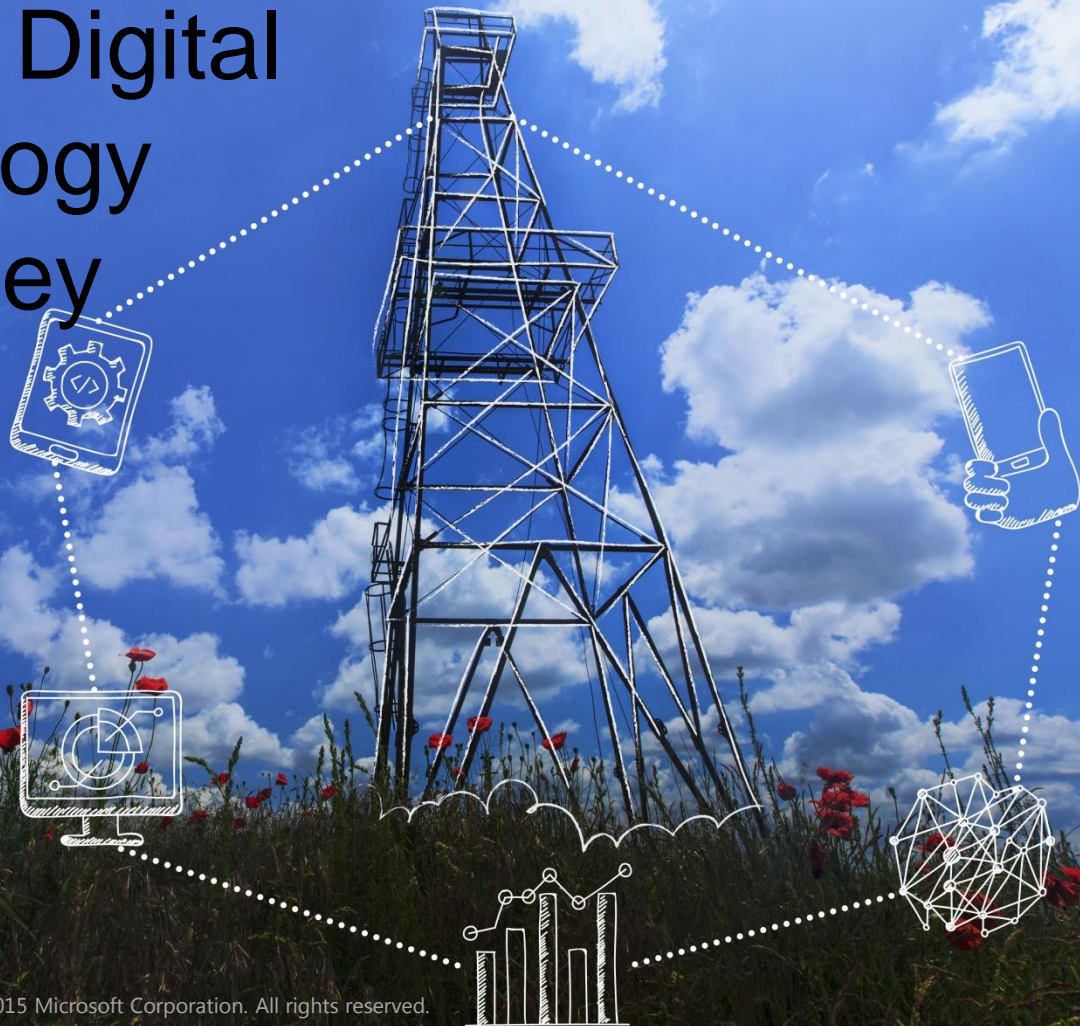




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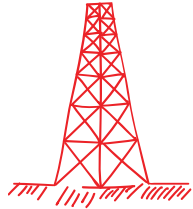


# Oil and Gas Digital and Technology Trends Survey

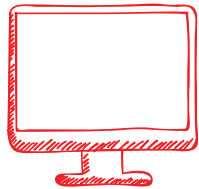


# Methodology

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Fourth **Oil and Gas Digital and Technology Trends Survey** funded by Accenture and Microsoft.



Online survey of **229 oil and gas industry professionals** including engineers, mid-level and executive management, business unit heads and staff, project managers and geoscientists from a cross-segment of the industry.



Conducted in April 2015 by **Tulsa, Oklahoma-based PennEnergy** in partnership with the **Oil & Gas Journal**. Respondents are subscribers to PennWell publications.

# Oil and gas industry investment in digital technologies shows resilience in oil price downturn



Despite the fall in crude oil prices, most companies in **the oil and gas industry plan to invest the same amount or more in digital technologies now and in the future.**



**Mobility, infrastructure and collaboration technologies** currently represent the biggest investment areas across the oil and gas industry. Over the next three to five years, investments are expected to increase in **big data and the Industrial Internet of Things (IIoT) / automation.**



The key reason companies are investing in digital technologies is to **improve operational efficiency.**



Digital technologies that **enable people and assets** are considered most important.



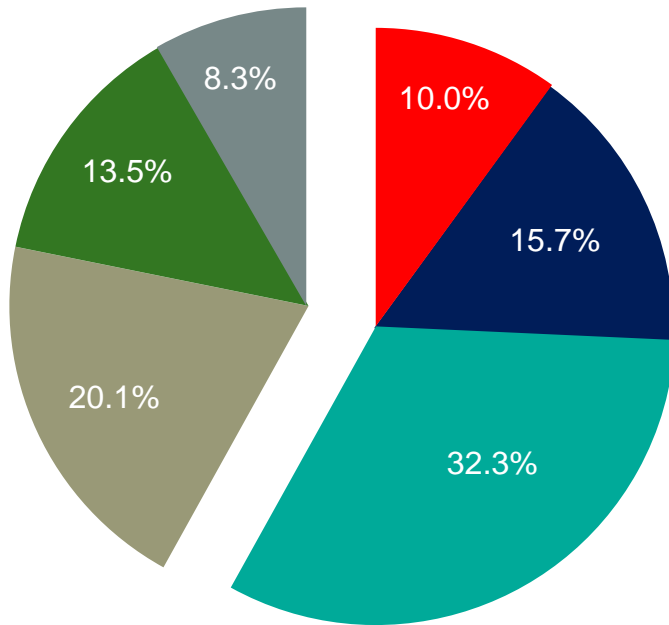
To get the most value from digital technologies, several barriers need to be overcome. The top two identified were: 1) **workflows and processes** that create bottlenecks and 2) **physical and cyber security** concerns.

Despite the fall in crude oil prices, most companies in the oil and gas industry plan to invest the same amount or more in digital technologies – now and in the future.

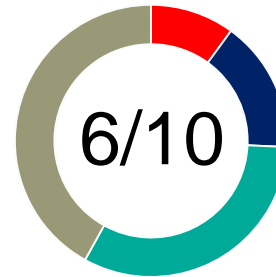


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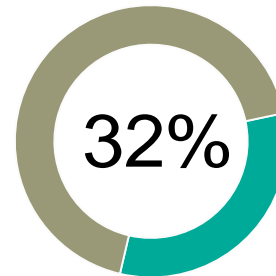
# How is the current phase of the crude cycle, with lower oil prices, impacting your digital technology investment in the short term?



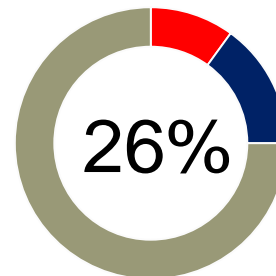
- Increasing significantly
- Increasing slightly
- Remaining constant
- Decreasing slightly
- Decreasing significantly
- Don't know



Despite current lower crude oil prices, **almost 6 out of 10** oil and gas companies plan to invest the same amount or more in digital technologies.

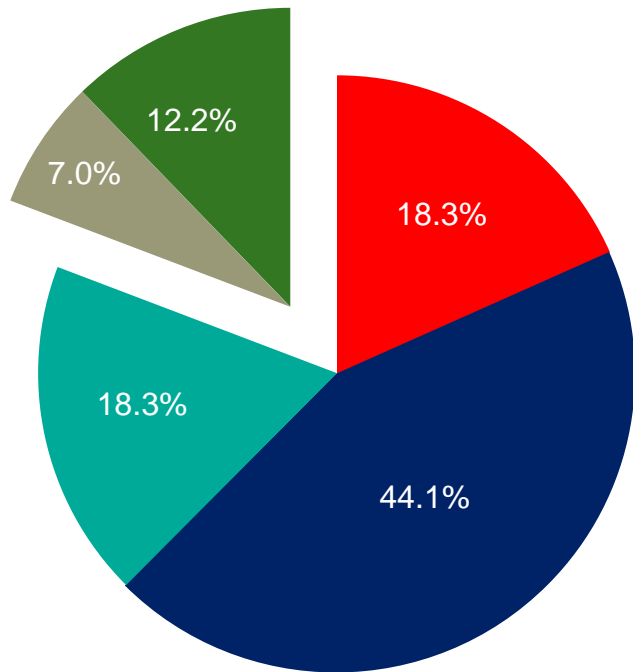


**32 percent** of respondents said they plan to invest the same amount in digital technologies during the current weaker crude oil price cycle.

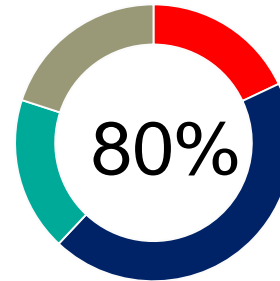


Almost **26 percent** of respondents said they plan to invest significantly more in digital technologies during the current weaker crude oil price cycle.

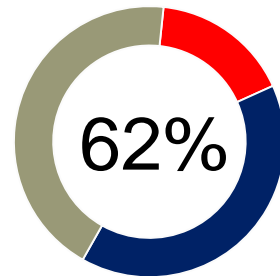
# Over the next 3-5 years, how much is your company planning to invest in digital technologies?



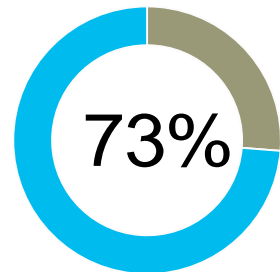
■ Significantly more ■ More ■ Same ■ Less ■ Don't know



80 percent of the oil and gas industry professionals surveyed said they plan to invest the same amount (18 percent), more (44 percent), or significantly more (18 percent) in digital.



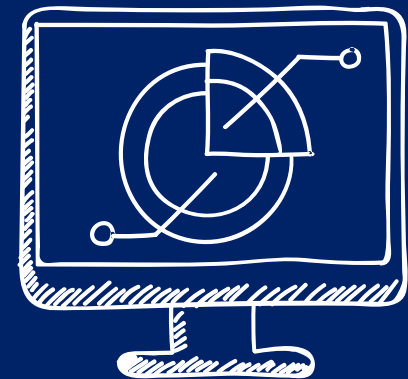
More than 62.4 percent believe their company is planning to spend more than they currently spend in digital technologies. Of these respondents, 29.37 percent of them believe their company is planning to spend significantly more.



73 percent of respondents from IOCs and NOCs are planning to invest more or significantly more in digital technologies over the next three to five years.

Mobility, infrastructure and collaboration technologies currently represent the biggest investment areas across the oil and gas industry.

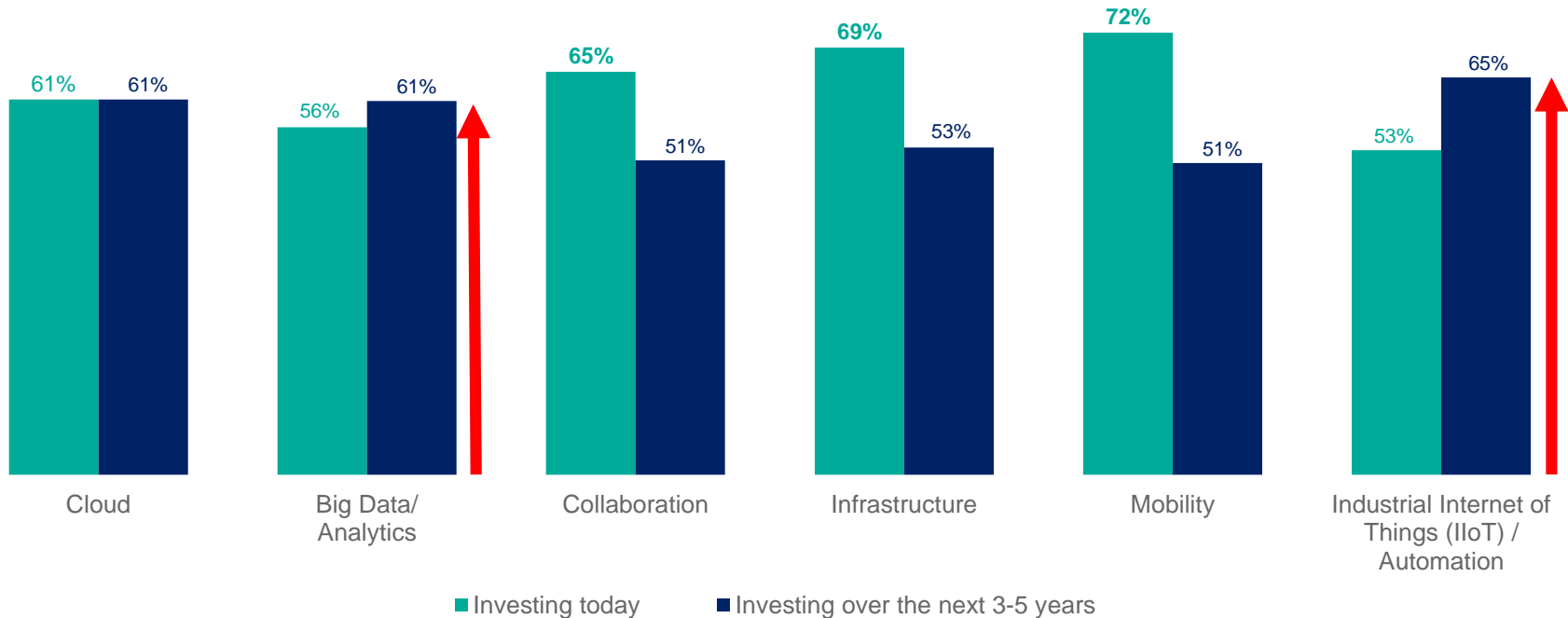
Over the next three to five years, investments are expected to increase in big data and the IIoT / automation.



For more survey insights, visit [www.accenture.com/digitalenergysurvey2015](http://www.accenture.com/digitalenergysurvey2015)

# Which of these digital technologies is your company investing in today / over the next 3-5 years?

Investment will shift from collaboration, infrastructure and mobility to big data and IIoT / automation over the next 3 to 5 years.



Spend on collaboration, infrastructure and mobility is expected to **decrease** while...



...spend on big data and IIoT / automation is expected to **increase**

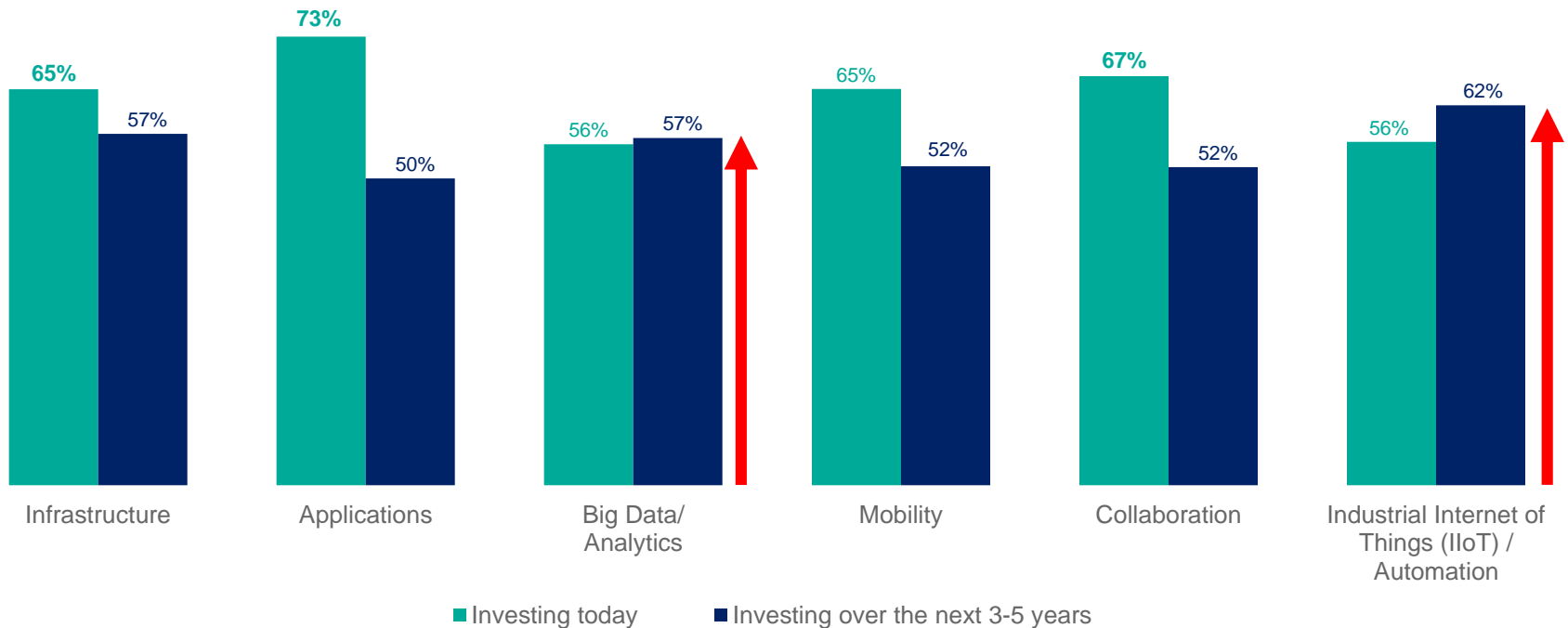


Cloud investment will **continue as it is** today in addition to any cloud related investments in Big Data and IIoT



# Which technologies is your company using cloud to enable today / over the next 3-5 years?

Cloud investments will shift from infrastructure and applications to big data and IIoT / automation.

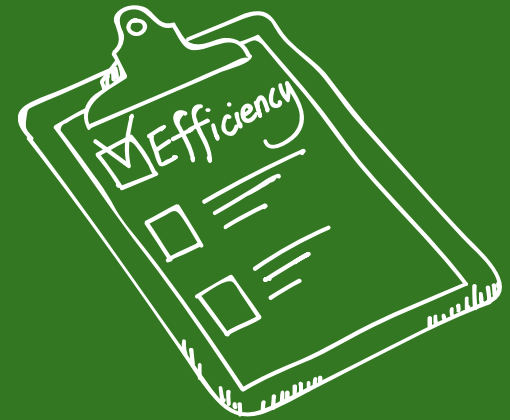


Spend on collaboration, infrastructure and mobility is expected to **decrease** while...



...spend on big data and IIoT / automation is expected to **increase**

The key reason companies are investing in digital technologies is to improve operational efficiency.

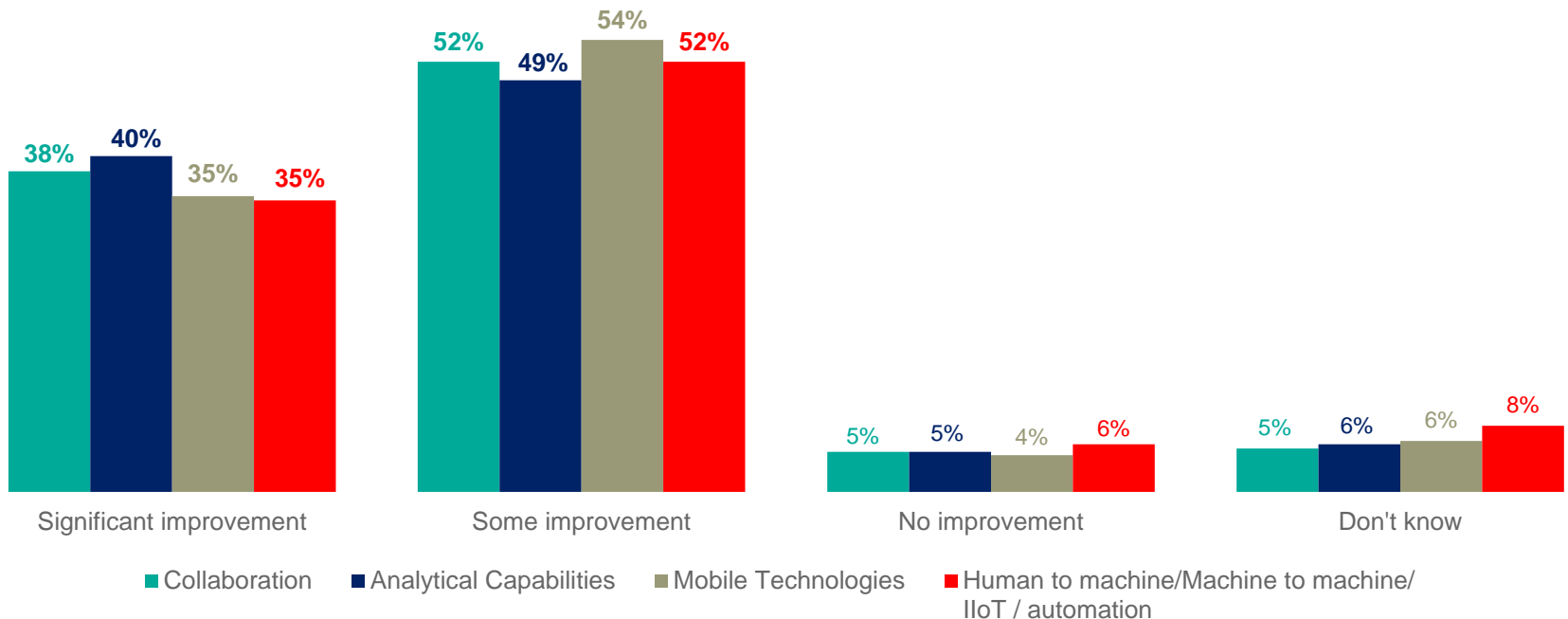


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# How much improvement do you believe that leveraging the following will add to your business efficiencies?

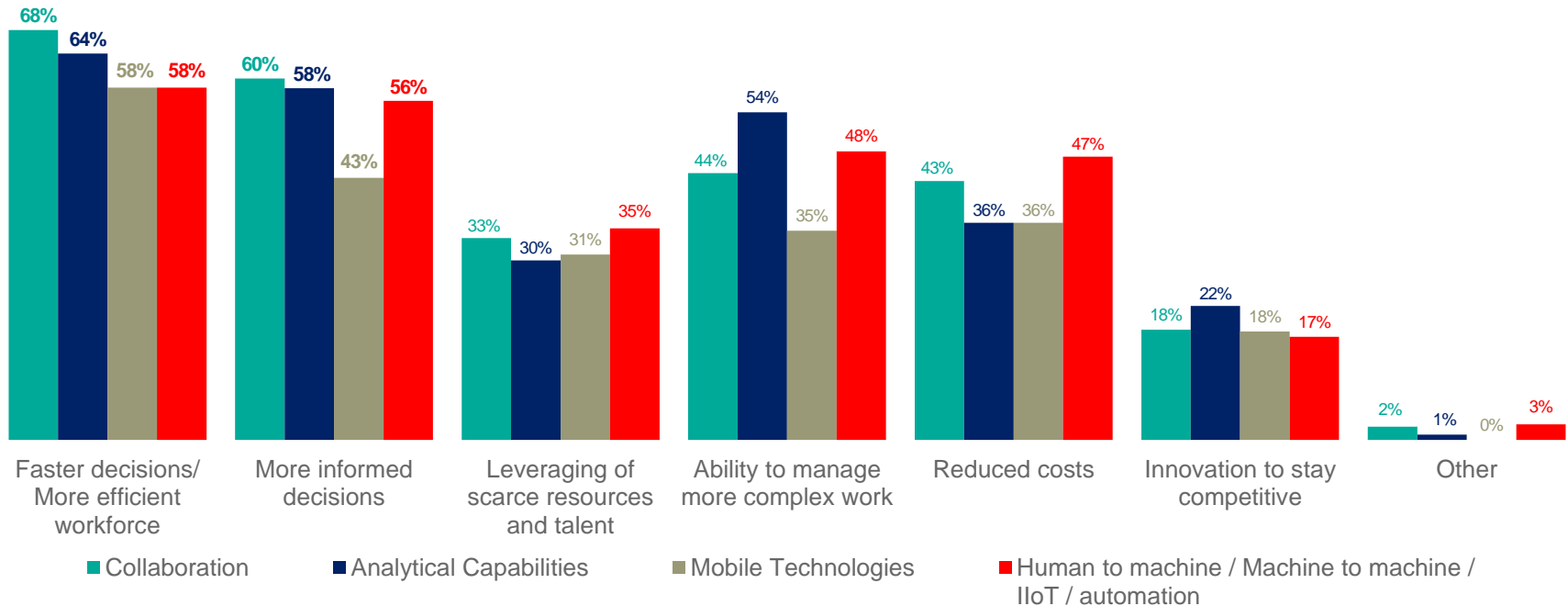
Respondents agreed that leveraging digital will improve business efficiency.

When asked which capability would add the most to their business efficiency, respondents felt that analytical capabilities would offer them the most significant improvement.



# What are the top three areas where you feel digital technologies can help to improve business efficiencies in upstream?

Faster decisions, more efficient workforce and more informed decisions were the key areas where digital technologies will add to overall business efficiencies.



**Collaboration** | Faster and more informed decisions

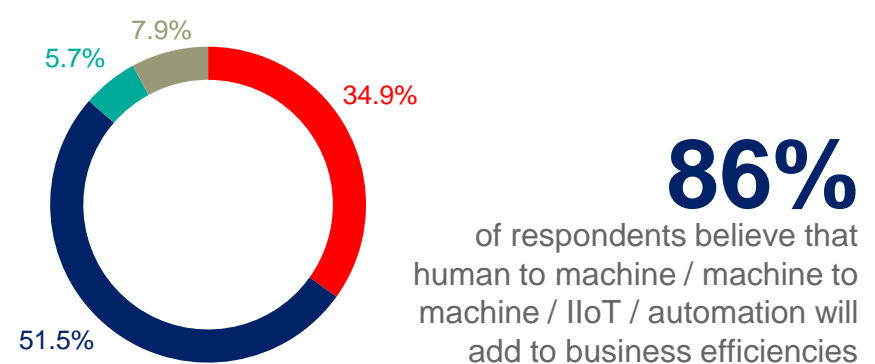
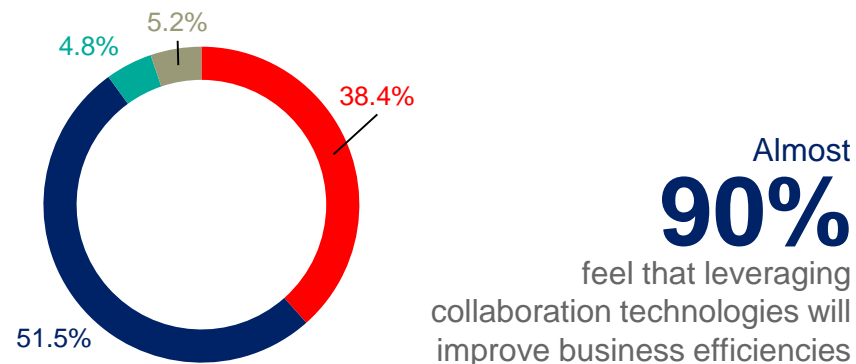
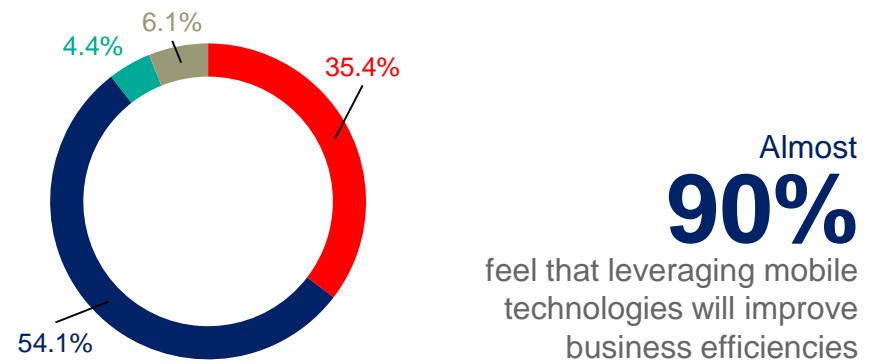
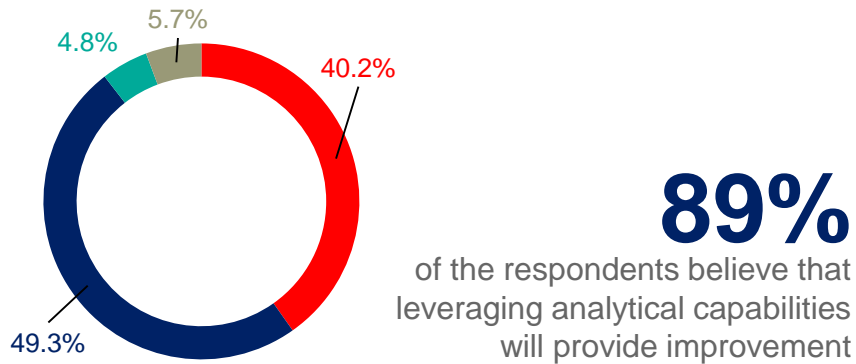
**Analytical capabilities** | Faster and more informed decisions / ability to manage complex work

**Mobile technologies** | Faster decisions

**Human to machine / Machine to machine / IIoT / automation** | More informed decisions / reduced costs

# How much improvement do you believe that leveraging digital capabilities will add to your business efficiencies?

Upstream executives agree that implementing more digital technologies will create more business value.



■ Significant improvement ■ Some improvement ■ No improvement ■ Don't know

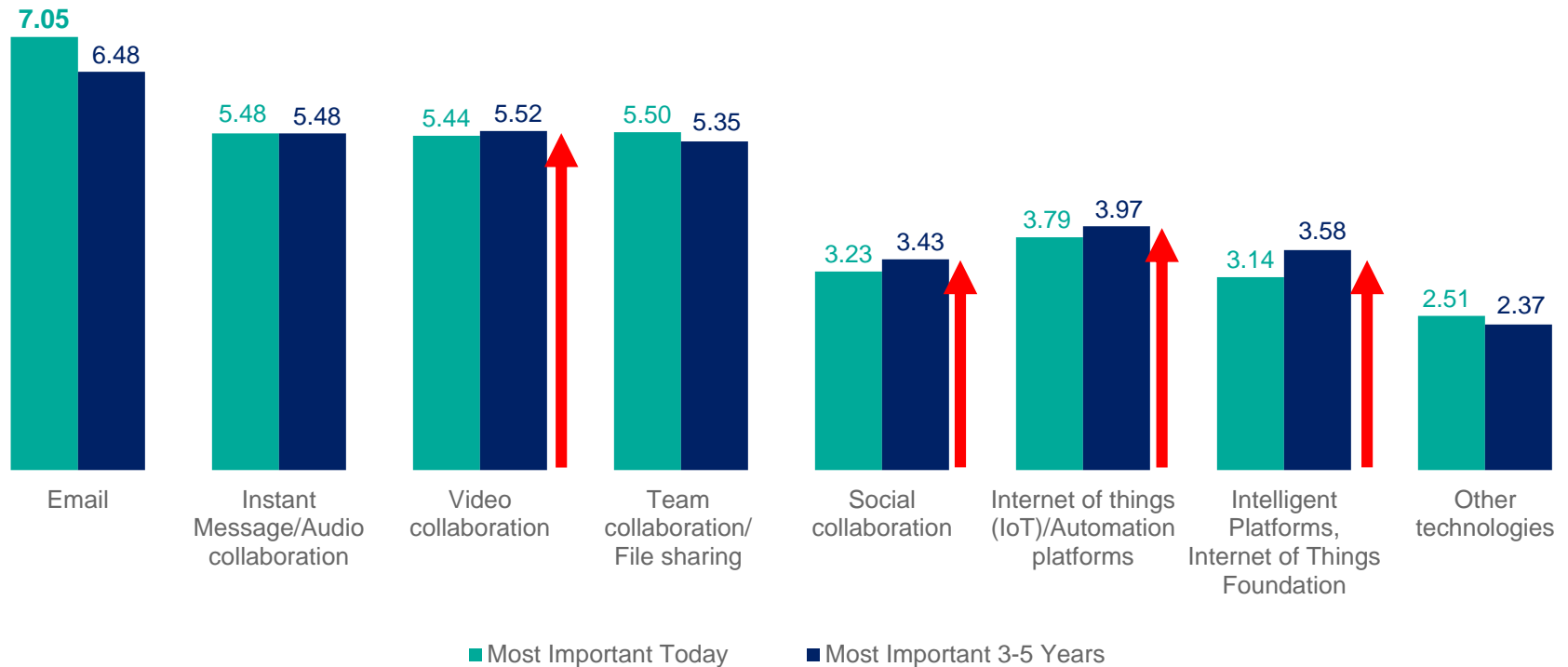
Digital adds most value when enabling people and assets.



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# Which collaboration technologies are most important to upstream today / in the next 3-5 years?

Email is still a key collaboration technology but video, social, and IIoT are all expected to increase in importance over the next 3 to 5 years



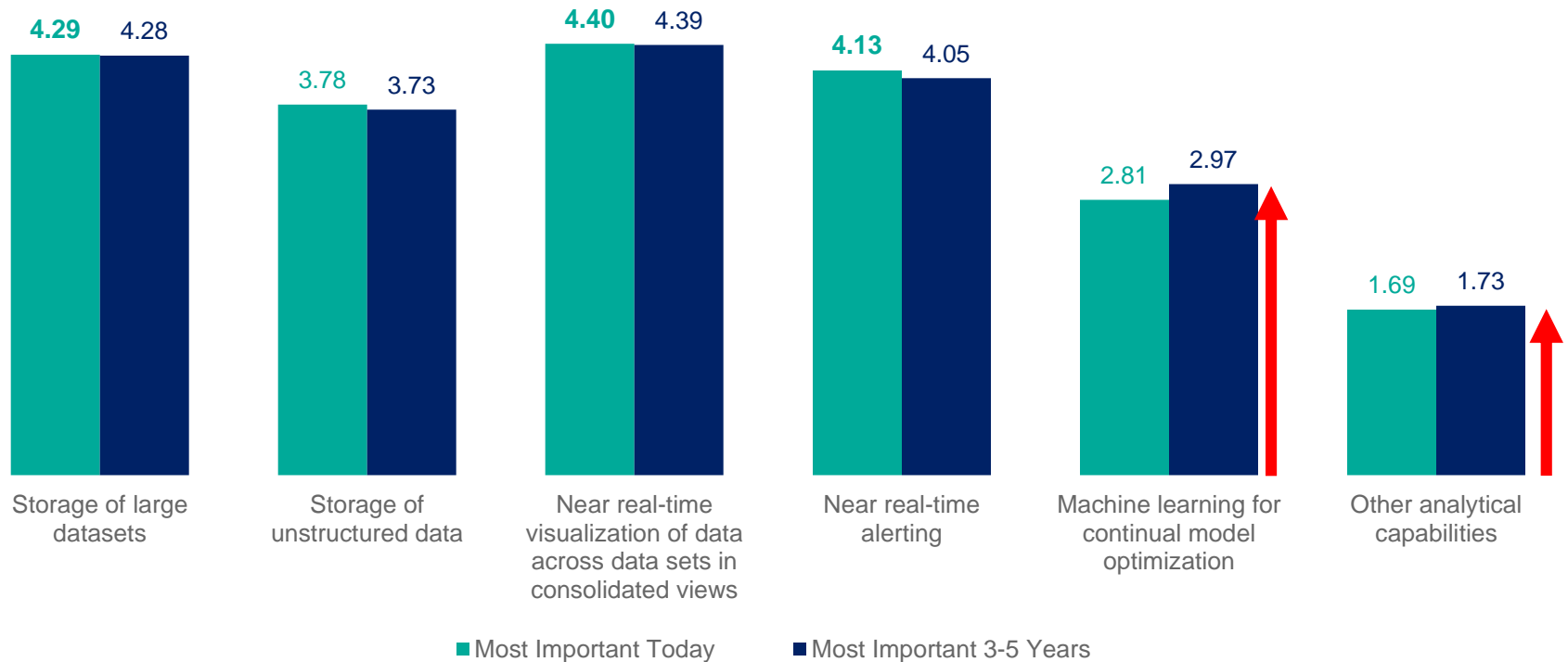
**Email and Team Collaboration** are still the most important, with a slight decline in 3-5 years

**Social Collaboration, Internet of Things and Intelligent Platforms** are all increasing in importance in 3-5 years

# Which analytical capabilities are most important to upstream today / in the next 3-5 years?

Near real-time visualization, storage of large datasets and near real-time alerting are most important today and in the foreseeable future.

Machine learning has the biggest growth potential.



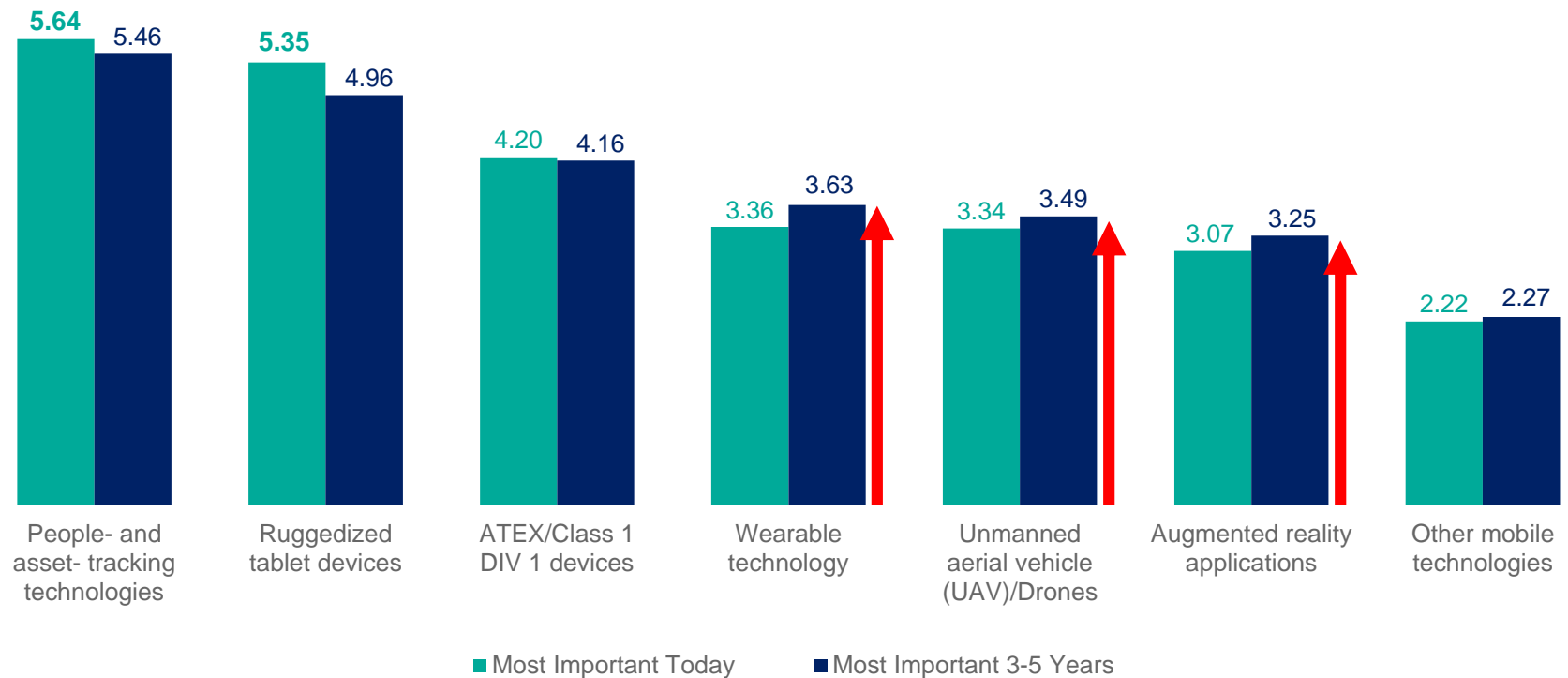
**Near real-time visualization, storage of large datasets and near real-time alerting** are all the most important, with a slight decline in 3-5 years

**Machine learning and other analytical capabilities** are increasing in importance in 3-5 years



# Which mobile technologies are most important to upstream today / in the next 3-5 years?

People and asset tracing with ruggedized devices are both seen as the most important mobile technology today. Wearable technology, unmanned aerial vehicles and augmented reality are all set to grow in importance over the next few years.

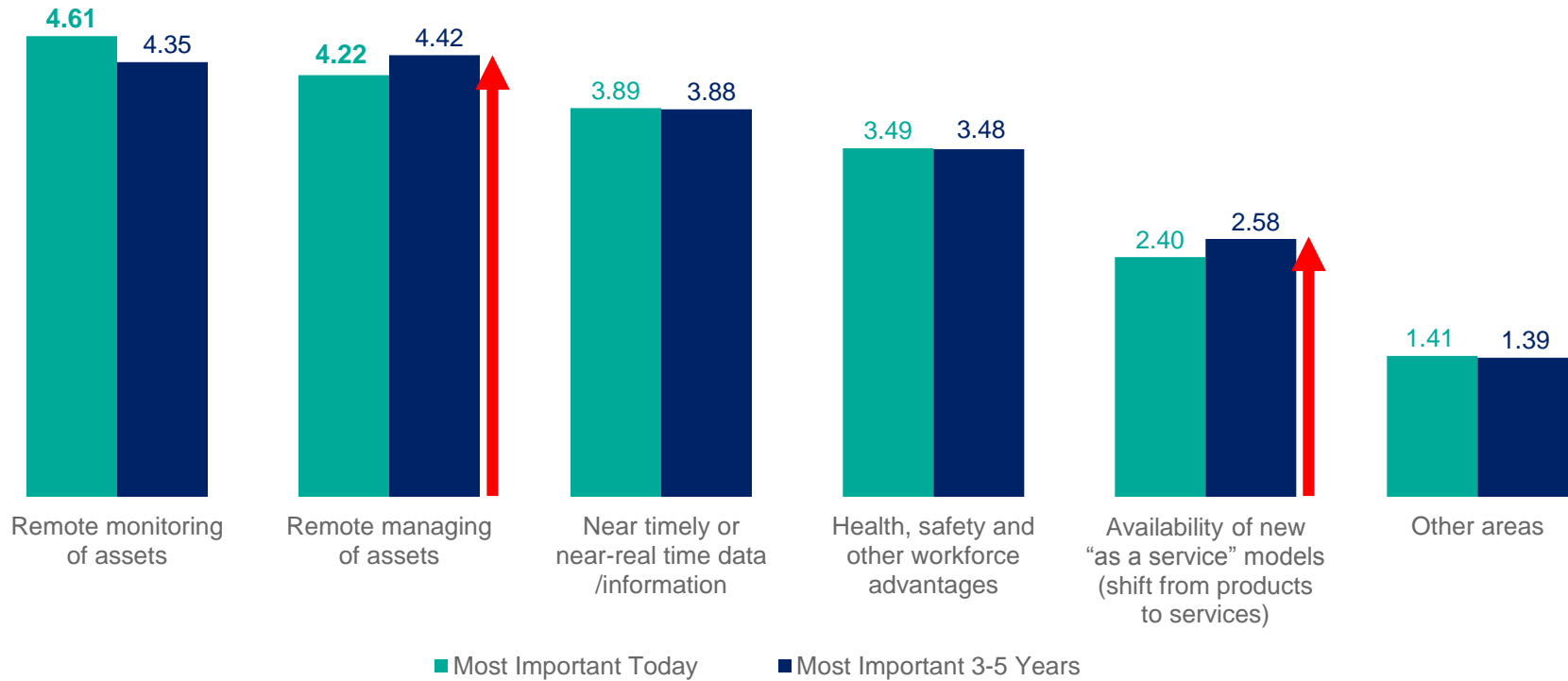


**Asset tracking and ruggedized tablets** are most important now and in the next 3-5 years.

**Wearable technology, drones and augmented reality applications** will increase in the next 3-5 years.

# Which areas do you feel human to machine / machine to machine / IIoT / automation are most important to upstream today / over next 3-5 years?

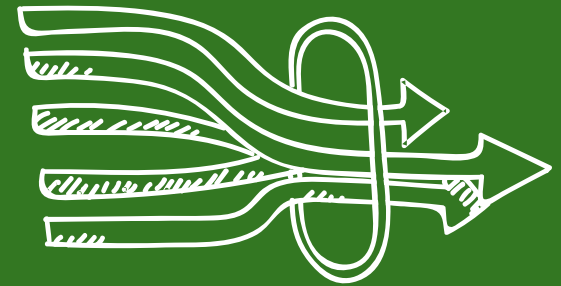
Remote monitoring and management of assets is the most important capability enabled by digital technologies now and over the next 3-5 years. Remote management and new “as a service” models are expected to grow in importance.



**Remote monitoring and managing of assets** is most important now and the next 3-5 years.

**Remote managing** will actually be more important in the next 3-5 years.

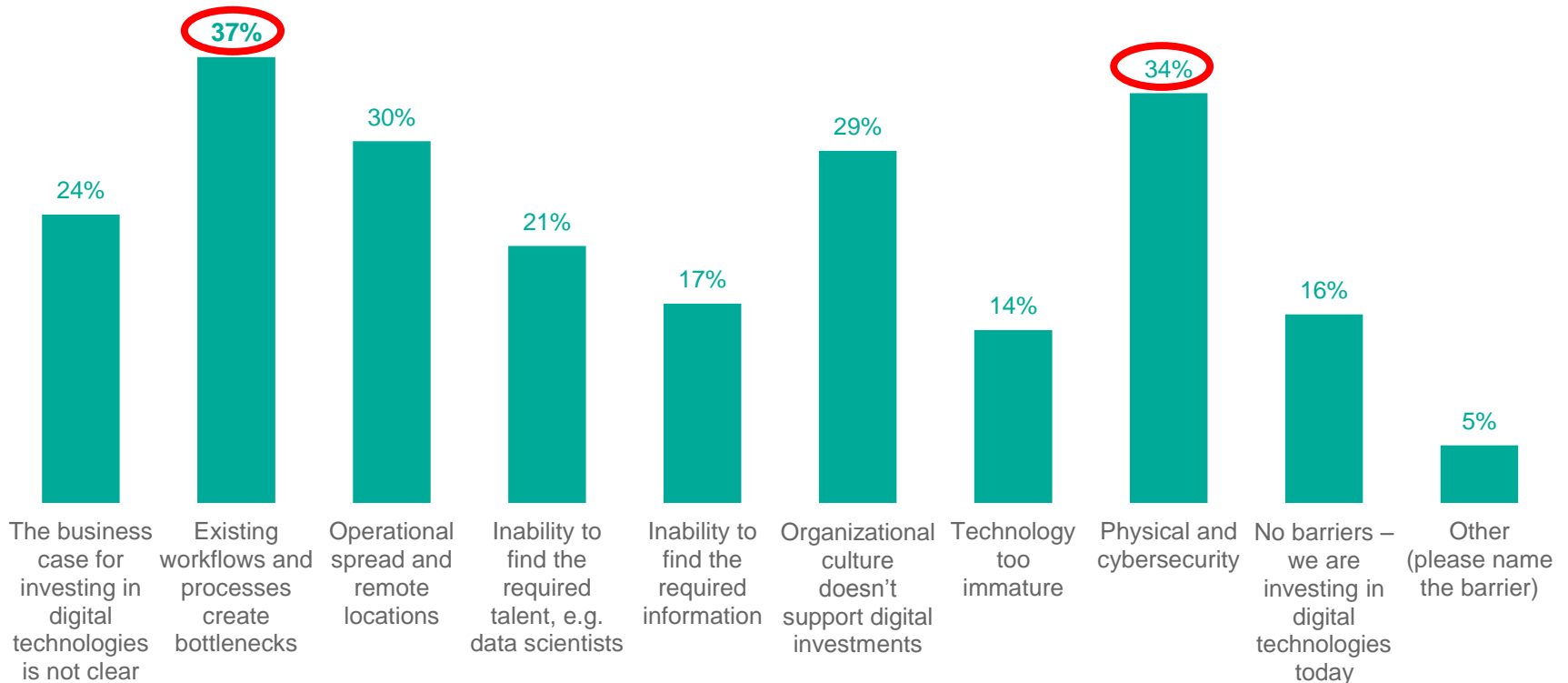
The biggest perceived barriers to realizing value from digital technologies are the existing workflows and processes, and concerns over physical and cyber security



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# What are the biggest barriers to getting value from digital technologies in upstream?

Existing workflows / processes and security threats are the biggest barriers to getting value.



Oil and gas executives agree that implementing more digital technologies will create more business value today.

So how will your company use digital technologies to add business value?



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# Who do we contact for more information about the survey?

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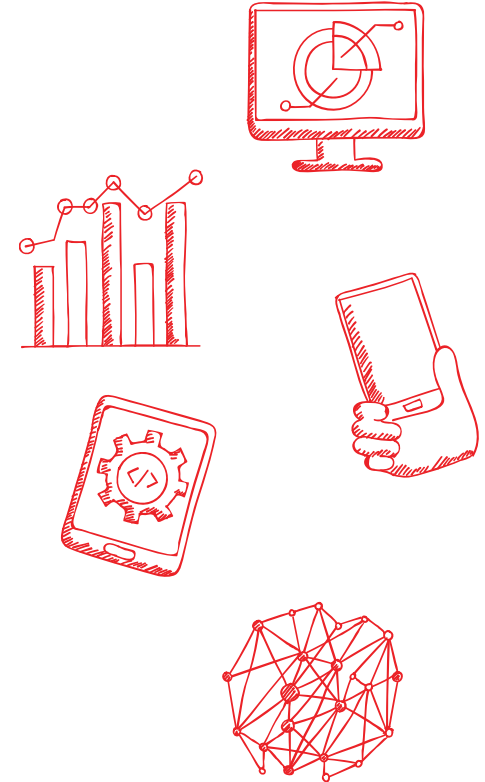
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# Who are Accenture and Microsoft?

## About Accenture

Accenture is a global management consulting, technology services and outsourcing company, with more than 323,000 people serving clients in more than 120 countries. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world's most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. The company generated net revenues of US\$30.0 billion for the fiscal year ended Aug. 31, 2014. Its home page is [www.accenture.com](http://www.accenture.com).

Accenture Digital, comprised of Accenture Analytics, Accenture Interactive and Accenture Mobility, offers a comprehensive portfolio of business and technology services across digital marketing, mobility and analytics. Learn more about Accenture Digital at [www.accenture.com/digital](http://www.accenture.com/digital).



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Founded in 1975, Microsoft (Nasdaq “MSFT”) is the worldwide leader in software, services, devices and solutions that help people and businesses realize their full potential.