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Oil & Gas 

DIGITAL TRANSFORMATION FOR OIL & GAS:

What's important to the industry?

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Oil and gas projects need to remain competitive with the wider market, while navigating a minefield of internal issues ranging from miscommunication to spiralling operational costs.

Among our findings, this report reveals that:

- Predictive analytics is seen as the priority capability for digital solutions in this sector
- 61% of oil and gas professionals consider the cloud to be ‘important’ to their transformation plans
- 50% of these professionals see analytical capability, combining both content and structured data, as business critical

It is almost impossible not to notice the ways in which digital transformation is overhauling today’s businesses. With the introduction of increasingly intelligent technologies, the day-to-day automation of manual tasks offers the possibility of reducing costs, improving quality and increasing efficiency in the same way that advances in manufacturing has previously automated assembly lines.

This progress is rapidly impacting the oil and gas (O&G) sector, which not only deals with huge amounts of data but must compete with a particularly competitive and unpredictable environment.

But digital transformation is more than adding a new suite of tools or upgrading legacy systems. It is more than establishing a new website or moving to leverage cloud computing or advanced analytics. And it is more than hiring a Chief Digital Officer (or equivalent) and hoping they will shoulder the responsibility to push the organization into this new age.

All of these things can indeed be part of the process, but they do not equate to digital transformation in its entirety. Adopting any of these steps should be seen as just that – steps. More thought needs to be given to transforming the processes and practices that may be holding businesses back, from outdated IT strategies to new pressures on data security or employees unwilling to accept new roles and responsibilities.

For O&G enterprises that simply cannot afford to be left behind, the need to implement the right technology in the

right way must be considered within the broader picture – both in terms of organizational benefit and wider market transformation.

This recent study – undertaken by **Oil & Gas IQ** in partnership with **OpenText** – sheds light on what matters to those in O&G when it comes to pursuing digital transformation. Around 200 industry professionals told us about their journey to transformation and the drivers and goals behind the adoption of new digital solutions.

Providing the analysis is Martin Richards, senior director of Energy Industry Strategy at OpenText, in dialogue with Richard de Silva, managing editor at OilandGasIQ.com.

Martin Richards ➤
Senior director, Energy Industry Strategy
OpenText



Martin has spent the past 20 years working in the ECM industry specializing in Professional Services and the Energy and Engineering industries. From 2004 to 2012, he worked at EMC and was responsible for building and running a global services sales team, with a \$150 million sales target. For the past few years he has combined his interest in the energy and engineering industry with his knowledge of ECM to build and take to market a new series of products, built on OpenText Documentum™, for the management of Major Capital Projects and Operating Assets. The early part of his career was spent as a plant engineer in the automotive industry before focusing on CAD and engineering software.

Richard de Silva ➤
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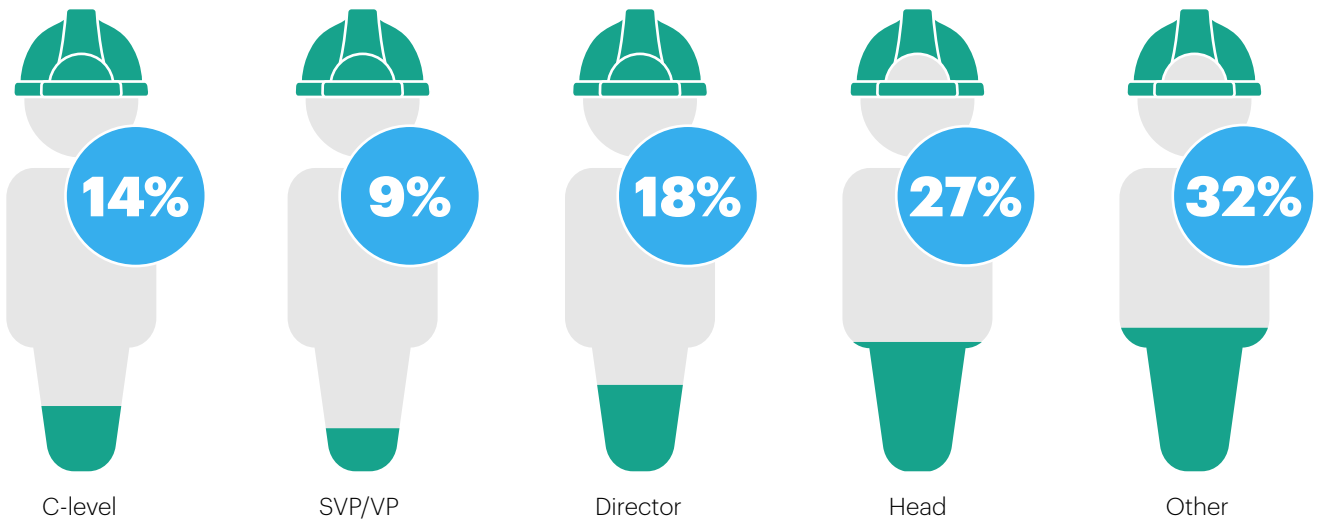


With over a decade of experience in print and online journalism, Richard oversees IQPC Digital’s global editorial portfolio, which aside from Oil & Gas includes media portals in pharma, artificial intelligence, defence and process excellence. He has previously worked for the BBC and Time Inc. UK on both consumer and business programs and publications.

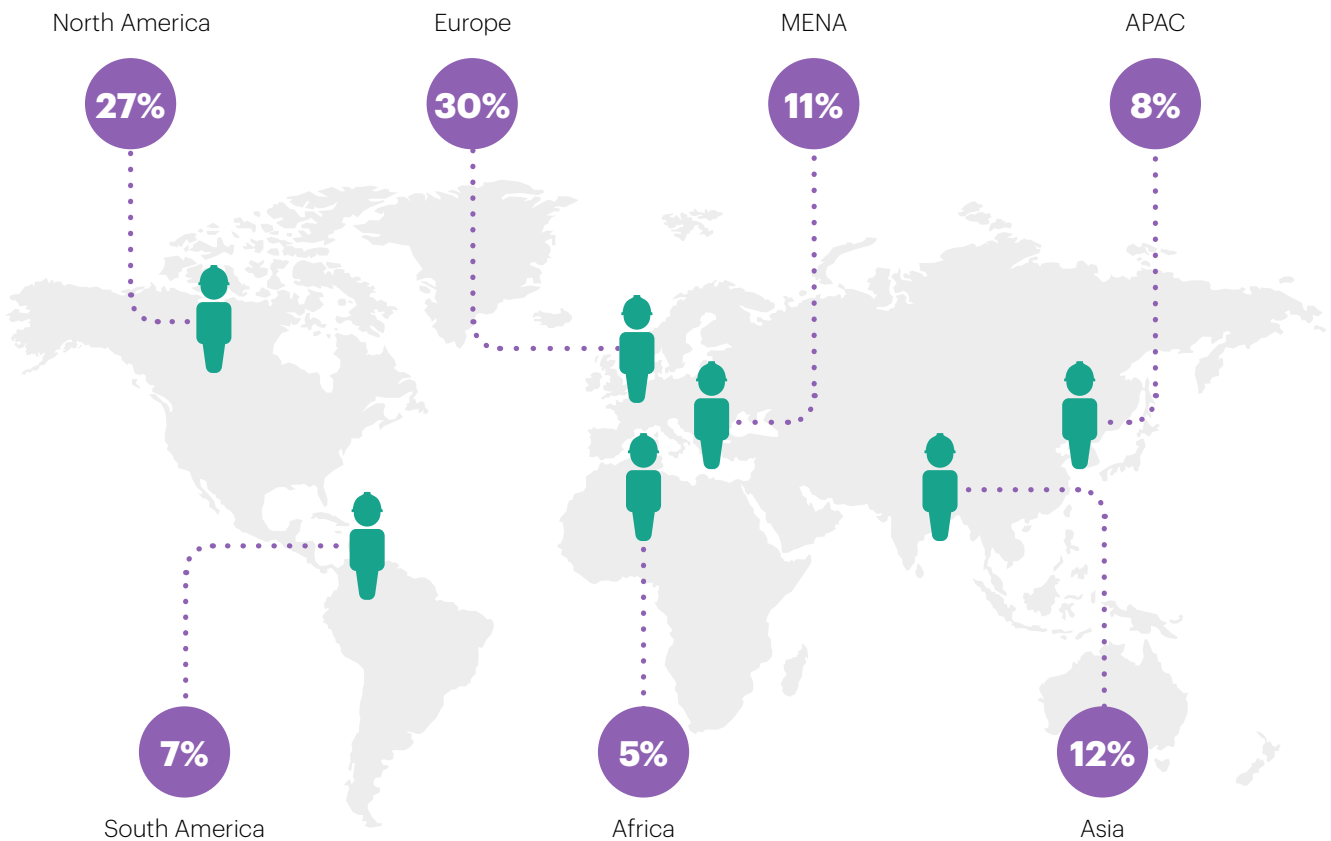
RESPONDENT PROFILE

ROLES

Nearly 200 oil and gas professionals took part in the industry survey. Of these, just under half are at the head or director level.



With respondents based in Europe, North America and Asia, the survey provides a global snapshot of how the industry is transforming.

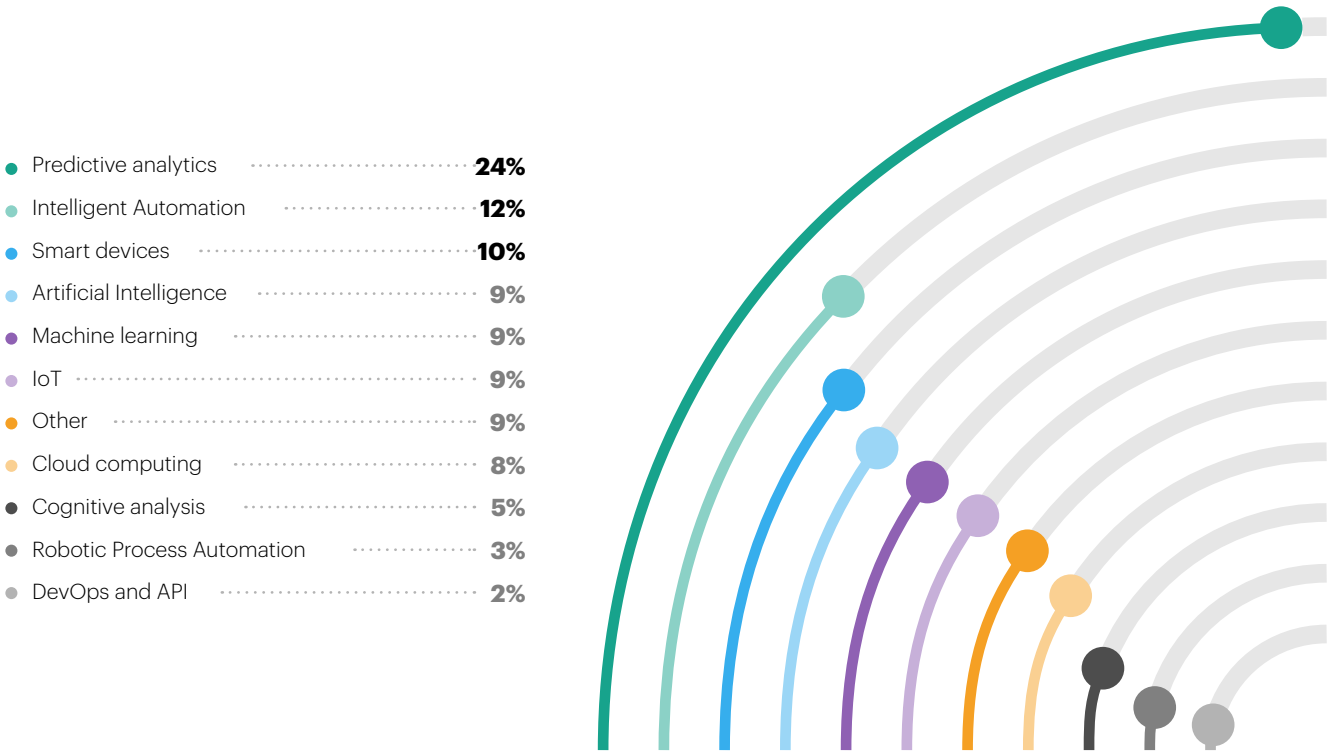


RESPONDENT PROFILE

PRIORITIES

1. Where is your current priority in terms of digital transformation?

The majority of those surveyed will prioritise predictive analytics in their digital transformation projects. This was followed by intelligent automation and smart devices.



Clearly, it is becoming a widely held belief that practices could be greatly influenced and improved with the rolling out of predictive/cognitive analytics and intelligent automation systems, with the sector currently focusing its efforts and investments on predictive, specifically. Most organizations are yet to shift gear towards more advanced levels of technology – such as artificial intelligence and machine learning – correlating with broader global market trends. The journey is only beginning.

Richard de Silva: Martin, does it surprise you that predictive analytics is the current priority for around one in four professionals dealing with digital transformation in the oil and gas industry? What is this type of capability doing for businesses today?

Martin Richards: I'm not surprised that this is the current priority. I see the same thing when I'm talking with our clients. Predictive analytics is viewed as the holy grail for a wide range of business issues at the moment. It goes hand-in-hand with the industry drive we've seen around operational excellence in the last few years, especially amid lower oil costs.

'Being able to predict failure and fix it before it happens – and therefore reduce downtime – is really the ideal goal to improve plant operations.'

Companies are really looking to get the best performance, drive the best revenue and generate the most profit out of their existing assets. Being able to predict failure and fix it before it happens – and therefore reduce downtime – is really the ideal goal to improve plant operations. But predictive maintenance is only one issue that companies are seeking to address through analytics – It doesn't sit on its own.

RESPONDENT PROFILE

PRIORITIES continued

There is a note of caution. These are still very early days for predictive analytics in O&G and in truth, it's not having a huge impact yet. Yes, a lot of companies are beginning to look into it but this has only been for the last year.

As far as I can say, no one organization has cracked it and is currently operating full AI-based predictive analytics operating. I don't believe that's actually happening anywhere yet, other than perhaps in some proof-of-concepts.

In the future it will be a much more significant factor but, in my experience, companies are still focusing on earlier elements of digital transformation. There are still many building blocks to put in place – starting with something as fundamental as completing the transition from paper-based to fully digital business processes.

Richard de Silva: So we can at least predict that there will be a real hunger for practical case studies as and when this sort of technology starts to take hold.

Martin Richards: Absolutely.

Richard de Silva: Intelligent automation outranks AI and machine learning, suggesting that even the small amount of organizations that are looking at these technologies are still just on the start of their journey to a more advanced or 'intelligent' enterprise. Does the road towards more complex technologies mean a more complex transformation process?

Martin Richards: Yes, it's going to be more complex. Let's take content management as an example. Many O&G companies have implemented content management platforms to create a central repository of their digital content. They've moved from paper-based to digital files and managed to achieve impressive benefits in areas such as maintenance and plant management.

The same thing can be said of other enterprise applications such as Enterprise Resource Planning (ERP). However, the difference between content management or ERP and analytics is you can realize their benefits in isolation from your other systems. This doesn't work for predictive analytics. It requires the mountains of structured and unstructured data an O&G company creates to be effective.

You have to already have a basis in things like intelligent automation, smart mobility, AI, machine learning, IoT, and cloud computing – and they all have to be integrated.

'The oil industry has really embraced digitisation driven by the realisation of fewer resources, the rise in other forms of energy and the need to change its way of doing business.'

So it is inherently more complex to operate these technologies but the benefits are significantly greater than most previous generations of technology.

Richard de Silva: These statistics appear reasonably on track in comparison to other industries. Does the oil and gas industry present any particular challenges – or indeed opportunities – when it comes to digital transformation?

Martin Richards: I am surprised that oil and gas is at a similar level on the transformation journey as other industries, rather than slightly behind the curve, so that's very good news.

When you first think about digital transformation in oil and gas, they don't seem to go together at first. It can be difficult to spot a very obvious use case. If you were to take a completely different industry – insurance, for example – you'd understand more instinctively how you could apply technology and absolutely revolutionise that sort of people-based or decision process-based environment. The same with healthcare and dealing with patient records. But oil and gas seems different. How do you digitize what is a very physical and distributed industry in such a way that you're getting real benefits from it?

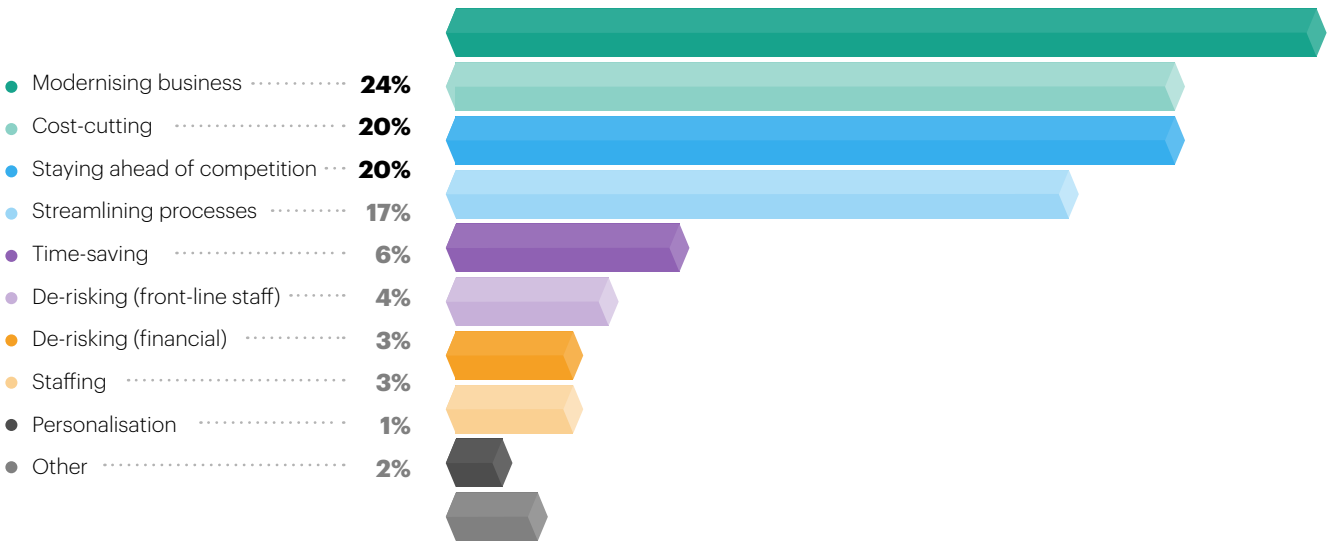
I think that this research shows that the oil industry is really embracing digitization. Companies understand they need to change the ways they do business in the face of uncertain prices, fewer resources and the rise of alternative energy. But, digital transformation in O&G has its own particular set of challenges. For example, putting a maintenance robot on the sea floor is pretty complex thing. It has great benefits, but it's not nearly as simple as digitizing a decision process in the insurance industry.

RESPONDENT PROFILE

DRIVERS

2. What is the key driver behind your current / upcoming digital transformation project?

For the bulk of respondents, business modernization is the key driver behind current transformation projects. This was followed by cost-cutting and market competition.



Emphasis seems weighted towards the broader need to modernize and stay ahead of the continuous curve of the oil and gas sector. For many other sectors, trends suggest less overall importance being placed on cost savings at this stage of the transformation journey, with goals instead commonly focusing on general process and efficiency. However, cost and competition remain the tip of the spear for long-term O&G investments, with digital capabilities offering the most readily viable means towards improvement.

Richard de Silva: Almost a quarter of respondents are targeting business modernization, presumably hoping that gains in costs, time, risk and market competitiveness simply become run-off effects as that target is met. But, from a strategic point of view, is it a mistake to make this assumption? Could the goal of business modernization prove a ‘false idol’?

Martin Richards: I don’t think it’s a false idol. The truth is that the focus for digital transformation is such a wide target – from the needs of the digital oil fields, those of head office, the need for predictive maintenance, sub-sea robotics, and so on. Simply speaking, companies will focus in areas that are important to them, which adds to the variety of these answers.

As an industry we’re also waiting for one or two companies to be really successful in one or two of these areas before there is confidence that others will achieve the same

results. That said, digital transformation has actually been happening for decades. Organizations have been introducing maintenance management systems, SAP, Maxima and other technologies. So this is just a part of a journey.

‘What we’ll see in ten years’ time is an industry operating in a dramatically different way and reaping multiple benefits as a result.’

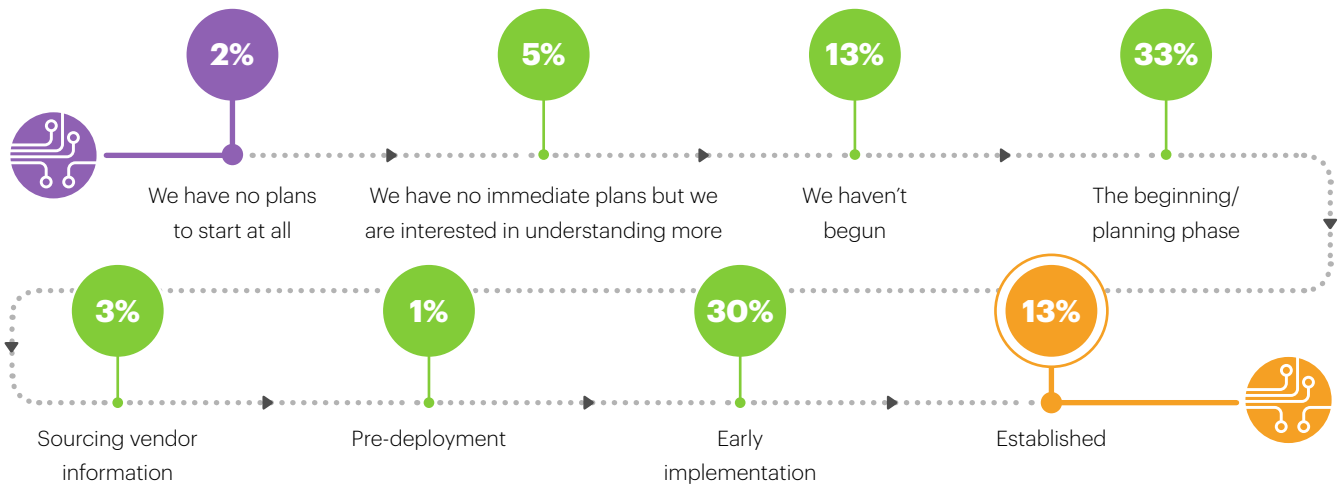
One thing alone is unlikely to restructure the industry in the short-term. It will be many things over a period of time, knitted together, that will change the way the industry operates. Business modernization has always been an ongoing process. What digital transformation does is accelerate that process. What we’ll see in ten years’ time is the industry operating in a dramatically different way than it is today and reaping multiple benefits as a result.

RESPONDENT PROFILE

TIMELINES

3. At what stage are you on in your current digital transformation journey?

Survey findings reveal oil and gas organizations are either at the start of their digital transformation journey or are in the early implementation phase. Few describe their projects as established.



These statistics touch on the gulf between theory and practice that can often risk hamstringing businesses in the oil and gas industry. Despite the promise that digital technology could fulfil, the limited number of established transformation programmes demonstrates a degree of slow progress or uncertainty when it comes to rolling out digital initiatives, as seen across most industries. Encouragingly, 80 per cent of respondents claim to have put the first step forward, while 30 per cent remain in the process of implementation, suggesting that the coming 12-24 months will see a much wider pool of use cases and experience at hand.

Richard de Silva: You mentioned the uncertainty when it comes to rolling out digital initiatives. Can anything else help organizations to ramp up efforts or find the confidence to accelerate their efforts?

Martin Richards: Digital transformation really started at a time when there were lower revenues in the industry. It wasn't the best time to kick off some of these initiatives because the budgets were not as assured as they may be now. Back then, organizations began the programs as they tried to make money at \$50 a barrel.

There is already a greater confidence in the industry. The general view is that the oil price will probably creep up over the next year or two. We are definitely starting to see investment bounce back in oil and gas. That renewed assurance should make it easier to convince the execs in the industry to spend that money on digital transformation as we move forward.

'Driving change programmes is actually a way of bringing new people into the workforce who have a passion for these technologies.'

There's a cultural shift that's also still in play. Some companies still have a mindset that they've been doing things a certain way for 40 years and they don't need these new systems or approaches. But I think people realise deep down that that's actually not the case.

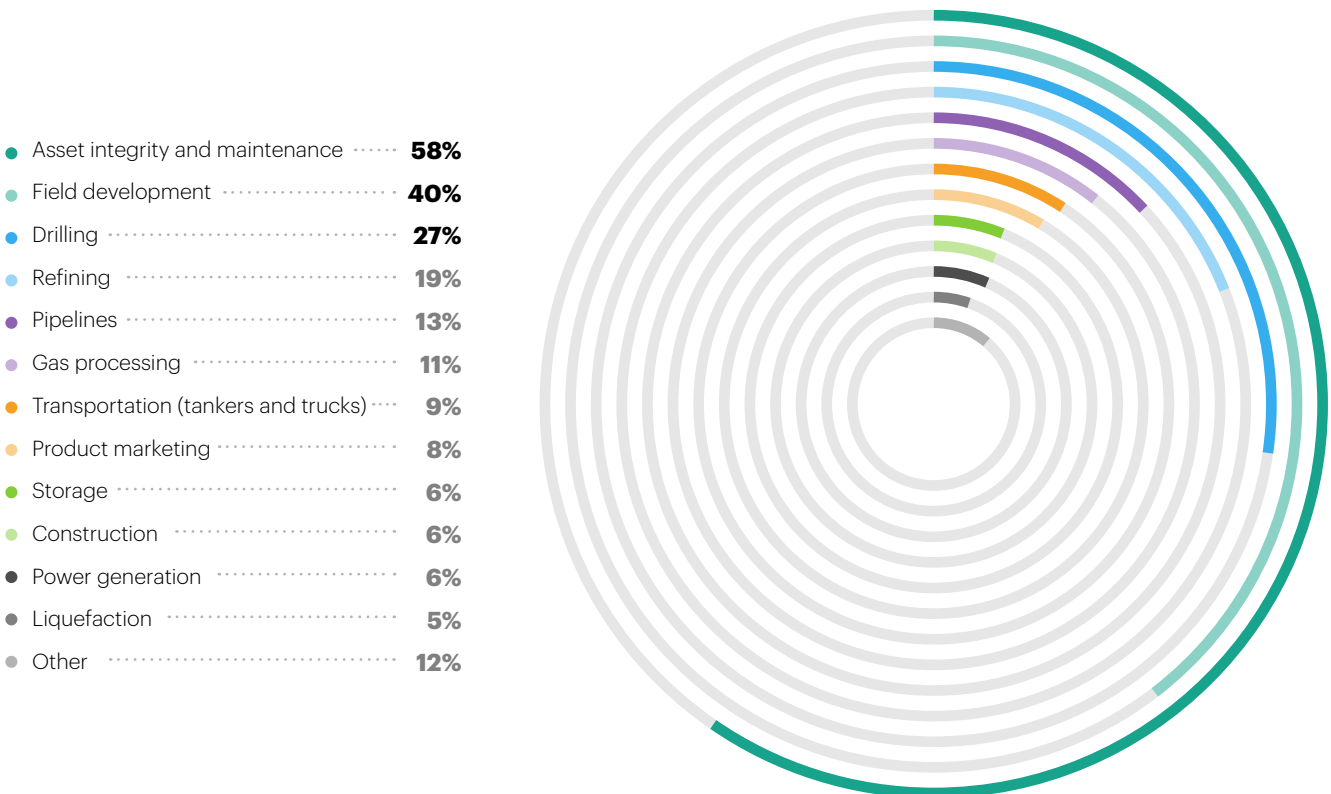
I recently attended a summit with 70 VP and C-level delegates from the oil industry talking about their issues in the industry. Recruiting younger people into the industry was seen as a major challenge. Less than one per cent of graduates in engineering are considering oil and gas. Driving these change programs is actually a way of attracting new people with passion for these technologies and projects. That should be a powerful incentive for digital transformation.

RESPONDENT PROFILE

BENEFITS

4. Which parts of the oil and gas value chain do you think will benefit most from digital transformation?*

Over half of respondents believe asset integrity and maintenance will benefit the most from digital transformation. This was followed by field development and drilling.



The majority of O&G professionals see digitalization as a potential boon to asset integrity and maintenance – and for good reason. As one example, today’s end users now have the ability to produce a digital replica (‘twin’) of a physical asset, offering a virtual representation of one or more assets working together. Aside from merging historical and real-time data to accurately benchmark performance or enhance field development, digital transformation also offers far greater opportunity for organizations to simulate, test and optimize assets, while providing new capabilities such as remote monitoring and predictive corrosion management.

Richard de Silva: Over half the industry expects benefits to the asset integrity and maintenance element through digitalization. What exactly can it offer? Are there any working examples of where digitalization has proven successful in this area?

Martin Richards: This doesn’t surprise me at all. It’s been a journey that organizations have been on for quite a while now, implementing maintenance management systems. Predictive maintenance ultimately fits into

that category. Organizations are starting to pull their datasets together. Many now have a clear architectural and design vision of how they want their data to improve asset performance.

‘Operational excellence really means giving yourself ultimate control and visibility across the bigger picture.’

*Survey respondents were permitted to choose up to three answers

RESPONDENT PROFILE

BENEFITS continued



A good example of this is in the digital twin: a fully digitized operational representation of your plant. The objective is to have the three-dimensional models in place but also the associated documentation stored, categorized and managed within the the same system.

It also has to tie in the right tools, be mobile-friendly, and be integrated with Virtual Reality (VR) or Augmented Reality (AR) technology. Looking at the industry as it was ten years ago, you would see some of these technologies being individually implemented but not being assimilated together into one environment.

Today, we're seeing a lot of spend on getting the 'base layer' technology finally implemented. But there's still lot of the work to be done bringing it all together. That's really where the main drive is today.

But this is as much about process and technology. Change

management procedures have to be aligned, maintenance management has to be integrated, information has to be readily accessible to multiple teams, and so on.

Pushing changes through a connected set of information means they can be applied across the whole sequence – in this case, successfully pulling together a connected document, business process, maintenance management, and digital twin three-dimensional data model-type environment.

What it also means is that when companies look at their strategy, they actually have to take a slight step backwards in some places to ask themselves if they have all the right information in place.

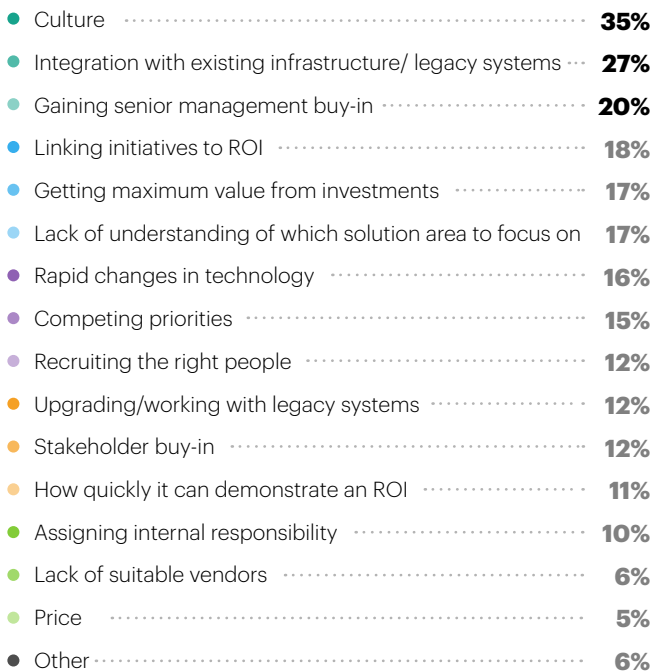
That's really what we mean when we talk about operational excellence. You're giving yourself ultimate control and visibility across the bigger picture.

RESPONDENT PROFILE

STRATEGIC CHALLENGES

5. What is the biggest challenge in implementing a digital transformation strategy?*

Like many other industries, culture poses the greatest challenge to those trying to implement digital transformation strategies. This was closely followed by integration with legacy systems and senior buy-in.



From the statistics gathered, we can see that the major barriers to digital transformation can be split into two strands: people-centric and hardware-centric. Whenever any dramatic shifts in working practices are on the horizon, it is the prevailing, ingrained culture of the organization that will provide the most difficult hurdle to jump. Over a third of respondents agreed that their corporate culture was a major impediment to the adoption of new technologies in their places of work. Time and time again, change necessitates top-down agenda setting from the C-level as well as champions of change working across middle management and filtering that message down to the shop floor.

Meanwhile, a large number of those surveyed believe that the rigmarole surrounding the upgrading of existing hardware or translation of legacy systems was a key concern when integrating new systems. In an industry where data is often still paper-based, unstructured and siloed, and where downtime equates to the loss of profit, moving to a new technological paradigm will always be met with anxiety.

Richard de Silva: More than one in three professionals believe their organization’s culture is the biggest hurdle to digital transformation. As you reminded us earlier, some people simply “don’t like change”, but is there more to it than that? Why is culture the common culprit for delay and how can this challenge be alleviated?

Martin Richards: It’s simply a generational issue. We’ve talked for years about the crew change. A lot of the industry veterans have taken early retirement. That’s been a great cost-saving but, as the industry starts to ramp up, we have no choice but to replenish the ranks with new people. It’s not easy to replace an experienced generation of people.

*Survey respondents were permitted to choose up to three answers

RESPONDENT PROFILE

STRATEGIC CHALLENGES continued

On the other side, if you think of the logic of organisations, the middle to senior management and C-level tends to be made up of the older generation, so you've probably got people in those roles who have been in the oil industry for perhaps 30 or 40 years. They are conservative. They've seen the cyclical changes and they don't get too excited about any one thing. Oil and gas is a very cost- and profit-conscious business, as well, so there's a certain element of conforming to 'what works'.

But overall, because it's generational, it is changing – slowly but naturally. The downturn in oil price forced some of the change more quickly but it still takes time.

'An executive raised an issue they had been struggling with and one of the engineers used their college WhatsApp group to provide a solution within minutes.'

As to what new technology and a younger mindset can offer, I'll give you an example. I was recently in a group

discussion with senior executives from the construction industry. One of them had started to have young people mentoring the C-levels on how to use technology. They realised senior management just didn't understand the way things were being done, and therefore didn't understand the opportunities.

At the same event, one executive explained that he had recently presented a design issue his company had been struggling to a team of young engineers. One of the engineers immediately used their college WhatsApp group to share the problem and was able to provide a solution within minutes. Just to see the realization from the group on what had just happened was enlightening.

The new generation must be successfully attracted and recruited. They have a totally different way of working, different expectations, and different social requirements. They don't want to work from an office, they want to work from home. They want to work flexibly, across organisational boundaries. It's just a different way of operating and oil and gas companies need to be receptive to it.



RESPONDENT PROFILE

BUSINESS READINESS

6. How would you define your “business readiness” for investing in digital transformation?

Over 60 per cent of those surveyed list their organization as being active in either communicating with vendors for potential transformation solutions and guidance or are actively investing.

- Aware of the business rationale and **28%**
inactive - interested but other priorities taking precedence
- Aware of the business rationale and **27%**
actively starting to shortlist - aware of the main themes and starting to desktop research
- Already investing and will be looking **17%**
to invest further in the next 12 months
- Unaware of the business rationale and **11%**
inactive - not interested at this time
- Already investing and will be looking **10%**
to invest further in the 12 - 24 months
- Aware of the business rationale and **7%**
actively sending out RFP to a range of vendors



A source of frustration for many is the feeling of wanting something you can't yet have. A concerted effort towards digitalization has in many cases taken a backseat to other priorities—be it rival programs or routine operational challenges. This explains why most organizations remain at or near the starting block when it comes to their transformation journey. It also suggests an education gap, as a lack of urgency when it comes to the adoption and integration of new technology could prove painful in the long-term. Making digital transformation a priority only when the need becomes critical does not present the most muscular of strategies.

Richard de Silva: Looking deeper into where organizations are on their transformation journey, we can see that the vast majority of the industry understands the business rationale behind this process, but very few are out of the starting block. Does this suggest there is something of an

education gap when it comes to businesses understanding the ‘urgency factor’?

Martin Richards: I think it does. The industry has long been in a position of almost no outside competition. The

RESPONDENT PROFILE

BUSINESS READINESS continued

world has needed petroleum-based products and there wasn't anything else to take its place. You could move at your own pace, and the world just had to wait for you. That reality is changing. Solar and renewable energy technologies are becoming increasingly competitive. How fast this happens is unclear, but the petroleum industry will not be what it was.

'You can't turn the base product into something that it isn't, but you can be more flexible, cost-effective and efficient.'

The car market is a good example. New vehicle types – electric or autonomous – and new ownership models will be the new norm within 20 years. That's going to have a huge impact on the revenues of the industry. If that industry tries to respond with a 30-year business plan, it will probably be too late.

I recently talked with one of the super-majors in our industry that had acquired a renewable energy business. The experiment lasted 12 months before they sold them again. It didn't work because the culture clash between businesses was too great. The renewables company, which was made up of people in their 20s and 30s, said they operated a planning horizon of 1-3 years. That's how they ran their business. The traditional oil and gas 30 year business plan made no sense to them.

Oil and gas companies have to be aware that when market pace changes, caused by disruptive players or technologies, it never returns to where it was previously. It gets fast and stays that way.

So, pacing is a big challenge, and that really comes back to digital transformation. The pace of the alternative technologies, how fast that industry can move, and the amount of brain effort in developing those technologies will be significant. You can't turn the base product into something that it isn't, but you can be more flexible, cost-effective and efficient in the way you run your operation.

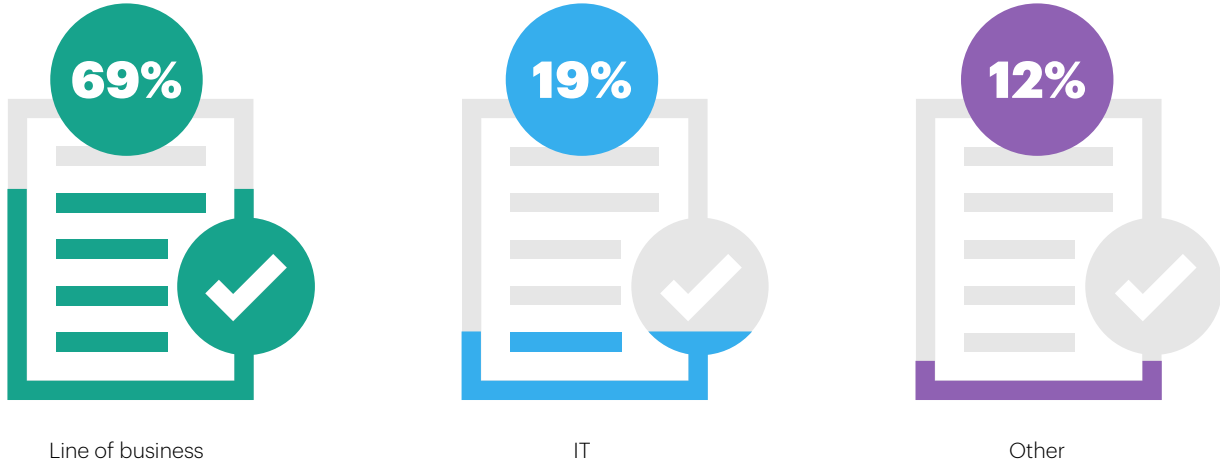


RESPONDENT PROFILE

DECISION-MAKING

7. Who makes the decisions on what to invest and prioritise for digital solutions?

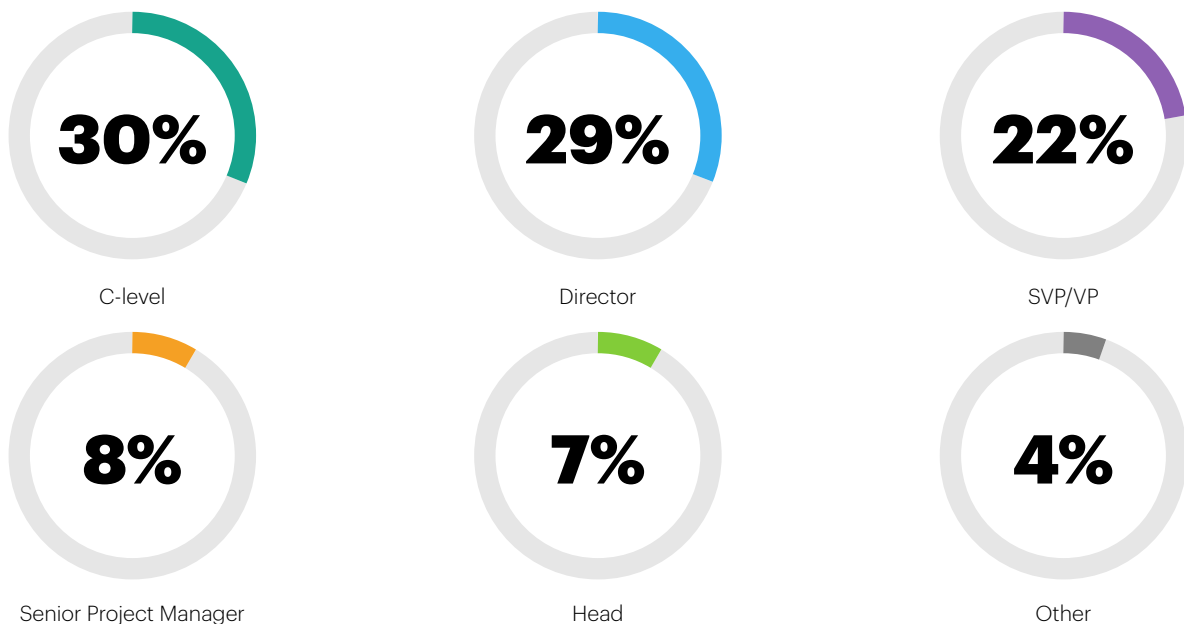
Over two-thirds of respondents said investment and prioritisation of digital solutions decisions are made by line of business managers.



Operations outweighs IT when it comes to initiating digital solutions within the workplace, pushing the latter to a support function. However, this should not be seen as a demotion of IT, but as what is more commonly being seen as a surge of involvement from wider business functions when it comes to harnessing the benefits of digital adoption.

8. At what level is this decision taken?

The survey found almost a third of decisions are taken by those at C-level. Backing from the top is imperative in digital transformation projects.



RESPONDENT PROFILE

DECISION-MAKING continued

The C-suite have their hands firmly on the tiller across almost one third of organizations, but increasingly investment and priority decisions are falling into the hands of dedicated project managers with more interaction with both ground-level staff and the technologies in question.

Richard de Silva: With what can be seen as a wider divestment of responsibility for rolling out these programmes, what impact does this tend to have on success? And what advice can you offer on who should manage or be accountable for these programmes?

Martin Richards: This is difficult one. There's often a lot of politics involved. The one thing I look for when I meet with different oil companies is a good cross-functional team. They tend to have a coherent transformation strategy and a communications plan in place to involve all parts of the organization. That usually comes from the fact that somebody is leading the digital transformation initiative at a senior level in the business.

What can happen is that a program is introduced in the middle of an organisation to solve a specific problem that happens to be the latest 'big thing' for that particular department. This can work but it won't release all the benefits of digital transformation and it will not take that organisation forward very well. You can easily end up with a series of isolated point solutions.

'The person leading transformation isn't necessarily somebody who's just come out of technology – it's somebody who understands the business.'

You can't have an effective digital transformation strategy and drive all the great things you want to do if you have 20 different maintenance management systems operating in your business. You're never going to knit them together. You've got to consolidate and stick with one or two. You need to choose an enterprise platform for your content. You need to choose a way of managing our asset data effectively and to put those building blocks in place.

Culturally, organizations too often forget to ask what transformation means from a user perspective. What are

we actually trying to achieve? What's the end goal for our people? If someone can say to me, 'This is what I want my maintenance guy to be able to do...' or 'Here's the day in the life for this maintenance person...', you can work back from there and offer some joined-up thinking.

If you ask about who should run the program then it appears logical for them to be from the technology group. But, this is not my experience. The successful managers I've seen have really come from the business side – they've previously run exploration or managed assets within the organization. They understand what needs to get done in the field and are comfortable working alongside the technology organisation.



RESPONDENT PROFILE

CLOUD

9. How important is the Cloud in your digital transformation plans?

The majority of those surveyed take the Cloud on a case-by-case scenario, looking for new opportunities when updating or buying new systems.



After being severely impacted by the 2014 price crash, the sector has been broadly turning towards Lean Oil and smaller projects to accelerate and maximise investment returns. Yet the conservative nature of the oil and gas industry that involves large amounts of sensitive information is not immediately conducive to adopting Cloud services.

The Cloud has been advancing rapidly and the data security problems pertaining to the cloud are gradually being dispelled. Energy companies are in a position where they can use the cloud to process capabilities more effectively, facilitate the links between numerous offices across the world and improve the security of sensitive information by storing it in virtual hubs instead of local servers – all of which happens at a very low entry cost. As the results show, most are looking at this capability on a case-by-case basis, but there remains a strong trend towards widespread adoption, particularly as use cases demonstrate greater value for projects much more rapidly and building new solutions that are quicker and flexible to deploy.

Richard de Silva: Why is cloud technology so important in helping businesses within this industry become digitally progressive?

Martin Richards: If you're going to go and run a new project, most companies in this industry today will look at the off-the-shelf cloud-based solutions available. It's a collaborative business requirement and the industry

gets it. If you look at the asset management side of things – where it's information running your asset - there's much more reticence to push that into the cloud. That's maybe down to security issues or maybe it's competitive issues, depending on the particular case.

I don't think we'll see O&G companies being absolutely

RESPONDENT PROFILE

CLOUD continued

dedicated to cloud first strategy as in some other industries. As the technology becomes available, it's more of a 'horses for courses' mentality, depending on the business requirement and the type of data being managed.

'Some things are logically going to be in the cloud, some things are not. Ultimately everything will be, but it's going to take a while to get there.'

We mentioned asset integrity earlier and how it's very much about system integration these days. The general feeling is this becomes more difficult when many of those systems are in the cloud because you don't have the same

control as on-premises. That's going to change soon. It's getting easier and easier to make those integration points.

A few years ago, I met with a large oil company. I was told, categorically, they were not going into the cloud. They said it was unsafe and they were never going to use it. A month later, I went into another meeting with the company and the same person stood up and said, "I need to tell you something, now we're only going cloud."

That was the level of uncertainty at the time. There's now a more mature understanding of the cloud and how organizations can use it. Some things are logically suited to the cloud, some things are not. Ultimately I believe everything will be, but it's going to take a while to get there.

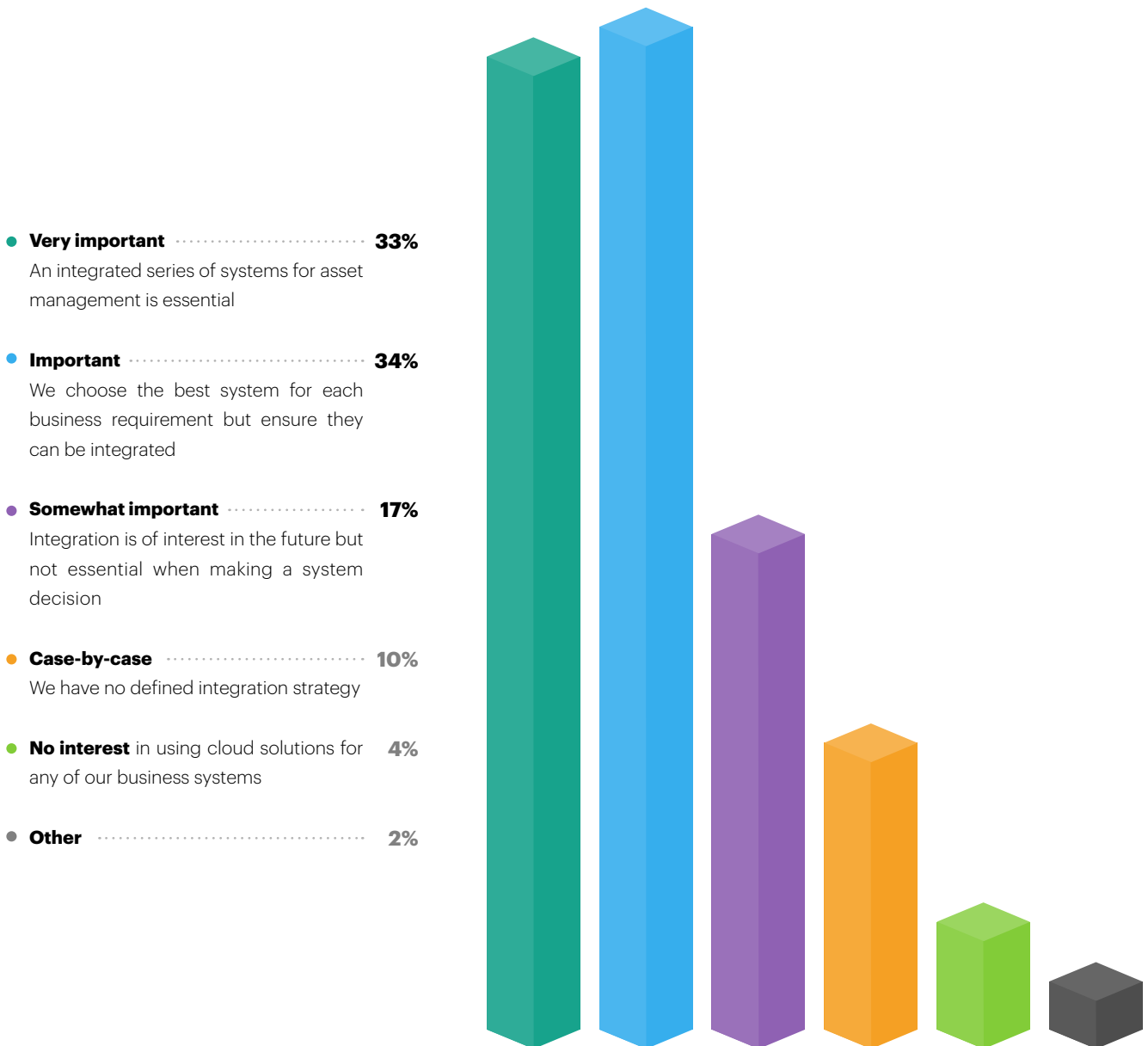


RESPONDENT PROFILE

SYSTEM INTEGRATION

10. How important is it to integrate your business systems when building your asset management systems?

Despite legacy challenges, over a third of respondents believe it is important to integrate business systems when building asset management systems.



84 per cent of the industry listed the need to integrate business systems within the development of asset management systems as being 'important', with two thirds of respondents making it an essential practice at the selection stage. This suggests a healthy recognition of the need to avoid miscommunication and data conflict. With any roll-out of digital solutions, it is seen as wise by most to build in the capabilities to make the transfer as amenable to day-to-day business operations as possible by eliminating technologies incapable of sharing information.

RESPONDENT PROFILE

SYSTEM INTEGRATION continued

11. How important is it to integrate your capital/brownfield project systems to your asset management systems?

The majority of respondents believe it's either important or very important to integrate capital/brownfield project systems and asset management systems. However, a fifth work case-by-case.

- **Very important** 31%
A tight integration between Projects & Asset Management is essential
- **Important** 36%
We choose the best system for each business requirement but ensure they can be integrated
- **Somewhat important** 17%
Integration is of interest in the future but not essential when making a system decision
- **Case-by-case** 16%
We have no defined integration strategy
- **No interest** 3%
in using cloud solutions for any of our business systems
- **Other** 3%



There is only slightly less importance placed on the integration of asset management systems and capital/brownfield project systems than with business systems. But again, two thirds of the industry deems this to be essential. Selection in this case may be influenced more – on a project-by-project basis – towards near-term cost and timeframe pressures than those facing general business operations.

Richard de Silva: Integration of the old and new is often a sticking point when it comes to any digital transformation program. Where are the common risks?

Martin Richards: You're right. There are real operational safety issues, for example. Operators may have people working on the seabed in diving suits so information has to be available without fail, whatever the cost. You can't just switch the system off at the weekend for maintenance under operations that run 24/7. There are ways of managing around that from a technology perspective if you're willing to pay for it – high availability-type systems.

Another example would be mobile-enabling the workforce. Five years ago we were still unsure about integrating mobile, but now it's just the way the world is. We can't stop people from using them so instead we have to ensure they can be used safely. To some extent that comes down to trusting the technology. A trust that digital technologies will deliver the benefits – but in a safe and secure way.

I think oil and gas is still looking for a certain level of assurance before it leaps. Having said that, look at the technological advances at an industry level – drilling horizontally and other phenomenal feats of engineering. It's a very innovative industry in many ways but I think it still slightly lags behind in deploying digital technologies.

That's not necessarily a bad thing. Caution is normally a wise thing to have. You can't have systems being implemented without really knowing if they're completely failsafe.

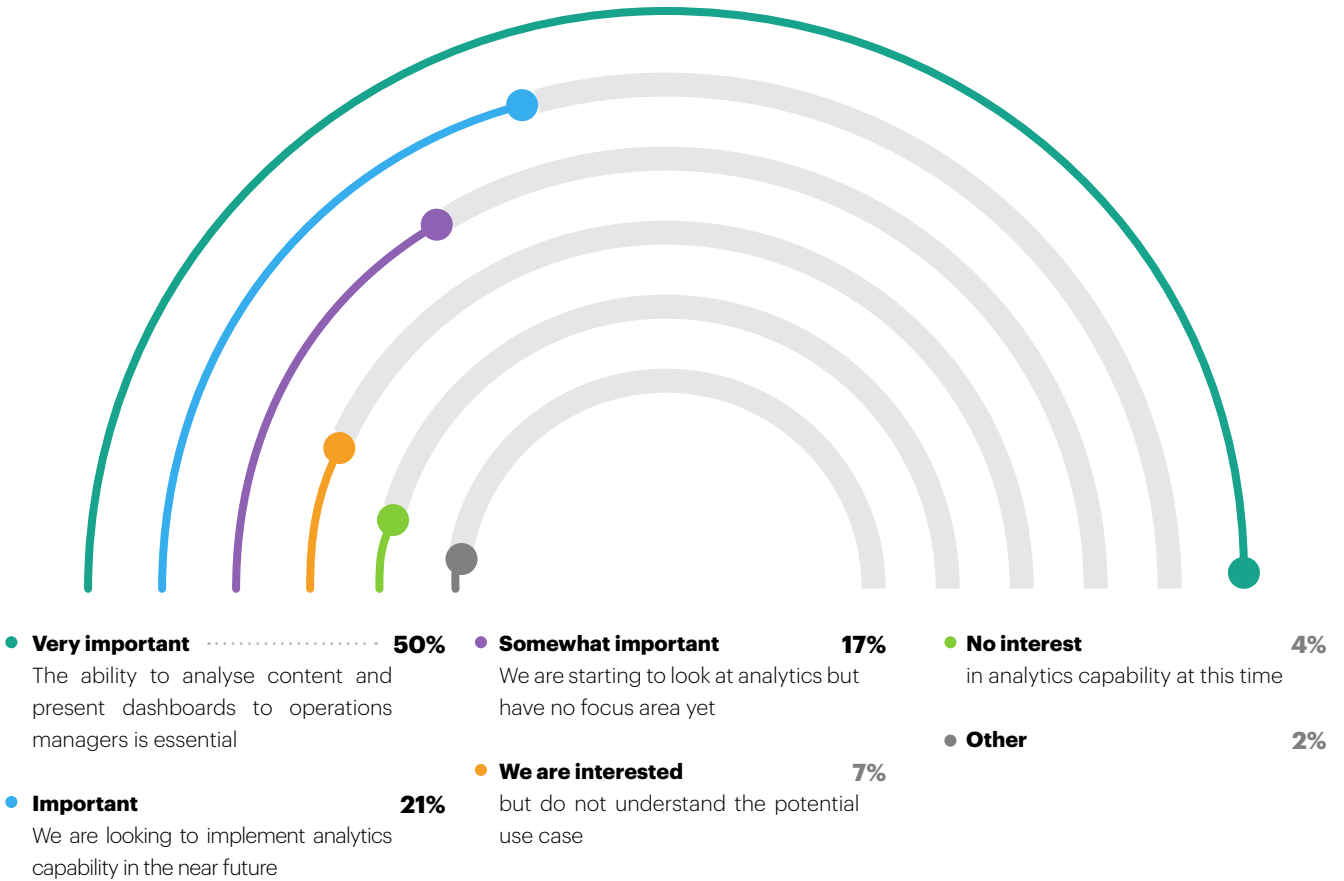
'Caution is normally a wise thing to have. You can't have systems being implemented without knowing if they're completely failsafe.'

RESPONDENT PROFILE

COMBINING CONTENT AND DATA

12. How important is it to provide analytics capability, combining both content and structured data?

Half of those surveyed believe it is very important to analyse content and structured data so that dashboards can be presented to operations managers.



With digitalization comes an inevitable flood of data, demanding that industry professionals remain on top of their briefs. Making sense of that data can only be achieved through the clear visualization of analytics, explaining why half of respondents see this capability as business critical. The more readily available and understandable dashboards can become, the more efficient and effective decisions are likely to be made.

Richard de Silva: If we can be sure of one thing, it is that the collation and significance of information will not diminish in the years ahead for the oil and gas industry. With that in mind, how can organizations better approach content and analysis while gathering data so that value is not wasted?

Martin Richards: It's a great question. One of the things we're working on increasingly is how best to deploy drones. Everybody in the industry is buying drones. One organisation I spoke with recently had just bought 1000 and were

training people to fly them (because they need a pilot's licence). They are running long-distance pipelines and difficult-to-access facilities, so drones were the way forward. But I asked how they were managing the data and they admitted that they hadn't worked out a plan for that.

'Leveraging all that data can be a game-changer. You could potentially reduce your maintenance and operations force and costs dramatically.'

RESPONDENT PROFILE

Oil & Gas 

COMBINING CONTENT AND DATA continued



Drone data is a great example here because it goes back to our discussion of predictive maintenance and efficiency. What could be better than being able to fly a drone up and down a difficult-to-access facility or pipeline whenever you want, checking for rust, sniffing for gas and the like? You don't have the people safety issues to worry about. You're much more efficient. It's relatively inexpensive.

But now you have much more data coming in and there's a mountain of information hitting the system – terabytes of data streaming through on a regular basis, including video content. What do you do with it? You can store it. You can ask people to look at it. But it's not easy to view hours and hours of video and pick out what you need to know.

Artificial intelligence is needed to be able to interpret a video and find certain patterns or anomalies. It can be used to identify rust on a pipe, isolate that footage and initiate a maintenance process. That footage can be automatically

tagged with the GPS location and the asset tag number for that part of the pipe. It could even send a robot out to look at it and sort out the issue all before a human knows it's happening.

So this great new technology can help us do amazing things but it's still throwing huge amounts of data at us and while it could help to resolve incidents, we still don't know how to process that data and leverage it for longer term gain.

There's a big opportunity from an IT and digital transformation perspective here – being able to solve that problem can be a game-changer. You could potentially reduce your maintenance and operations force and costs dramatically. Your plant and asset uptime would also be greater because you're ahead of the problems rather than reacting to them. At OpenText, we're working on making that a reality for organizations.

CLOSING REMARKS

From Martin Richards

From predictive analytics to the rise of drones and the rapidly increasing need for data analysis, there's still a great deal of digital transformation work for the industry to accomplish over the coming months and years. What we are realizing is that we need to begin integrating many of the foundational technologies that enable us to leverage the benefits of more advanced technologies. That's what the industry is doing today. Whether using cloud or not, as long as those individual functions and systems are talking to each other, we are going to make headway.

'My advice is to have a rock-solid strategy. This is an essential part. Digital transformation is a five to ten year process.'

This road should ultimately lead us towards having a predictive maintenance environment – potentially centered on robotics. This is a great way of applying digital transformation to the challenges of the industry today.

My advice to those undertaking this endeavor is to have a rock-solid strategy. Where do you want to go? How are you going to get there? And what are the building blocks you need in place? You cannot do this piecemeal or by making it up as you go along. You have to understand this is an essential part of the process. In other words, you can't put a roof on a house if you

only have two walls. You must have the architecture to support your vision.

'It's a long journey, but get it right and the destination will absolutely be worth the trip.'

You also need vendors you can trust. You need to be able to see how their roadmaps will take you where you want to go and anticipate that it won't happen tomorrow. Digital transformation is a five to ten year process.

And, as the study suggests, you need to make sure you're putting the right cultural effort behind transformation. The people aspect is always going to be there, so you must bring new people on-board. It's a long journey, but get it right and the destination will absolutely be worth the trip.

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