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The Future of Sustainable

Global CEOs see technology as a tool to achieve the transition to sustainability.

About NTT

NTT believes in contributing to society through our innovations and business operations. We help people, clients and communities move confidently into the digital future and shape a better world. Our services include digital business consulting, technology and managed services for cybersecurity, applications, workplace, cloud, data centers and networks. As a top-five global technology and business solutions provider, our diverse team of more than 330,000 people deliver services to over 80% of the Global Fortune 100 and thousands of other companies in 190 countries and regions.

About WSJ Intelligence

WSJ Intelligence (WSJI) conducts bespoke and secondary research for brands and client brands of The Wall Street Journal | Barron's Group. Through rigorous analysis, WSJ Intelligence provides relevant, timely and reliable insights.

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Introduction: Boiling point for climate change

As climate change accelerates and the resulting societal challenges mount, business leaders are rethinking their roles and responsibilities. Moreover, technology is changing the business world profoundly and leaders increasingly recognize it as a critical tool to make their operations sustainable—but are they matching words with actions?

With growing awareness around ESG values, more people—including potential customers and investors—are looking at business and service providers for evidence of responsible practices. Companies face mounting pressure to integrate sustainability into their mission and operations. This expectation has only intensified in the wake of the coronavirus pandemic, which highlighted humanity's interconnectedness and vulnerability. Today, sustainability as a strategy has become a competitive advantage that attracts customers and talent.

The most progressive business leaders had understood, even before the pandemic struck, that prioritizing people and the planet alongside profit was smart on many levels. The coronavirus crisis only confirmed the merits of a purpose-led approach. And yet, achieving the United Nations' 2030 Sustainable Development Goals is "in peril," according to the 2023 report. "Unless we act now, the 2030 Agenda will become an epitaph for a world that might have been," warned the UN Secretary-General, António Guterres.[1]

To understand executives' response to this new—and evolving—agenda, WSJ Intelligence conducted an in-depth quantitative study in partnership with NTT, the third in a series that began in 2020. This 2023 follow-up report, drawn from the survey answers of hundreds of C-suite leaders across 16 countries, provides valuable insights and evidence that an impressively high proportion of CEOs are now strongly committed to sustainable business practices. It also tracks progress by comparing findings to NTT's inaugural research conducted during the pandemic's onset, and subsequent white papers.

The 350 respondents lead large public and private companies across seven major industries, including technology, financial services, manufacturing, healthcare, telecommunications, consumer goods and energy/utilities. Most hail from high-revenue organizations.

Industries

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Revenue

$500 million to $999 million	24%
$1 billion to $4.99 billion	27%
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$10 billion to $19.99 billion	18%
$20 billion or more	8%

[1] https://www.un.org/sustainabledevelopment/blog/2023/04/press-release-un-chief-calls-for-fundamental-shift-to-put-world-back-on-track-to-achieving-the-sustainable-development-goals/

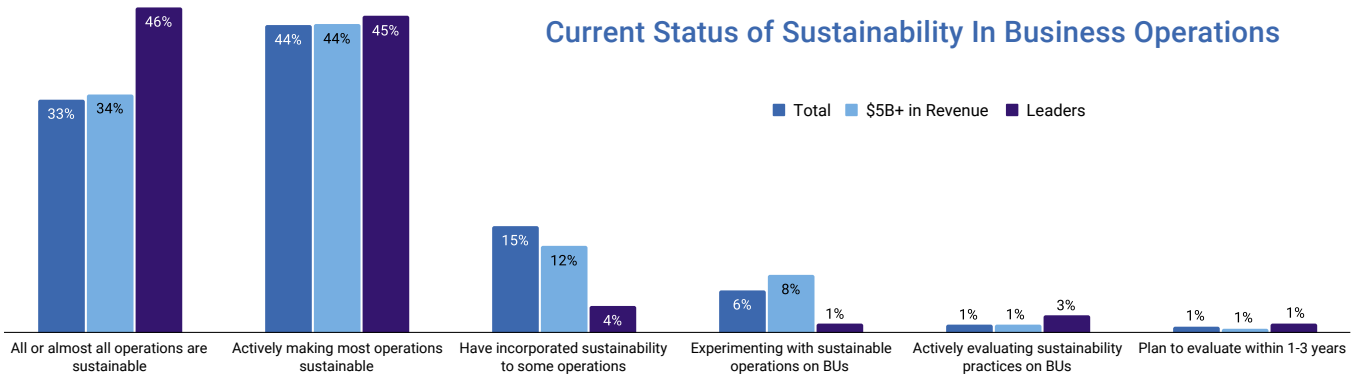
The survey's geographic markets include the Americas (Brazil, Canada, Mexico and the United States), EMEA (France, Germany, South Africa, Spain, the United Arab Emirates and the United Kingdom), and Asia (Australia, China, Hong Kong, Japan and Singapore). These leaders are heavily involved in shaping strategy and sustainability initiatives at their firms.

The 2023 research indicates that most global CEOs now embrace sustainability as a core strategy. Further, sustainability has been elevated from "nice-to-have" to "must-have" in the past three years. Compared to 2020, substantially more organizations now formalize clear sustainability policies and goals. Technology adoption is also growing as companies seek to unlock efficiency and circular-economy benefits.

Most Firms Have Sustainable Operations

8 in 10 have all or almost all of their operations sustainable, while a fifth have incorporated some sustainable practices.

Half of Leaders have all or almost all of their operations as sustainable, far ahead of Total respondents.



The research reveals three key insights:

1. Sustainable practices confer multiple benefits, from cost savings to reputation enhancement.
2. Technology, especially artificial intelligence (AI), is the most potent enabler for organizations seeking sustainability.
3. While companies still fear losing profitability, sustainable technologies yield tangible dividends that outweigh the costs.

In particular, AI has emerged as an instrument to enhance sustainability. Over one-third of CEOs believe AI holds the most promise for supporting the switch to a more circular economy. However, thoughtful implementation remains crucial, given its potential risks.

While barriers such as profitability concerns persist, leading organizations increasingly treat sustainability as a competitive advantage rather than a cost. They recognize its power to improve efficiency, strengthen culture and future-proof operations in turbulent times.

This white paper unpacks these findings in greater detail, providing current benchmarks and best practices for the sustainability journey. It aims to help executives make more informed decisions in leveraging sustainability's synergies with business performance, reputation and resilience.

Chapter 1: Sustainable operations

As noted in the 2022 white paper, most business leaders understand that moving to a decarbonized society, committing to a resource-recycling future, and ensuring people and nature coexist in harmony are critical—for commercial success and for the sake of humanity.

This year's research findings in the latest WSJ Intelligence Global Study provide further evidence of such a theme. For most organizations, sustainability is no longer an abstract ideal, but an ingrained aspect of operations—at least, that's what the survey results show. An impressive 88% of respondents agree that companies must prioritize sustainability to maintain a competitive edge, and eight in 10 respondents have already incorporated sustainability practices into most or all of their business operations. An even higher 95% of Leaders—organizations with the most mature sustainability strategies—and 91% of Early Adopter respondents say that incorporating sustainable practices into their operations has not harmed their profitability.

Indeed, for most companies, sustainability confers multiple benefits, which outweigh the costs of implementing sustainable operations. The survey reported that 94% of Leaders believe it strengthens their reputation and the appeal of their products or services while also paying financial dividends. Almost all—95% —think companies should take a "leap of faith" and adopt sustainable tech even if the short-term consequences for profitability look discouraging.

Chapter 2: Sustainable technology and the circular economy

Beyond direct organizational benefits, almost all Leaders (98%) think that sustainable technologies will have a positive impact on the circular economy.

Specifically, they are expected to increase organizational resilience, encourage consumers to think sustainably, and promote circular thinking in product design. With their enormous reach, companies adopting sustainable practices can also influence partners, customers and governments to follow suit.

Sustainability therefore has a "virtuous cycle" impact across supply chains, markets and society. Organizations that realize this adopt a long-term perspective. They understand investments today will reinforce more sustainable practices and attitudes across the economy and benefit future generations.

Technology is the quickest means by which organizations can grasp the benefits of sustainability. A hefty 91% agrees. Further underlining technology's central role, 88% acknowledge that the current push toward sustainable tech throughout business has strong momentum and should not be ignored.

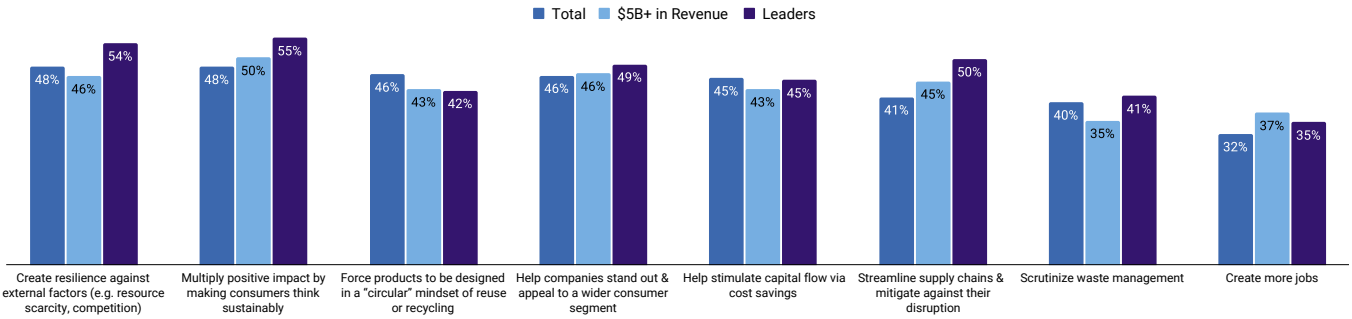
Almost half (45%) of CEOs surveyed believe sustainable technologies will stimulate capital flows and generate cost savings in the circular economy. For example, AI and the Internet of Things (IoT) enable predictive maintenance, extending product lifespans and reducing resource needs. Meanwhile, blockchain creates transparent supply chains, reducing errors and waste.

Company Resilience, Effect on Consumers Top Effects

Giving firms more resilience to external shocks, enticing consumers to think sustainably, and forcing a 'circular' mindset to product design the top reasons sustainable technologies thought to have a positive impact.

Leaders see similar positive impacts, as well as streamlined supply chains with mitigation against disruption.

Reasons Sustainable Technology Will Have a Positive Impact On the Circular Economy



Ultimately, sustainable technology allows organizations to do more with less. It helps them move from linear "take-make-waste" models to circular ones, where end-of-life products become resources for making new products. This ethos of zero waste protects organizations against future resource constraints and market volatility.

Sustainable technologies help firms become more resilient to external shocks, for example, natural disasters, geopolitical conflicts and supply crunches. Using technology such as AI analytics, organizations can predict risks in real time and rapidly adapt. This builds organizational responsiveness and autonomy. Moreover, sustainability confers reputational benefits to partners, investors and consumers. It signals that the company cares about its impact on the environment and society, and that it is better prepared to face an unpredictable future.

Chapter 3: AI—the right technology

Which technologies hold the most promise to support sustainability and the circular economy?

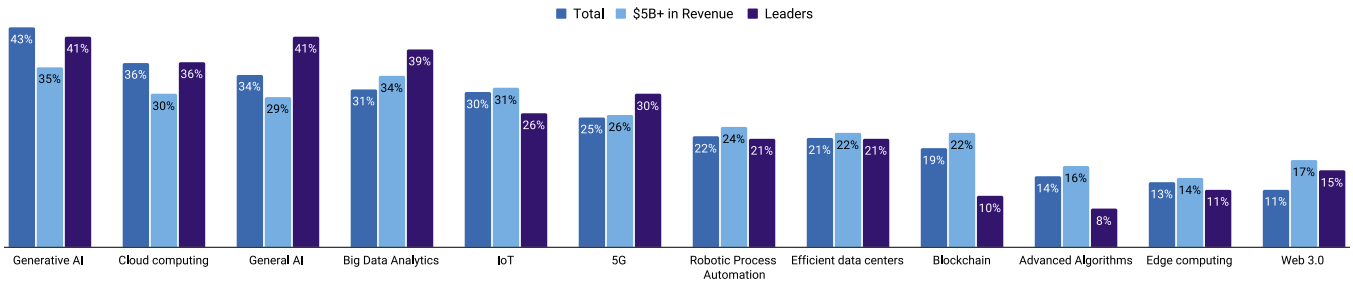
Cloud computing and big data analytics rank highly as sustainable technologies, emphasizing the power of data-driven systems. Meanwhile, blockchain's ability to increase supply-chain transparency helps optimize material flows. IoT also promises significant benefits, enabling connected devices to provide real-time insights, although organizations must ensure strong cybersecurity and data governance to address IoT-linked risks.

AI, Cloud Computing Top Tech To Achieve Sustainability

Generative AI thought to be the best technology to achieve sustainability without sacrificing profitability; big data analytics & IoT also play a hand.

Similar sentiment among those from firms with $5B+ in revenue; **Leaders focus on AI overall, big data and cloud computing.**

Tech That Achieves Sustainability Without Impacting Profitability



However, AI has emerged as the key tool for the adoption of sustainable practices.

The reasons are manifold:

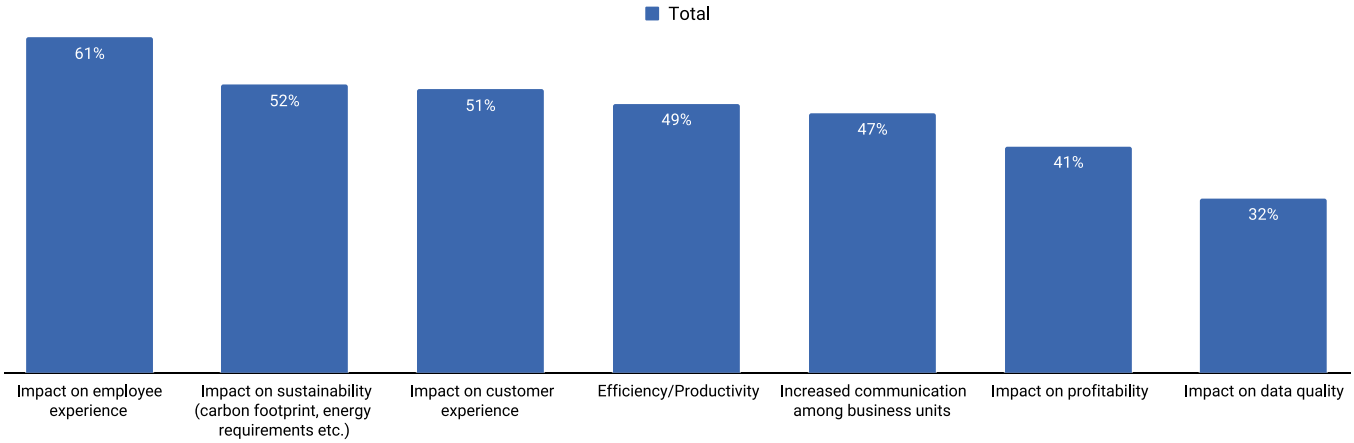
- AI can pinpoint and eliminate inefficiencies, generating sustainability gains as a byproduct;
- It can improve life for employees—and customer satisfaction;
- AI enables personalization and customization, reducing waste;
- It allows predictive analytics to forecast problems or supply-chain disruptions and mitigate risks.

Confidence in AI is overwhelming, with 93% of Leaders believing that it can create sustainable practices as it streamlines operations and highlights inefficiencies. Rather than replacing human workers, which has been a long-standing fear, six in 10 of those prioritizing AI cite its positive impact on the employee experience as one of its most important benefits. Using AI as a co-pilot to augment and automate mundane tasks will free workers to focus on more creative, value-adding activities.

Those Prioritizing AI Emphasize Its Impact on Employee & Customer Experience, Sustainability

6 in 10 see a positive impact on the employee experience as AI's top use case, followed by sustainability, impact on customer experience, and efficiency/productivity.

Top AI Use Cases



In essence, AI aligns sustainability with better customer and employee satisfaction by optimizing systems enterprise-wide. Its analytical capabilities help spot problems and misallocated resources, enabling targeted solutions. AI thus addresses multiple objectives: eco-friendliness, efficiency and people-centricity.

However, sustainably deploying AI requires factoring in significant energy requirements. The good news is that emerging techniques, known as Green AI, can reduce its carbon footprint.

When asked which technology would benefit the circular economy specifically, over one-third of respondents (39%) and over half of business leaders (55%) believe AI will have the most profound impact.

Overall, technology creates sustainability gains directly through better energy management and indirectly by reducing waste and errors. It is the critical enabler for building circular systems where resources recirculate perpetually.

Chapter 4: Barriers and benefits of sustainable tech adoption

Despite recognizing the merits of AI and other emerging technologies, many companies remain hesitant about how sustainable they might be, on various levels. Therefore, while many leaders recognize the need to operate more sustainably, in various ways, impediments are limiting progress. This could prove one factor in global society missing most, if not all, of the Sustainable Development Goals by 2030. The most frequently cited barrier is the fear that becoming more sustainable will undermine profitability. Concern about operational disruption and capital constraints also loom large.

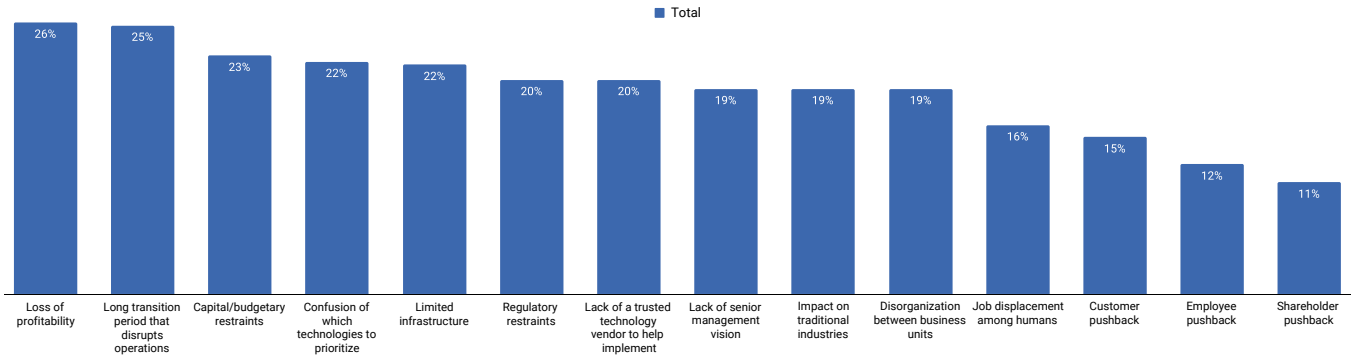
Though the initial outlay may be significant, these worries reflect outdated mindsets. Sustainability doesn't seem to hurt the bottom line. Organizations should thoughtfully address implementation barriers:

- Financial concerns: 26% of organizations fear sustainability will undermine profitability. Yet sustainable technologies such as IoT and AI optimize workflows, reducing costs and boosting earnings. The key is quantifying savings from increased efficiency, reduced waste and improved customer satisfaction.
- Disrupted operations: 25% worry about prolonged disruption from long technology transitions. Change-management techniques, including staff training, pilot projects and phased rollouts, can smooth the path.
- Capital constraints: 23% cite limited budgets as a barrier. But sustainable tech should not necessitate massive upfront capital projects. Solutions such as cloud computing offer pay-as-you-go models that allow flexibility.

Loss of Profitability, Long Transition Periods, Capital Restraints the Top Three Biggest Barriers

A quarter of total respondents are concerned with loss pf profitability and long transition periods that disrupt operations, followed by capital restraints.

Barriers Preventing Adoption of Sustainable Technologies



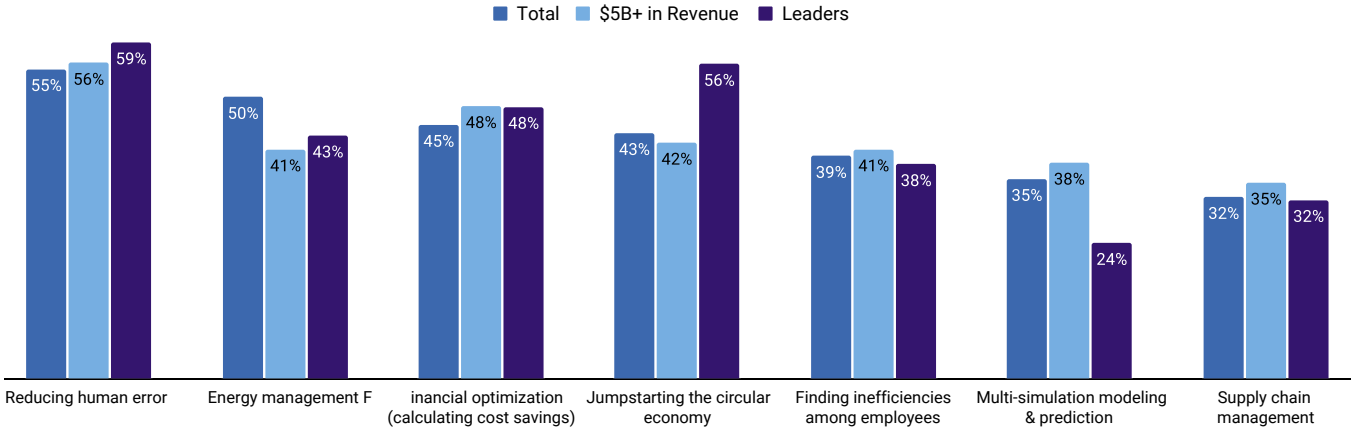
In reality, the long-term gains from prioritizing sustainable technologies outweigh the investment. Thoughtfully designed initiatives enhance brand value and product appeal. They will also reduce human error, increase resilience to external threats such as supply-chain disruption and price fluctuations, and lower costs through streamlined processes.

Reducing Human Error the Top Reason for Prioritization

6 in 10 see that reducing human error is the most important impact area influencing what technology they prioritize; energy management is second.

Respondents from firms with $5B+ also focus on financial optimazation while **Leaders focus on jumpstarting the circular ecomomy; this reinforces the notion that there is a "multiplier effect" that will influence a sustainability mindset among others**.

Impact Areas Influencing Technology Prioritization



It is striking that 94% of Leaders believe sustainable technologies will pay both financial and reputational dividends in the future. Over half of those surveyed also believe that businesses, rather than regulators, need to lead this supply-side transformation. Nine out of 10 respondents think it is incumbent upon companies to lead the adoption of sustainable practices, inspiring consumers to follow.

With foresight and discipline, companies can overcome adoption barriers. The choice facing business leaders is increasingly clear: grasp the sustainability opportunity today or risk squandering a competitive advantage. Leaders must look beyond outdated notions that sustainability is a cost. With the right technology approach, they can build a future that is green and profitable.

Conclusion: The onus on businesses

The push for sustainability stems from confidence in its current, future and systemic benefits. It enhances efficiency today, future-proofs organizations and propagates sustainable mindsets. Sustainability is becoming the norm because it makes business sense.

As the latest WSJ Intelligence Global Study shows, sustainability is becoming integral to business strategy as organizations recognize its role in maintaining competitive edge, boosting reputation and preparing for the future. However, barriers to progress remain for many to optimize sustainability. Technology serves as its core enabler by highlighting inefficiencies, reducing human error, driving waste reduction and building robust supply chains through circular systems.

AI has emerged as a spotlight solution, combining cost savings with enhanced customer and employee satisfaction. However, pragmatism and patience are vital because concerns about damage to profitability and operational disruption persist. Ultimately, technology allows businesses to build a better world, but this requires leadership vision and concerted effort.

A more sustainable future for people and the planet is possible. And it is more probable if companies deploy technology thoughtfully and lead society's sustainable transformation, unlocking a triple dividend: ecological renewal, social inclusion and economic revitalization. The choices business leaders make today will create the world of tomorrow. The opportunity to build a better world with technology and innovation is at hand.

The Wall Street Journal news organization was not involved in the creation of this content [2,228 words]

Appendix: About this research

In September and October 2023, with sponsorship from NTT, WSJ Intelligence conducted an online quantitative survey of 350 CEOs of large corporations in 16 countries around the world. The companies they represent are positioned in 7 major industries.

Geographic Markets

Americas	EMEA	Asia
Brazil	France	Australia
Canada	Germany	China
Mexico	South Africa	Hong Kong
US	Spain	Japan
	UAE	Singapore
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Decision-Making Authority

Technology acquisition	92%
Sustainability initiatives	89%
Strategic business initiatives	88%
Financial / accounting initiatives	81%
Legal / compliance matters	79%