Japan boots up its digital transformation

Japan ICT Market Outlook, 2022-2027 (US$ Billion) Source: **globaldata.com**

$301.97 **Billion**
Market Size 2022

8.28%
CAGR

$449.55 **Billion**
Market Size 2027
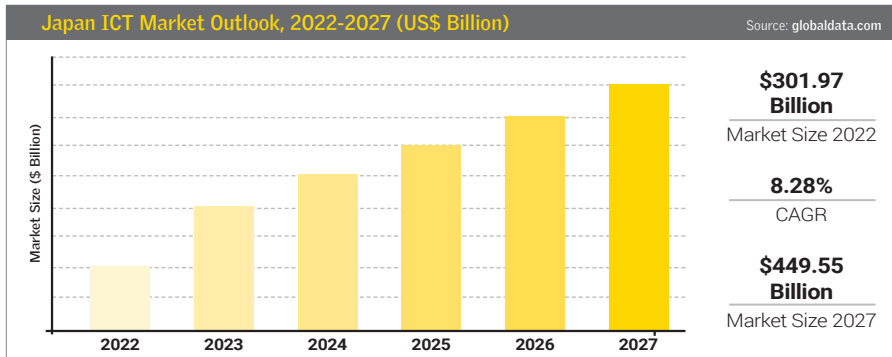
Japan, renowned for its innovation in robotics and manufacturing, surprisingly today finds itself trailing in the race for digital transformation. The 2022 IMD World Digital Competitiveness Ranking recently placed Japan in 29th position among 64 scrutinized nations, highlighting a notable gap in expertise, digital technology development, and readiness for embracing the digital era. Outpacing Japan in this digital evolution are fellow Asian nations like South Korea, placed in 8th, Taiwan in 11th, and China in 17th.

And yet paradoxically in the realm of general digital connectivity, Japan stands as an international leader with one of the world's best broadband networks (connecting 98.8% of households with FTTH internet lines) and mobile phone services covering 99.99% of the population offering nationwide access to super-fast data. Amidst this landscape, the industrial sector is finally in the midst of experiencing a surge in the adoption of digital technology, exemplified by Information and Communication Technology (ICT) solutions that are streamlining workflows and enhancing productivity on manufacturing floors.

However, the COVID-19 pandemic spotlighted a significant bottleneck in Japan's digital infrastructure— the sluggish pace of digitalization in administrative services. Acknowledging its lag behind G7 counterparts, Japan is now grappling with a public sector that is entrenched in analog practices, where paper-laden processes persistently rely on manual stamping.

In response to this situation, the Japanese Government, led by Prime Minister Suga Yoshihide, has defined the "realization of a digitalized society" as a policy matter of utmost importance and has quickly moved to develop policies for bold deregulation over the past three years. In a bid to steer towards a digital future, Japan established a dedicated Digital Agency in 2020 which now serves as the linchpin in orchestrating the digital transformation initiative, spanning across government departments and private enterprises – particularly when it comes to assisting the country's huge number of SMEs.

"The challenges Japan faces in swiftly embracing digitalization are partly due to this significant presence of SMEs within the country's industry," explains Akira Oyama, President and CEO of Ricoh – one of Japan's most well-known electronics manufacturers that has recently pivoted its business model to become an integrated digital services provider. "These SMEs often lack the necessary IT resources and expertise to effectively introduce and adapt to IT solutions. Given the high proportion of SMEs in Japan, this has contributed to the slower pace of digitalization generally. One of our key businesses going forward is to support these SME customers and help them digitize their operations."

As Japan embarks on this transformative journey, the nation is poised to redefine its digital landscape, ensuring a future where administrative services seamlessly align with the speed and efficiency of its cutting-edge connectivity infrastructure. Unlocking this paradox presents a pivotal opportunity for the next decade, as Japan stands at the crossroads of digital transformation. Despite relatively low levels of digital penetration, the country boasts some of the world's largest industrial, financial, and retail sectors. Imagine the seismic impact if these colossal industries were to seamlessly integrate innovative applications, unlocking new revenue streams and dramatically slashing costs.

Tadashi Ito, President and CEO of NTT Advanced Technology Corporation – a leading Japanese computer services business – believes this shift requires a cultural transformation as much as it does a digital one.

"There are many factors why digitalization has been slow in Japan," says Mr. Ito. "One is Japan's business environment being very analog and based on the principle of fine-tuning, which makes integrating digital solutions challenging. Another barrier to the advancement of DX is Japan's craftsmanship-based working style."

Japan, however, finally reached a critical point where it was forced to do things differently, explains Mr. Ito. "Firms realized they couldn't continue to succeed due to the country's lacking and aging workforce and if they were to keep the analog-based fine-tuning style. So, Japan is propelling activities to digitize, automate, and introduce robotics."

Shinichi Ata, President of SB Technology Corp – a leading distributor of consumer electronics – is also optimistic about the future when it comes to leveraging digitalization, particularly as the country confronts the seismic social and economic challenge of its rapidly aging population.

"The next three or four years will be focused on the introduction of more and more digital tools into Japanese society," he says. "With the decline in the population of Japan, the introduction of more robotics into the manufacturing field will be required. I believe that the implementation of digitalization into Japanese manufacturing will greatly increase productivity and place Japan in an advantageous position in the global market."

Noboru Okubo, President of Uchida Yoko – an integrated systems design company based in Japan – also highlights the need to invest in ICT solutions in the Japanese education sector in order to embed a culture of digital transformation amongst the next generation of workers.

"Despite the challenges Japan faces, I firmly believe the nation possesses significant potential for growth. The imperative lies in revolutionizing our work methods and redefining our approach to learning through digitalization," he says.

The role of AI in digital transformation will likewise be pivotal in shaping the way Japanese organizations operate, innovate, and deliver value in the future. "As AI-based technologies advance, the industry will see specialized tools being created by expert developers with a focus on solving unique challenges," says Masato Nakao, CEO of i-PRO.

Kiyo Oishi, President and CEO of ACCESS, believes that Japan has great potential in leveraging generative AI in DX, partly thanks to its love for pop culture characters kike Doraemon and Astro Boy. "Being exposed to this kind of AI since childhood helps us nurture the optimistic vision of using AI and growing together. What's great about recent developments in generative AI is that it can incorporate the 'Human Touch' that we highly value in service sectors. I think AI and the change in the workforce will accelerate DX in Japan."

Meanwhile, Shuichi Yoshimura, President of Dynamic Map Platform, is confident that "building a high-precision, location-based infrastructure as a foundation for a digital society will also open up the future development of new sectors such as autonomous driving and other industries."

Brimming with an educated population, thriving information and communication enterprises, and robust system integrators, Japan possesses all the necessary ingredients for a digital revolution. The missing link has been a shift in mindset, and the winds of change are beginning to blow. This wake-up call has propelled Japan onto the path of digital redemption.

As the nation pivots towards embracing digital tools, the stage is set for a profound metamorphosis. By 2030, Japan's digitalization narrative could emerge as one of the most inspirational transformations of our time. Picture a landscape where traditional sectors seamlessly incorporate cutting-edge technologies, unleashing untapped potential and positioning Japan as a global beacon of digital innovation. The story of Japan's journey from digital laggard to trailblazer could serve as a beacon for nations navigating the intricate dance between tradition and technological evolution.

Ricoh reinventing itself as a digital services company, to realize "Fulfillment through Work"

Ricoh is seeking to create a sustainable society where job satisfaction and economic growth are compatible.

> "Utilizing digital solutions presents a viable option for alleviating the modern issues that companies face."

Akira Oyama,
President & CEO, Ricoh

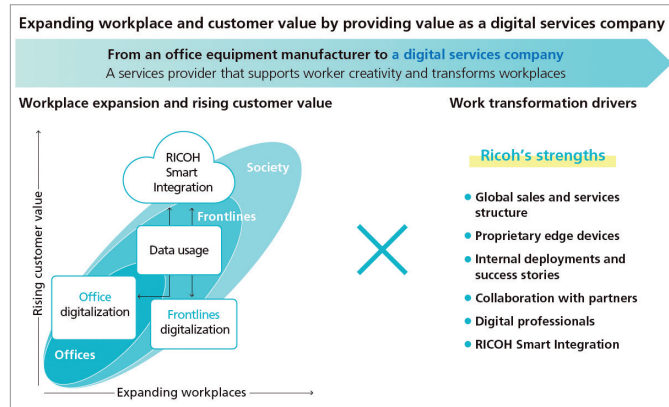Overview of Ricoh's 21st Mid-Term Management Strategy

Ricoh is known the world over as a premium manufacturer and distributor of office equipment, including multifunction devices, printers, consumables, imaging equipment, and other information and communications technology products.

However, while maintaining its commitment to manufacturing high-quality electronics and hardware, Ricoh is now evolving into an integrated digital service provider focused on the changing workplace, explains the company's President and CEO, Akira Oyama.

Digital Experience Center in Birmingham, UK, designed to be an open and agile space to facilitate innovation and collaboration between its hybrid workforce

"The work styles of our customers have been evolving in recent years, driven in part by the diversification of values in the world and the emergence of the COVID-19 pandemic," says Mr. Oyama. "This has led to an increasingly hybrid work environment where remote work has become prevalent. To support a dispersed workforce, our customers must now digitize various business processes and workflows, and our

digital solutions have successfully met their needs in this respect."

Mr. Oyama explains: "During Ricoh's 21st Mid-Term Management Strategy, Ricoh is focusing on three areas. First, IT services that support the construction and operation of the information and communications infrastructure that form the foundation of the workplace. Second, business process automation, which helps customers improve their productivity by digitizing their business processes. Lastly, the communication services that help our clients strengthen their creativity through meeting room design and the construction of hybrid work environments."

RICOH Spaces, a cloud-hosted workplace management platform

"Ricoh has a broad base of approximately 1.4 million customers around the world - from global companies to small and medium-sized businesses (SMBs) in various industries - and a network of sales and service touch points. One of the challenges Japanese SMBs face is the labor shortage due to the declining birthrate, aging population, and slow ICT

utilization. Inequality and information disparity caused by the digital divide are becoming global issues as well. One of the most promising ways to address these challenges is to promote digital solutions usage. Recognizing that SMBs often lack the necessary resources for digital implementation, Ricoh offers comprehensive solutions tailored to customer needs, encompassing a packaged approach that demands minimal maintenance and effort."

Also, Ricoh is building a strong track record in IT services, communication services, and business process services for companies around the world. Mr. Oyama outlines that it is Ricoh's objective to provide a holistic solution to address the modern challenges companies face. Ricoh is committed to creating value at the customer interface in every region of the world it does business in by enhancing the expertise of its digital workforce and localizing offerings per customer needs.

"As a workplace services provider, Ricoh focuses on developing comprehensive solutions for customers," explains Mr. Oyama. "While continuing to enhance edge devices that convert analog data into digital workflows, our research and development focus is on software, cloud technology, and

platform. For example, by combining low-code/no-code development with the problem-solving capabilities of Ricoh's global sales and support structure, we can help customers to improve their field-driven operations led by frontline workers. Furthermore, cloud-based platform RICOH Smart Integration is the key to unifying hardware and software components to provide a consistent digital workflow experience. We are making substantial investments in these areas to ensure continuous innovation and service improvement."
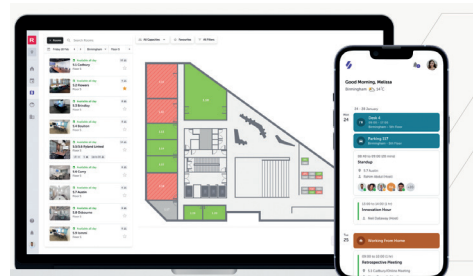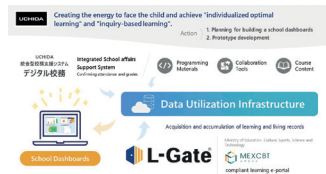
As Ricoh continues to evolve from manufacturer to digital services provider, its business philosophy remains steadfastly the same – which is broadly to support its customers' creativity and contribute to their "Fulfillment through Work."

RICOH PRISM, a next-generation meeting space

"I believe that creative work is worth doing in person, and the office will be a space that helps people to be more creative," stresses the CEO.

"Similarly, with the advent of generative AI, tasks traditionally performed solely by humans have become more specified, highlighting that creativity is a unique value only humans can provide. While the traditional purpose of work has been earning a salary, finding satisfaction and fulfillment in one's work has become increasingly important for overall happiness in life. We believe our digital services unleash our customers' and employees' creativity by releasing people from the tedium of repetitive tasks and enhance productivity, and ultimately increase the happiness of their lives."

RICOH

Uchida Yoko at the Forefront of the Education Revolution

Utilizing its know-how accumulated over more than 100 years, Uchida Yoko is changing the way we learn through innovation in classroom design and digital transformation implementation.

> "We were proponents of this mindset even before the pandemic, but in the post-pandemic era, we are placing even greater emphasis on it."
>
> **Noboru Okubo**, President, Uchida Yoko Co., Ltd.

Full-cloud educational ICT environment in Konosu City, Saitama Pref.

Student with L-Gate data, which is stored and linked to the CBT system

Uchida Yoko is driving Japan's digital transformation in the education sector through its innovative data utilization and equipment supplies.

Established over 100 years ago, the company is the leading educational equipment supplier in Japan. Uchida Yoko has collaborated with the Global Innovation and Gateway for All (GIGA) school initiative to provide school students throughout Japan with over 1.4 million PCs and equipment. Uchida Yoko's participation in the initiative has also included the construction of school networks, and full cloud computing using cutting-edge technology.

The company also focuses on creating software that empowers students
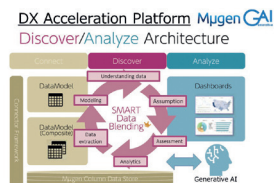
MugenGAI for integrated analysis of all data of students, linked to generative AI

to visualize and interact with their academic progress, developing an online dashboard that collates student academic performance data. Moreover, its e-learning portal, L-Gate, is used by approximately 750 organizations, 9,000 schools, and 3 million students throughout Japan.

Uchida Yoko acquired the digital educational assessment company, Open Assessment Technologies (OAT) of Luxembourg, to contribute to the development of testing, which the company's president, Noboru Okubo, envisages "will be applied to the next generation of testing, not only in Japan but also worldwide." Uchida Yoko is hoping to succeed in the Program for International Student Assessment (PISA) in 2025 so it can "use the data to improve and enhance teaching methods, optimize teaching for each student based on evidence, and improve educational administration," says Mr. Okubo.

UCHIDA
www.uchida.co.jp

SB Technology: Security solutions for digital transformation

By ensuring its clients receive all the information they need and understand their priorities, system integrator SB Technology is increasing security in the age of information.

The digital transformation is happening all around us, but a key aspect of this revolution often goes under the radar: security. Japanese digital security system integrator SB Technology provides its customers with the solutions to ensure their digital systems are always safe.

Founded in 1990, the company has always added value to the information revolution, and this is truer than ever in the age of digital transformation. SB Technology is currently focused on providing security for effective data manipulation, including Endpoint Detection and Response (EDR), BI and AI for data utilization, and consultation in maximizing digital transformation systems' value. As company president Shinichi Ata says: "Our decade-long focus on cloud-based services positions us atop engineering standards."

SB Technology helps its clients receive all the information they need and understand their priorities. An example of this is its eMAFF Map digital application system for agricultural land analysis created for the Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF). SB Technology built the system and MAFF staff members have completed the computerization of 3,000 processes by using no-code/low-code. SB Technology also integrated and centralized management of farmland information into Digital maps. Mr. Ata believes that with this system, they could also add value to the public sector and enterprise in other countries in the Asian market.

> "Our decade-long focus on cloud-based services positions us atop engineering standards."
>
> **Shinichi Ata**, President, SB Technology Corp.

SB Technology has a global operations center to serve its international clients, with a focus on cloud systems, security, Big Data and AI. As the company expands, security will remain at its core. As Mr. Ata says: "We have many solutions for analyzing information and deciding whether something is a real-time risk or a ticking time bomb."

Business for Public Sector : DX for MAFF

SB Technology
www.softbanktech.co.jp/en
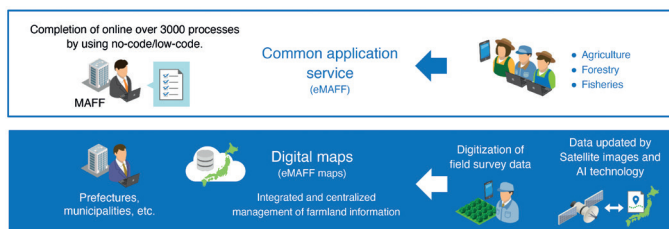
Mapping Autonomous Futures

Revolutionizing navigation, Dynamic Map Platform leads in high-precision mapping for autonomous driving and beyond.

DYNAMIC MAP PLATFORM

"Our vision is opening a new future for autonomous driving industries."

Shuichi Yoshimura,
CEO & President,
Dynamic Map Platform Co., Ltd.
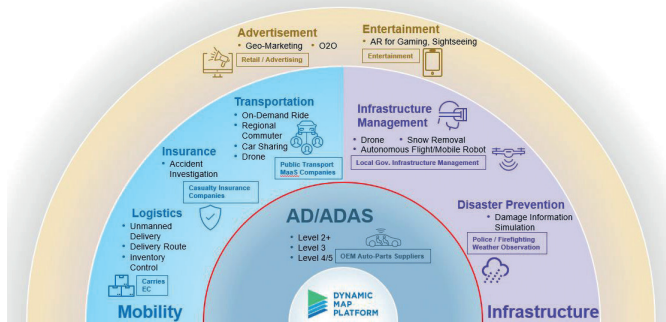**www.dynamic-maps.co.jp/en/**

Image of Dynamic Map Platform Business Domain

Dynamic Map Platform, under the visionary leadership of CEO and President Shuichi Yoshimura, is redefining the landscape of high-precision location-based infrastructure. Established in 2016, this innovative company has rapidly expanded its global footprint, with offices in Japan, the U.S., Europe, South Korea, and the Middle East, and a diverse team of 209 employees.

At its core, Dynamic Map Platform is not just about autonomous driving (AD) and Advanced Driver Assistance Systems (ADAS); it's about leveraging high-definition (HD) 3D data to drive innovation across various sectors. "Our vision," Yoshimura states, "is building high-precision location-based infrastructure globally as a foundation for a digital society and opening up a new future for autonomous driving and other industries."

The company's unique approach to data creation involves a four-step process, starting with satellite location identification and culminating in the integration of data into its desired form. This meticulous process sets the company apart, offering unparalleled accuracy and detail in 3D map data. Unlike traditional car navigation data, Dynamic Map Platform focuses on collecting road and physical information, expressed in 3D for precise vehicle control.

Mr. Yoshimura highlights the critical role of the company's technology in safety and comfort enhancement. In adverse weather conditions, vehicles equipped with standard ADAS might struggle to identify objects, a gap that Dynamic Map Platform's HD maps fill by providing tailored data sets for enhanced safety. Similarly, their technology allows for smoother navigation of challenging road conditions, improving overall driving comfort.

The company's global data coverage is impressive, spanning 35,000 km in Japan covering all expressways and motorways, 550,000 miles in the U.S. covering all Interstates, highways, motorways, and primary roads, and 120,000 miles covering the majority of highways in Europe. "We are the number one company in the sector in terms of data volume," Mr. Yoshimura proudly states. The high precision of the company's data and extensive coverage have attracted partnerships with major automotive manufacturers like Nissan, Honda, Toyota and GM.

Beyond the automotive industry, Dynamic Map Platform's technology finds applications in robotics, mobility, industrial equipment controls, and even in the entertainment and advertising industries. One notable project is its involvement in snow removal in Nagano prefecture, showcasing the versatility of its 3D mapping in infrastructure management and disaster prevention.

A significant aspect of the company's work involves "leading in green innovation, reducing CO_2 emissions through optimized routes". By optimizing transportation routes and identifying ideal locations for EV chargers, its data contributes to more efficient and environmentally friendly logistics.

Addressing the challenges of an aging population, particularly in Japan, Mr. Yoshimura discusses how Dynamic Map Platform's technology can enhance road safety saying "safety and comfort in driving are enhanced through our tailored data." He explains how their 3D mapping data can prevent accidents by guiding vehicles away from pedestrian-only streets or incorrect lanes, especially on expressways. This technology is crucial in situations where elderly drivers might have impaired perception and recognition.

Keeping its data up-to-date is a priority for Dynamic Map Platform. The Japanese firm employs a combination of information from road management companies, municipalities, local governments, and will soon utilize probe data from sensors in cars. This multi-source approach ensures that its maps reflect the most current road conditions.

Mobile Mapping System

As the company expands globally, Mr. Yoshimura emphasizes compliance with international laws and regulations, ensuring that its operations do not jeopardize the safety of citizens in foreign countries. The company works closely with global law firms and adapts its data storage and management practices to align with local requirements.

Looking to the future, Mr. Yoshimura envisions Dynamic Map Platform playing a pivotal role in national revitalization, particularly in rural areas. By enhancing mobility with autonomous driving technology, the company aims to make these regions more accessible and vibrant.

Mapping process

Multi-directional camera

"Made-to-order manufacturing, open systems, and cybersecurity are the foundations of our business."

Masato Nakao,
CEO, i-PRO Co., Ltd.

Building a Camera Company for the AI Age

Gaining independence from Panasonic in 2019, i-PRO believes that modularization is the key to developing innovative products as AI transforms video surveillance.

In 2022 Panasonic i-PRO Sensing Solutions changed its name to i-PRO when it became independent from its parent company. More than a brand change, this move represented a turning point that redefined the company, reconnected relationships, and reformed its organization – all with an eye on the shift driven by artificial intelligence (AI).

To transform the company, Mr. Masato Nakao, CEO of i-PRO Co., Ltd., created an approach entirely different from how the traditional video surveillance market operates. From made-to-order manufacturing and faster supply chains to open systems that enable an app economy, to cybersecurity built in by design, he launched a new model.

Compact AI network camera
i-PRO mini

i-PRO's origins go back to 1957, when Matsushita Electric Industrial's Central Research Laboratory developed a professional surveillance camera. By the 1990s the company had become a world leader in image sensing, but it was slow to adapt to changes.

Panasonic had expanded vertically, from creating hardware to providing end-to-end solutions. The rest of the market expanded horizontally and partnered on solutions. Panasonic found itself outside the new markets. Recapturing the lead meant changing everything, starting with the company's core beliefs.

Two concepts anchored Nakao's strategy for the independent company – open policy and time-based competition. The former refers to horizontal specialization; the latter aims to cut lead time, helping reduce customers' opportunity costs while providing a basis for premium cost and achieving profitable growth.

In its first year operating under these concepts, i-PRO aggressively built partnerships with leading VMS and AI analytics vendors, and integrators worldwide. With a focus on cameras, i-PRO produced more than 100 new models in 12 months.

As AI technologies advance, i-PRO anticipates the industry will demand specialized tools to solve unique challenges. Analytics technology will change rapidly, and organizations won't continually buy new cameras to access new advancements. That's where open platforms come in.

Mr. Nakao says: "Open platforms give developers access to a larger market. Like today's app-based economy, this model will evolve and offer the same level of customization present in consumer technology in professional video surveillance technology."

i-PRO also planned for the manufacturing implications of customizing AI solutions. Little standardization and no room to achieve mass production limits economies of scale. i-PRO plans to increase the variety of its AI-compatible cameras and immediately supply even single units.

Mr. Nakao adds: "By deploying a high-mix/low-volume strategy that enables made-to-order manufacturing, we can standardize production of core camera modules with a high level of customization. And by leveraging similar components across designs, we can reduce manufacturing time while increasing the number of models available."

i-PRO, essentially, does not develop finished products, but general-purpose modules, for use in various products, which are mass produced to leverage economies of scale. These half-finished modules sit in company warehouses awaiting orders to be quickly assembled and shipped in response to demand – immediately, even to small-volume needs. It also makes i-PRO less vulnerable to supply chain inconsistencies.

Finally, unlike many IoT devices, i-PRO's products have

Multi-directional + PTZ camera

built-in security features like encryption, authentication, and support secure network standards like 802.1x.

Mr. Nakao explains his vision by drawing an analogy with the 1849 gold rush, when prospectors flocked to California. It wasn't James Marshall who had the most success, he notes, nor the thousands who converged there.

Rather, it was Levi Strauss, who, instead of prospecting himself, supported the 49ers by supplying high-quality jeans. And because he took out a patent that lasted 20 years, he alone was able to deliver his product to a market that specifically required it.

i-PRO isn't looking to compete in the search for AI gold. Instead, said Mr. Nakao, "We will supply innovative, reliable AI-compatible cameras in a range of models promptly upon order. Many players are clamoring to provide AI-based solutions. But there are few camera manufacturers with established technologies suited to the unique needs of the AI sphere." That's what i-PRO has built.

i-PRO
The Power of Truth