you can see here on screen.

So first you have the research, which is all about getting you relevant insights on the latest software

and technologies for industrial applications in this case, but other verticals too.

We do also offer custom consulting services to help you take our research and apply it to your specific challenges, which could be around coming up with a digital strategy or selecting the right software solution for your firm.

And lastly, we have data products, which is a visual interface where you can explore some of the more quantitative data that comes up.

from some of our research.

So that would be kind of the global corporate service, which you will see later on in the presentation, as well as some of the market size and forecasts that we do for different types of software and tech services.

Sayanh Alam

Moving on to the next slide, you can get started with Verdantix today through Vantage, which is a research platform offering complementary access to over 400 Verdantix reports and webinars for qualifying practitioners.

And to register, you can type in verdantix.com slash vantage.

And once you have qualified, once we have qualified that you are a relevant practitioner, you will have instant access to all our key research.

And as you can see here, this audience is super varied.

in terms of industries, in terms of regions, and over half of the poll is made-up of kind of really senior decision makers.

So there really is something for everyone.

So please do sign up.

And moving on, and with getting kind of interest out of the way, let's get into the topic of today, which is all about control of work.

And firstly, just to set the scene, let's try and understand what are some of the challenges that the largest industrial firms face today, globally, and as a consequence, in which areas are they increasing investment?

So what you can see here on screen is something that Verdantix does every year.

So that's our global corporate survey where we interview approximately 300 decision makers across ops, maintenance, process safety, and also engineering, IT as well.

And the industrial transformation survey focuses on a few key verticals, such as oil and gas, manufacturing, which includes chemicals, which is quite high risk, but also pharma, food, and BEV, automotive, etc.,

We also have mining and metals, utilities, transportation and construction as well as represented here.

And we've run this survey again very recently.

It's actually not been published here, but it will be an advantage in a few weeks.

Sayanh Alam

And what I wanted to highlight here is that there are many kind of competing priorities for industrial firms, but safety does emerge as the top one.

And in particular here we have 54% of large and mid-sized industrial firms saying that achieving safe operations is a high priority initiative for 2026.

But more crucially with safety, we're also seeing a significant number of firms also looking at more kind of cost-related metrics where

operational efficiency does become important.

And control work really is a solution that targets, both the safety aspects and efficiency simultaneously.

Next slide, please.

So, you know, what do we mean by control work and what does modern control work look like?

And from speaking to senior safety and operations and maintenance leads at some of the most high-risk industrial firms, we find that typically this is everything that needs to be taken into account.

for frontline workers to carry out work safely, especially when we're looking at very complex operations, non-routine work, also when contractors are coming in.

And it's important that we have a process in place that isn't peaceable.

So the workload that we find that most organizations follow is that they begin with analyzing hazards and determining the risk of different activities, and in some cases, even being able to visualize the risk across the plant.

Then we take all this information and feed it into the permit to work, which outlines the tasks, ensures that workers are qualified to complete the task as well.

And that's kind of the more compliance bit of the solution, I suppose, but it's not the only part, right?

And as part of this process, workers also need to be aware of any kind of extreme conditions which can increase risk, as well as any risk that could be, that could emerge because of simultaneous operations as well.

Sayanh Alam

And lastly, they need to ensure that the correct safety precautions are taken, the lockout, tagout, and solution activities are completed before starting work.

And I think this is where software can bring a lot of value, you know, with kind of traditional pen and paper processes, with spreadsheets, et cetera.

It's very difficult to, you know, make sure that first of all, you're doing each step kind of accurately on an individual basis.

And secondly, it's also difficult to ensure that

all the activities are done consequentially and that all the risks have been considered and everyone that needs to be aware of these risks is made aware of them.

So the value is not just, on having less paper to deal with, but it's also integration and consolidation.

Moving on, please.

And despite, you know,

Despite this, we find that this process of control work is rarely integrated.

In fact, even if we look at the separate processes, they are the least digitized today.

So again, if we look at the survey data, we can see that firms have been able to digitize some of the more kind of back office processes when it comes to process safety.

So things like, you know, your risk assessments, your PHAs, MOCs, things like that.

These are kind of analysis the front line doesn't necessarily need to interact with on a day-to-day basis.

And these are the ones that have been sort of kind of easy to digitize in the past, let's say, 10 to 20 years, right?

But if you look at some of the technologies that have direct touch points with ops and maintenance, that would be your permit to work, your isolations, your JHAs.

Today, these still have a high percentage of firms still using paper systems.

So there's a clear kind of slight difference there.

Sayanh Alam

And that's kind of sort of the state of the market for control work today.

I'll hand over to Pankaj now to share his view of control work and you know how Maximl defines it.

Pankaj Pawan

Sure.

Thank you, Sayanh for that overview.

Let me quickly introduce Maximl before I deep dive into how we're looking at control

We are in just leading AI platform for focusing mostly on maintenance and safety from the lens of operational excellence.

We operate in four verticals.

Oil and gas is where we have been working for several years now.

Petrochemicals, metals and power as well.

Over the last 10 years, we had the privilege to work with some of the leading names.

And our reach is as far as Southeast Asia to GCC and focused definitely a lot in India.

We offer a cloud-based platform, which is SOC 2 compliant, ISO 27001, and GDPR compliant as well.

Now, before we talk about, and Sayanh was talking about the need for modern control of work and why people are still struggling in terms of making a decision.

I think it's important to understand what are some of the fundamental principles of building an industrial software and particularly focusing when it comes to control of work.

Now, most legacy industrial systems, which have been created in the past, were mostly focused on compliance as the key metric, right?

And something that has really kind of changed, right?

Because first, they assume that frontline teams can really work with highly structured inputs and rigid workflows.

Pankaj Pawan

However, in the real world, everything is dynamic and most of the industries that we operate have asset lifespan of at least 40 to 50 years.

So even across years, the same site conditions and the decisions that you have to take, they change, right?

And real operations don't really fit within those rigid workflows.

Second is with how the workforce dynamics is changing.

people don't carry the same operational context that the previous generation carried, like around 10 to 15 years ago.

Now, with attrition, retirements, and outsourcing and contractorization, people simply don't have that kind of a bandwidth.

And the legacy software did step up to fill in that gap and make that entirely agile and capture that tribal knowledge.

Third, and most importantly, this is something that people always struggle, is we always assume that the workforce is supposed to become an expert in operating the software.

And that is a fundamental miss, I think, which we have made in the past.

In reality, digital tools should adapt to users.

In today's generation, we love software, which requires minimal to zero training.

That's what is basically being asked of today by today's generation.

not like discipline and or strong memorization of that entire concept, right?

And a phrase that I have often heard people say is that paper is faster when it comes to control of work, right?

And all of that is because we have unnecessarily created friction and that's why they go back to paper, right?

So the real question is not that why there is a need to modernize control of work, it's like why have we not adapted to how things have changed over the last decade?

And this fundamental premise becomes the premise of how we are trying to reimagine the control of work at Maximl.

Pankaj Pawan

Now, just to kind of give you an overview, right?

In the legacy world, we just digitized the permit forms.

Out here, we are trying to reimagine the entire operational workflow.

First and foremost, it starts with integration, with deeply integrated with SAP, where permits can be auto-created and auto-filled till the planning stage based on data that you pulled from SAP work orders, integration with contractor management systems,

GIS, material data sheets and so forth, right?

Real world operations don't happen in isolation.

There are probably 5 to 6 systems that every permit touches in the due process.

The second part is definitely cross-functional and multi-device capability.

It's not only desktop, tablet and mobile, rather it's offline first and mobile first approach.

In terms of how it should cater to that, and with design for specific needs like turnarounds, where the workflows and the logic completely kind of is very, very dynamic, right?

And when you are able to achieve all of this, right, and including by mobile-first platform, even, for example, things like how do you basically approve sign-offs on paper, right?

Can someone put a mobile screen in front of you and sign it just like paper using a digital PIN authentication, right, so that the user does not have to log in into another system to get that approval?

Now, when you combine all of this, you get much faster permit processing, much better transparency,

you are able to standardize the practices and reduce risk, right?

And this is where operational excellence stems from, and that is something that we are imagining.

And of course, most importantly, we work in different regulatory regimes, different corners, different parts of the world have different regulatory bodies which govern the industrial laws and how the standard should be.

Pankaj Pawan

Now, again, the platform has to be agile enough to adapt to those local regulations.

So that just quickly forms a overview of how we look at control of work.

And definitely it's like a complete platform, comprehensive, but definitely not complex.

A couple of things I would want to just focus on is one is admin configurator.

We actually think of that as a product.

When I speak with several people, several leaders who are looking to implement control of work,

They have all been bitten by one single thing, that after you deploy a system, six months later, any customization or changes, I need to be extremely dependent on the IT or the vendor.

And that is something that is fundamentally becoming a big pain point and a major decision breaker, right?

And that's why at Maximl, we are thinking of that as a product module itself, which can be handed over to the client.

with a few admin managers and including AI field based field compliance where we are looking at how can you operationally guarantee the compliance not just on paper but in real life execution.

So that's how we are able to and we even go far to see how can we help you automate permit audits.

This was again one of the major pain points that safety people had is once a year when the external auditor comes to review their systems, it used to take them three to four weeks to gather all the evidences.

Now that's an additional thing that as a module that we ensure, which helps retrieve all the data at a single point so that that can be handed over to the external auditors.

So that's just a quick overview.

To summarize, essentially the modern control of work, as we are looking at Maximl, it relies on three things.

Pankaj Pawan

Agility, adoption, and real-time operational intelligence.

That's where we are building, going ahead in terms of future.

Agility in terms of how flexible it is with the configurability of different types of permits, checklists, certificates.

How do you configure shift durations during a turnaround and during normal operations?

And adoption is again something, we always believe that our biggest competition is paper.

if you can actually improve on paper, people adoption really becomes comes very, very natively to it, to the users, right?

So the goal is essentially how do you basically fundamentally design user experiences which require 0 training, right?

So that people cannot make a mistake and then.

Combine all of that with AI to actually guide the user.

And that's the true sense of adoption, because when digital really beats paper in speed and simplicity, adoption is not really a problem.

And when it comes to the real-time operational intelligence, this is where agentic AI has a really a big source, because with permit to work and control of work, you really have the pulse of what is going on in the field.

That's how critical a process is.

Now, if you really are able to integrate, like for example, help draft permits automatically, control risks and maintain a dynamic risk registers, it's fundamentally changes how you are evaluating risk on a day-to-day basis as the work goes on in the field.

So that's just a quick overview of how we are looking at control of work at Maximl.

I would now hand it over to Sayanh to facilitate and moderate the discussion with Mr. Sumit.

Pankaj Pawan

and who can share his perspective on the topic and how they went about approaching and evaluating control of work systems.

Sayanh, over to you.

Sayanh Alam

Okay, great.

Thank you for that overview, Pankaj.

And some really important topics that you surfaced here in terms of, you know, how do we get firms to actually adopt control work solutions.

So yeah, now I'd like to

I've already introduced Mr.Sumit,

but essentially he's a CIO at HPL who's gone through the journey of implementing and using maximum control of work solutions.

So first question that I have for you, Mr. Sumit,

is what prompted a change in how HPL approach permits work or control of work?

You know, what triggered the need for a change?

Sumit Duttagupta

Yeah, okay.

Good evening, and thank you, Pankaj, for, you know, getting an insight view of how the controller work is, you know, progressing, and then, you know, answering your question about how do we approach and get into Maximl.

See, as far as HPL is concerned, we were in the digitization drive starting from 2019, you know.

And we had implemented a globally best industrial permit to work solution.

But as we approached in 2024, when the contract needs to be renewed, we had certain dependency on the data.

The data has to be residing within the Indian data center.

Sumit Duttagupta

Yeah, okay.

Good evening, and thank you, Pankaj, for, you know, getting an insight view of how the controller work is, you know, progressing, and then, you know, answering your question about how do we approach and get into Maximl.

See, as far as HPL is concerned, we were in the digitization drive starting from 2019, you know.

And we had implemented a globally best industrial permit to work solution.

But as we approached in 2024, when the contract needs to be renewed, we had certain dependency on the data.

The data has to be residing within the Indian data center.

So that was one, major bottleneck which we were experiencing with that vendor with the solution.

Then second was, the we had an audit internally and then there was a urgent need to comply with the OSD and this is that oil industry software.

This is a practice within the oil and gas sector within India.

So there's OSD, you know, the I would say there were certain processes which need to be changed, you know, or customized, I would say, to just cater to those regulations.

That also was a bit of a difficult take from there because

They were, they were having a global template and they were not willing to customize to the local needs.

And there were also we are facing this issue.

And then the seamless integration was with SAP, you know, because we work on SAP S4HANA was also one of the issue which we felt with earlier.

So when we evaluated, you know, maximl

The time we were also having a turnaround coming through, and they also had a SU model, turnaround for permits and all those things.

Sumit Duttagupta

So we told them why don't you do a small pilot, because in the previous, the software also we had issues with managing the turnaround permits.

So they said yes, we are willing to do it and surprisingly it went very.

not only smooth, but I think the users like the software based on the UI UX and simplicity of the design and fast implementation.

So then we formed a, you know, core team with our users, you know, users from maintenance operations, from safety.

They visited some of their other sites where they have already implemented.

We interacted with those.

the other companies where things are already operational.

And then based on the feedback, because they were all very happy, in terms of how the implementation is done, simplified, and one of the USP was the mobile interface, which was lacking in the previous software.

So with all these USPs coming through, we thought, we will...

go with Maximl, but we also had a, because we had to see and other competitor similar products.

So you evaluated, we did a technical evaluation, we did a commercial evaluation, and then based on those, Maximl came out what we, in literal terms, we call L1.

You know, they have to be L1 both technically and commercially.

And we're happy.

And as long as the journey is till today, it's the users who basically decides the successful implementation.

They're also happy.

So and it's getting value.

In fact, some of the benefit analysis internally people have done.

Sumit Duttagupta

So that's a good indicator that we have done the right choice.

Sayanh Alam

Okay, great.

Thank you much for sharing that experience.

And yeah, I guess I guess to sum it up, the main reasons were around kind of flexibility of, configuring what you needed as well as, having something that's a little bit more customized to regulations, local regulations specifically.

So thank you much for that.

One topic that I kind of picked up from what you said was around kind of turnarounds and user adoption.

So

Can you tell us a little bit more about your expectations around user adoption?

And I'm also guessing that with something as big as a turnaround coming up, there wasn't a lot of time for kind of training, getting people to use the platform.

So how did you kind of handle that challenge?

Sumit Duttagupta

Yeah, so initially we thought, you know, should we take this risk?

But I think the Maximl.

their subject matter expert convinced we had some round of workshop in the plant also.

So they convinced users, yes, you know, this should not be an issue in terms of the way you handle and users were anyway handling, you know, electronic permit solution.

So they were very, I would say, well versed how an electronic permit works as a process.

And the UI/UX, in the case of Maximl, was quite not only similar, but they also felt it was very simple, and they and it was eye-catching in terms of the different attributes which were there in the software, so they felt they should be able to take the spite in spite of...

their hectic schedule, which they have to get this turn around in time.

Sumit Duttagupta

So it was a bit of a risk, but I think it has paid off.

And I would say there was overwhelming support from the maximl people on ground.

And I think that only, I think helped a lot in terms of on the job training.

We had one or two workshops, but then

On the job training helped us to see that we are up and running and implement the permit, this maximl permit during the turnaround time.

And really it helped us in terms of ensuring the safety we didn't had any sort of an incident and a whole turnaround process.

So that was a.

Great, I would say, success story in terms of getting those shut TA done seamlessly.

Pankaj Pawan

I think Sayanh would just like to add the entire support and confidence that we had from the HPL management.

was really, because we could also, attempt that.

And I think Sumit said, right from the plant head, and turnaround would have come again a few years later, right?

And one of the biggest asks was, if we can really do this in turnaround, it would really help them, right?

So again, that support meant a lot for us and the team that we really pushed through.

Because otherwise it would not have been just, possible in such a short span to kind of attempt that.

So that was really one of the key things that stood out for my team, which helped us take that plunge and actually, you know, jump right into it.

Sayanh Alam

Yeah, nice and great to kind of see the partnership, you know, really between, you know, the software firm and the firm actually using the solution.

So thank you much for that, both of you.

And moving forward, you know, you did mention some of the kind of key things that you're able to do with the solution, but could you kind of summarize some of the, you know, what was achieved through using Maximl control of work?

Is there any numbers that you can share as well, perhaps?

Sumit Duttagupta

You want to say number of permits and all?

Sayanh Alam

It could be that, but also like what were the, you know, if you had to kind of think of a few key achievements out of using a solution, what would you say? These were,

Sumit Duttagupta

see, the primary aim for any of this permit to work or control of work solution is to ensure that the safety and the reliability increases, you know, so that's and that is a key part of it, and with that, the operational efficiency should improve, you know.

And there is an enforcement of the bit of a compliance and the governance, in terms of how they conduct the particular jobs.

And most important part is that this system should also ensure that there is a seamless collaboration between the operation and the maintenance team on the ground.

And that's very important.

And that's where we found

the mobility part of it and the, user-friendly UIX helped people to, I would say, utilize the system in a much better and an efficient way, So when I say we didn't had any sort of an incident, that also, indirectly reinforces that the solution is working fine, and people are...

going and ensuring the process.

Sumit Duttagupta

Like for example, in terms of the RA, the risk assessment and the JHA, including what they have done for this hazard and the controls, the controls mechanism were really exhaustive and well built.

So there was no mess in terms of how.

this particular permits were, you know, executed on ground.

So in a way, if you see that particular moment of the TA, we could increase our overall safety and the reliability per se, you know, in a much better way.

I don't have the exact numbers, but yes, there was a quite

some sort of an, I would say, quantitative improvement and the savings also.

And it's a savings where that since it got interconnected with the safety protocols and the operational needs.

So the maintenance was done in a very predefined way, integrating back with SAP, the work orders and the notifications, so that the whole interface worked seamlessly.

So I would say that was a thing.

And then we initially it was an offline sync, but later we did a hard sync with SAP.

So the master was SAP.

So that also helped us so that there are no anomalies while the work is getting executed.

Sayanh Alam

Okay, great. Thank you.

And I think it's, you know, it is really about removing that complexity to one, make sure things are being done efficiently, but also as you are removing complexity, making it easier and easier for frontline workers to use the systems, it also makes it kind of.

enables them to get the insights that they need and to make sure that they're doing work safely and they're not kind of looking at too many different variables, but they're really focusing on what's important to conduct their jobs and that's really what they need.

They don't want to spend too much time doing kind of these, some of these back office sort of kind of form filling, etc,.

Sayanh Alam

It's really about improving their understanding and awareness.

On the job.

Yeah, last question that I have for you, Mr.

Sumit, it's kind of looking back, which decisions contribute most to the implementation or rollout success?

And is there any advice that you could give to kind of anyone looking to implement a control work solution, anyone that's kind of embarking on this journey from your experience?

Sumit Duttagupta

Yeah, I think the most important part is that you should

Always pick a COT solution, commercially of the self available solution instead of trying to build from the scratch, and try to see that all your processes are, customized and built to it.

That has its own pros and cons, but that has got more cons because you will not have the best global work process or a template built in.

You may feel that you are having a best-in-class process, but maybe you're missing some finer points, because this application, especially Maximl and others, they come with a set standards.

They follow OSHA, OSHA is there inbuilt as a process.

Then you have this OISD also where the localization is there.

So that gives you an edge.

And then you can, of course, see what is the best in your process that can be customized.

So that is one I would say you should look and do it.

And then you would also see a solution from the perspective of how is there, you know, roadmap, you know, whether the new technologies are getting, for example, I was impressed they're going to have this barrier management, interactive P&IDs.

Sumit Duttagupta

then even those conflict management, where, two hot permits in the same place, they will raise a alarm out there.

So these are some of those innovative features which you should look for, So that only shows that now, of course, that time also they were giving us a roadmap.

Yes, they're working on AI and building those, you know, Gen.

AI and agentic agents and all.

But I think now as.

Pankaj was studying they are into that particular journey also.

So you have to see that particular solution also has a futuristic roadmap, you know, in terms of innovative technology they're going to adopt.

So these are some of the things which, you know, as a CIO or even a safety head because or an operational head, they're also part of the decision making to see that the best in class solution is picked up.

Sayanh Alam

Okay, great.

Thank you very much for that advice.

I'm sure the attendees will find this really helpful.

And thank you very much for answering all the questions as well, Mr. Sumit.

Really interesting to hear you experience.

Yeah, so if you can share the slides back up.

And while you know that's being done, of course, you know, HPL already believed in the power of control of work.

and some of its benefits.

But there are many companies who are still on the fence.

And here are some of the kind of common barriers that we see when it comes to adoption.

Sayanh Alam

And the biggest one really, starting from the left hand side, is around organisational resistance.

And like, you know, kind of other industrial software, control work is one of those processes of this.

So it just, it's kind of easy and quick to do on paper, especially when the focus is more on the payments itself and not other things that Mr. Sumit mentioned, for instance, like the

SIM ops, the augmented risk assessment, etc.,

If you're looking at just a permit itself, people will tend to reach for paper.

And so, you know, there needs to be a clear business case made for replacing the status quo there.

And secondly, we have implementation, in particular connecting control of work to work management systems like CMS or EAM, one of them being SAP, which has been mentioned a few times today.

is seen as a key pain point.

And another one is also around configurability.

And Verdantix Research finds that firms are not happy to follow, you know, a rigid process, but rather have the capability to customize forms and workflows to suit their process, not the other way around.

And then a few more kind of people related factors that make adoption difficult is typically that permit to work or control of work systems have been

good at digitizing forms and workflows, but they use that understanding to conduct forms at workflows, but not until recently.

They haven't really changed the way people actually perceive risk and how they use that understanding to conduct safer work.

So it's kind of difficult for some firms to want to invest in digital systems if it doesn't fundamentally kind of improve the processes that they used to.

And similarly, digital systems, not until recently, have really improved situational awareness either.

Sayanh Alam

So we'll see in some of the kind of latest slides how that's being improved by some result to vendors.

And changing gears a little bit, we also have the issue of contractors.

So control of work typically finds the most use for kind of non-routine activities, which we're increasingly seeing being outsourced to contractors, especially large firms, and also in more specific verticals like constructions, for instance, oil and gas as well, more recently.

And with these temporary employees, it's difficult to get them to learn using a new system and to ensure that they're following the workflows consistently.

So in that case, we need to make it as kind of streamlined as possible for them too.

And last but not least, we have poor feedback loops.

And even though there are systems that can capture kind of lessons learned, incidents, learning through that as well, and near misses,

These are rarely translated into process or workflow improvements going forward.

So these are some of the challenges that we see today, but AI is here to help.

And if we move on to the next slide, please.

Before I diving into the specific use cases, it's good to kind of determine what we mean by AI and what are the kind of four fundamentals shaping the future of control of work and safety management in general today.

So first we have the natural language search engines.

And today's most effective search engines combine granular metadata filtering, type of tolerant keyword matching, and transformer-based language models.

And these are AI architectures designed to interpret context and interpret human intent in human language.

To retrieve data from safety manuals, incident reports,

compliance documentations, and also JHAs, permits, etc.

Sayanh Alam

And these engines allow safety personnel to quickly access procedures, incidents, or safety records through simple search, or more recently, even voice commands, but are also crucial for retrieval, augmented generation, or RAG systems used in decision support.

Then we have task assistants, which commonly are called, and we know as co-pilots, and

They draw on real-time safety data, incident reports, and relevant safety protocols to deliver context-specific guidance, automate compliance checks, and provide instant answers to queries and guide personnel through protocols and procedures.

And then we also have automated knowledge enrichment systems, which use LLMs alongside specialized tools to consolidate diverse data.

into an interconnected safety knowledge base.

And we'll see in a minute how this is used to help augment things like job hazard analysis and permits to work as well.

And last but not least, we also have computer vision, which is a bit simpler to understand.

And some of the use cases we have seen it being used for and it being successful are more around kind of PPE compliance and hazard identification real time.

So these were the four technologies and let's kind of dive into the use cases in the next slide.

And to kind of understand what are the real practical use cases of AI in controlled work specifically, Verdantix recently did a study benchmarking 44 different software providers.

some being kind of your EHS platforms, some having an asset management background, and some are more dedicated control of work solutions like Maximl.

And essentially, we rated their ability to deliver control of work use cases against everyone else that was in the study.

And we also found out how many of these firms implemented AI in their products, ensuring that these features that they have are actually valuable to their customers.

So one of the first use cases Verdantix has seen is around AI-assisted workflows.

And vendors do this in many different ways.

Sayanh Alam

So you can essentially pick and choose where you put AI, where you want it to be.

And some of the typical use cases will be around, you know, giving suggestions for controls and hazards, but also seeing it being used to kind of assist designing of isolation plans, for instance.

And a more unique example that we saw as well was also basically talking

Taking the ability to generate digital workflows, either extracting them from paper forms or generating them from natural language descriptions as well, and this is useful to first of all.

up implementation, the initial implementation that you do, but also kind of help to bridge the gap between digital and paper because there are firms who might be using digital solutions but still printing permits and it kind of helps bringing in that paper information back into a digital world as well.

And the next we have the domain specific language models and I think for safety applications in particular,

It is critical that if you're using AI, we're not just taking kind of generic recommendations from, you know, ChatGPT, but rather we're using models that have been trained on JHAs, on permits, other safety documents, best practices, and etc,.

So an example of how this is applied to control work, we've seen the use of a model that has been trained on RAMS, which is risk assessment and method statements, and also trained on local regulations.

So

one, I think the one has been mentioned today, but there's also, regulations from HSE in the UK, OSHA in the US.

So it's very specific to that local environment.

And this model is used to score the quality of RAMs and also used to suggest recommendations to improve these RAMs.

Next slide, please.

is around dynamic risk assessment.

Sayanh Alam

So this doesn't necessarily involve AI per se, but it's looking at real-time data because as we know, risk is dynamic and it's constantly evolving.

And even if a task has been, you know, assessed, you've done a risk assessment beforehand, conditions on the day can change.

And this is particularly true for, you know, jobs that are performed in complex operating environments or, you know, just outside

There might be kind of a change in temperature, there might be, you might start raining or something like that, right?

So it's important to take those things into account.

So one way to give a better understanding of risk on the day of the job would be through a last minute risk analysis form.

And it's a very simple way of implementing this concept, but also seeing some vendors using more advanced methods like barrier risk management, for instance, or just simply incorporating real-time data streams from sensors, from historians, sometimes wearables as well, or other sources to improve real-time risk awareness on the job.

Moving on, another key innovation to improve situational awareness is visualizations.

And these really serve as a way not only map kind of where the high risk jobs are happening at the same time, but also increasingly we're seeing software that incorporates risk into the picture.

And that would be community risks and not just taking into account permanent activity, but also any other maintenance activities happening in the plant and things like asset health and other operational risk variables to understand what is the kind of cumulative risk and the

plan and how and what should we do to reduce that risk and make sure that activities are happening safely.

And last but not least, a more emerging innovation is around mobile and voice AI.

And the previous kind of folder we mentioned are more desktop types of applications, but this is really about features that can be used by the frontline workers while they're on site.

Sayanh Alam

And most vendors will have a mobile application that comes with the kind of web.

So environment, but we are seeing the use of voice AI as well, where workers and supervisors can request and approve permits using natural language voice commands, but they're still emerging.

And also AI is being used to improve things like toolbox talks, for instance, but I'll let Maximo explain how they're doing that.

amongst other practical AI features that they provide.

So I'll hand over to Pankaj now to explain that, please.

Pankaj Pawan

Thank you, Sayanh, for that overview.

Yep.

I think I'll just take a step back in terms of, just the second pillar of what fundamentally needs to change, right?

The biggest thing is basically context.

Today's workforce, either the contract workforce or the own employees, right?

They don't have the entire context for 10 to 15 years.

Now, when we look at which all parts in the value chain need to be augmented by and made AI native.

These are some of the guidelines that come and that's how we kind of approaching it, right?

Now, the 1st and most important thing is that where can it support the human judgment, which practically it's like mimicking a 10 to 15 year experienced person, right?

How can I ensure that a one year old employee can have that bit of knowledge that is accessible to him?

And how does it help us bring the context to the point of decision?

Pankaj Pawan

And this is really interesting because

In practicality, if you think about a real life, when someone is approving a permit, what all does he need to know which is not really written in that permit, right?

What were the previous incidents that have happened at that point in time on that functional location on that site?

What is the real-time wind speed that is basically in that place, right?

What are additional park permits that are basically going on?

So how do you basically bring context that is hidden right when the button is being pressed, right?

How do you basically bring that?

And of course, the other things are basically where it can help is how can it reduce the workload?

You don't have to do things from scratch based on historical information.

Can it basically prefill a lot of information and content so that your variance is often kind of reduced, right?

And ultimately, how do you improve the overall maturity and efficiency of that entire team in general is something that it really kind of helps.

Now, when I really apply this, right, and you'll see a lot of resemblance in basically what Sayanh was talking about.

The first and foremost is how do I basically ensure that if you have done a certain job, let's say in the last year, five times, and if six times someone is basically making a mistake while either selecting the controls or the hazards that you have to take, how can you basically create a warning system around that and how can you basically automate that draft process, right?

And there, of course, we need to be careful in terms of we are not misleading someone because the site conditions might really change, right?

True guardrails are where you basically ensure that you are able to draw that line and definitely around hazard intelligence.

Pankaj Pawan

And this is something really exciting that we are working with where we are taking the EHS data where near miss behavior safety observations, incident reports and are ensuring that how do we basically bring it surface it back at the point that these permit approvals are basically being done right in terms of micro facts that can be.

communicated to the end user.

SimOps reasoning is something that Sumit sir also talked about in terms of how can you basically potentially detect clashes, conflicts.

And I mean, something really exciting that we are working on is how do you basically do that using 3D GIS mapping, because two work can be happening one above the other.

And how do you basically really detect whether they are safe or not?

And then something around interactive P&IDs where how can you recommend walls?

So we have vision models where they can detect this is the gate wall, this is a butterfly wall, and even ensure that what are long-term isolations, they are basically kind of tagged and recommended accordingly in terms of what work can be combined.

And definitely like a field copilot.

Now, if you really look at it, where we are trying to do, we are trying to

Improve the back office automation where decision makers are actually taking decisions, right?

And are hugely overloaded in terms of every micro decision that they have to take, right?

So that's really the essence of what we are simplifying on the field.

Now let me just talk about like few dedicated AI agents that we are basically building and rolling out soon.

One of the things is toolbox talk agent now here.

One of the biggest concerns that safety teams have is they feel that everyone just gives a general toolbox talk.

No matter how hazardous the job is, that is a big disconnect, right?

Pankaj Pawan

Now here, there are two modes to operate.

One is AI can help you generate a custom toolbox talk, which is specific to that particular job.

And it can also transcribe that in regional languages, especially if you're working outside geography or in regional boundaries where

English may not be the medium of choice.

The second, even more exciting things where we're trying to push the boundary is how do you record the toolbox talk that the contractor supervisor is giving?

And just like Sayanh was talking, how can you rate the RAMs, the risk assessment?

How can you rate the toolbox talk?

And if it does not meet the respective threshold, how do you basically...

Flag a warning to the safety manager, right?

So that's again a very, very interesting way in using voice AI to really deliver on ground compliance.

The second one is again material safety data sheets.

This is particularly because when we talk about safety, the chemical data sheets are separately stored in SharePoint, PDF, or some external repository.

Now, if you know a certain job, for example, includes dealing with sulphuric acid or hydrochloric acid, right, how do you basically ensure that you're able to bring in the relevant information from those data sheets right when the person is issuing, right?

Because someone, if he's diligent, he might go and look it up, but others, if they are not careful, they might miss it, right?

So how do you basically then push that information to the user when they really need it?

Permit planning agent is something that, again, to reduce the initial workload of filling out, where how do you combine AI and user experience to ensure that they have full control over it and a complete guided experience around that?

Pankaj Pawan

And process agent is something that mimics that of an operation team member, right?

How do you basically know these two work orders can be bunched together because they will be reusing isolations?

It helps you save manpower as well as resource costs, and at the same time it does not block the job, right?

So, again, one of the interesting things that we are leveraging here is, let's say, if you have to do 100 work orders...

How should you basically group them together in a month or in three months, right, to ensure that you are able to utilize the isolations to the maximum extent possible, and also one of the other challenges that people say is that you can call contractors every single day.

but they may not be allowed to do the job because operations will never approve that permit, right?

So how do you even create a warning systems where these two permits can never happen and then help schedule and plan and utilize those resources in a much more effective manner, right?

So again, these are just some examples of how agentic AI can bring together different sources of information and help build that context, which is basically missing in the modern workforce, so to say, right?

I think that was what I had from the AI lens and the agentic AI approaches.

I think would love to hear from Sumit Sir in terms of how you are looking at AI when you look at the industrial software ecosystem in terms of adoption of roadmaps or the key challenges that you're looking to address in that domain.

Sumit Duttagupta

No, I think.

This 4 cases are really interesting.

So this is something which definitely can be worked out, and obviously we can do some pilots on it.

Sumit Duttagupta

No, I think.

This 4 cases are really interesting.

So this is something which definitely can be worked out, and obviously we can do some pilots on it.

But yes, but as an industry now, AI, the first and the foremost which we feel is the

Gen AI capability since we have automated.

most of our landscape, you have this SMPs and SOPs in our document management system.

We have the RCA's, which is also digitized now.

Then you have permits and then your work orders, notifications, both maintenance, process notifications.

Then you have log books, the where you are writing day in, day out, the exceptions.

Then you also have the look, listen and feel the ODR rounds going around.

So I think our first aim is to utilize all these data sets within this, you know, MAS space in the shop floor and come out with the recommendations, you know, where a user

come up with their queries and this whole ecosystem of AI or Gen.

AI becomes a knowledge base for the company.

And once you know that is, I would say, a bit of an utilized and matured enough, then I think these are the agentic AI use cases which we should go out and, you know,

at least do a pilot and see how it measures against the effectiveness of the people doing the same job.

And I think that will be a win-win situation as we go ahead.

Pankaj Pawan

Sure.

Thank you, sir.

Sayanh, do you have any questions for sir?

Otherwise, we can open up for Q&A.

Sayanh Alam

No, I think that was great.

Thank you much for going through that.

I guess we can move to the Q&A section.

I can see that there is a few coming up.

So Pankaj, I'll let you maybe share that.

Pankaj Pawan

Sure.

So I think one of the questions is how do you ensure agentic AI is reliable in such high stake industrial use cases?

Again, that's a very common question that we get.

as we are all aware, LLMs are in general very prone to hallucinations, right?

Now, one of the key things that we definitely enforce is just like we are not really pressing the automation button.

For example, none of the agentic AI agents are really going to approve.

something on behalf of the users, right?

The end decision and because of the nature of the work that we are involved in, that's the foremost, right?

Pankaj Pawan

The first place that we are basically trying to do is how do you bring information from disparate sources into one screen at the point of decision making, right?

So that basically is the point number one.

And second, as you would have seen on the screen, when we are actually quoting, right, this is basically where recommendation is.

Are we able to actually bring in the source, which is basically picking this up, right?

And that's very, very important to build the trust and have those as guardrails.

I'll give you an example.

Like some of the training datasets that we use are actually published 10 years published datasets by IOGP about every possible industry incident that has been documented, right?

Now, when we are recommending or the model is actually recommending, right?

And this is also, Sayanh was referring to domain-specific models, right?

are we able to quote and bring back the citations, right?

Just to basically ensure that there is a check and balance in that place, right?

So these are some of the ways in which we are looking at in terms of how to make this entire thing in a much more reliable manner.

Sayanh Alam

Okay, great.

I think we are at time.

Maybe just to add to that a little bit, and I guess Pankaj, you can do maybe closing remarks after this, but I think

In general, when it comes to agentic AI, I would be very sort of kind of critical of how, you know, vendors position, you know, the kind of AI agent agents topic, right?

Sayanh Alam

There will be a lot of firms who will say they can't do it, but it's really important to understand, you know, what is the specific use case that they're targeting and, you know, is it

Is the application really targeted to something, or are they promising something that's you think would involve kind of a multi-step sort of workflow to automate?

In that case, it's probably quite difficult to do just because the kind of architecture is not robust enough yet to do those multi-step type of applications.

So, you know, I invite everyone to be, you know, whenever you do see...

anyone that says they are doing AI agents, try and understand specifically what is it doing?

Is it a very well-defined use cases or is it saying that it can do too much?

Essentially, in that case, you would have to kind of go back to the vendor and ask and try and understand how is it actually doing that.

So, you know, I do invite everyone to be very critical of these claims and ask questions and try and understand it.

If you don't understand yourself, they're likely not.

doing what they are promising.

So yeah, that was kind of last titbit for me.

Yeah, Pankaj, I guess any closing remarks before we end the event?

Pankaj Pawan

No, Sayanh, very well put.

I think from our side, Sayanh, I think we're really excited about, you know, how the modern tech is going to fundamentally challenge the status quo.

And I think the journey still remains pretty much young.

Pankaj Pawan

Yeah, I remember when we started nine years back, just the technical divide which we saw between when we entered a premise in an industrial premise VS outside, right?

I think we still have a lot of work to do to ensure that people who are like, really in the one of the hardest and the toughest jobs, technology does justice to them, right?

So yeah, that's really what we are excited about.

And Sumit sir, if you have any comments, happy to hear them.

looking forward to prolonged collaboration.

Sumit Duttagupta

No, sure.

I think there's nothing much I've already conveyed.

So this Control of work is really going to be very interesting in this world of AI.

And I think AI is 1 which is going to, I'd say it will not take out the jobs of the people working on the shop floor.

But yes, it will improve a lot of these efficiencies.

And AI is definitely going to add up as a knowledge base for the people, because you need to, in essence, for each of these jobs which you do, that knowledge essence has to be kept and that needs to be also easily searchable, and that's where the AI as a tool can really help the industry folks as we go ahead.

Pankaj Pawan

Thank you, sir.

Sayanh, anything from you, please?

Sayanh Alam

No, nothing else for me.

It was great to, you know, participate in this webinar.

Sayanh Alam

Thank you very much for having me, Pankaj and team.

Pankaj Pawan

Thank you, Sayanh.

Thank you, Sumit, sir.

Thank you everyone for attending, and hope you find it useful.