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# The Sustainable CTO

The Road to Tech Positive for Financial Services





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# Foreword

The cost of energy consumption has always been front of mind for the financial services industry, but the COVID-19 pandemic heightened this focus.

With hybrid working driving demand for increased processing power and storage, even those companies that had spare capacity a few years ago are struggling. Now the goal is not just to optimize IT infrastructure for cost savings and performance but to meet sustainability objectives.

COP26 saw financial institutions with over USD\$130 trillion in assets under management committing to reach net zero before 2050.<sup>1</sup> More companies have since followed suit – and they’re being held accountable, with investors and regulators pushing for greater visibility into ESG action.

The finance industry is unique in that companies must look at sustainability from an embodied, operational, and investment perspective. One of the biggest hurdles they face is data management. We can’t improve what we can’t measure; to set realistic strategies and build stakeholder trust, companies need an effective data strategy. Not only does this require updating legacy data architecture but the metrics required for ESG monitoring aren’t easy to collect or verify.

Technology has a critical role to play in overcoming these challenges. Our research found that eight in 10 senior IT leaders believe tech innovation, including AI, will play a significant role in their whole organization’s transformation to a sustainable business. By implementing advanced technologies, organizations can collect and analyze vast amounts of data – from the energy consumed by office tech to the carbon footprint of their investment portfolio – to drive real-time decision-making.

The benefits of harnessing new technology are clear, but just a quarter of financial services IT leaders identify this as a top priority for their organization’s CTO. The extensive capabilities of AI rely on enormous computing power, and with this comes higher emissions. Organizations are struggling to balance the need for ever-increasing processing power with ambitious net-zero goals.

The pressure is on for financial services tech leaders, and they are embracing the challenge. In fact, over three quarters (77%) aspire to become a sustainability leader in the business: a “**Sustainable CTO**”. This new breed of tech leader must not only work to reduce the footprint of the IT function but use technology to drive the sustainability agenda forward and power business growth – leading their organization towards a ‘tech positive’ environment.

**Motti Finkelstein**  
Corporate Vice President -  
Digital Transformation Officer, Intel



## About this Study

*The Sustainable CTO* is based on independent, global opinion research among 2,020 business leaders from organizations with a minimum turnover of \$500 million. Research participants were based in organizations across 22 markets and 11 different sectors. This included 223 representatives from the financial services sector.

C-suite decision-makers were split into three groups:

- **Senior IT leaders** (job titles including Chief Technology Officers, Chief Information Officers, Heads of Infrastructure and Vice-Presidents/Directors/Heads of Product)
- **Chief Executive Officers (CEOs)**
- **Chief Sustainability Officers (CSOs)**

The sectors studied:

- TMT, Financial Services, Healthcare and Life Sciences, Manufacturing, Transportation, Education, Public Sector, Professional Services, Retail, Travel & Hospitality.

The concept development and research design were carried out by Intel and [Man Bites Dog](#), with the opinion research fieldwork conducted by Coleman Parkes Research.

The interviews took place between February to March 2023 and were conducted under the ethical research guidelines set by both the MRS (Market Research Society) and ESOMAR.

For the full methodology, please see the [global report](#).

<sup>1</sup><https://sciencebasedtargets.org/sectors/financial-institutions>



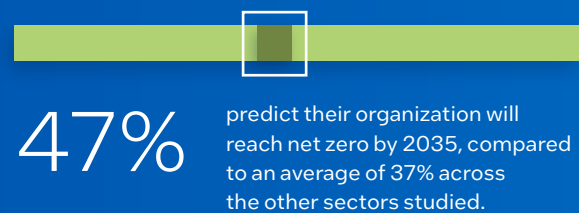
## Section 1

# The Sustainable CTO for a Greener Financial Future

The financial services sector is facing a turbulent landscape of extreme digital disruption, changing consumer demands, and increasing regulation. But to ensure they keep pace with the fast-evolving environment, financial services companies cannot let their focus on net-zero transition slip.

### Banking on Sustainability

Reducing climate-related risk and moving towards a net-zero future is front of mind for financial services organizations. The heavily regulated nature of the sector drives a culture of discipline that puts financial institutions in a good position to drive progress, and our research shows that IT leaders are confident they will reach their goals well in advance of the 2050 deadline.

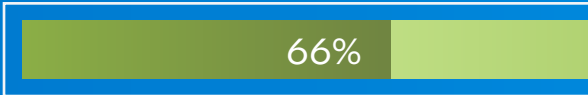


Moreover, **two-thirds say their IT function will reach net zero by 2035**, compared to an average of 54% across all sectors.

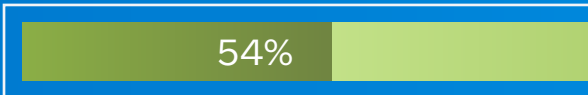
### Net-zero ambitions across sectors:

**Our IT function will reach net zero by 2035.**

% of financial services CTOs that agree

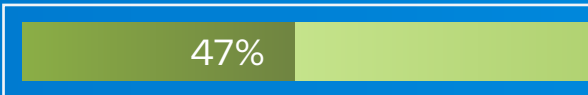


Average % of CTO agreement across the sectors studied



**Our organization will reach net zero by 2035.**

% of financial services CTOs that agree



Average % of CTO agreement across the sectors studied



In order to thrive in an evolving environment, financial services organizations must meet the rising demand for green banking products. Senior IT leaders see a clear **business case for sustainability**: 87% believe focusing on sustainability will lead their organization towards developing new products and services, which will enhance their brand.

"One of the main challenges facing CTOs is demonstrating the return on sustainable investment. We currently talk about optimization in terms of performance (i.e., speed and fee), but we still need a way of showing how optimized operating systems and hardware will translate into improved ESG ratings. If tech leaders can take this data to the C-suite, this will help them make the case for investing in optimization."

**Parviz Peiravi**  
Global CTO, Financial Services Industry Solutions





## Driving Two Agendas

Business leaders face a formidable challenge: prioritizing the transition to net zero while keeping pace with the mainstreaming of processor-hungry technologies like AI and IoT.

IT leaders recognize the scale of the challenge. Almost a quarter of senior IT leaders (72%) say their organization requires a **significant change or complete transformation** to transition to a net-zero business, and 82% say significant investment is required to make their organization's IT function more sustainable.

### The top three barriers to delivering green IT in financial services:

- 1 The rapid rise of new technologies like AI and IoT will demand ever-increasing computing power and therefore increase our IT function's carbon footprint.
- 2 Increasing cyber security has the unintended consequences of increasing our IT-related environmental impact.
- 3 Legacy technologies and processes within my organization will hinder tech-zero progress.

Seven in 10 financial services CTOs, CEOs and CSOs believe there is a conflict between their organization's need for ever-increasing computing power and the need to deliver green IT. The rise of technologies such as AI is also leading to increased cyber risk. Financial services organizations are more vulnerable to cyber threats than ever before, making cybersecurity software crucial to minimize risks. However, this software has its own compute demands to manage the enormous amounts of data captured.



## Case Study

### Real-time fraud detection

World-leading online money transfer system, PayPal, worked with Intel to confront the **fraud-related challenges** it was facing. To detect emerging fraud patterns in real time, PayPal needed to process and analyze more data in less time. The goal was to construct an efficient platform that would effectively combat fraud while minimizing end-user friction.

By integrating advanced Intel technologies and Aerospike's real-time data platform, PayPal achieved an impressive 30-fold reduction in missed fraudulent transactions. Remarkably, this transformation was achieved with a computing footprint eight times smaller than its previous infrastructure: 120 servers compared to the former 1,024. This efficiency boost enabled PayPal to process ten times more data, while cutting costs and reducing server power consumption.

Although changing working models have been a catalyst for companies to digitize, many remain **stuck in legacy systems**. This not only hinders progress toward net zero but holds companies back from embracing new technologies that aren't compatible with old systems.

# 8 in 10



However, eight in 10 CTOs, CEOs and CSOs in the finance industry believe **tech innovation, including AI, will play a significant role in their whole organization's transformation to a sustainable business.**





### AI-Powered Sustainability

Leveraging AI across financial services organizations can help optimize operations and support the transition to a more sustainable business model.

### Optimized Operations

Through real-time data analysis, AI algorithms can monitor energy usage across buildings and data centers, flagging energy-saving opportunities. AI-based tools can also oversee 'indirect' emissions, evaluating supplier sustainability.

Staying updated on the latest regulatory standards is vital for financial organizations. With the use of AI tools, companies can automate compliance checks and produce ESG reports aligned with disclosure mandates.

### Sustainable Services

AI-powered solutions can facilitate the creation of environmentally conscious portfolios, analyzing vast amounts of data to identify and evaluate sustainable investment opportunities. By directing capital towards renewable energy projects and green technologies, financial institutions can support the shift to a low-carbon economy.

Moreover, AI can gather data on customer behavior and forecast future trends, helping to drive innovation around new sustainable tech products and services.

Tech Zero\_



Reducing the carbon footprint of an organization's IT function.

Tech Positive\_



Using technology as a lever for the whole organization to reach its net-zero goals and to have a positive overall impact, driving business growth and accelerating innovation.

### Enter: The Sustainable CTO

Financial services needs a new model of tech leader – one who can deploy technology to build an organization that is fairer, greener, and smarter. And IT leaders are ready to take up the mantle.



84% are confident in their capabilities to significantly reduce IT-related emissions.



77% And 77% aspire to become a sustainability leader in the business – a 'sustainable CTO'.

More than this, they have a mandate from the rest of the C-suite. 84% believe the CTO often takes a more innovative approach to business growth than other organizational leaders.

# 9 in 10



And nine in 10 believe the CTO has the potential to become the greatest driver of sustainability in the organization.

So, they have the drive and the backing, but how can CTOs lead their organizations to tech positive?



## Section 2

# Becoming a Sustainable CTO in Financial Services

With their remit expanding, financial services CTOs are juggling new pressures and responsibilities, but what are they prioritizing to achieve a tech-positive status?

### The top priorities for financial services CTOs currently:

- 1 Leading the sustainable transformation of the IT function.
- 2 Improving security and cyber defenses.
- 3 Maximizing the benefits of cloud computing to drive transformation through flexibility and scalability.

According to senior IT leaders in the financial services sector, **leading the sustainable transformation of the IT function is currently the top priority for CTOs**, followed by improving their resilience against cyber threats. They are also focused on maximizing the benefits of cloud computing. Cloud computing is of paramount importance for driving transformation in financial services organizations, enabling seamless scalability and agile innovation to meet evolving industry demands.

By 2030, senior IT leaders in financial services organizations predict the top priority for the CTO will be enabling organizational cost reduction through IT-enabled efficiencies. While this may seem like a shift in focus away from net-zero goals, IT-enabled efficiencies inherently drive cost reduction and sustainability gains through streamlined resource usage and minimized operational waste.

### Greening the IT Function

**81%** of senior IT leaders in financial services believe that assessing the sustainability performance of their organization's IT function, hardware, and software is critical to reducing their emissions.

### Architecting for Sustainability

In contemporary software development, the focus is on optimizing code for performance. If organizations are going to reach their net-zero goals, they must place equal emphasis on performance and sustainability. Architecting for sustainability entails pre-emptively addressing the challenges posed by legacy systems to ensure the long-term agility and efficiency of software.

The utilization of Large Language Models (LLMs) for code generation offers a unique opportunity to enhance sustainability, enabling developers to effectively identify and halt the deployment of inefficient code. This immediate intervention ensures that only optimized code makes it into the software ecosystem.

Where legacy code is significantly impacting operational sustainability, we may see organizations implementing internal carbon pricing (ICP). Whether businesses apply a real or hypothetical cost to emissions within their operations, this acts as an incentive for IT teams to prioritize revisiting and rewriting inefficient legacy programming. Organizations that choose to charge an actual fee could put this money toward carbon offset schemes to compensate for emissions. At the end of the day, deploying more efficient code will drive business performance and contribute to sustainability efforts.

When it comes to boosting the IT function's sustainability performance in financial services companies, there is a clear focus on **minimizing waste**. They are aiming to repair equipment, keep technology in circulation for longer, and encourage changes in user behavior to optimize energy efficiency.



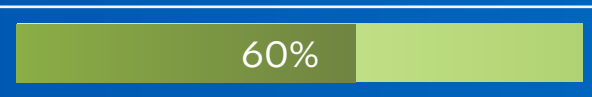


The top practices being deployed to improve the IT function's sustainability performance:

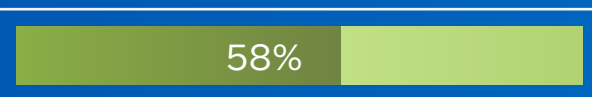
- 1 Minimizing electronic waste by repairing equipment when necessary.
- 2 Minimizing electronic waste by keeping technology in use for longer.
- 3 Educating employees in my organization about optimizing energy efficiency through user behavior.

More than two-thirds of financial services organizations (69%) **measure energy consumption across their IT function** – the largest proportion of the sectors studied. As well as educating employees about optimizing energy efficiency through user behavior, organizations are investing in greener tech.

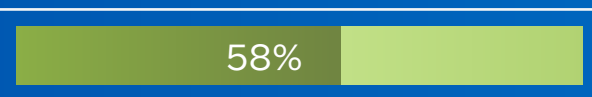
Top areas of investment for reducing IT-related emissions:



of financial services organizations are investing in energy-efficient hardware.



are investing in renewable energy sources.



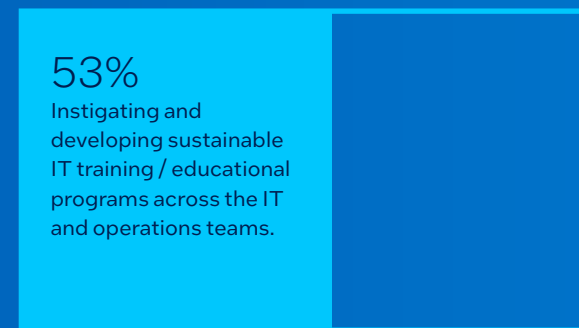
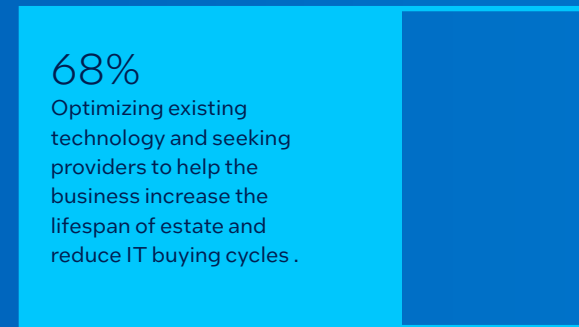
are investing in new 'green' technology.

Most organizations are also willing to pay more for 'green' products and services: **82% of organizations will pay a premium** for an IT product or service with strong sustainability credentials, compared to a product that is less sustainable to produce and use.

The Road to Tech Positive

According to three-quarters of senior IT leaders in the financial services sector, reaching net zero is not enough; their organizations should aim for a **net positive impact**. So, what are the steps to success? Senior IT leaders in the financial services sector are focused on three things: optimizing their existing tech, educating their IT teams, and aiming for green cloud.

The three most important factors for achieving tech positive:





## Conclusion

# The Roadmap to Tech Positive

With business, technology, and sustainability strategies converging in the financial services sector, the Sustainable CTO has the potential to be the uniting force. There are four key steps IT leaders must take to **drive organizations toward a tech-positive future**.

1

### Build skills to understand where to optimize

Over half of senior IT leaders in financial services say that sustainability training for the IT and operations team is one of the most important factors for achieving tech positive. Sustainable software development and data architectures will be a key focus area.

2

### Get buy-in from the wider business

Advocacy from the top is vital for progress on sustainability strategies; when the CEO commits to something, this makes it a strong incentive across the business, as opposed to a suggested guideline. The Sustainable CTO can help facilitate company-wide knowledge sharing on technology's role in the journey to net zero.

Other key people must be involved in the conversation to support technology's role in the journey to net zero. The CFO must be on board to unlock the investment needed, and procurement teams have a mandate to select environmentally aligned partners.

3

### Understand the data and optimize existing infrastructure

With new regulatory standards – such as the Sustainable Finance Disclosure Regulation – being implemented, gathering the correct ESG-related metrics will be crucial to producing ESG reports that are in line with disclosure mandates.

Analyzing data from existing hardware and software will also help to identify inefficiencies and minimize waste. These insights can also inform decisions on where to invest to move away from legacy tech.

4

### Plan for solution and software innovation

The CTO's ultimate responsibility lies in orchestrating transformative technologies and championing innovation. From refining current systems to introducing novel solutions, the Sustainable CTO must continuously seek avenues to develop new greener business models and drive change across the whole business.

In the pursuit of net-zero objectives, discipline is the linchpin. Financial institutions have demonstrated their ability to execute multi-year projects and this same dedication is paramount on the road to tech positive.

## Becoming a Sustainable CTO

As you embark on the path to becoming a Sustainable CTO – please visit our hub for more information:  
<https://www.intel.com/content/www/us/en/environment/sustainable-cto.html>

If you would like to join our growing community to share your insights and help the industry explore and deploy best-in-class sustainable technology, please get in touch for more information: [TheSustainableCTO@manbitesdog.com](mailto:TheSustainableCTO@manbitesdog.com)



# Resources

For more information about Intel's financial services solutions, please visit:  
<https://www.intel.com/content/www/us/en/financial-services-it/financial-services-overview.html>

For more information about Intel's sustainability goals and progress, please visit:  
[www.intel.com/sustainability](http://www.intel.com/sustainability)



# About Intel

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