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DIALOGUE

A JOURNAL FROM THE PETROLEUM SAFETY AUTHORITY NORWAY

Side by side with the suppliers

Main issue 2021





Price to be paid

Cutting costs and enhancing efficiency have been a basic refrain in the oil industry during recent years, since the 2014-15 slump forced everyone to spend less and save time.

The coronavirus pandemic in 2020 has imposed another abrupt halt. No sooner was the industry back on its feet than a new round of belt-tightening had to start.

Our key message is the same as ever – the companies must understand the consequences, both short and long term, of their measures and avoid safety being affected by cuts and savings.

In difficult times, we see that preconditions and terms for working safely become weakened and that collaboration between companies, unions and government comes under pressure.

Our fear now is that suppliers must once again pay the highest price for the crisis. Because when the operators cut back, the effect travels down the supply chain.

And it is largely the suppliers large and small who do the work, whether in drilling, maintenance or scaffolding. Conditions at the sharp end are important both for the working environment and for major accident risk in the industry.

This issue reports on the background for choosing *side by side with the suppliers* as our main issue for 2021. We also explain the role of the suppliers in practice – and who they are.

Above all, we highlight the responsibility which all the players share to ensure an industry with strong and viable suppliers.

Enjoy!

Øyvind Midttun

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Main issue 2021



Norway's oil industry has seen yet again how quickly and sharply things can go bad. Revenues plummet, operating parameters weaken, and collaboration with unions and government is put to the test.

The PSA's concern is that safety work will also suffer, in part because these problems are transferred further out along the value chain.

This may mean that suppliers must once more pay the highest price in the crisis – and that employees most exposed to risk become even more vulnerable.

The question is then how such a trend can be avoided.

How can the important role played for safety in the industry by supplier expertise, technology and management systems be protected?

And what can be done to ensure that the oil companies help to preserve strong and viable suppliers – while also fulfilling their see-to-it duty and overall responsibility for safety?

Frictions at the interface between operator and supplier present challenges which the industry must overcome together – for safety's sake.





Supplying safer outcomes

The PSA's main issue for 2021 emphasises the great significance of the supplier companies for safety in Norway's petroleum industry.

Choosing to be *side by side with the suppliers* concentrates attention on their role and on the industry's collective responsibility for keeping them strong and viable. "Suppliers are very significant, and play a key role in maintaining and improving the level of safety in the industry," says PSA director general Anne Myhrvold. "These companies have very many employees, important expertise and much of the technology and resources needed to reduce major accident risk and ensure a good working environment."

Pressures "At the same time, we see cost pressures being exerted by low oil prices and reduced revenues," Myhrvold adds. "Operating parameters have also been weakened.

"In addition come stresses on collaboration between companies, unions and government, as well as the consequences of the coronavirus and the industry's response to these."

She says the PSA is concerned that safety efforts will suffer, in part because the problems are being transferred down the value chain.

"Our main issue casts light on some problems which the industry must be aware of and act on. We want to create discussion and attention. Solutions must be found jointly by operators and suppliers."



Suppliers have a great deal of expertise as well as much of the technology and resources important for avoiding major accidents and maintaining a good working environment. Everyone should be on side with the suppliers, says PSA director general Anne Myhrvold (left), here together with head of supervision Arne Askedal (centre) and Finn Carlsen, director of professional competence. (Photo: Tommy Ellingsen)

Questions *Side by side with the suppliers* poses certain key questions.

- How can the important role played for safety in the industry by supplier expertise, technology and management systems be protected?
- And what can be done to ensure that the oil companies help to preserve strong and viable suppliers – while also fulfilling their see-to-it duty and overall responsibility for safety?

Responsibility Finn Carlsen, the PSA's director of professional competence, points to the overall responsibility of the operators – also known in Norway as their see-to-it duty.

This gives them a special obligation to ensure that everyone doing work on their behalf complies with the requirements in the regulations and acts prudently.

“That gives the operators a big responsibility in terms of running NCS facilities or land-based plants in a prudent manner,” Carlsen says.

“To achieve that, however, they're entirely dependent on having strong and viable suppliers who can maintain the necessary expertise, capacity and management.”

He emphasises that suppliers also have duties and requirements of their own – including working long-term and intelligently to develop new methods and to recruit and retain able specialists.

“The industry depends utterly on all sectors and levels being in possession of the necessary expertise and capacity required to operate safely.”

Parameters Giving suppliers acceptable operating parameters is crucial, Carlsen says. “The operators set these, and must frame them to help maintain and improve the level of safety.

“We expect contracts to specify prudent parameters which allow suppliers to do their job in a way which is safe and acceptable in terms of the working environment.”



*Finn Carlsen,
director of professional
competence.*



*Arne Askedal,
head of supervision.*

Audits The PSA has followed up suppliers for many years through audits of individual players, sector assignments with groups of companies, and knowledge development and transfer.

A strengthening of this follow-up during 2021 is promised by supervision head Arne Askedal, who emphasises that the suppliers are important for safety on the NCS.

“They carry out a large part of the work, and the better qualified they are to do their job, the more securely it’ll be done.

“We’ve seen examples of suppliers who’ve been challenged so hard on the financial parameters that they’ve cut their headcount. They thereby cross-train their employees much more than before, and the offshore workload increases.

“If the suppliers don’t have the right expertise, the right attitudes, safety can suffer.”

Team “Safety work isn’t a competition between the companies, but a team effort,” says Myhrvold. “Joint action is the only way we can arrive at good solutions for maintaining and improving safety.

“The biggest challenges are owned jointly by operators and suppliers. If this industry is to meet the ambition set by the Storting [parliament] to be the world leader for safety, it must work together.”



*Anne Myhrvold,
PSA director
general.*

BY ØYVIND MIDTTUN

One team, shared responsibility

Each company has an independent responsibility for safety, but the operators must make it possible for suppliers to work safely in a good manner.

This view is expressed by Ståle Kyllingstad, who speaks on behalf of many offshore suppliers as chair of the oil, gas and maritime renewables sector at the Federation of Norwegian Industries.

The CEO of the IKM group is solidly planted at the core of Norway's petroleum sector and has responded to questions on the PSA's main issue for 2021 – *side by side with the suppliers*.

What's your response to the main issue?

My reaction is extremely positive. That our customers – in other words, the oil companies – are at our side and that the PSA pushes this as an issue in order to remind us that we're a team is something I regard very, very favourably.

The problems this main issue addresses must be solved jointly. We have a shared responsibility, together with our customers, for safety on the NCS and in relation to our whole industry.

Why is it important to address this now?

We're experiencing general pressure on prices in the sector, while also operating on a mature continental shelf where we may not find so many big fields in the future.

So we're compelled to operate in a way which

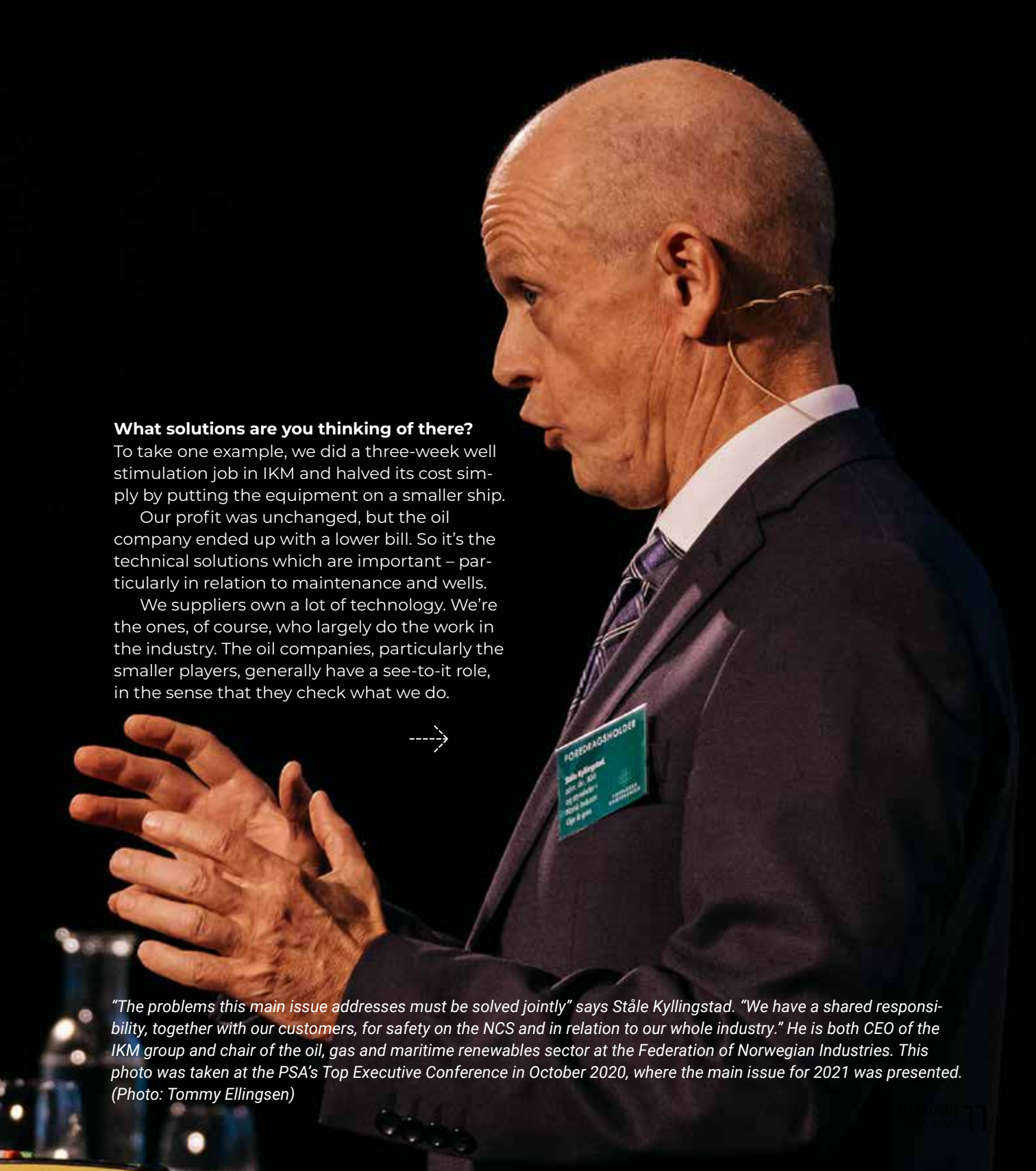
is commercially both profitable and frugal in order to secure a long producing life for the NCS.

As oil and gas chair for the federation, I know that the whole sector is very concerned to get costs down. But we can't do any more where hourly rates are concerned.

We took cuts to those when the oil companies, with Equinor in the lead, put us under very heavy pressure during the oil crisis a few years ago.

So other solutions for reducing costs are needed now – technical answers which make the sector cheaper and sustain its competitiveness in the long run.



A man in a dark suit and tie is shown in profile, speaking at a conference. He is wearing a name tag that reads "FOREDRAGSHOLDER" and "Ståle Kyllingstad, CEO, IKM". He has his hands raised in a gesture of emphasis. The background is dark with some blurred lights.

What solutions are you thinking of there?

To take one example, we did a three-week well stimulation job in IKM and halved its cost simply by putting the equipment on a smaller ship.

Our profit was unchanged, but the oil company ended up with a lower bill. So it's the technical solutions which are important – particularly in relation to maintenance and wells.

We suppliers own a lot of technology. We're the ones, of course, who largely do the work in the industry. The oil companies, particularly the smaller players, generally have a see-to-it role, in the sense that they check what we do.



“The problems this main issue addresses must be solved jointly” says Ståle Kyllingstad. “We have a shared responsibility, together with our customers, for safety on the NCS and in relation to our whole industry.” He is both CEO of the IKM group and chair of the oil, gas and maritime renewables sector at the Federation of Norwegian Industries. This photo was taken at the PSA’s Top Executive Conference in October 2020, where the main issue for 2021 was presented. (Photo: Tommy Ellingsen)

The main issue points to the importance of retaining strong and viable suppliers, and to operator responsibility for this. Are the operators sufficiently conscious of that?

Not as much as we could have wished. Contract strategies at the operators are extremely important today. These companies have great power, and the contractual responsibility rests with them.

The most threatening competitor is the one on the verge of bankruptcy – which knows it'll go under if it fails to get the job, but isn't sure it can survive should its bid be accepted because the quoted prices are so low.

Such a player represents a very dangerous combination, which can undermine safety. It's a real issue which we're very conscious about in the federation.

Suppliers who aren't financially sustainable, or only just so, are not a good thing. We need strong supplier companies and supply chains which are robust and earn well.

Isn't it the supplier's own responsibility to reject contracts which have a negative effect on safety?

Obviously. When you're standing on the edge of the abyss, however, you stretch further than you might have intended. And make poorer judgements. But protecting safety is undoubtedly the supplier's main responsibility.

How has collaboration between operator and supplier changed in recent years?

It's improved. Much greater frictions prevailed six-seven years ago, when the mood between

the two sides was close to bad-tempered.

The operators were making a lot of money, the industry was booming, but we suppliers were failing to maintain our profits. We worked mostly to deliver and satisfy customers.

Then the 2014-15 oil crisis struck. That got both sides to appreciate we were in the same boat. The collaboration developed at that time has lasted.

So the position is better than it was, but we still have issues related to contract strategies. It's extremely important that the operators think these through.

What responsibility do contractors bear for safety?

All of it, really. We're responsible for our employees, and for working as a company in a safe and prudent manner. There's no excuse for either one thing or another. The responsibility is ours - fully.

But we must ensure understanding prevails among our customers that we have a work methodology which harmonises with theirs.

And the operators must have a contract strategy which ensures long-term survival and security for supplier employees, so that new and young people dare to make a commitment to our industry and our companies.

The oil companies must make provision for the suppliers, so that we can jointly manage to take care of safety in a very good way. ●

Anniken Hauglie Director general, Norwegian Oil and Gas

This is a very good issue. Regardless of whether you're with an operator company or a supplier, it's the same industry. And we believe that paying great attention to HSE and a secure sector, whether you work in one part of it or another, is very important.

We need a strong supplier industry in Norway. In the long term, we'll all benefit from that. My impression is that people are conscious of this, and we also work closely together in the industry association to find good shared solutions.

When employees and employers talk together well, and have a good relationship with government, we can collectively find good solutions.

We'll all benefit from a close, trusting and good collaboration between these parties. It's carried Norway through many crises before, and will also be an important factor for the challenge we now face. ●

Anniken Hauglie.
(Photo: Tommy Ellingsen)



Photo: Gunlaug Leirvik.



Photo: Industry Energy.

Hilde-Marit Rysst President, Norwegian Union of Energy Workers (Safe)

I think this is a good issue. We know there have been major changes to operating parameters and in the opportunities available to the suppliers for creating the good HSE results we expect in our industry.

It's positive that the PSA is now stepping up. Our local elected officials in the individual companies can use the main issue very consciously to show that action is now being taken.

We constantly get feedback from our members that times are harder, that people must run faster and work quicker – and then taking shortcuts is quite simply easier.

So we're worried about the parameters the operators have been setting for suppliers over several years, and believe very strongly that it's time to take a step back and return to more robust terms – so that suppliers can work in a good way.

Nobody wants to harm themselves, their colleagues or their workplace. Everybody wants a good and secure working day. They must then have the opportunity to achieve that. ●

Lill-Heidi Bakkerud Deputy head, Norwegian Union of Industry and Energy Workers (Industry Energy)

A good issue for 2021. This industry is complex, and much of the work is done by suppliers. We expect the issue to help focus greater attention on what diversity and collaboration mean for safety and the working environment.

We will use it to highlight that genuine collaboration and worker participation, including in tendering processes, are a precondition. ●

Arne Sigve Nylund

Executive vice president EPN, Equinor

I think the main issue on *side by side with the suppliers* is excellent. Working more closely together, not least on safety, is very important.

Collaboration helps to create predictability in the industry. I believe that working on safety in a similar and corresponding way helps to raise the safety level.

In my view, Equinor must utilise the main issue in the collaboration we generally have with our suppliers. Without them, we wouldn't have been able to do our job – that's quite obvious. ●

Steinar Våge

CEO, ConocoPhillips

This is a very good and timely issue. We need the suppliers. Keeping them strong and thriving, and having this expertise, is important for the transformation affecting our industry – including the green shift. ●

Karl Johnny Hersvik

CEO, Aker BP

The main issue is incredibly important. After all, we talk a lot about being part of a single industry, but we're not always able to demonstrate that.

In my world, it's impossible to implement digital change processes – or even general changes – unless we have a much better relationship with, and a much better distribution of jobs and capabilities between, operator and supplier. ●

Arne Sigve Nylund .
(Photo: Tommy Ellingsen)

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Offshore suppliers

Norway's second largest industry

The Norwegian offshore supplier sector comprises more than 1 100 companies delivering equipment and services to the petroleum industry.

According to a recent Rystad Energy report, this sector had a turnover of NOK 397 billion in 2019 and ranked as Norway's second largest industry after production and sale of oil and gas itself.

Also termed contractors/subcontractors, supplier companies large and small deliver a wide range of goods and services to all phases of the industry.



80%

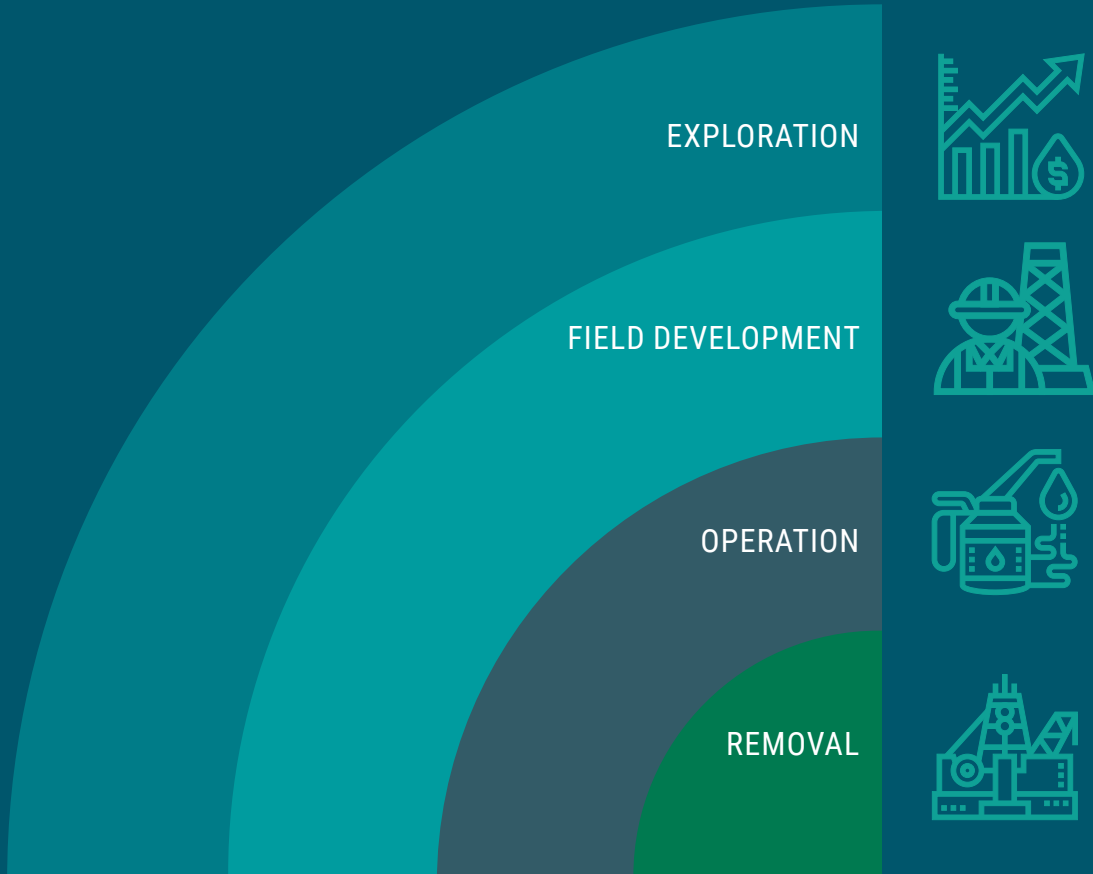
About 80 per cent of employees in Norway's petroleum sector works for a supplier company, according to the Norwegian Institute for Research in Economics and Business Administration (SNF).



These companies account for more than 70 per cent of people actually working on the NCS. Many of them alternate between jobs offshore and on land.

70%

Supplier services in various industry phases.



- Seismic surveys
- Data processing
- Geological and geophysical services
- Rig and drilling services
- Engineering and project management
- Fabrication
- Production and installation of equipment packages
- Installation and tie-back of subsea production facilities
- Maintenance
- Catering
- Maritime services/shipping
- Logistics/transport
- Large upgrades, such as new processing equipment and drilling more wells
- Plugging wells
- Logistics/transport
- Disposal work

Suppliers on mobile units

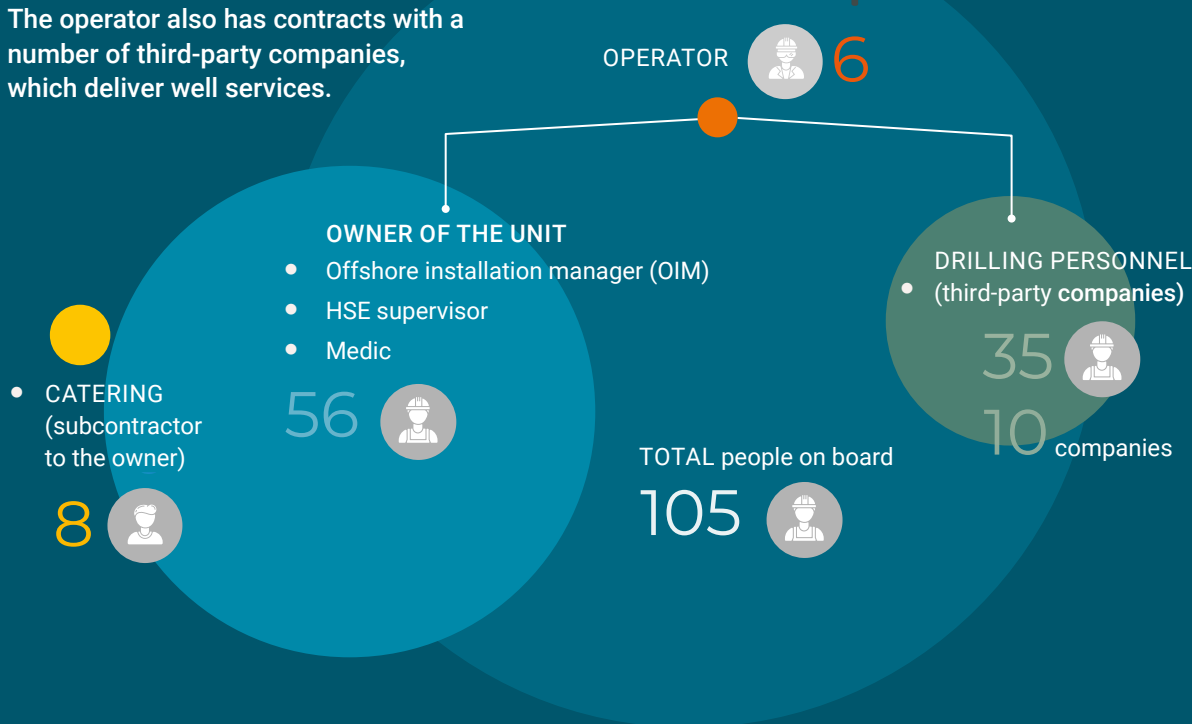
Crew on a mobile unit when drilling an exploration or production well (12¼-inch section).
From an actual NCS drilling operation.

OPERATOR: overall responsibility for the work. On a mobile unit, it will typically have two drilling supervisors (day/night) together with a drilling engineer, safety adviser and geologists.

OWNER OF THE UNIT: the operator's contractor. It employs the management – including the offshore installation manager (OIM) – as well as drilling, technical and maritime personnel.

CATERING COMPANY: delivers kitchen services and cleaning as a subcontractor to the owner.

The operator also has contracts with a number of third-party companies, which deliver well services.





OPERATOR PERSONNEL

- 1 Drilling supervisor – day
- 1 Drilling supervisor – night
- 1 Drilling engineer
- 1 Safety adviser
- 2 Geologist



STAFF PERSONNEL

- 1 Offshore installation manager
- 1 Safety supervisor
- 1 Medic
- 1 Storekeeper

MARITIME PERSONNEL

- 1 Marine section leader
- 4 DP operator
- 2 Deck foreman
- 2 Crane operator
- 6 Roustabout

TECHNICAL PERSONNEL

- 1 Technical section leader
- 2 Subsea engineer
- 1 Assistant technical leader
- 4 Engine-room operator
- 3 Mechanic
- 1 Electrical supervisor
- 4 Electrician
- 1 Welder

DRILLING PERSONNEL

- 1 Rig superintendent
- 2 Toolpusher
- 1 Performance toolpusher
- 2 Driller
- 2 Assistant driller
- 2 Derrickman
- 2 Assistant derrickman
- 8 Roughneck



CATERING

- 1 Camp boss
- 3 Cook
- 4 Steward/
stewardess



DRILLING PERSONNEL

- 2 Technician
- 2 Service engineer drilling
- 1 Data engineer
- 1 Mud logger
- 2 Sample catcher
- 4 Cementer
- 2 Operator
- 1 Mud engineer
- 2 ROV supervisor
- 2 ROV operator
- 2 MWD operator
- 2 Directional driller
- 4 Wireline operator
- 1 Liner hanger specialist
- 2 Scaffolder
- 2 Painter
- 2 Welder
- 3 Climber



Exposed

Groups particularly exposed to risk in the petroleum sector are workers considered especially vulnerable to occupational injury or illness.

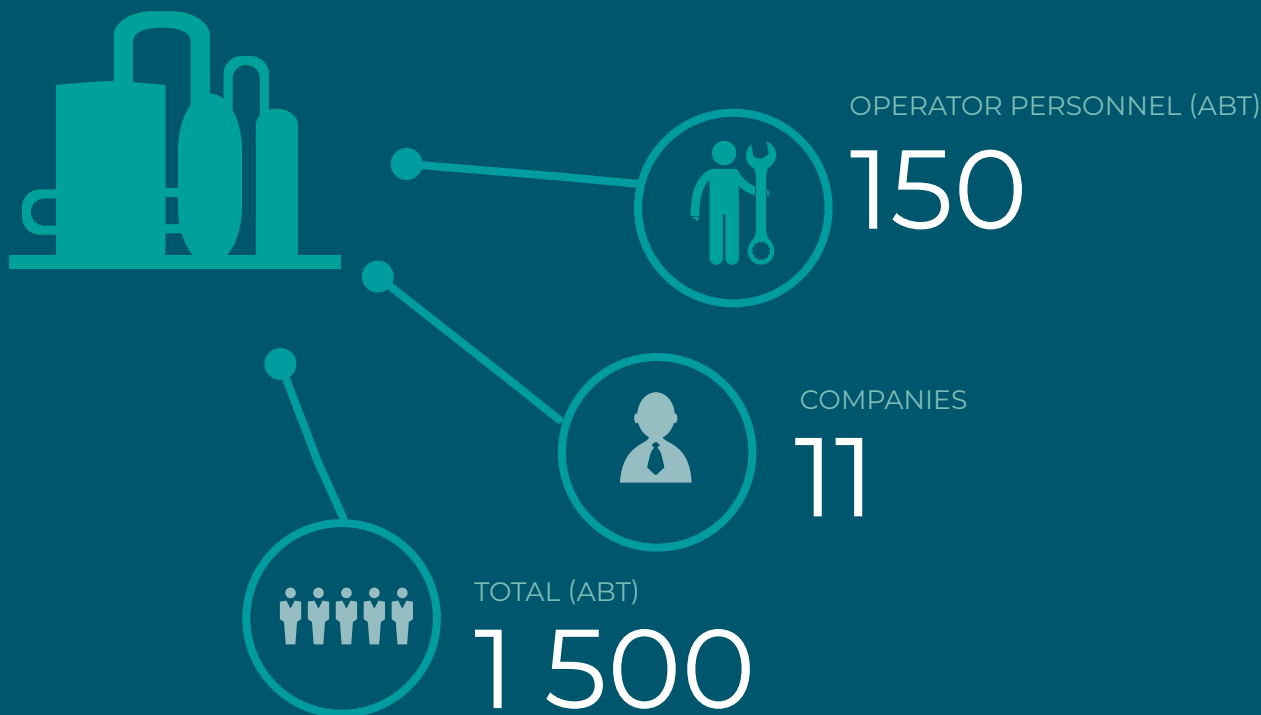
It is very important that companies pay special attention to these categories. Supplier personnel often face higher risk than operator employees because they work at the sharp end.

BY EILEEN BRUNDTLAND

Suppliers at a **land plant**

Staffing at a Norwegian petroleum plant on land during a planned turnaround, based on a specific operation.

About 150 OPERATOR employees worked on the turnaround in addition to personnel maintaining normal daily operation. Eleven different SUPPLIER COMPANIES contributed.



NUMBER (ABT)	SERVICES
150	• Operator personnel
500	• Main contractor (mechanical, welding, electrical and automation work)
200	• Insulation, scaffolding and surface treatment
150	• Installation of new reactor
100	• Cleaning and inspection of heat exchangers
95	• NDT services
70	• Crane and lifting (23 fixed/two mobile cranes)
70	• Cleaning services (12 cars/two tractors)
50	• Masonry work
50	• Special mechanical work
25	• Heat treatment
35	• Work on rotating equipment



TOTAL
1 495

Activities

All operations offshore and within the gates of Norway's eight onshore petroleum plants are regarded as falling within the definition of oil and gas activities.

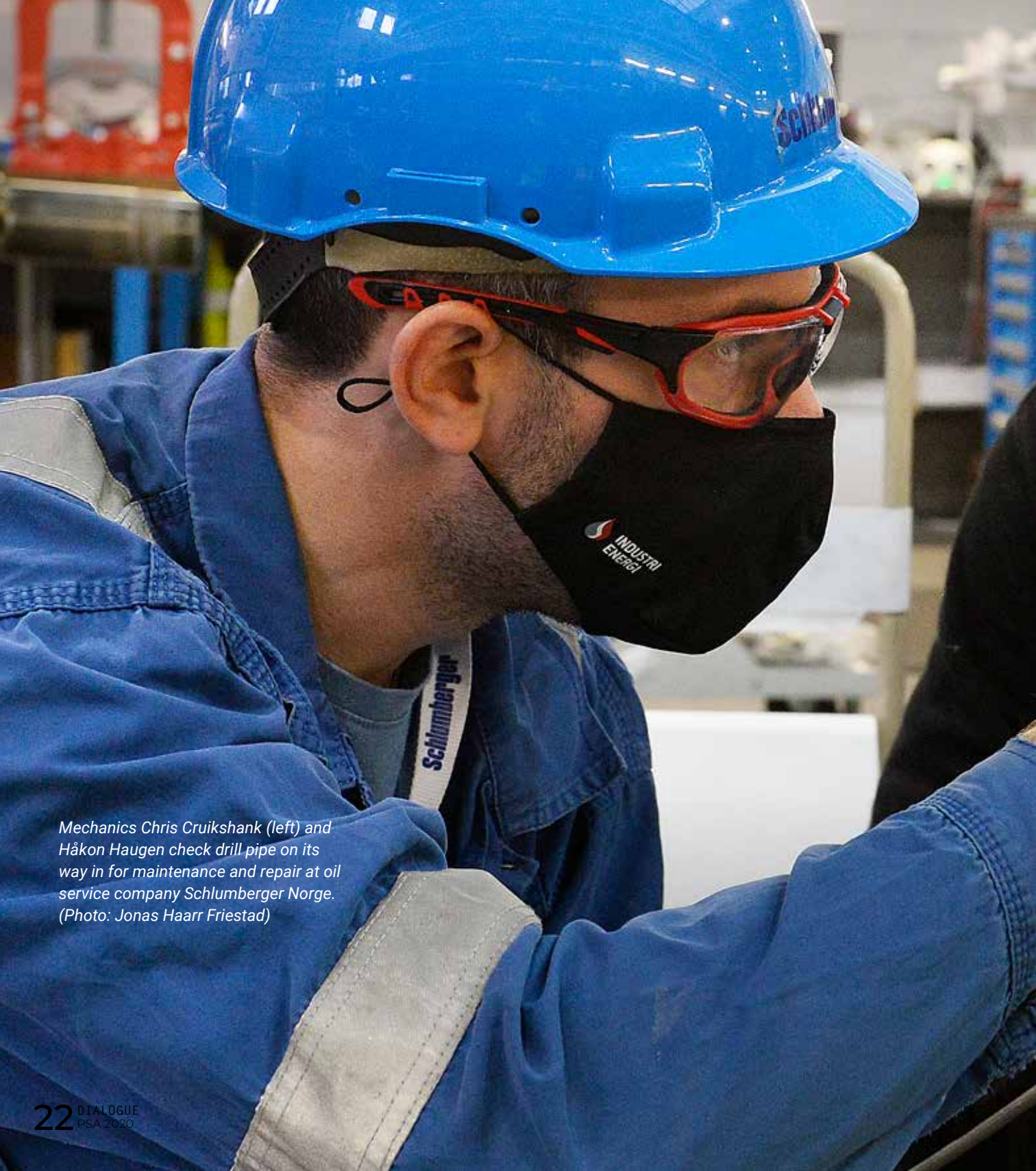
The PSA has supervisory responsibility for these operations. HSE for activities on land outside the defined plants falls within the purview of the Norwegian Labour Inspection Authority.

Participation important

Worker participation is a regulatory requirement in Norway. The principle is that the person exposed to risk must be involved in the company's decisions related to HSE.

The aim is to utilise the collective knowledge and experience of employees to ensure that any issues are adequately clarified before a decision is taken.

With many solutions determined at local level, it is important that everyone involved has a genuine opportunity to be heard – including the suppliers.



Mechanics Chris Cruikshank (left) and Håkon Haugen check drill pipe on its way in for maintenance and repair at oil service company Schlumberger Norge. (Photo: Jonas Haarr Friestad)



BY ASTRI SIVERTSEN

Contractor and collaborator

New forms of contract are emerging in the oil sector, where the concept of “one team” has also been spreading. The question is how these work in practice.



Workshops for servicing and repairing drill pipe and other items stand one after another on the big Schlumberger site at Tananger west of Stavanger.

Starting with washing and cleaning in the first shop, equipment progresses through repair, calibration and testing until it is ready for dispatch from other end.

“We save half an hour by attaching the drill bit to the string here,” explains workshop head Terje Nordhus. “More and more equipment is being readied on land before going offshore, where it can just be plugged in and started up.”

The desire to achieve the best possible well position for recovering the maximum amount of oil and gas means the drill string is packed with advanced electronic devices.

These measure, log and transmit information from the borehole to a directional driller and other specialists – who might well be controlling the operation from land.

The lowest section of a drill string may contain 30-100 metres of measuring equipment, Nordhus explains. He pats a seven-metre length of pipe and puts its value at roughly USD 500 000.

“We’re measured on efficiency and downtime, both in our own company and by the customer,” he explains.

Twice as fast “Technological improvements and alternative ways of working introduced since 2014 mean we now drill twice as fast in terms of metres per day,” says Sigbjørn Lundal.

He serves as the coordinating chief safety delegate in Schlumberger Norge, and backs this comment with figures from Equinor.

In 2007, the Norwegian oil company drilled an

average of 76 metres per day on the NCS. That has risen to 147-157 metres by 2020.

Lundal says that the formidable improvement in efficiency achieved in this sector has resulted in more offshore projects going ahead.

“The trend is very positive for oil company finances. But it also means that our employees working out there have a busier time than before – with fewer resources.

“While Schlumberger earlier had 12-14 people to operate the drilling and logging equipment on a platform, that figure is now down to five.

“And while the personnel used to be specialists in their particular discipline, every employee has now had to learn to do several types of job.

“The service companies themselves were also more specialised. Some were good at cementing, others at drilling. Most have now abandoned that and become turnkey suppliers.”

Bonuses While the normal practice in the past was to agree a fixed price for the number of metres drilled, payment today depends more usually on bonuses for the work done.

One customer tried to relate such bonuses to HSE incidents, so that the supplier suffered financially if injuries were incurred along the way.

But such a system encourages under-reporting of incidents, which Lundal says is extremely harmful and threatens the whole Norwegian HSE regime.

“This attempt was averted by our safety delegates and unions, in collaboration with their counterparts in Baker Hughes and Halliburton,” he explains.

“We face the same challenges where efficiency improvements are concerned, of course, and meet the same customer demands. Even though we’re competitors, we stand together on the challenges.”



After the coronavirus struck, 300 people had to go from Schlumberger Norge. But the tax package has yielded more work. Customers who had postponed projects until 2021 have now said they want to get going this year. "I believe we'll see rising activity in the time to come," says Sigbjørn Lundal, the company's coordinating chief safety delegate. (Photo: Jonas Haarr Friestad)

Relationship Another trend witnessed by Lundal in recent years is the adoption by customers of the "one team" concept to describe their relationship with suppliers.

"But this in no way means the same thing for all operators," he observes. "If one of them isn't interested in having us totally integrated in it's organisation, it doesn't have 'one team'."

He cites Aker BP and Hungarian company MOL as examples of customers who have understood how this should be done.

The first of these entered into an alliance with Schlumberger and Stimpwell Services a little over a

year ago. This aimed to achieve faster operations and more oil production with the aid of well intervention and stimulation.

"These operations are so complex that good collaboration is essential, or this wouldn't have functioned," emphasises Lundal, who says the model works.

Schlumberger personnel are involved in planning the solutions they will be delivering, and deciding how much input they should have. The working environment is good, with low sickness absence.





Bjørn Harald Flaten checks that the drill pipe functions as it should. (Photo: Jonas Haarr Friestad)

Operator When the economic slump hit the oil sector in 2014, Karl Johnny Hersvik was CEO of Det Norske Oljeselskap (Det Norske), operator of the Alvheim field in the North Sea.

This was to be developed with several sub-sea wells tied back to a production ship, and Det Norske decided to try out a simpler and more efficient organisation.

Instead of separate project teams at the operator and the contractor, with a joint group at the top, it built a single team with a unified management.

“Det Norske basically believed it was fairly good at implementing such projects,” says Hersvik. But the results astonished the company.

It not only succeeded in cutting development costs by almost 20 per cent but also – and most extraordinarily – reduced execution time.

“We were used to this work taking 20-22 months,” Hersvik explains. “But the alliance project – the whole Alvheim subsea tie-back – was done in 11 months.”

Alliances Hersvik is today CEO of Aker BP, which currently has seven alliances of this kind covering various areas of its business. The best of these show a substantial improvement in quality.

However, Hersvik admits that this way of working can be “a bit of a troublesome process viewed from a management perspective. At one point, you begin to wonder if you’ve lost control.

“And then you discover that the opposite is happening – you’ve got better control. It’s just that part of the problem-solving has moved closer to the problem.”

He adds that companies in Norway have a huge advantage – a performance-based regulatory regime. “That means there are many ways of solving problems.”

According to Hersvik, the better the assignments are defined and structured, the more successful the alliances have been. But there is one exception.

This is the well maintenance and intervention partnership with Schlumberger and Stimwell, where it has proved possible to build in a single solution and collaborate well despite big variations in the scope of work.

Hersvik emphasises that trust between the partners is essential for alliance success. “And one more thing – we as an oil company must accept that the suppliers have to make money.”

He sometimes finds an attitude among operators that their suppliers should be squeezed to the limit, and regards that as a very counterproductive approach.

In his view, enough wastage exists in oil and gas processes for all the players to make a good living if they work systematically on eliminating bureaucracy and duplication.

“We want our alliance partners to earn well and be successful commercially when we succeed as an oil company,” Hersvik says.

Share That point is also made by PSA principal engineer Irene B Dahle, who believes that sharing both upside and downside in financial terms is a precondition for working as a team.

“The main challenge I see with ‘one team’ is that it can quickly become fine words,” she says. “You must have incentives, including in the contract, which support such collaboration.

“Costs are under pressure in the industry. So the search is on for new models to make work more efficient. If you can then get better collaboration and safety as well, nothing could be better.”

But if the model means that the financial risk is transferred from the operator to the supplier, she observes, it can have unfortunate consequences.

“The supplier risks losing money, and that can hit safety. Unfortunately, we sometimes see that the contracts are very tight – and very much on the operator’s terms. That’s a concern for us at the PSA.” ●

Off their knees

Closer collaboration between operator and supplier is about saving time and money, believes Monica Th Bjørkmann, CEO of Subsea 7 Norway and chair of the Norwegian Oil and Gas Association.

She became the first representative of the supplier sector to head the board of the industry organisation on her election a year ago.

“We’re in a time of change, where the operator companies have understood that not everything is about them,” Bjørkmann says, and notes that the suppliers account for 80-90 per cent of hours worked in Norway’s petroleum sector.

She attributes a trend towards greater collaboration between supplier and operator over the past five years to two factors – it lowers costs and shortens project execution time.

“By working closely together from a very early phase, you can trim up to a year off at the planning stage,” Bjørkmann observes.

Contracts She estimates that her company’s turnover is split about 50-50 between alliances generally involving several suppliers, and the classic model based one supplier and one operator.

In a typical alliance solution, the participants share the financial upsides and downsides and play for the same team.

“It’s a buyer’s market today,” Bjørkmann says. “As a supplier, we must adjust to the prevailing conditions. Regardless of model, opportunities exist for good operator-supplier collaboration.

“What differentiates the models, and appeals particularly to the suppliers, is the opportunity to secure ‘incentive-based’ contracts. These encourage and motivate you to search for better solutions which cost less.”

In any event, she says, the important consideration for the supplier is to be involved at an early stage.

“That allows us to be a partner for the operator, bring out our expertise and experience, and produce cost-effective and optimal solutions.”

Traditionally, she notes, the supplier did not become involved until the operator had picked its concept. “We can then procure and fabricate and install, but can’t exert much influence.”

Difference Bjørkmann sees a big difference between the 2020 downturn and earlier crises. When the pandemic broke out, the supplier industry had still not fully recovered from the previous slump.

“I’d say we were still on our knees in financial terms. If the operators had then pushed once again and told us to cut costs even more, I think we suppliers would have found it hard.

“But they actually haven’t done that. I think that’s because they understand it’s important for the supplier industry to survive this crisis.” ●



Monica Th Bjørkmann.

Assigning accountability

The division of responsibility in the Norwegian petroleum industry is clear – whoever owns the risk also owns the duty to deal with it. And that means the companies.



THE SUPPLIER is responsible for the safety of its own operations, and must have a management system which takes care of HSE and the working environment in these activities.

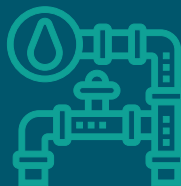
THE OPERATOR has a special accountability to ensure that operations are conducted overall in a prudent manner and in accordance with the regulatory provisions.

This overarching “see-to-it” duty requires the company to ensure that everyone doing work on its behalf complies with the HSE regulations, and is additional to the general accountability for compliance which applies to all players.



THE LICENSEE is also subject to the see-to-it duty, and must ensure that the operator is able to conduct its operations in accordance with the regulatory requirements.

If it identifies conditions which do not accord with the regulations, every licensee is required to intervene.





Surviving at the **sharp end**



CEO Bård Bjørshol (left) and HR vice president Thorbjørn Jensen at Kaefer Energy. (Photo: Monica Larsen)

BY ASTRI SIVERTSEN

Insulation, scaffolding and surface treatment (ISS) companies are among the first to feel the effect of cut-backs and cost savings. So a long-term contract is worth its weight in gold.



The workforce at Kaefer Energy, based in Forus outside Stavanger, totalled 2 150 people in the second week of March. A week later, that figure had slumped to 500.

Nine months after the coronavirus hit Norway, a 40-strong shift is working to prefabricate components to insulate piping and valves for projects offshore and on land.

And a 17-metre-high scaffolding tower outside the workshop is the tangible result of a five-week course for 14 participants under an agreement with Norway's Labour and Welfare Service (NAV).

"These are the next generation of scaffolders," observes Thorbjørn Jensen, Kaefer's human resources vice president. He worked in that trade himself during the 1990s.

The bulk of the workshop team are Poles. They wear red, green or blue sweatshirts to show which of them work closely together on the shift, and who live and travel together – to avoid Covid-19.

Kaefer issued layoff notices to virtually all its employees in March, and about 50 have still not returned to work – primarily because they live in a red zone and want to avoid quarantine.

"We've been back to 75-80 per cent of our pre-March level of activity this autumn," says Jensen, who is also a long-serving member of the Safety Forum.

Chaired by the PSA, this serves as the central arena for HSE collaboration between companies, unions and government in the petroleum sector.

First The ISS business to which Kaefer belongs is well-known for being one of the first segments to be hit when cut-backs and cost savings are on the agenda.

Services for the petroleum sector, including the onshore plants at Kårstø and Mongstad, account for 98 per cent of its activity in Norway.

That makes its mark when oil prices fall – and when the country shuts down. The company chalked up peak revenues in 2019 – but will not be overturning that record this year.

"The spotlight has been on cutting costs for as long as I can remember, and we've been pursuing continuous improvements for many years," says Kaefer CEO Bård Bjørshol.

However, he says that much has got better in recent years and notes that customers and their representatives are facilitating more collaboration and development than before.

A typical contract earlier would run for three years, with opportunities to extend it for a further two. Then Kaefer entered into a 15-year agreement with Equinor in 2015.

"That was quite new, and made a dramatic difference," Bjørshol says. "It gives us assurance that we can benefit from an improvement initiative over time and along with the customer. It's not just money out of the window."

Responsibility This frame contract gave Kaefer responsibility for several large NCS facilities, initially Troll A, B and C, Åsgard A and B, and Kristin.

The company also had the prospect of more assignments if the customer was pleased, although Bjørshol emphasises that it has no assurance of retaining even the scope it has today.

"If we're not among the best performers, we'll very probably see our responsibilities reduced. It's what we deliver every day which adds up to a result."

Jensen compares this to a football league table.



The next generation of scaffolders train outside Kaefer Energy's offices at Forus in Stavanger. Suppliers involved with insulation, scaffolding and surface treatment (ISS) are particularly vulnerable to cyclical changes. (Photo: Monica Larsen)





Some teams face relegation, while others are promoted – as Kaefer has been by having Martin Linge and Johan Sverdrup added to its scope of work.

“When contracts are long, everyone concerned displays much more willingness and acceptance for investment in better and more intelligent solutions,” he says.

“With short-term jobs, it’s easier to think they need to be completed as quickly and efficiently as possible. But we find that the more familiar we get with the work, the better we do it.

“Once we’ve clarified the expectations we have of each other and know where we’re headed, everything becomes much easier. That’s been our experience during long contracts.”

But he adds: “A proportion of a service company’s assignments are always unpredictable. The goal is to obtain greater predictability for short jobs as well.”

Freedom Bjørshol believes suppliers have secured greater freedom and the right to participate in decision-making. That occurred particularly after the 2014 oil price slump.

The operators wanted to get costs down, and one way to achieve that was to collaborate with the suppliers in order to come up jointly with new and better solutions.

“We’ve been put in the driving seat more often than before in the search for novel approaches,” Bjørshol says.

Nevertheless, he fears that good new ideas fail to be adopted because certain customer representatives are unable to see their long-term benefits and prefer to make immediate cost savings.

“We’re a guest at the customer’s facility and, if it doesn’t want to adopt our innovation, this will get shelved. So when we invest in better solutions, the customer must be involved to see that they are used.”

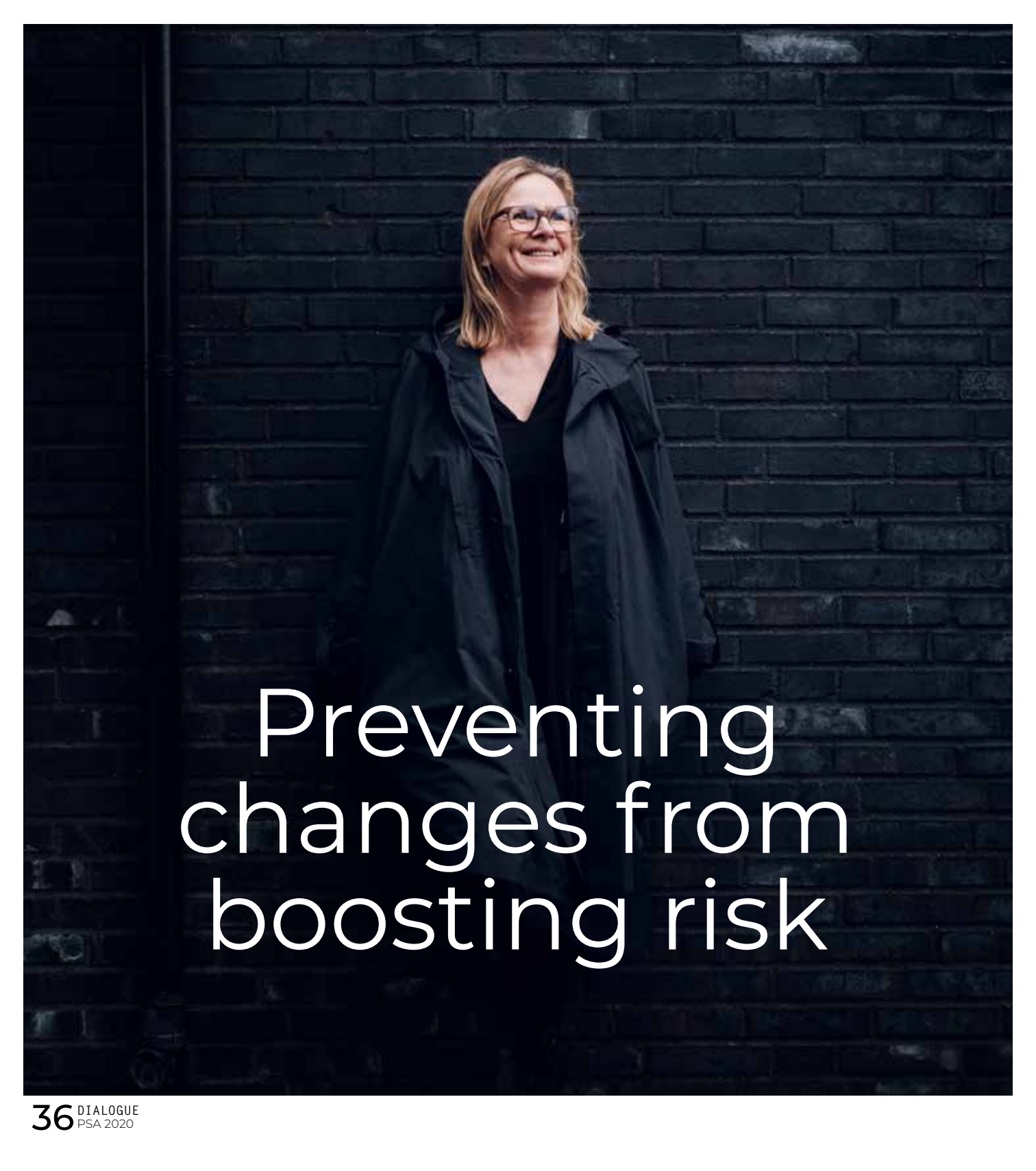
The operator is invited to contribute financial support and technical expertise, but Bjørshol wants to ensure that the intellectual property rights remain with the supplier.

Both he and Jensen also point to another improvement in the relationship between customer and supplier.

“Customers used to send us their programme for next year’s work as late as December,” says Bjørshol. “That meant management lacked the time to prepare assignments the way it wanted.

“We now get the annual programme the summer before. That lets us plan and seek to keep workforce numbers as stable as possible – which also achieves predictability for employees.” ●

Components for insulating piping and valves for offshore and onshore use are prefabricated in Kaefer Energy’s workshop. The work teams wear different-coloured sweatshirts to help with infection control. (Photo: Monica Larsen)



Preventing changes from boosting risk

Operating parameters can affect the level of safety through direct and indirect mechanisms. So when they alter, it is very important that both operator and supplier understand the consequences.

Framework conditions in the petroleum industry are largely determined by the operators, with the suppliers required to work within them. Important terms are set in contracts, such as:

- supplier capacity and leeway
- flexibility and response times for mobilisation
- organising the work
- level of staffing
- compensation format
- key performance indicators (KPIs) and incentive schemes.

In many cases, the contract in itself is neutral and flexible. But it may be angled in one direction or another by management signals and objectives.

“We know that these factors can influence both the working environment and major accident risk,” observes Irene B Dahle at the PSA.

She heads a work group looking at the impact of changed parameters on HSE, particularly with operator/supplier relations, forms of affiliation and working time arrangements.

In recent years, the petroleum industry has undergone a number of restructurings and efficiency enhancement processes which have involved significant changes to contractual conditions.

These developments relate to the division of roles and responsibilities between operator and supplier, organisation of work, and the individual's working conditions.

Flexibility The key changes include new compensation formats, greater demands for contractor flexibility, and enhanced contractual and financial risk for suppliers.

New operating models also mean greater management of activities and rotation schemes, looser forms of affiliation for suppliers, and workers being contracted in and out.

In addition come pressure on employee expertise, education and training as well as a reduced level of manning – both fixed and flexible.

“Economic incentives largely underpin these changes, and it's naturally quite understandable that companies make adjustments to improve efficiency and profitability,” says Dahle.

“At the same time, they must ensure that changes don't have a negative effect on safety. They must know the consequences of their actions – both direct and indirect.”

Weighty She points to several weighty arguments for the PSA to devote time and surveillance resources to keeping abreast of the developments now taking place.

“Our approach is risk-based. We know that suppliers do a great deal of the work in the petroleum sector – and that they embrace the employee categories most exposed to risk.

“We also know that the operating parameters set in contracts are significant for the way these exposed groups are followed up in the HSE area.”

“Contracts and their follow-up are a powerful tool, which can contribute to a high level of HSE if used in a good way,” says Irene B Dahle. She heads the PSA's work on how changes to operating parameters affect HSE. (Photo: Tommy Ellingsen)



In addition, she says, the PSA has seen a trend in recent years where more financial risk and responsibility are being transferred to the supplier.

“This takes various forms. One is greater use of performance-based compensation, where the supplier bears more financial responsibility if delays occur, for example, or with other disruptions.

“That can have a negative impact in cases where a supplier faces the prospect of suffering a loss or failing to make a profit.”

Suppliers also often face demands to reduce staffing or to implement manning analyses, Dahle adds. “We worry suppliers go too far with workforce cuts to win or retain important contracts.

“If they’re also financially liable for raising employee numbers should these prove too low or if margins are otherwise narrow, the danger is that manning becomes a balancing item.”

Stringent The need to cut costs has also meant that suppliers face tighter parameters, Dahle says. “We’re concerned that contractual terms have become too stringent in certain areas.

“The question is also whether tough competition can prompt suppliers to overreach in order to secure or retain contracts – and go so far that safety might be affected.

“Contracts and their follow-up are a powerful tool, which can contribute to a high HSE level if used in a good way. But we’ve also seen that they can create unfortunate incentives.

“It doesn’t help, for example, to announce loudly and clearly that everyone always has the time to work safely if operating parameters contribute to the opposite effect.”

Audits The PSA has conducted a number of audits in recent years directed at changing parameters, including a series of meetings with an operator

and the suppliers it has given contracts to.

These have taken place in connection with contractual changes for catering, maintenance and modification, insulation, scaffolding and surface treatment (ISS), and drilling and well.

“In all our audits, we pursue a dialogue with the safety delegate service,” explains Dahle. “And we participate in other fora where these elected safety officers are present.

“They’re an important information channel for us, and good contributors. Unfortunately, however, we’ve found a poor climate for speaking freely where parameters and HSE are concerned.”

Annual status meetings with supplier companies are another important information channel, not least for learning about conditions set by the operator which could affect safety.

Addressing the operator’s overarching see-to-it duty when auditing changes to parameters offers an appropriate way to check that activities in its supplier chain are conducted prudently.

“The question here is how the operator contributes, by shaping its parameters and following up suppliers, to reducing safety and working environment risk,” says Dahle.

“Operators must also assess terms which indirectly affect risk and risk management at suppliers. That includes various performance indicators and incentives which could have negative consequences in the form of under-reporting.”

Responsibility Dahle adds that it is also natural to look at how the suppliers discharge their own accountability for managing safety and the working environment.

“In many cases, contractual parameters are highly significant for a supplier’s ability to manage safety in a good way. But it also has an independent responsibility.

“That extends not least to maintaining a dialogue with the operator and reporting if any terms have negative safety consequences.”

Another important question is whether the division of responsibility between operator and supplier accords with the latter’s opportunities/resources to meet its accountability.

Noting this, Dahle says that both the operator and the supplier have a duty to ensure that such a conformity exists.

“A subsidiary question is whether the demands made on the supplier are balanced in relation to the input from the operator, so that the former is able to meet the requirements.

“An example might be the supplier’s ability to identify and assess risk. Does the contract provide scope for the expertise and capacity required to do that? And how do operator and supplier collaborate to produce an integrated risk picture?

“Finally, it’s important to assess the opportunities available to the supplier for modifying the parameters if these have negative consequences – in other words, how dialogue- or demand-oriented the operator is.”

Effective The PSA considers it important to ensure the most effective and purposeful follow-up of amendments being made to operating parameters.

Other goals are to enhance industry knowledge about the consequences of such changes and help to manifest responsibility for HSE management in the operator/supplier relationship.

“Overall, this could ensure better safety management at both industry level and in the individual company – and thereby reduce major accident and working environment risk,” says Dahle. ●

Operating parameters

These are defined as conditions which influence the practical opportunities of an organisation, organisational unit, group or individual to control major accident and working environment risk.

Performance-based compensation format

Unit- and fixed-price contracts are examples of performance-based compensation formats. Where these are used, the supplier is paid more for doing the work in a shorter time.

Key performance indicators

Abbreviated to KPIs and also known as target figures, these refer to data which show how well a company or an organisation performs. Bonuses or other rewards are often tied to such indicators.

A person is seated in a control room, viewed from behind. They are wearing a headset and looking at several computer monitors. The monitors display various data visualizations, including bar charts, line graphs, and 3D models of industrial equipment. The background features large windows showing an industrial facility with blue and yellow structures. The overall lighting is dim, with the primary light source being the screens and the ambient light from the windows.

Working towards
a new era



BY EILEEN BRUNDTLAND

Digitalisation is radically altering the petroleum industry, and will mean major changes for many employees. But what will tomorrow's working day look like for the digital oil worker?

Introducing new technologies and solutions to the oil sector is leading to big transformations in jobs and the organisation of work.

These innovations cover everything from the use of drones, portable technology and sensors on clothes and equipment to new forms of interaction and decision support for automated systems.

Potential “New digital solutions can reduce or eliminate manual and demanding tasks, and have a big potential for reducing human error,” says Linn Iren Bergh.

A senior adviser at the PSA, she is heading its follow-up of the industry’s digitalisation work and sees many safety gains related to the new technology now being adopted.

“In drilling and well, for example, digital well planning and automated drilling operations are increasingly being utilised,” she notes.

“That gives drilling personnel more decision support when doing their job because the system reports errors if challenges occur. That permits earlier intervention.”

Another example is provided by hand-held units such as tablets. On stream since 2019, the Johan Sverdrup field was designed specifically for the use of these devices.

They greatly simplify everyday work by sharing real-time data. Procedures, drawings and work

permits can thereby be called up in the work area, while sharing information with the control room.

Risk But innovative technical solutions may also pose new risks, Bergh says. These often arise because their users get pushed into the background.

“Our audits frequently reveal a lack of attention to human aspects when digital solutions are developed and tested,” she observes.

“Knowledge about people and how they react in given circumstances must be incorporated at every stage from design to application. Equipment has to be tailored for varied user needs.

“It’s not least important to test the user’s ability to do their work both under normal conditions and in cases where something goes wrong.”

Expertise Bergh emphasises that the introduction of new technology calls for expertise to be updated – not only for those working offshore, but also for management.

“It’s important that sufficient time is allocated for training, and that this is provided at the right point,” she cautions.

“Although adopting portable technology, for example, has many positive aspects, we mustn’t downplay that this means changes for its users.

“That’s why we, as the supervisory authority, are concerned to see the companies making the



Previous page: Maersk Training’s full-scale DrillSim: 6000 simulator at Svendborg in Denmark. It is used to train drilling personnel so that they are ready to deal with both familiar and unfamiliar challenges. (Photo: Maersk Training)

New digital solutions can reduce or eliminate manual and demanding operations, but must be introduced with care.

Spot, the robot dog from Boston Dynamics, has recently been recruited by Aker BP/Cognite and tested on the Skarv field, where it padded around to inspect, report and acquire data. (Photo: Aker BP)





Linn Iren Bergh.

necessary risk assessments. And it's important that these include the employees.

"Their experience is very significant, not least when identifying and managing risk. Good employee involvement will also help to create trust in the technology."

She points out that alienation is a possible negative effect of digital technology, and says that the PSA sees this as being a particular issue with automation.

"When we combine systems and processes in new ways, knowledge of the underlying preconditions can go missing and we can lose our overview of all the risks in the job we're doing."

Aviation Fatal examples of alienation have been identified in the aviation industry. After two Boeing 737 Max planes crashed in 2018-19, investigators concluded that the pilots did not understand how the automated systems on board changed the aircraft's properties.

As a result, they reacted in the wrong way when a critical position actually arose. A total of 346 people were killed in these accidents.

"Specialists call this phenomenon 'automation bias' – because when something comes from a

machine, we have a tendency to regard it as more correct," says Bergh.

"That could apply to automating risky operations on oil facilities. With drilling operations, for example, this converts personnel from *managing* a process to *monitoring* it."

She notes that automated systems still depend entirely on people. "Even though their role will increasingly be monitoring and supervising, they must be able to intervene and carry out critical operations if the system fails."

Priority The PSA's goal is to help ensure that the industry gives high priority to safety and the working environment when digital technology is developed and applied in the companies.

"We want them to assess risk and vulnerability from an integrated perspective which embraces human, technological and organisational conditions," Bergh emphasises.

"Each company must take ownership and control of the risk when they develop and adopt new systems and solutions. Involving the workforce is an important part of this." ●



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HSE: Health, safety and the environment
NCS: Norwegian continental shelf
PSA: Petroleum Safety Authority Norway



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