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Four Data & Analytics Trends to Watch in 2020

Based on interviews with 640 global data & analytics leaders

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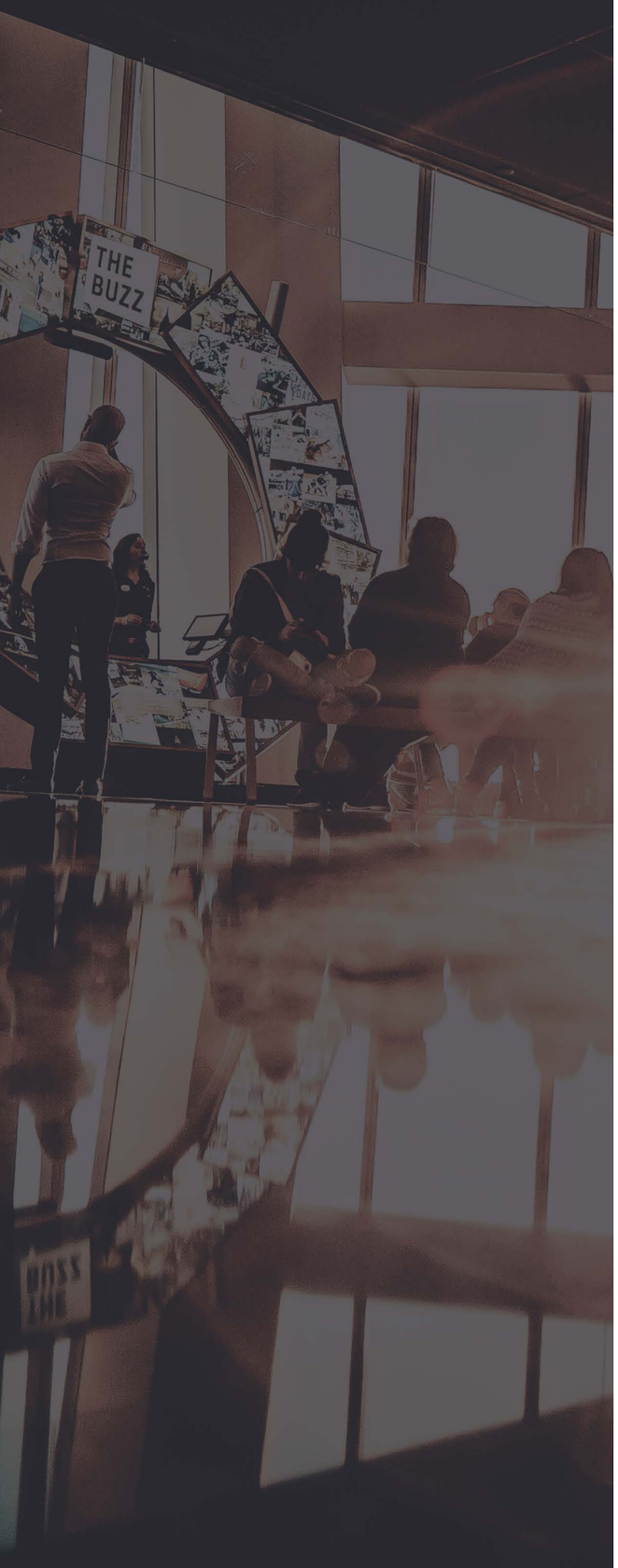

Foreword

Andrew Hood
CEO, Lynchpin

The buzz around headline-grabbing topics like machine learning (ML) and artificial intelligence (AI) is ever-growing. But for data and analytics leaders, these trends have practical implications for everything from technology and processes to people and culture.

This research is a timely snapshot into where the real issues and priorities lie for data and analytics leaders, anchored back to four strategic pillars that are relevant to any organization.

The themes themselves are long-lasting: placing the customer first, making evidence-based decisions, automating and optimizing processes with algorithms and reaping the benefits of strong data security.

But more broadly, there are vital questions emerging around what the right balance of human versus computational power is and the role strategy plays in driving ROI from longer term tech investments.

Rightly, the customer is the starting point. Data leaders are rolling out initiatives to deliver better personalization, improve call center experiences, develop better pricing strategies and more besides.

That matches a key trend we see across our clients around building richer customer views and using those insights to deliver better experiences holistically, rather than just within specific channels. It's heartening to see that using data to enhance the customer experience in this way is widespread.

Of course, AI remains high on the agenda. But there is a stark divide between the 100% of respondents that are open to using AI and the 5% that would consider fully embracing it. How much of that gap is to do with the perception of AI itself?

While all respondents expect to see a return on their AI investments within two years, it looks like many organizations are still sitting on the fence when it comes to their appetite for making such investments today.

Perhaps there is still a perception of 'hype' to overcome here. But it's also worth remembering that adopting AI technology is not in itself the 'adrenaline shot' that stimulates analytics maturity.

Generating actionable insights represents an ongoing challenge for complex organizations using data to justify internal change – whether algorithmic, human or a blend of the two.

This certainly echoes our experiences at Lynchpin. Clients often need to catalyze substantial cultural and business process changes before they can reap the rewards of improved analytics maturity and data strategy.

The fourth trend this research highlights neatly completes the cycle. With organizations reframing data security as a key driver of customer loyalty, it's clear that the customer is at the heart of modern data strategy.

Overall, these findings reveal a substantial opportunity for organizations that can effectively implement secure, customer-centric data strategies.

To find out more visit www.lynchpin.com

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Introduction

Businesses and governments across the globe are embarking on a data transformation.

Forward-thinking organizations are already using data technologies to increase their profits, improve their services, justify internal change and enhance the customer experience.

This research highlights four crucial ways that organizations should be considering using data right now, from artificial intelligence and machine learning innovations to the importance of data privacy and security.

It reveals what company executives really think about today's biggest data and analytics trends, where their businesses are in terms of data maturity and what investments they are likely to make in the years to come.

Key findings

99%
of respondents expect to see ROI from AI adoption within two years

77%
of executives are already using data to optimize the customer experience

The #1
benefit data leaders see from privacy and security investments is their impact on customer loyalty

57%
of businesses are now incorporating data into their decision-making processes

Contributors

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Trend 1
Achieving Customer Centricity with Data

The customer is at the heart of modern business strategy, with 98% of data leaders training their sights on customer experience optimization. Data is seen as a key tool for providing personalization, measuring what's working, refining pricing strategies and more

Customer Experience Tops the Data Agenda

Improving the customer experience (CX) with data is a key part of many organizations' digital and data strategies. So, it should come as no surprise that 98% of the data leaders we surveyed plan to use data for CX optimization going forwards, and 77% already are.

Data clearly has a central role to play here, with 44% of respondents saying a key benefit of this information is the ability to measure which changes are delivering results and 32% saying it's important for developing new CX optimization strategies.

Respondents also say information about customer interactions at key touchpoints throughout each customer journey is a valuable resource for delivering CX improvements through personalization (41%) and achieving faster response times (34%).

Other data leaders are more concerned with delivering ROI, with 55% planning to use data to improve their advertising campaigns.

Meanwhile, 19% believe the value of customer data lays in lowering customer acquisition costs and 37% cite developing better pricing strategies as an important use for this information.

A quarter of respondents want to use customer data to deliver logistical or supply chain improvements, 42% want to put it to use in their call centers and 43% hope to use it to improve billing practices.

Of course, the specific types of data that are required will be different for each of these strategic objectives.

Measuring 'time efficiency' is the priority for 26% of our survey respondents, while 32% gather data about ROI directly. Marketing attribution technology is a key investment here, with recent advances making it possible to track ROI even in complex B2B sales cycles.

Customer feedback data from calls and surveys plays a central role at 18% and 24% of organizations, respectively. Gathering this data may be more resource intensive, but some leaders clearly feel it's the best way to discover what customers really think about their business practices.

All this suggests that enterprises are monitoring the performance of digital innovations designed to ensure customers receive the right experiences, at the right times – such as dynamic content, retargeted ads, virtual assistants or recommendation engines.

In fact, our results reveal that 77% businesses using customer data for CX optimization are harnessing it to improve their websites, 71% are launching webchat features and 51% are using it to develop chatbots.

However, the question of whether customers actually want their data to be used for these purposes looms large in many organizations.

Our research reveals that securing consent to use data for CX optimization is the second greatest CX challenge data leaders face (39%), beaten only by the ongoing challenge of ensuring the data they gather is the right quality to generate meaningful insights (44%).

Surprisingly, 22% of respondents say they aren't currently measuring the impact of using data to improve the CX. The general consensus among these respondents is that using data in this way isn't cost effective at present.

"There are many channels to gauge the level of customer satisfaction, so turning these into numbers feels like an unnecessary use of time and investment that could be applied for more fruitful causes," says one data and analytics leader.

Others who have attempted to use metrics to measure the impact of using data for CX optimization report that the solutions they used to do so did not yield enough useful information.

Several respondents also reported struggling to put unstructured data into perspective, prompting them to scrap these projects altogether.

However, these data leaders are in the minority – and delivering CX improvements looks set to top the data agenda in many enterprise organizations into 2020 and beyond.

As Christopher Boone, Pfizer's big data analysis lead, says, trending technologies like AI and machine learning are best deployed as tactics that feed into the wider project of CX optimization.

> *"The other drivers should be tactics to achieving an improved customer experience. If I were to speculate, it would seem that operational efficiencies serve as a clearer path to demonstrating short-term ROI, which is what senior management uses to determine investment opportunities."*
>
> **Christopher Boone, VP, Global Medical Epidemiology and Big Data Analysis Lead, Pfizer**

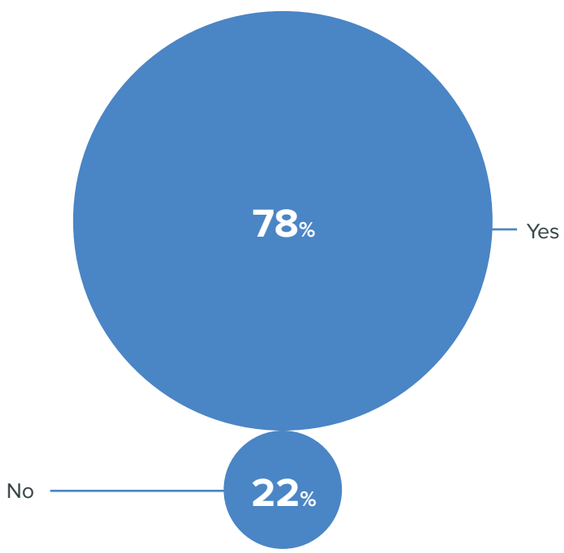
Are you using data to improve customer experience?

- **41%** Yes, we are currently using data to improve customer experience
- **36%** Yes, we are, and we are looking at using more in the years to come
- **20%** No, but we plan to use data to improve customer experience
- **2%** No, and we're not sure if we will use data for this reason
- **0%** No, and we don't plan to use data for this reason

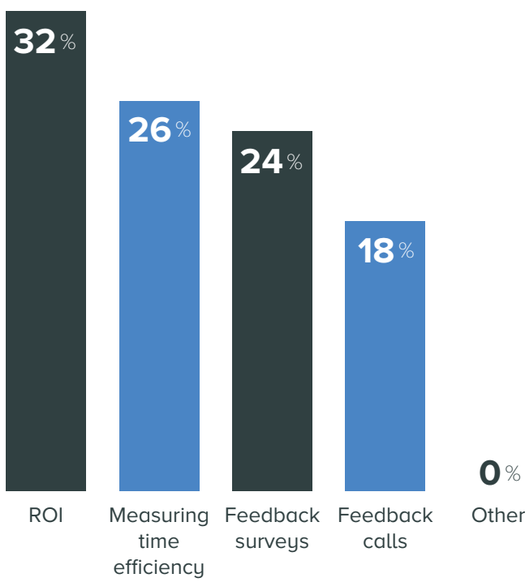
Where are you currently using (or do you plan on using) data to improve customer experience?

- **77%** Website
- **71%** Webchat
- **55%** Advertising
- **51%** Chatbots
- **43%** Notifications
- **43%** Billing
- **42%** Call centre
- **25%** Logistics/ supply chain

Are you measuring the impact of using data to improve customer experience?



If yes, how?



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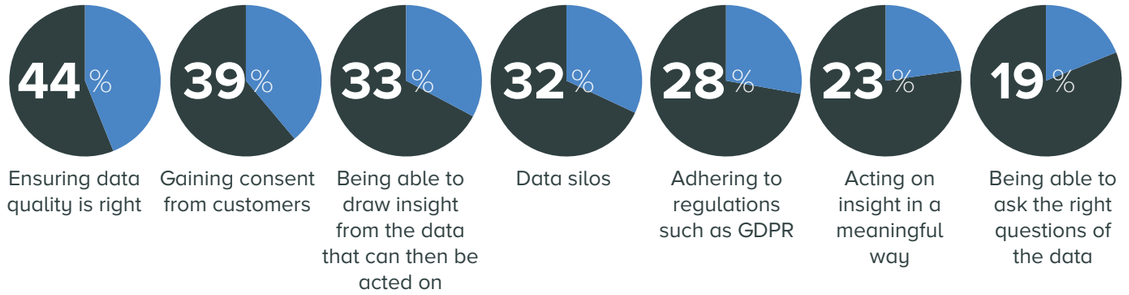
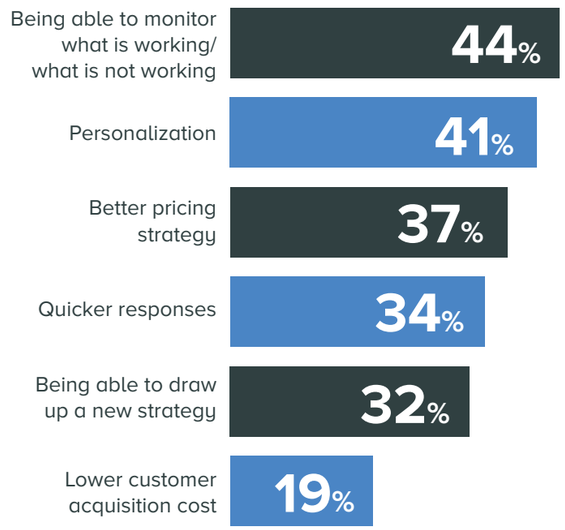
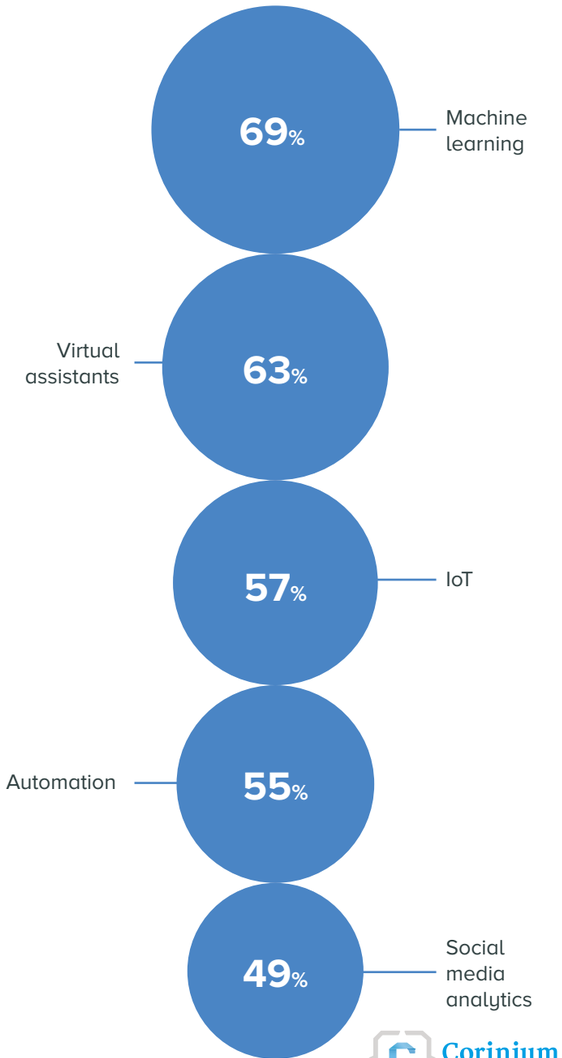
What are the biggest challenges of using customer data to improve CX?



What are the biggest benefits of using customer data to improve CX aside from customer retention and loyalty?



What technologies are you looking at using to improve CX?



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Trend 2
The Rise of Enterprise-Wide AI Adoption

Artificial intelligence and machine learning are two of this year's hottest technology trends. IT leaders are increasingly looking to these technologies to increase efficiency, uncover useful insights, cut costs, inform business decisions and more

Machine Learning Driving AI Adoption in Business

Given the amount of media coverage artificial intelligence (AI) and machine learning (ML) receive, it should be no surprise that most of the businesses we surveyed are experimenting with these technologies.

Our research proves that there is enthusiasm for AI and ML in the business community, with 100% of the data and analytics leaders we polled stating that their organization is open to using the technologies.

However, only 5% state their businesses are 'fully open' to embracing AI and ML. This suggests that most business leaders are yet to be totally convinced about the benefits of AI and ML.

But while many organizations are still in the early stages of AI adoption, there are others that are ahead of the curve.

ML algorithms are the most widely-used type of AI, with 80% of the data leaders we surveyed saying their organizations are already using them. But deep learning algorithms and chatbots are also popular, with 50% and 35% of respondents using these technologies, respectively.

What's more, a fifth of the executives we surveyed are assessing the business impact of AI technologies right now. Impressively, 25% thoroughly assessed whether they needed AI two years ago and a further 5% did so five years ago.

However, 49% of respondents said they won't thoroughly assess whether AI and its subsets are benefiting their businesses for at least two years. This will give technology vendors time to develop their offerings and produce case studies as their technologies mature.

The contrast between early AI adopters and data leaders adopting a 'wait and see' approach shows how differently businesses are reacting to AI and ML technologies. This may be as a reflection of the different industries involved, or indeed the type of board and CEO in charge of each business.

In fact, securing board-level approval for AI and ML projects remains a stumbling block for data leaders in certain sectors. While 41% of respondents cited this as a key challenge, that figure jumps to 53% in the insurance industry.

Either way, there's clearly still work to be done when it comes to educating the broader organization about the benefits of AI.

Our survey results support this conclusion, with 64% of data leaders believing that it will get easier to secure board approval for these projects as understanding of the technologies involved improves.

That said, securing board approval is not the only hurdle data leaders must overcome to achieve enterprise-wide AI adoption. Almost two thirds of respondents are also wrangling with legacy technology, while 57% are finding it hard to secure the right staff for AI projects.

> *"There certainly needs to be education and level-setting around the actual use cases for AI/ML in all industries. Unfortunately, many boards do not have an adequate understanding of the technologies to develop enterprise strategies, determine appropriate investment levels and effectively measure the impact of the investments."*
>
> **Christopher Boone, VP, Global Medical Epidemiology and Big Data Analysis Lead, Pfizer**

To help data leaders overcome these challenges, many technology vendors are developing AI products that aim to facilitate easy integration with older technologies. Others are working democratize data and create tools employees can use without help from specialist data scientists.

More than a third of respondents cited 'picking the right problems to solve' as a key challenge, suggesting that some organizations are still getting to grips with the technology themselves.

Increasing efficiency is the most frequently cited benefit data and analytics leaders expect to see from AI, with 63% of respondents citing it as a key reason for adopting the technology. Meanwhile, 48% believe it will help them uncover useful insights, 45% say it will help them cut costs and 43% believe it will help their businesses make better decisions.

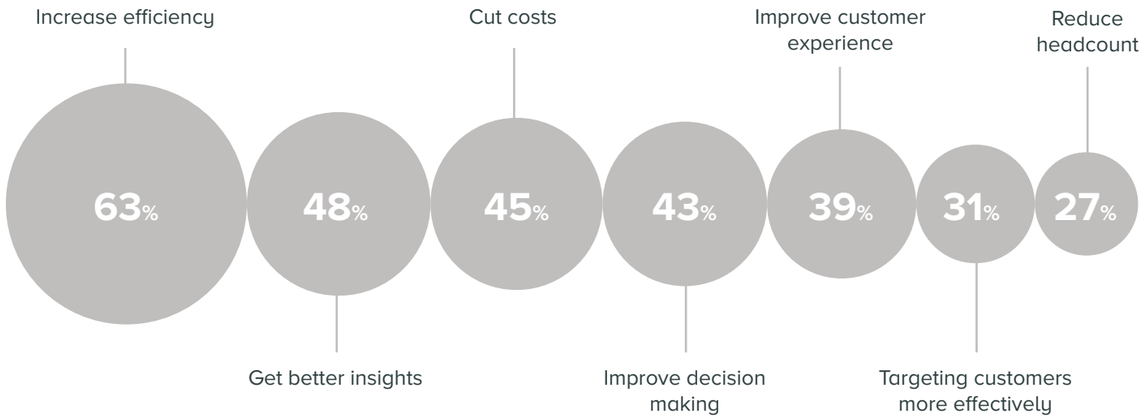
Perhaps the biggest surprise of this survey is that just 39% of data leaders cite 'improving the customer experience' as a key driver for AI adoption.

Recommendation algorithms may have transformed the retail industry in recent years, but it looks like other client interactions and customer journeys may not be so easy to automate. Almost all our respondents believe they will see returns from their AI investments within two years, with 59% predicting an ROI of at least 50%.

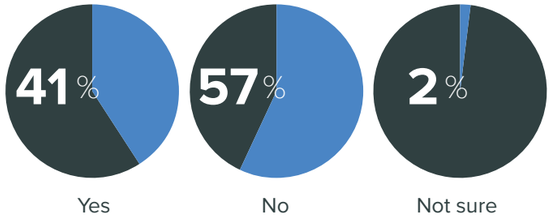
Many data leaders will need to secure management buy-in, educate the wider organization and upgrade existing IT systems in order to realize those returns – but most clearly believe these investments will be worth it.

How open is your business to embracing artificial intelligence (AI) and machine learning (ML)?

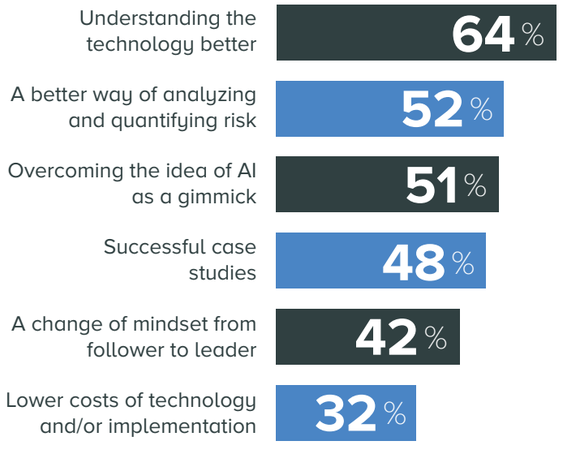
What are the top three drivers for embracing AI/ML in your organization?



Is gaining board-level approval an issue on AI/ML projects?



What could make it easier to receive board approval?



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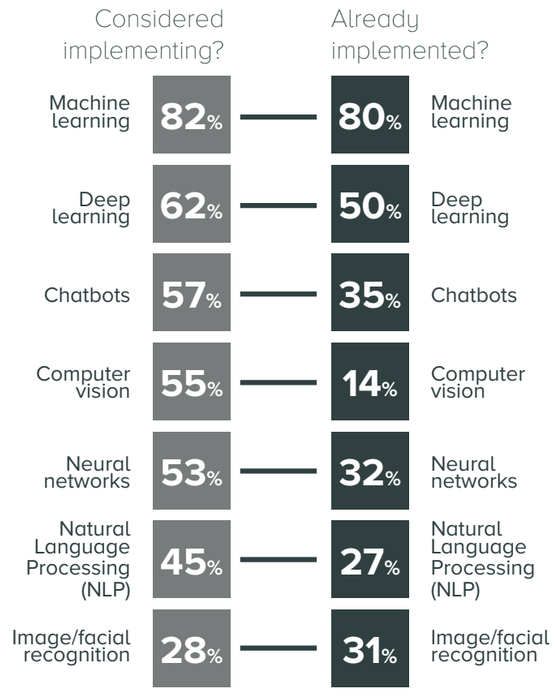
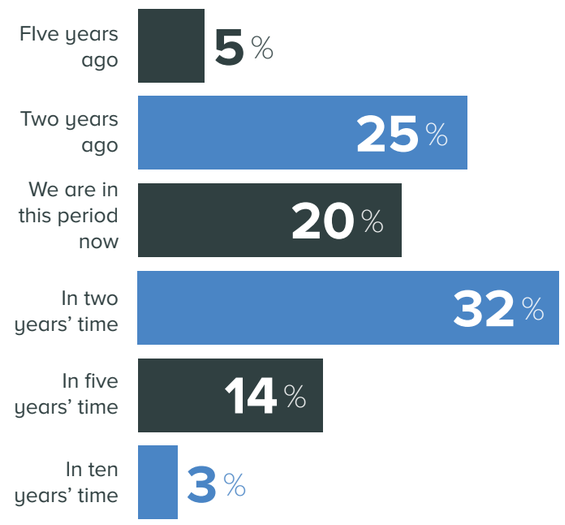
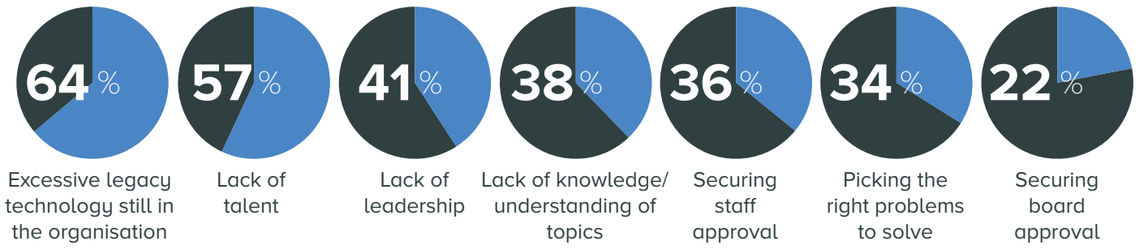
What subset(s) of AI have you:



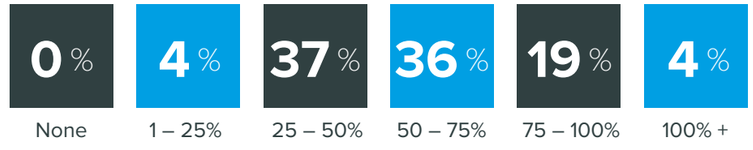
When will/did your organisation thoroughly assess whether AI and its subsets are benefitting your business?



What do you see as the main challenges in adopting AI?



How much of a return on investment do you expect to see from adopting AI in the next two years?



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Trend 3
Using Data to Justify Internal Change

The sheer volume of data and tools available to inform business decision-making has soared in recent years. Companies that aren't on the road to becoming truly data-driven are now in the minority

Enterprise Businesses Are on the Road to Becoming Data-driven

A fundamental assumption of data science is that making business decisions based on facts yields better and more reliable results than those made using instinct or intuition. But as with any major transformation, translating this premise into new business practices takes time.

Common challenges the data leaders we surveyed cite include a lack of definitive data governance rules (60%), unwieldy legacy technology (52%), poor quality data (48%) and bias (44%).

Businesses facing these challenges typically don't have a mature data strategy in place or lack the required tools to uncover the necessary insights to identify worthwhile changes.

However, our research also shows that many of the prerequisites for data-driven decision-making are now widely in place.

Just 10% of data leaders say they struggle to secure leadership buy-in for these initiatives, 18% say equipping staff with the right skillsets is a major challenge and only 25% are grappling with outdated cultures or mindsets.

As a result, 60% of respondents say their businesses have been able to use data to justify making organizational changes. What's more, this figure jumps to 83% when you focus just on government organizations.

Of those that have taken this crucial step on the road to becoming data-driven, 61% have restructured teams or departments, 60% have switched operating models, 54% have redistributed job responsibilities and 51% have changed IT applications.

A further 38% have been able to justify a change of IT infrastructure, while 31% have made the case for reducing headcounts and 26% have convinced their organizations to adopt new ways of working.

Business leaders that want to follow in the footsteps of these data pioneers must ensure their companies have the right technical capabilities, culture and processes in place to embrace this change.

> *"There are key technical capabilities that are required to enable organizations embrace this change, powering them to stay competitive and win with the right insights at the right time. The cultural shift is another big change. Co-workers at all levels should understand what AI is about, how it will change the way they work, what types of new insight they will get, how can they use it to their advantage and how can it help the organization overall. Process simplification and decentralization is another key aspect of this overall process."*
>
> **Amarnath Lingam, Head of Enterprise Advanced Analytics, Data Science and AI, CDW**

Luckily, there are many tools data leaders can draw on to assist with this transformation. Our research shows that 74% of businesses use data analytics tools for these purposes, 72% use AI, 61% use machine learning algorithms and 55% leverage data visualization tools.

Those that are doing this already say using data in this way makes it easier to know what changes to make (31%), address poor business practices (24%), improve productivity (19%) and streamline workforces (12%).

Once they have made the case for implementing a specific change, data leaders report using a range of technologies to transform their businesses – including cloud computing (68%), unified communications systems (59%), software-defined networking (51%) and DevOps tools (50%).

Cloud computing may be particularly popular because of its potential to help organizations reduce the amount of data center expertise they need in-house, allowing them to restructure their IT departments and divert resources to other areas of the business.

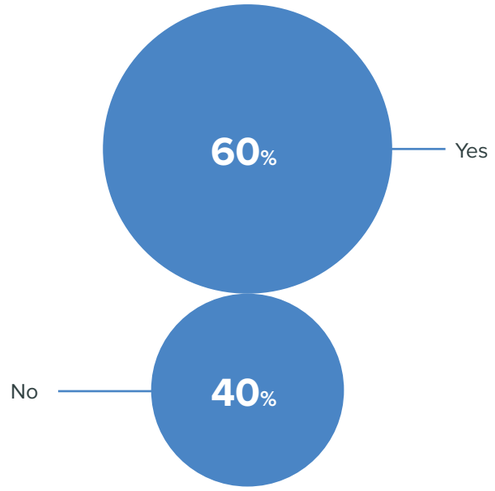
"Cloud computing gives companies the flexibility and capability to rapidly trial and develop new products and services," says Ryan den Rooijen, Global Director of Data Services at Dyson. "Whereas infrastructure was often a blocker in the past, now it has become one of the greatest enablers."

"Organizations are becoming more data-driven and are being objective, rather than simply following some hype cycle with this approach," adds Amarnath Lingam, CDW's Head of Enterprise Advanced Analytics, Data Science and AI. "With this, the customer experience can be improved."

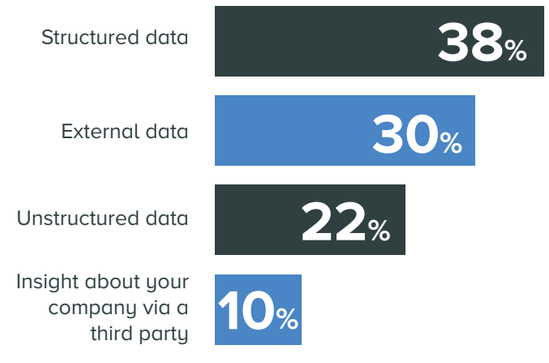
Of course, there's a big difference between making the occasional decision with data and removing bias, false assumptions and poor intuitions from a company's decision-making processes entirely.

The business community still has a way to go in this respect. But, it's encouraging to see that most data and analytics leaders are now moving along the path towards objective, fact-based business practices.

Have you/has your business ever used data to justify internal change?



If yes, then what kind of data did you use?



What are the biggest barriers for using data to justify change?

60% Data governance

52% Legacy technology

48% Data quality

44% Bias

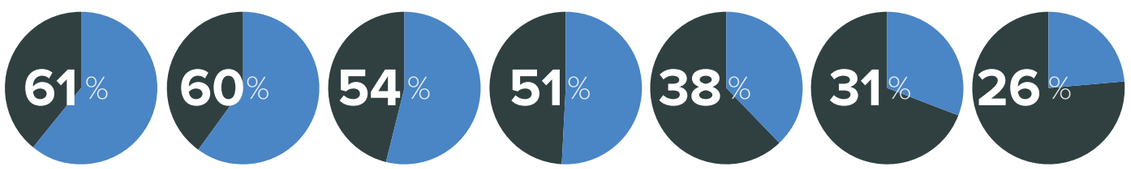
30% The skills required to link data-driven insights to a specific change

25% Culture/mindset

18% The skills required to generate insights from data

10% Leadership buy-in

If yes, then what kind of change did you make?



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What are the biggest benefits of using data to justify internal change?

Ability to know exactly what to change

31%

Ability to address poor working practices

24%

Ability to improve productivity

19%

Ability to eliminate excess job positions

12%

Gaining employee approval

9%

Gaining board approval

4%

What technologies are you looking at using in order make internal changes?

50% DevOps tools

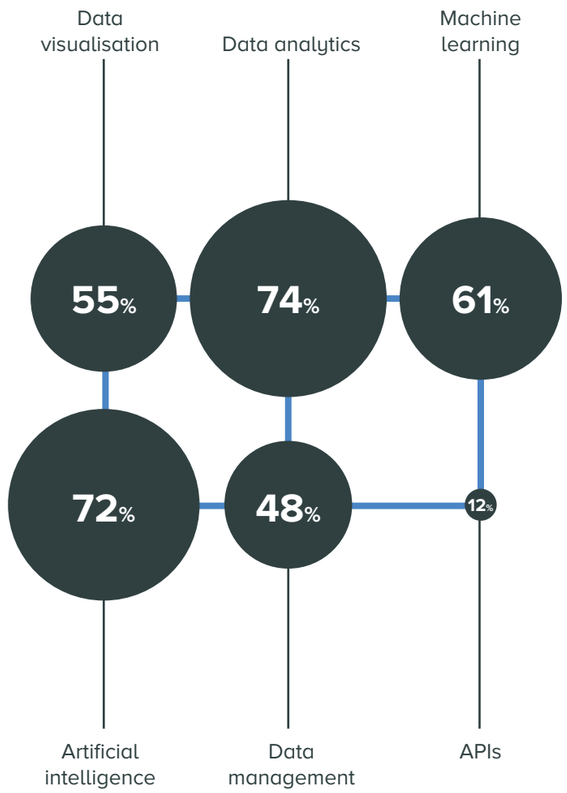
59% Unified communications

68% Cloud computing

51% Software-defined networking

33% Software-defined data centre

What technologies are you looking at using in order to exploit data to justify internal change?



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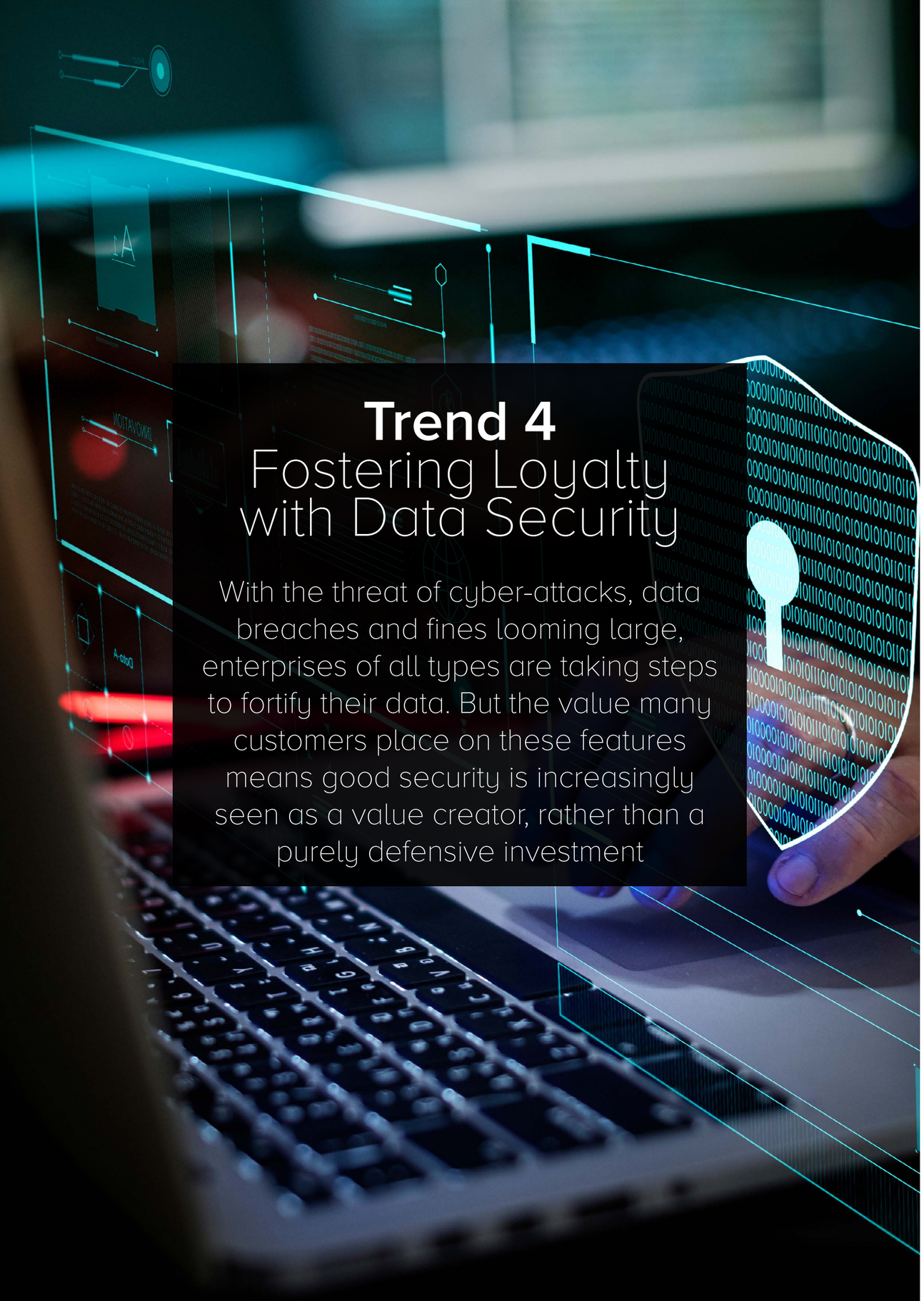


Trend 4
Fostering Loyalty with Data Security

With the threat of cyber-attacks, data breaches and fines looming large, enterprises of all types are taking steps to fortify their data. But the value many customers place on these features means good security is increasingly seen as a value creator, rather than a purely defensive investment

Data Privacy and Security Is Seen a Value Creator

The passing of the California Data Privacy Act and first wave of GDPR fines are clear signs that data leaders can't afford to take their eyes of the ball when it comes to compliance and security.

But our research reveals that these investments are seen as more than simply defensive initiatives at many enterprise businesses.

Improving customer loyalty is the most frequently cited benefit of using data privacy and security tools, with 64% of data leaders reporting that their organizations use them for this purpose.

> *"The biggest challenge we all face is how to continue building trust with our customers by ensuring optimal protection of their data. How do we make sure we're not innovating at the expense of privacy breach?"*
>
> **Lara Gureje, Vice President of Data Governance and Stewardship, Bank of the West**

What's more, 52% of respondents report using these features to acquire new customers by promoting them as key selling points.

"Customer loyalty should be at the heart of investment on data privacy and security at all times," comments Lara Gureje, VP and Head of Data Governance and Stewardship at Bank of the West. "Every organization has to be intentional about its data protection strategy in their quest to harness innovation and insightful analytics from their data asset."

Himanshu Arora, Chief Data and Analytics Officer at Blue Cross and Blue Shield of Massachusetts, adds: "It is refreshing and validating to see focus on investments in data protection, privacy and security increasingly move from expense ('mandates') column of an enterprise's balance sheet to revenue, through enhanced customer loyalty."

Of course, the traditional benefits of good data security and privacy practices are still on the corporate radar.

Mitigating insider threats (62%) was the second most frequently cited benefit of strong data security, with mitigating external threats (55%), adhering to regulations (32%) and stopping data breaches (32%) not far behind.

Our research shows that 87% of data leaders dedicate more than a fifth of their budget to data security and compliance matters. What's more, 69% have invested in new technologies in the past three years.

Network security, data back-up and cloud data protection tools are the most widely used security measures, cited by 72%, 53% and 50% of respondents, respectively. Data classification, anti-ransomware, two-factor authentication and big data encryption tools all tied for fourth place.

Those that haven't invested in security or privacy tools recently say they invested significantly in these measures more than three years ago (47%), believe they have everything they need in place already (45%) or will be investing in new technologies soon (38%).

Only a small minority believe not enough has changed to warrant further investment (33%), lack the budget to make the upgrades they want (25%) or say data security isn't a priority for their organization (12%).

We found no consensus on which data protection investments are most important for enterprise businesses.

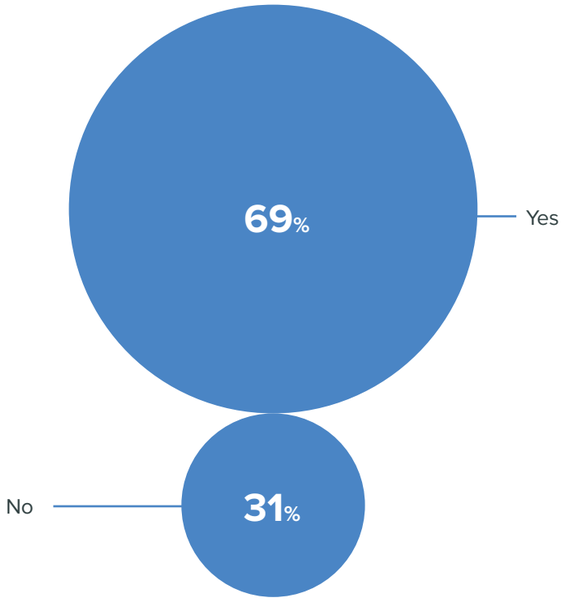
One important factor to bear in mind here is the value many businesses place on flexibility when it comes to data storage and enrichment. Flexibility is necessary to manipulate data and uncover useful insights. But using data in this way typically results in systems that are less secure.

Clearly, investments must be reviewed on a case-by-case basis to account for the different needs of each organization.

At the same time, the data security landscape is constantly shifting. Business leaders must reassess their security needs on a regular basis to keep step with new regulations, thwart criminal innovations and ensure they're meeting their customers' security expectations.

"We're raising awareness in our data communities and empowering our people with the right tools and technology to join the crusade," concludes Ms Gureje. "The ROI is priceless, as our ultimate goal is to continue strengthening our customer relationships."

Have you invested in data privacy and security technologies in the last three years?



If no, why not?

- **47%** Significant investment was made before the time period
- **45%** I believe we have everything we need in place already
- **38%** We will be investing soon
- **33%** Not enough has changed in the last three years
- **25%** We don't have budget for it
- **12%** Data privacy and security are not a priority

If yes, which technologies have you invested in?

Of the following, which is the most important for your enterprise?

Network security	72%	16%	Network security
Data back-up	53%	13%	Data back-up
Cloud data protection	50%	16%	Cloud data protection
Data classification	45%	7%	Data classification
Anti-ransomware	45%	7%	Anti-ransomware
Two-factor authentication	45%	4%	Two-factor authentication
Big data encryption	45%	7%	Big data encryption
Machine learning security products	42%	8%	Machine learning security products
Enterprise key management	36%	5%	Enterprise key management
Data privacy management solutions	34%	4%	Data privacy management solutions
Tokenization	33%	2%	Tokenization
Data access policies and governance	32%	5%	Data access policies and governance
Data discovery and flow mapping	26%	1%	Data discovery and flow mapping
Application-level encryption	23%	5%	Application-level encryption

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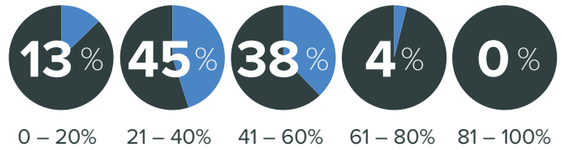
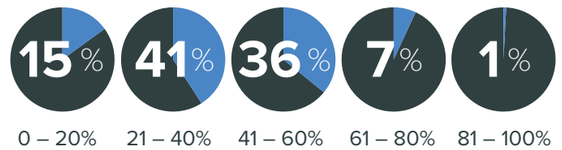
How much of your overall budget will you spend on data privacy and security?



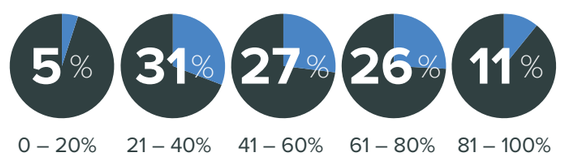
How important will AI and machine learning be for the future of security in your enterprise?

- **0%** Not important at all
- **21%** Quite important
- **27%** Important
- **45%** Very important
- **7%** Essential

How many of your existing security tools use AI or machine learning?



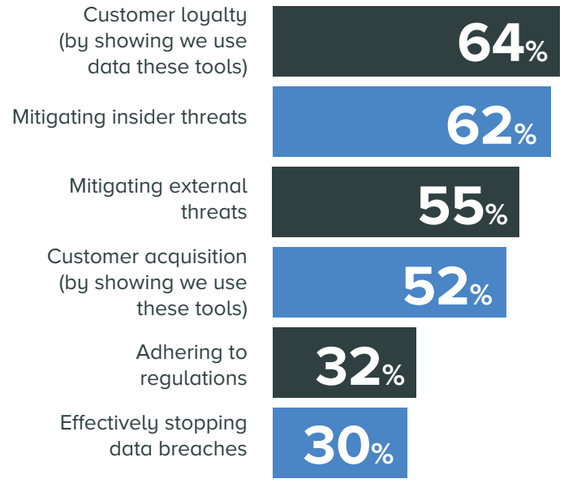
How many of these tools do you think will end up having AI or ML features that you will use in the years to come?



What are the biggest challenges when using data privacy and security tools?

- **39%** They create barriers to an effective data/ digital strategy
- **19%** Turning reports into actions
- **19%** Lack of knowledge or skills
- **13%** Integration with other technologies
- **10%** Responding efficiently to alerts

What are the biggest benefits of using data privacy and security tools?



What technologies are you looking at using to improve data privacy and security?

- **65%** Behavioural analytics
- **61%** Machine learning network security tools
- **55%** Converged data protection
- **54%** Deep learning neutral network interception tools

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About the Editor

Solomon Radley
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Solomon Radley is an experienced editor and reporter with a proven record of helping brands grow their industry expertise and thought leadership credentials.

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