CITIC TELECOM CPC

Digital Transformation Success Stories
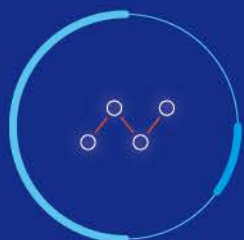
賦能企業數字化轉型系列案例

SUCCESS STORIES

Manufacturing | Finance | Retail | ICT | Energy | Healthcare

Intelligent Cloud
Network Security

Empowering
Intelligent Industry

中信國際電訊(信息技術)有限公司
CITIC TELECOM INTERNATIONAL CPC LIMITED

中信國際電訊集團成員
A member of CITIC Telecom International

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Private Network
Solutions
專用網絡方案

Information Security
Services
信息安全管理服務

Cloud Computing
Solutions
雲端運算方案

Cloud Data
Center
雲數據中心

Cloud-Network Convergence
Unlocks Intelligent Business

雲網融合　更趨未來

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Autoneum 歐拓汽車

Mainetti Group

Success Case in Manufacturing Industry
Mainetti Opens New Doors of Opportunity with CITIC Telecom CPC᾽s Networking and Secure AI Solutions

Digital Transformation Success Stories

Mainetti Group

"When we needed to quickly adjust business strategy and adapt to the rapidly changing market environment, CITIC Telecom CPC came to our assistance with timely connectivity and security solutions.

Albert Yuen
Senior IT Manager
Mainetti Group

When the pandemic crisis hit, CITIC Telecom CPC helped the Mainetti Group capitalize on new revenue opportunities and optimize work-from-home and other new initiatives quickly, securely and seamlessly.

The Mainetti Group of companies has been a trusted partner to the world's most respected and well-known retail and apparel brands for over six decades. It is the world's largest garment hanger company and pioneered garment hanger reuse and recycling, introducing sustainability practices that continue to lead the industry. The company group operates with 6,000 employees in 90 locations on 6 continents, and its diversified portfolio includes Packaging, Branding, Supply Chain, and Intelligent RFID Solutions, and a newly introduced line of Health and Safety products.

Facing New Threats Online and Offline

When the COVID-19 crisis hit the global market, like numerous other companies, Mainetti faced multiple challenges, many of them unprecedented. Aside from effects the pandemic caused to retail consumer shopping behavior, affecting Mainetti's customers, the social distancing and work-from-home

requirements — plus disruptions to the supply chain and other business operations — meant Mainetti's staff could not be productive. At the same time, the company had to find ways to quickly address the drastically changing environment.

Mainetti's management team realized the company was well-positioned to produce face masks to supply the world's sudden enormous demand, with Mainetti's unique quality and sustainability expertise. But to establish a new production line was not a simple matter, especially with COVID-19 disruptions.

Fortunately, CITIC Telecom CPC was able to assist Mainetti in this urgent matter. Mainetti had already been using CITIC Telecom CPC's TrueCONNECT™ Premium connectivity solution for 7 years, and the business and technology professionals at CITIC Telecom CPC advised Mainetti to activate TrueCONNECT™ Express to complement their existing network for the sudden rising demand of remote access.

Rapid Deployment for a Rapidly Evolving Situation

"Everything was quite hectic," said Albert Yuen, Senior IT Manager of Mainetti. "We had to suddenly deal with many areas of business impact, including having all our staff work from home. Meanwhile, we also needed to ramp up our new mask production line. Thankfully, CITIC Telecom CPC already had solutions we needed. TrueCONNECT™ Express quickly resolved the bandwidth resources for all our staff to work from home, without burdening our IT team which had numerous other tasks to deal with."

With the enormous COVID-19 impacts, Mainetti needs speed to capture the mask market's opportunities and an extremely low tolerance for outages or disruptions, without sacrificing information security. Managing a good balance between ease of operation and security protection, Mainetti capitalizes on TrustCSI™ Secure AI to enhance its enterprise infrastructure protection.

Securing Workforce Remote Access and Enterprise Assets

"We were very impressed by the TrustCSI™ Secure AI solution," added Albert. "We have a small IT team, and with the company-wide work-from-home arrangement, our systems would be much more exposed to potential network-borne threats. We did not want any disruption, damage, or intellectual property theft to cause further problems for us, on top of COVID-19. Fortunately, TrustCSI™ Secure AI can comprehensively protect our whole business group using automated intelligence, without burdening our IT team or compromising on security."

TrustCSI™ Secure AI utilizes the artificial intelligence of User and Entity Behavior Analytics (UEBA) to automatically detect anomalous enterprise event logs, actively and continuously investigating all potential threats with advanced machine learning algorithms to rapidly identify and neutralize attacks, including previously unknown new "zero-day" threats. By automatically learning what is "normal" to an enterprise, and recognizing even subtle deviations, TrustCSI™ Secure AI shortens the time to contain threats and limits the extremity and cost of attacks using surgical precision at machine speed.

Innovation Partners for Now and the Future

"In just three months' time, we were able to successfully establish our mask production line, including international quality certification," said Albert. "This would not have been possible without a smooth running and fully protected communications and collaboration infrastructure. You can say TrueCONNECT™ Express and TrustCSI™ Secure AI made it possible for our company to transition to our future, during a critical time in our corporate history."

Mainetti places high value on innovation, as CITIC Telecom CPC does, with both companies always striving to improve business using creative new ideas to bring real-world results. Now, fully operational despite COVID-19 pressures, and enjoying the rewards of its new Health and Safety products expansion, Mainetti looks forward to continuing to build upon its success and have CITIC Telecom CPC's expertise and technologies support that future growth.

Private Network Solutions

TrueCONNECT™ offers seamless, secure and reliable managed private network services. It uses MPLS network to link together offices and sites in different locations with multiple CoS and guaranteed QoS. It is a cost-effective alternative to IPLC and other Layer 2 private network without compromise to security.

Scalability   High Availability   Security

Information Security Services

TrustCSI™ is a suite of managed information security solutions for businesses to address today's emerging network threats that harm businesses, with comprehensive, customized and highly advanced, proactive, state-of-the-art security managed 24x7 by industry-certified security experts staffed at CITIC Telecom CPC's operated Security Operations Centers (SOCs).

Prevention   Correction   Detection

![MAINETTI Retail Solutions Worldwide]

製造業成功案例 | 中信國際電訊CPC網絡服務和行為分析（Secure AI）解決方案，為Mainetti開創新機遇

數字化轉型系列之

Mainetti集團

> 當我們需要快速調整業務策略，以應對急速變化的市場環境時，中信國際電訊CPC主動協助我們提供及時的網絡連接和安全解決方案。

Albert Yuen
高級 IT 經理
Mainetti 集團

當疫情肆虐全球，中信國際電訊CPC協助Mainetti集團快速、安全及無縫地實踐新的營運策略，包括：實現新商機、優化網絡連接以確保員工可在家辦公、以及其他新的企業措施。

Mainetti集團擁有超過60年歷史，一直是全球最受尊敬和知名的零售和服裝品牌，是客戶值得信賴的合作夥伴。它亦是世界上最具規模的衣架生產公司，並向業界引入可持續實踐的創新方案，開創了衣架回收和循環再用的先河，確保其領導地位。目前集團在 6 大洲的 90 個地點擁有 6,000 多名員工，業務和產品組合多元化，包括產品包裝、品牌設計、供應鏈管理和無線射頻辨識（RFID）解決方案，以及嶄新推出的健康和安全產品系列。

線上線下的新威脅

隨著新冠肺炎（COVID-19）疫情的影響席捲全球市場，Mainetti與眾多公司一樣，面臨前所未有的多重挑戰。疫情除了改變全球零售消費者的購物模式，影響Mainetti的企業客戶外，

Mainetti的員工亦因社交距離措施和實施在家工作的政策，加上供應鏈和其他業務運作受到中斷，無法正常工作。與此同時，Mainetti必須盡快找到應對環境急劇變化的最佳方法。

Mainetti的管理層意識到，以其Mainetti獨特的質量管理和有關可持續發展的專業知識，公司完全有能力研發和生產口罩，以滿足市場對防疫產品突然湧現的巨大需求。不過在疫情衝擊下，建立新的生產線儼然是一個艱辛的任務。

中信國際電訊CPC幸而在此緊急的情況下為Mainetti提供協助。Mainetti採用中信國際電訊CPC的私人網絡解決方案TrueCONNECT™ Premium已有七年，他們的業務和技術專業團隊建議Mainetti快速設置TrueCONNECT™ Express遙距接入方案，配合現有的企業網絡服務，以應付驟然急增的遙距訪問需求。

快速部署應對急速變化

「一切事情都需要急速處理。」Mainetti高級IT 經理 Albert Yuen 形容當時面臨艱巨挑戰，「我們突然要處理許多突發的業務轉變，包括讓我們所有的員工需要在家工作；同時還需要配合新增的口罩生產線。我們很幸運中信國際電訊ＣＰＣ已經備有我們需要的解決方案。TrueCONNECT™ Express 方案快速解決了因所有員工在家工作而造成的頻寬資源問題，對我們的 IT 團隊得以減輕負擔。」

在新冠疫情肆虐下，Mainetti需要加快速度抓緊口罩市場的機遇，並確保企業在高信息安全水平下暢順運作，不受中斷。為了在方便業務營運和安全保護之間取得平衡，Mainetti決定部署TrustCSI™ Secure AI，透過用戶和企業行為分析，增強企業基礎設施的保護。

全面保護員工遙距接入和企業資產

「我們非常認同TrustCSI™ Secure AI解決方案對我們有著很大幫助。」Albert補充，「公司內部只有一個小型 IT 團隊，同時要兼顧全體員工進行在家工作的安排，因此我們的系統更容易遭受到潛在的網絡威脅。除了疫情，我們不希望因為任何網絡中斷、損壞或知識產權盜竊等問題，帶給我們更多的信息安全憂慮。幸而TrustCSI™ Secure AI使用人工智能技術全面保護我們整個業務團隊，不會增加我們IT團隊的負擔，並確保安全性。」

TrustCSI™ Secure AI利用「用戶和企業行為分析（UEBA）」的人工智能技術，通過主動及持續偵測各種異常動靜，以行為分析方法及先進的機器學習運算法，快速識別和消除攻擊，包括過往無法偵測的「零日攻擊」。TrustCSI™ Secure AI的自我學習機制，能快速及精準地分辨正常與異常企業網絡行為並識別細微的偏差，大大縮短壓制威脅的時間，同時限制攻擊的範圍和阻截的成本。

現在和未來的創新合作夥伴

「在短短三個月內，我們成功地建立了口罩生產線，並取得國際質量認證，」Albert指，「如果沒有順暢和受到充份保護的通訊協作基礎設施，我們的努力都會付諸流水。我認為TrueCONNECT™ Express和TrustCSI™ Secure AI令我們公司成功渡過從未遇過的關鍵時期，並開展我們的未來。」

Mainetti非常重視創新，這亦是中信國際電訊CPC一直堅持的理念，雙方一直致力通過創新思維提升業務及創造更佳績效。儘管目前面對疫情壓力，Mainetti仍能全面運營，享受嶄新擴展的健康和安全產品線所帶來的回報，他們期望可在其成功的基礎上再接再厲，並繼續讓中信國際電訊CPC的專業知識和技術支持未來的業務增長。

TrueCONNECT™

專用網絡方案

TrueCONNECT™為企業提供安全可靠以及無縫的企業網絡服務。該ＶＰＮ託管服務採用多協議標籤交換(MPLS)技術，將多個網絡據點以安全高效的方式連結起來，供各類企業關鍵應用如數據、語音和視訊應用，配合多重服務等級(CoS)為資料流量作優先分類，同時確保服務品質(QoS)。

靈活　　高效　　安全

TrustCSI™

信息安全管理服務

TrustCSI™一系列託管式安全解決方案，由擁有安全認證的專家團隊管理，配合中信國際電訊CPC安全運作中心(SOC)24x7全天候的監察，針業不斷湧現的網絡威脅，為企業提供應業務獨特需要而設的解決方案。

預防　　修正　　偵測

Success Case in Manufacturing Industry

Teraoka Weigh-System Boosts Business Application Performance and IT Team Productivity with SmartCLOUD™

Digital Transformation
Success Stories

Teraoka

"
With SmartCLOUD™ we don't worry about sluggish networks or hardware failures. Even hackers and viruses will be mitigated. Our IT staff is freed to focus on other projects.
"

Kong Hwe Seng
Senior Manager, IT Department
Teraoka

Teraoka Weigh-System Pte Ltd, also known as DIGI, is a leading vendor of retail and logistics products and solutions. With a deep history of technological innovation, including its pioneering in 1928 of the first "dial type spring scale" in Japan, and its invention of the world's first "thermal label printer," DIGI is no stranger to the creation of new industry standards.

The company today operates five research and development centers and five manufacturing sites, with over 2,600 staffs around the world. Its products have evolved, over the decades, into information technology devices, with electronic functionality and network connectivity integrated into the workflow of various business and operational systems such as multimedia signage, queue management, and digital price labeling.

Dreams of a Lean IT Team

While DIGI enjoyed great success in capturing business opportunities, the company must grow while maintaining competitive advantage and high resource efficiency.

In particular, company management wanted a lean IT team that could still support DIGI to scale quickly and cost-effectively, to maximize business expansion potential.

Mission critical aspects include reliable customer communications and workforce collaboration in different countries (including video conferencing) and robust access of network resources (including domain server and various file, CRM, ERP servers) between its Singapore office and DIGI's various international locations, beginning with Indonesia.

Quest for a One-stop Solution

Faced with rapid business growth, DIGI needed a comprehensive ICT solution provider who has regional coverage and local experience, as well as willing to grow with them and support their changing needs, especially one who could provide a more encompassing solution addressing its various requirements across distributed locations.

To address these business concerns, DIGI's management team ultimately consulted CITIC Telecom CPC. DIGI was most interested in using the SmartCLOUD™ platform to give its regional offices better accessibility, security and reliability, while keeping DIGI's IT team lean, and total IT costs low.

"From the start, we were very impressed by the high level of customer service and responsiveness across all staff at CITIC Telecom CPC," said Mr Kong Hwe Seng, Senior Manager for DIGI's IT Department.

A Smooth, Speedy Migration

SmartCLOUD™ is an Infrastructure-as-a-Service (IaaS) solution that operates on CITIC Telecom CPC's extensive regional communications network and multiple ISO-certified cloud facilities, delivering a range of virtual services including the communications and computing solutions DIGI requires. These provide DIGI with ample bandwidth and high performance computing (including virtual memory, storage, CPU, network and physical ports) without large initial investment or heavy ongoing costs, while retaining flexibility to make dynamic adjustments according to changing business needs.

As a one-stop solution provider, CITIC Telecom CPC performed the migration of DIGI's regional systems and networks to SmartCLOUD™, and handles ongoing systems monitoring and maintenance.

"SmartCLOUD™ runs on VMware, which is the most recognized virtualization tool in the market," said Mr Kong. "CITIC Telecom CPC's team made migration easy, completing everything in just 6 weeks, from the first meeting to service deployment, and our staff fully utilizing the new system. With SmartCLOUD™ we don't worry about sluggish networks or hardware failures. Even hackers and viruses will be mitigated. Our IT staff is freed to focus on other projects."

For DIGI, CITIC Telecom CPC implemented a complete managed solution from information security to cloud computing. The suite comprised the SmartCLOUD™ computing resource platform, the company's TrustCSI™ unified threat management solution, 100Mbps Private Line Domestic Point-to-Point service, MetroCONNECT with AlwaysCONNECT for load balancing, and other services, all backed up by 24x7 local support teams and technical professionals.

"We are very happy with the migration to SmartCLOUD™," said Mr Kong. "Our end-users are now reaping benefits such as faster network performance, minimized downtime, and much better application responsiveness. Most importantly, our IT department's performance and productivity have improved, without any headcount increase. DIGI's management is very impressed by the ROI of this project, not to mention considerable ongoing savings in software, hardware, maintenance, and other areas."

With its business systems now streamlined by SmartCLOUD™, DIGI is looking ahead to additional CITIC Telecom CPC solutions, including Disaster Recovery.

"I foresee that, as we expand business reach into Southeast Asia, DIGI's relationship with CITIC Telecom CPC will become stronger and deeper," said Mr Kong.

CITIC Pacific Special Steel

Success Case in Manufacturing Industry
Empowered by Integrated ICT Solutions for Digitalization and Intelligentization

Having gone through multiple reviews in 2012, CITIC Pacific Special Steel opted to partner with China Entercom, by leveraging our global coverage of resources to support the network deployment and that of its subsidiaries via the MPLS Private Network service. First we addressed the data access issue associated with its globalized business using our competent operation and maintenance service, then the enterprise also adopted our SmartCLOUD Compute (Public Cloud) in the same year. Not only offering IT equipment services, this cloud computing solution also puts the entire data domain under the control of the enterprise itself, enabling optimal scheduling, automatic management and shared use of hardware and software resources, as well as quick deployment of operation. By actualizing the interconnection of business data and collaboration of procurement and production, our series of multi-faceted solutions broke down the data silos of CITIC Pacific Special Steel and its subsidiaries. Meanwhile, the enterprise could focus on the core business with streamlined production and management to accelerate digitalization and intelligentization.

Dated back to 1890, the predecessor of CITIC Pacific Special Steel was founded by Zhang Zhidong, the Viceroy of Huguang in the late Qing Dynasty, as the Hanye Ping Coal and Iron Mine Company, which is well-known as the "Cradle of Chinese Steel" for its deep-rooted presence. In the past hundred years, CITIC Pacific Special Steel has forged ahead despite wind and rain, and has become a pioneering manufacturing enterprise under CITIC Group. With 8 subsidiaries and an annual production capacity of 14 million tons of special steel, the enterprise manages to produce more than 3,000 varieties and 5,000 specifications of special steel products. Being one of the world's largest production bases for special bars, plates, pipes, wires and forgings with the most comprehensive specifications and the largest unit scale, its products are exported to more than 60 countries and regions, including the United States, Europe and Southeast Asia. Yet, its rapid expansion of production and operation alongside the increase of subsidiaries and systems have placed higher demands on its corporate network structure.

Breakdown Data Silos with Extensive Network and Public Cloud Resources

In response to its parent company CITIC Group and CITIC Pacific's digitalization plan, the headquarter of CITIC Pacific Special Steel decided to unify the management of its subsidiaries in 2008, creating enormous needs for an optimized network structure.

China Entercom and its parent company CITIC Telecom CPC have over 160 PoPs, 60+ SD-WAN gateways, 30+ data centers and 21+ cloud service centers in nearly 160 countries across the globe. Having gone through multiple reviews in 2012, CITIC Pacific Special Steel opted to partner with China Entercom, by leveraging our global coverage of resources to support the network deployment and that of its subsidiaries via the MPLS Private Network service. The data access issue associated with its globalized business was also addressed by SmartCLOUD Compute (Public Cloud). The integrated solutions offered by China Entercom has actualized the interconnection of business data and collaboration of procurement and production, thus enhancing the production and operation management of the enterprise.

Compliance: Multi-tier Domestic and International Certifications

Information security is more commonly included in collaboration metrics shows its importance to enterprises. In view of this, China Entercom offers CITIC Pacific Special Steel the Private Network, Public Cloud (SmartCLOUD Compute), Private Cloud (SmartCLOUD vOne) and Data Centre services. More importantly, we have worked together, and completed the Information Security Management System Certification (ISO27001).

"To forge iron, one must be strong." Just as China Entercom's multi-tier domestic and international certifications including Trusted Cloud Services (TRUCS) Certification, TL9000, ISO9001, ISO20000, ISO27001, ISO27017 etc., our service compliance evidently meets the requirements of CITIC Pacific Special Steel.

ICT-MiiND: Innovative Strategy Empowers Next-Level Digalization and Intelligentization

China Entercom's "MPLS Private Network + Public Cloud + Private Cloud + Data Centre + Information Security Solutions" offers one-stop integrated ICT solutions specialized for the manufacturers, in the hope of the best foundation for digitalization and intelligentization to manifest smooth data transmission supported by secure and stable network.

We came up with the ICT-MiiND strategy based on our precise judgement of client needs — a more intelligent and dynamic "brain" for digital transformation. Integrated with smart thinking, various innovative tools and algorithms that correlate different scenarios, as well as machine and deep learning for advanced intelligent operation and maintenance capabilities, ICT-MiiND is designed to address all kinds of problems and proactively formulate solutions for enterprises through automation, multi-dimensional and holistic thinking, analysis and evaluation. That being said, we believe our ICT-MiiND strategy can help CITIC Pacific Special Steel to actualize intelligent digital transformation.

Facing a new wave of technological and industrial revolutions, "Smart Manufacturing" is going to be a core initiative for every government. As for China, the "14th Five-Year Plan" clearly outlines: "...to carry out in-depth implementation of smart and green manufacturing...and reform the traditional industries while promoting the optimization and restructuring of raw material industries like petrochemicals, steel, non-ferrous metal and building materials." As digitalization and intelligentization has transformed CITIC Pacific Special Steel into a high-grade, precise and advanced enterprise, "Smart Manufacturing" is then the key to win the future steel market. Thanks to our unique resources and capabilities in the ICT industry, China Entercom has become a companion along manufacturers' digitalization and intelligentization journeys to help them stand out from the competition. Through thick and thin, we will surmount all the difficulties for CITIC Pacific Special Steel until we reach smart manufacturing someday.

中信泰富特鋼

製造業成功案例｜MPLS專用網絡+公有雲+私有雲+數據中心+信息安全賦能中信泰富特鋼數智化發展之路

> 經過一年多的充分溝通與了解，2012年中信泰富特鋼和中企通信正式達成"MPLS專用網絡+公有雲（中企雲時代SmartCLOUD Compute）"的合作方案，方案實施後收效明顯：中信泰富特鋼內實現高效互聯互通，解決了全球化業務的數據訪問問題，運維服務及時妥帖，無意外情況發生。

薛繼青
智能及信息化部主任工程師
中信泰富特鋼

2012年，中信泰富特鋼經過一年多的交流溝通與審慎思考，選擇同屬中信集團旗下的中企通信合作，使用其MPLS專用網絡服務完成中信泰富特鋼與子公司的網絡鋪設。同年，中信泰富特鋼開始使用中企通信雲計算服務，"中企雲時代SmartCLOUD Compute"公有雲服務並非僅提供簡單的IT設備服務，而是將整個資源區交由企業掌控，讓企業實現基礎軟、硬件設施資源合理調度、自動管控、共享使用和業務快速部署。同時選擇中企通信數據中心服務，並聯合完成了信息安全管理體系認證，使中信泰富特鋼更能專注主營業務，提速數智化發展之路。

中信泰富特鋼的前身，可上溯到1890年成立的漢冶萍煤鐵廠礦有限公司，這家由清末湖廣總督張之洞創辦的企業，底蘊深厚，被譽為"中國鋼鐵搖籃"。百年風雨，砥礪前行。經過多年來的發展，如今的中信泰富特鋼已成為中信集團旗下的製造業明星企業，擁有8家子公司，具備年產1,400萬噸特鋼生產能力。其可生產3,000多個品種、5,000多個規格的特鋼產品，是全球產品規格最全、單體規模最大的特殊棒、板、管、線和鍛生產基地之一，產品遠銷到美國、歐洲、東南亞等60多個國家和地區。生產經營規模快速擴張，子公司和系統的增加，對企業網絡架構提出更高要求。

廣泛的網絡和公有雲資源
助力打破數據孤島

2008年，隨著中信泰富特鋼陸續收購子公司以及重組，在母公司中信集團和中信泰富數字化規劃的帶動下，中信泰富特鋼總部對子公司統一業務子公司和系統的增加，對企業網絡架構提出更高要求。中企通信聯合母公司中信國際電訊CPC，在國內及海外約160個國家落地資源與服務，全球佈置逾160個網絡節點，60+個SD-WAN接入點、超過30個數據中心資源、21+座雲平台。2012年，中信泰富特鋼經過慎重思考，選擇同屬中信集團旗下的中企通信合作，借助其全球資源優勢，使用MPLS專用網絡服務完成中信泰富特鋼與子公司的網絡鋪設，中企通信用妥帖的運維服務解決了其全球化業務的數據訪問問題，同年，集團開始使用中企通信公有雲（中企雲時代SmartCLOUD Compute）服務。中企通信多元化解決方案幫助其打破了子公司與中信泰富特鋼間的數據孤島，實現了業務數據打通、採購生產聯動，中信泰富特鋼的生產與管理得到提升。

多重國內國際認證
滿足合規化要求

信息安全對企業的重要性無需多言，越來越多客戶也將信息安全納入合作指標。除網絡、公有雲（SmartCLOUD Compute）、私有雲（SmartCLOUD vOne）外，中企通信還為中信泰富特鋼提供了數據中心服務，同時聯合中信泰富特鋼完成了信息安全管理體系認證（ISO27001）。

打鐵還需自身硬。中企通信擁有多重國內國際認證，包括可信雲認證、TL9000、ISO9001、ISO20000、ISO27001、ISO27017等多重標準認證，進一步滿足中信泰富特鋼的合規化要求。

創新的 ICT-MiiND 策略
加持數智化升級

中企通信為中信泰富特鋼打造專屬方案"MPLS專用網絡+公有雲+私有雲+數據中心+信息安全"的同時，不斷用創新技術賦能ICT方案。2021年，構建ICT-MiiND策略，正是基於對這類客戶需求的明確判斷——更智慧更主動的數字化轉型"大腦"。該策略通過智能大腦思維模式，利用不同創新工具與算法串聯不同場景，通過自動化、多角度和綜合的思考、分析及評估，並通過使用機器學習、深度學習提升智能運維能力，從而能夠恰當的應對各種問題或挑戰，為企業IT服務主動提出或制訂解決方案。簡單來說，中企通信希望藉由ICT-MiiND策略，協助中信泰富特鋼實現智慧化數字轉型。

在新一輪科技革命和產業變革的大背景下，世界各國相繼將"智能製造"作為發展舉措。我國在"十四五"規劃綱要中明確提出："深入實施智能製造和綠色製造工程，……改造提升傳統產業，推動石化、鋼鐵、有色、建材等原材料產業佈局優化和結構調整。"數智化建設助力中信泰富特鋼向"高精尖"轉變，那麼智能製造，將是關係到未來鋼鐵市場競爭格局的關鍵。獨行快，同行遠。中企通信憑藉ICT領域的獨特資源與專業實力，已經成為諸多製造行業的數智化同行者，在中信泰富特鋼的智能製造的路上，中企通信還將繼續同行。

Success Case in Manufacturing Industry
CITIC Dicastal's Digital Transformation and Innovation for Globalization

CIO Times Interview

CITIC Dicastal

Interviewee | Duan Zhiqiang
Director, Information Management Department
CITIC Dicastal

Innovation and Transformation in 2022

Reshaped global economic structure and international competition pattern in the post-pandemic era have inevitably led to a booming digital economy. Now, CIOs are striving for innovation and transformation to exploit new advantages, following intensified digital transformation across all sectors and the emergence of new technology, forms of operation and business models. Their efforts and boldness will bring us to a fruitful journey.

關於中信戴卡

The precursor of **CITIC DICASTAL CO., LTD** (hereinafter referred to as CITIC Dicastal) is DICASTAL Wheel Manufacturing Co., Ltd and is the first aluminum manufacturer in Mainland China which was invested by CITIC Group in 1988. CITIC Dicastal, the largest supplier for aluminum wheels and chassis components in the world, can be divided into 5 periods in terms of its development history, namely product differentiation, development of OEM market, group business model innovation, leaping development and diversification of industry scale as well as internationalization. Domestically, CITIC Dicastal's export volume of aluminum automotive components takes first place in China. And CITIC Dicastal ranks 58th among the world top 100 global OEM part suppliers.

CITIC Dicastal Engineering Research and Development Institute has accomplished its research and development layout globally, and actively conducted research on new materials and processes with global R&D resources. In terms of synchronized development, CITIC Dicastal, by virtue of 24-hour seamless R&D design and tests, has achieved close and seamless transition from ideal design to real production, with great improvements in its advance R&D ability and production efficiency, so as to enable CITIC Dicastal to provide global customers with integrated manufacturing solutions for environment friendly and lightweight aluminum wheels as well as aluminum components.

Since when has CITIC Dicastal started the digitalization and intelligentization?

Duan Zhiqiang

Back to 1999, we adopted CIMS (Computer Integrated Manufacturing System). And the second large-scale construction for informatization was in 2010, primarily involving PLM, ERP, OA and other core business information systems. These systems assist in operation management, enable horizontal integration of upstream and downstream information systems, laying the foundation for globalized operation management and financial business process reengineering.

We officially commenced digitalization and intelligentization in 2013 to evolve into a digitalized company with leading service providers. We chose ERP, PLM and DMS (Dicastal Digital Manufacturing System) as the core management platforms, collaborative R&D and digital manufacturing respectively, in addition to a DEco ecosystem management platform responsible for procurement, sales, logistics, operation and many more functions.

CITIC Dicastal has essentially completed the integration of horizontal and vertical information systems for more than ten years, thereby benefiting the company in terms of cost reduction, quality consistency and efficiency. In the meantime, it has won recognition from the standardized demonstration factory of integrating informatization and industrialization from the Ministry of Industry and Information Technology (MIIT), the pilot demonstration of smart manufacturing and the pilot demonstration of AI applications. Last year, the company was also certified as a "Lighthouse" factory by the World Economic Forum.

What are the company's strategy and overview of informatization and intelligentization, say, in terms of smart manufacturing?

As far as concerned, CITIC Dicastal is to develop the capability of digitalization and intelligentization while absorbing the experience in smart manufacturing, ultimately turning them into our core competitiveness. Through our cooperation with an international high-end automatic equipment enterprise, we gained sufficient experience and data to enhance our wheel equipment manufacturing capability. To ensure the core equipment supply for wheel production, Xinyue Intelligent Equipment Company, a subsidiary of CITIC Dicastal yet with independent intellectual property rights, was set up to serve as an intelligent equipment supplier to us and other relevant ventures. Besides, our IT team has strengthened capabilities in building digitalization and intelligentization during a series of journeys and attempted developing software, even leading to the establishment of Xinzhi Information Technology Company in 2017.

As the first aluminium alloy wheel factory in China and the world's largest aluminium alloy wheel manufacturer, CITIC Dicastal has accumulated solid experience after years of exploration and mass production. We transform our experience and capabilities into high-quality products and services alongside dedicated subsidiaries, all contributing to our core competitiveness.

Strategically, as we could not start digitalization and intelligentization in all of our 25 plants worldwide from the very beginning, CITIC Dicastal has already designated pilot factories, and once successful, all factories will follow their steps and go digital. That being said, when digitalized systems and intelligent applications can be applied in a certain procedure of any factory, we will replicate them in other procedures and in domestic and overseas factories in order to maximize the value of our inputs.

In response to the 14th Five-Year Plan, CITIC Group, a diversified and integrated enterprise, has been focusing on five sectors: comprehensive financial service, advanced intelligent manufacturing, advanced materials, new consumption and new-type urbanization.

Representing the "Advanced Intelligent Manufacturing" sector, how does CITIC Dicastal connect with CITIC Group's network, as well as the branches across the globe digitally?

The private interconnection between CITIC Group and CITIC Dicastal is essentially achieved via China Entercom's private network, since we are one of the first-tier subsidiaries of the Group that plays an important role in the

advanced intelligent manufacturing sector. **Through the MPLS backbone network with global coverage offered by China Entercom and its parent company CITIC Telecom CPC, the interconnection between production plants and worldwide branches are made possible,** including the factories in Changchun, Chengdu and Ningbo of China, and those in the United States, Germany and Morocco. **Thanks to China Entercom and CITIC Telecom CPC, we have established a secure, efficient and agile data highway.**

On the other hand, we have achieved globalized and digitalized operation and management mainly through our globally integrated ERP system, PLM platform for collaborative R&D, OA cooperation management platform that supports multiple languages across time zones, and video conferencing, which are backed by the global private network.

Did the company encounter any challenges or breakthroughs while developing the "Lighthouse" factory and promoting digitalization and intelligentization?

Being a pioneer in the industry and also in digitalization and intelligentization, CITIC Dicastal has little reference. Instead, we solved the difficulties and pain points of traditional manufacturing steadily with information technology and the advantages of our business scale.

Certainly, we had several challenges to overcome during the process, **and the first one is how to recruit talents.** It is by no means an easy task to attract elites in the IT industry to a small and medium-sized city and engage in traditional manufacturing.

The convergence of IT and operation was tricky as well because we must blend the systems into our business. It usually has to go through all four continuous stages: operational requirements, development and implementation, business application and system optimization. In particular, many systems may end up abandoned since they did not survive the last two stages of blending-in. It is impossible to figure out the problems and fix them promptly if we do not use the systems at all, and in the end, it will discourage their deployment. When systems blend into business, they will only get better and better. If it is the other way round, then we will suffer from a huge waste of investment and digitalization deceleration, if not criticism.

As for the breakthroughs made from "Lighthouse" factories, we have realized intelligent design and simulation of products, precise control of digital manufacturing and first-of-its-kind intelligent applications of key workmanships that include smart die-casting machines for thermal process, smart closed-loop quality adjustment for machining process and smart X-ray diagnosis for inspection process.

Which role has your department played in facilitating the construction of digitalization and intelligentization?

First of all, the IT department has to gather and sort out the business needs for a comprehensive deployment plan. We are committed to providing dynamic technical support so as to cater the needs quickly after eliminating the repetitive and segregated needs, and then mapping out the plan.

In addition, when systems are in place, they are not entirely ready for blending into business and do not work well with the company unless optimized constantly. That is why we are in charge of integrating IT with business, and adding value to the company in terms of cost, efficiency and quality, ultimately boosting profitability and competitiveness.

What factors did CITIC Dicastal put into consideration when choosing an ICT service provider? Could you also share the reasons why China Entercom outcompeted others, as well as the experience of working with them?

For selecting ICT service providers, we pay attention to their background, resource coverage, customer service, innovation and after-sales, etc.

There are five major reasons why we chose China Entercom as our service provider after thorough consideration:

1) **As a member of the CITIC Group,** China Entercom's integrated services of **"cloud, network, intelligence and security"** are most compatible with the Group's "14th Five-Year Plan" and the informatization strategy, which have also been endorsed by the Group and the fellow subsidiaries, not to mention the solid experience of working with many Global 500 companies or leading enterprises;

2) **With multiple ISO and MLPS certifications,** China Entercom's background and capabilities are widely recognized by the industry;

3) Together with the parent company CITIC Telecom CPC, China Entercom is equipped with **extensive resources** that their services cover nearly 160 countries, including those along "**the Belt and Road and RCEP members,** thus accelerating the establishment of business and enabling flexible expansion;

4) To offer a **high-speed, stable and secure** connection for CITIC Dicastal, China Entercom's **MPLS private network** comes in handy;

5) China Entercom's one-stop **cloud, network, intelligence and security** solution offers round-the-clock network monitoring, management and back-up services supported by a team of experts **available 7x24 online,** guaranteeing a smooth network connection through their high-quality services.

Our partnership dates back to 2013 and has been going on for almost a decade. Initially, our Qinhuangdao headquarter first adopted China Entercom's MPLS private network service. However, we have increasing demands on digitalization and intelligentization, as well as network coverage and quality, since our business continues to expand. **Although we also examined others' ICT solutions, we decided to maintain the partnership with China Entercom based on the consistent quality of services we have witnessed over the years of cooperation.**

Shall we wrap this up with your expectations for intelligent ICT solutions, say, AR overlays and big data analysis?

If digitalization is said to be promoting transparency in manufacturing, then intelligentization is to streamline the processes. **By minimizing manual involvement, we can leverage technologies like AI and big data analysis to empower automated adjustment and optimization in equipment and workmanship.** It reminds me of the emergence of mechanical cameras that photographers 20 years ago were trained to adjust the aperture, shutter and depth of field to take a good picture. Later there were point-and-shoot cameras and digital cameras, and now cell phones. The same goes for wheel production — we need technical support from China for the construction and operation of our overseas plants today, but in the future, any factory could be producing wheels with 100% pass rate if there are more and more intelligent applications.

For this reason, a comprehensive convergence of the Internet, big data, AI and the real economy is what we are looking forward to. To make the Chinese dream come true, taking a new road to industrialization and modernizing industries are vital to rejuvenate the nation. **This convergence will transform "Made in China" to "Created in China", from high-speed to high-quality, from the largest producer to the world-leading manufacturing power.**

Innovative ICT Technologies
Key to Digitalization and Intelligentization

The technological revolution and development are booming, driving the integration of big data, 5G, cloud computing, AI and blockchain to reshape technical framework, product form and service pattern; and promoting a full-scale innovative reform in the industry especially the automotive and car parts sector. Eventually, enterprises can enhance the quality of services with reduced costs and improved efficiency by leveraging big data as a basis for management and decision-making. To achieve all-round digitalization and intelligentization, we need robust backstage support; to push the business forward, we need secure and reliable interconnections; to guarantee secure operation, we need data security and protection.

Under such circumstances, enterprises must understand and master the innovative ICT technologies to create their own blueprints of digitalization and intelligentization, so as to save costs, increase efficiency, and even sustain business development. To address these issues, China Entercom offers revolutionary integrated ICT solutions certified by international and domestic authorities, which release enterprises from managing complex IT tasks with innovative and intelligent technologies to focus on core business and enjoy higher cost-effectiveness.

Cloud, network, intelligence and security are fundamental in digital transformation. China Entercom encompasses most key areas of ICT with four flagship offerings: CeOne-CONNECT Private Network Solutions, TrustCSI Information Security Solutions, SmartCLOUD Cloud Computing Solutions, DataHOUSE Cloud Data Center, as well as a suite of value-added services. Notably, their ICT-MiiND strategy launched in 2021 fuses decades of industry experience and innovative technologies ranging from artificial intelligence (AI), augmented reality (AR), Internet of things (IoT), blockchain and 5G, to build an unbreakable data pedestal with integrated "cloud, network, intelligence and security" services. Looking ahead, China Entercom will relentlessly reinforce the services in the hope that CITIC Dicastal and more automotive-related companies can be backed by a robust data pedestal, removing obstacles for digital transformation and innovation journeys under their globalization strategies.

製造業成功案例 | 中信戴卡段志強：專線互聯 全球協同
中信戴卡全球化戰略下的數字化轉型與創新

CIO時代會客廳

中信戴卡

訪談嘉賓 | 中信戴卡
信息部部長 段志強

2022，科技創新，聚焦變革。

數字經濟的蓬勃發展，是後疫情時代全球經濟結構重塑、全球競爭格局改變的必然趨勢。隨著社會各領域數字化發展加快，新技術、新業態、新模式不斷湧現，積極推動著各行各業的變革與創新，CIO 們正在努力打造數字經濟新優勢，共鑄輝煌與榮耀的征途中，乘風破浪，步履不停。

關於中信戴卡

中信戴卡股份有限公司（以下簡稱中信戴卡）是中國中信集團公司於1988年投資組建的中國大陸第一家鋁車輪製造企業，前身是戴卡輪轂製造有限公司。中信戴卡經歷了產品差異化、開拓OEM市場、集團化商業模式創新、產業規模跨越發展及多元化、國際化五個發展階段，是全球最大的鋁車輪和鋁製底盤零部件供應商；國內鋁車輪出口量第一；全球汽車零部件一百強第58名。

中信戴卡工程技術研究院已完成全球研發佈局，積極開展新材料、新工藝研究，卓越的同步開發能力，24小時無間隙研發設計、試驗，充分實現了造型理念到產品實物的無縫轉化，使生產率大幅提升，為客戶提供強大的綠色輕量化鋁車輪和鋁製零部件製造的整體解決方案。

中信戴卡的數智化從何時開始？

段志強

1999年開始實施CIMS（計算機集成製造系統）系統，國家863計劃項目；2010年開始第二次大規模信息化建設，主要包括PLM、ERP、OA等核心業務信息系統，為企業運營管理提供信息化工具和手段，實現企業上下游信息系統橫向集成，為公司財務業務一體化和經營管控全球化提供基礎保障。

2013年，開始了數智化建設，與國內外領先供應商合作，打造數字化中信戴卡。主要包括以ERP為核心的經營管理平台、以PLM為核心的協同研發平台、以DMS (Dicastal Digital Manufacturing System) 系統為核心的數字製造平台，以及DEco生態圈管理平台，生態圈管理平台主要包括採購、銷售、物流、運營等功能模塊。

經過十多年信息化、數智化建設，基本實現了中信戴卡橫向和縱向業務信息系統的集成。為企業成本下降，質量穩定和效率提升帶來了明顯價值，同時也獲得了國家省部級主管部門的相關認可，比如國家工信部兩化融合貫標示範，智能製造試點示範，人工智能應用試點示範等，去年被世界經濟論壇評選為"燈塔工廠"。

中信戴卡當前信息化、智能化發展的概況和策略（如智能製造）是什麼樣的呢？

當前中信戴卡的智能製造策略的目標是消化吸收，形成數智化能力，最終轉變為企業核心競爭力。比如我們在與國際高端自動化裝備公司合作過程中，基於我們的生產經驗和數據的積累，逐步形成了輪轂行業裝備製造能力，成立了信越智能裝備子公司，能夠提供輪轂生產過程中所需要的，幾乎是全部的核心裝備，並具備相關的自主知識產權，為中信戴卡集團內部以及同行業提供智能裝備服務。另外在一系列數字化、智能化建設過程中，我們IT團隊也提升了數字化、智能化建設能力並形成了部分軟件產品，2017年，成立了信智信息技術公司。

戴卡是中國大陸第一家鋁合金輪轂工廠，也是全球最大的鋁合金輪轂製造商。多年的摸索，海量的製造，讓我們在行業有了豐富的經驗積累。正是通過這些服務型子公司，把我們的經驗和能力變成產品和服務，最終提升中信戴卡的核心競爭力。

在執行策略上，戴卡實行的是試點先行，成熟推廣。我們在全球有25家工廠，數字化、智能化建設在每個工廠齊頭並進是不太可能的。我們採取試點先行的策略，數字化系統、智能化應用在某一個工廠，某一個工序成功應用以後，再推廣複製到海內外的其他工廠，其他工序，從而使我們的投入實現價值最大化。

中信集團作為一家多元化綜合性企業，在十四五期間，將深耕綜合金融、先進智造、先進材料、新消費和新型城鎮化五大業務板塊。

中信戴卡作為集團的先進智造板塊，是通過什麼形式與中信集團實現網絡連接的呢？又是如何全球各國分支的數字化連接是如何實現的？

中信戴卡是中信集團先進製造板塊的重要一員，作為中信集團的一級子公司，我們與中信集團總部的專線互聯主要是通過中企通信搭建的中信集團企業網來實現。**中信戴卡通過中企通信及其母公司中信國際電訊CPC覆蓋全球的MPLS骨幹網絡，實現了全球各個生產基地及分支機構的互聯互通。**目前，國內實現互聯互通的工廠有：長春工廠、成都工廠、寧波工廠等；國外的有：美國工廠、德國工廠、摩洛哥工廠，**中企通信聯合其母公司中信國際電訊CPC為我們建立一個安全、高效、快速的數據高速公路。**

基於我們全球化專線網絡，我們通過全球一體化ERP系統、全球化PLM協同研發平台、跨時區多語言的OA協同辦公平台、視頻會議等業務應用，實現中信戴卡全球化、數字化運營與管理。

在建設"燈塔工廠"的過程中數智化建設遇到了哪些困難，有哪些新的突破？

中信戴卡作為行業領先企業，數字化、智能化方面也走在行業前面，基本上沒有標杆可參考，所能做的就是基於信息技術手段，結合自身業務規模優勢，踏踏實實解決傳統製造所面臨的難點和痛點。

在這個過程中，我們所面臨的困難，**第一個就是人才引進困難，**作為一個中小城市的傳統製造業，難以獲得當前IT行業優秀人才青睞。

其次就是IT與業務的融合。一個成熟的系統，往往要經過四個階段：包括業務需求提出、開發實現、業務應用、系統優化，這是一個持續的過程，尤其是後面兩個階段。很多系統最後掛在牆上，成為擺設，就是因為沒有熬過後面兩個階段，這是一個業務與系統的磨合期，如果我們不去使用，就不能發現問題，如果發現問題，不及時優化完善，就會打消業務使用積極性。在這個時候，做好了，是良性循環，系統會越來越好用。做不好，就會形成惡性循環，系統最終棄之不用，不光是投資打水漂，企業數字化建設積極性也會受到影響，甚至會引來質疑。

燈塔工廠建設過程中所取得的突破，主要包括產品智能設計與仿真、生產過程數字化精益管控、核心工藝智能化應用等，比如熱工環節的壓鑄智能調機、機加環節的工藝質量智能閉環調整、檢測環節的X光集中智能評片等，這些智能化應用都是行業首創。

您所在的部門在推動數智化建設中起到哪些作用？

我們IT部門的作用，一是收集和梳理業務需求，制定整體實施規劃。業務需求難免會有重複的需求，孤立的需求，我們通過梳理，做好信息化、數字化建設整體規劃，為業務需求的高效實現提供有力的技術支持。

另外我們還承擔確保業務與IT融合的重要責任。系統開發上線之後，只能說是能用，只有經過不斷優化完善磨合階段，系統才能好用，才會有用，也就是為我們從成本、效率、質量帶來價值，最終為企業的盈利能力和核心競爭力帶來提升。

中信戴卡在選擇 ICT 服務商的考量標準是什麼？為何會選擇中企通信？也請您分享一下相關使用體會？

我們在選擇 ICT 服務商的考量標準包括：供應商的背景、資源覆蓋、客戶服務能力、創新能力和售後能力等。

經過綜合考量，選擇中企通信作為服務商的主要原因有以下五點：

1) 中企通信是**中信成員企業，**其**"雲網智安"**一體化服務符合中信集團"十四五"規劃和信息化戰略佈局要求，中企通信服務得到了中信集團及其諸多中信兄弟公司的肯定；同時中企通信具有許多全球 500 強企業或者行業龍頭型企業服務經驗；

2) 中企通信擁有**多重 ISO 認證和等保認證，**所以中企通信的背景和服務能力是業界比較認可的；

3) 中企通信**資源非常廣泛，**聯合母公司中信國際電訊CPC，服務覆蓋約160個國家，在**"一帶一路"**倡議覆蓋沿線及**RCEP成員國**形成了獨特優勢，滿足中信戴卡業務快速開通，以及靈活擴容的要求；

4) 中企通信**MPLS 專用網絡**可以為企業內部提供**高速、穩定、安全**的互聯互通；

5) 中企通信提供一站式**雲網智安**服務，能夠為中信戴卡提供7*24小時網絡監控、網絡管理及備份同時，並且配有專家團隊**全天候在線支持，**用高水平的服務質量保障中信戴卡網絡連接。

我們與中企通信的合作開始於 2013 年，合作已經近 10 年。當時中信戴卡是秦皇島總部使用了中企通信MPLS專用網絡服務，隨著中信戴卡業務不斷壯大，信息化和數智化建設要求越來越高，對網絡的數量及質量的要求也是越來越多。**通過多年與中企通信的緊密合作，同時經過多家廠商方案比較，中企通信的服務品質受到了我們認可，所以中信戴卡和中企通信近10年來一直保持密切合作。**

最後，請您談一談在智能化（如疊加 AR 和大數據分析等）ICT 服務方面有哪些期盼？

如果說製造業數字化建設，實現我們製造過程的透明，那麼智能化建設，目標就是要讓我們的製造變得簡單。**基於人工智能和大數據分析等技術手段，實現設備和生產工藝的自我調整與優化，減少製造過程的人工干預。** 好比相機一樣，20多年前，用的是機械相機，照相師傅需要培訓，要會調整光圈、快門、景深，才能拍好一張照片。後來出現了傻瓜相機，再後來出現數碼相機，現在誰都可以拿起手機就拍出一張好照片。我們做輪轂也一樣，現在我們海外工廠建設和運營，需要國內大量的技術支持，如果將來我們現場智能化應用場景越來越多，會有那麼一天，任何一個工廠都能製造出合格率100%的輪轂。

因此要說期盼，那就是盼望互聯網、大數據、人工智能和實體經濟深度融合。工業是立國之本，中國夢實現需要加快推進新型工業化，不斷地推進工業現代化。**通過大數據、人工智能與實體經濟的深度融合，推進中國製造向中國創造轉變、中國速度向中國質量轉變、製造大國向製造強國轉變。**

創新ICT技術
構建企業數智化新藍圖

新一輪科技革命蓬勃發展，大數據與5G、雲計算、人工智能、區塊鏈等新技術加速融合，重塑技術架構、產品形態和服務模式，推動產業全面創新，汽車及零部件行業數字化進程不斷加快，基於大數據的管理和決策模式日益成熟，為企業提質、降本、增效深度賦能。全面數智化，是需要更強大的後台支持；實現安全可靠的互聯，是發展的重要基礎；數據安全和保護，是發展的必要保障。

在這樣的大環境下，如何理解和駕馭創新的ICT技術，構建自己的數智化藍圖，以實現降本增效、成為業務發展的支撐，是企業面臨的重要挑戰。中企通信獲得國際國內多重認證，提供創新的ICT整合解決方案，利用智慧思維與智能化技術，幫助企業管理複雜的IT任務，優化成本，讓企業騰出精力，專注核心業務。

在"數字化"過程中，"雲網智安"扮演著重要角色。中企通信服務涵蓋大部分企業ICT關鍵領域，包括中企通CeOne-CONNECT專用網絡服務、TrustCSI信息安全管理服務、中企雲時代SmartCLOUD雲計算管理服務，DataHOUSE雲數據中心四大旗艦服務及一系列增值服務，並在2021年推出ICT-MiiND策略，該策略將數十年的行業經驗與創新科技包括人工智能（AI）、擴增實境（AR）、大數據、物聯網（IoT）、區塊鏈和5G等相結合，為企業構築"雲網智安"一體化堅實底座。未來，中企通信將不斷夯實"雲網智安"數字底座，為中信戴卡及更多汽車及零部件企業提供協助，助力其全球化戰略下的數字化轉型與創新。

CIE Golde

Success Case in Automotive Manufacturing Industry
To "Roof over" Digitalization with Innovations

Digital Transformation
Success Stories

CIE Golde

In the ancient times, countless goods were carried by camel caravans on the Silk Road for East-West trade. Today, aside from the China-Europe Railway Express and sea-rail combined transport, we have an invisible Belt and Road connecting the globe with its digital power. Multitudes of countries are economically benefited from the Belt and Road, contributing to the flourishing of various industries.

Interconnection in the digital era has brought together cross-regional online and offline businesses, facilitating the global business of enterprises, creating new opportunities and demands and fostering win-win cooperation. For CIE Golde and China Entercom, their profound partnership is driving them towards globalization, digitalization, intelligentization and professionalization.

IT Development ›››
Leads the Way
for Momentum

CIE Automotive, the parent company of CIE Golde, was founded in Spain in 2002 and specializes in designing and manufacturing components and subassemblies for the global automotive market. After its acquisition of Inteva Roof Systems unit in 2019, the company renamed as CIE Golde and specialized in manufacturing automotive roof systems.

Gao Xiayun

Global Infrastructure Manager

CIE Golde

Having an active presence in the global market, CIE Golde has established stable relationships with more than 50 critical clients and renowned automobile manufacturers such as BMW, General Motors, Volkswagen, Mercedes-Benz and Chrysler. In China, CIE Golde set up its headquarter of Research & Development in Shanghai, with 5 wholly-owned subsidiaries and a joint venture in Shanghai, Changchun, Tianjin, Yantai, Wuhan etc.

In spite of being in the traditional manufacturing industry, CIE Golde places high priority on digitalization. As IT was becoming more critical in businesses, the enterprise kickstarted its IT development in 2004, and has been ahead of the industry after going through four stages of construction since then, said Gao Xiayun, Global Infrastructure Manager of CIE Golde.

Gao Xiayun, who is responsible for CIE Golde's global infrastructure and manages the networks, servers, security and desktop support, joined the company in 2004 and has witnessed and participated in the IT construction from the very beginning. In the following, he will introduce the four stages of IT construction.

Stage 1: Infrastructure Development

Both the automotive industry and the businesses of the company were expanding in leaps and bounds as the 21st century entered, and IT construction began: introducing computers for work, setting up preliminary network and LAN, as well as implementing basic local applications.

Stage 2: Integration

Through integrating the dispersed data and IT resources, the company established an enterprise-grade data center of a certain scale and achieved standardization to address decentralized IT management. After its attempt to integrate data and business, the company can enjoy streamlined IT management and business digitalization.

Stage 3: Virtualization

Several issues arouse with the rapid business development and expanding scale of IT equipment in the data center, including lengthy system construction, costly procurement and debugging of software and hardware, and time-consuming business actualization. Yet, with virtualization, their flexibility of IT infrastructure, utilization of data center resources and cost-effectiveness can be greatly improved.

Stage 4: Cloud Computing

Despite the implementation of virtualization, the company had to tackle the challenges such as huge investments of the data center, short life cycles of hardware, and fast-changing software technologies. Fortunately, cloud computing is the better choice for CIE Golde who looks for flexible and scalable IT resources. In fact, cloud computing on a subscription basis can satisfy CIE Golde's IT requirements timely, shorten the delivery cycle, enhances the scalability of IT resources, resulting in optimal user experience.

IT evolution cannot be realized without technology and requirements. If you are wondering how enterprises can ride the wave and achieve breakthroughs in their IT construction, CIE Golde is the textbook answer.

Interconnection
Brings Digital Connectivity

With the acquisition of CIE Golde, CIE Automotive incorporated it into CIE Roof Systems that owns 16 production plants and 7 R&D centers worldwide, and employs more than 6,000 personnel in 19 countries and regions, most of which are along the Belt and Road.

![Golde Group logo]

In the globalization era, how can enterprises actualize interconnection among branch offices, plants, headquarters, data centers and clouds? Especially for international companies like CIE Golde with production, trading and operations in multiple locations, a stable and efficient network is of utmost importance.

According to Gao, CIE Golde used to struggle with expensive network costs and issues of cross-country data transmission when they adopted a single network. But since its incorporation into CIE Automotive in 2019, network connectivity has become increasingly essential, which has driven the company to introduce SD-WAN after research.

This is how China Entercom came to the attention of CIE Golde.

Unlike other service providers, China Entercom, together with its parent company CITIC Telecom CPC and CITIC Group, possesses enormously extensive and rich international resources on networks — it has **over 160 network presences** in nearly 160 countries and **60+ SD-WAN central gateways** — to meet the global networking requirements of CIE Golde.

From late 2019 to early 2020, China Entercom constructed and deployed a test line for CIE Golde on public networks in Shanghai and Germany and the transmission was routed via its MPLS backbone network. In practical, the test line from Shanghai to Germany delivered excellent performance in terms of routing and jumping, which allayed the concerns of CIE Golde. Soon after, China Entercom started a large-scale network deployment in its branch offices, plants and other locations with the help of CITIC Telecom CPC, resulting in an overall network cost reduction of nearly half.

As of today, the hybrid networking services provided by China Entercom and its parent company CITIC Telecom CPC to CIE Golde consist of the SD-WAN services and the private network services. The former connects both the Mainland China and overseas locations including Shanghai, Foshan, Changchun, Yantai, Wuhan, Tianjin, Fujian, and Frankfurt, India, Slovakia, Germany, Romania, Mexico, the United States, while the latter is built upon the SD-WAN infrastructure and accesses SAP systems via China Entercom's networks.

China Entercom's One-stop Innovative ICT Services
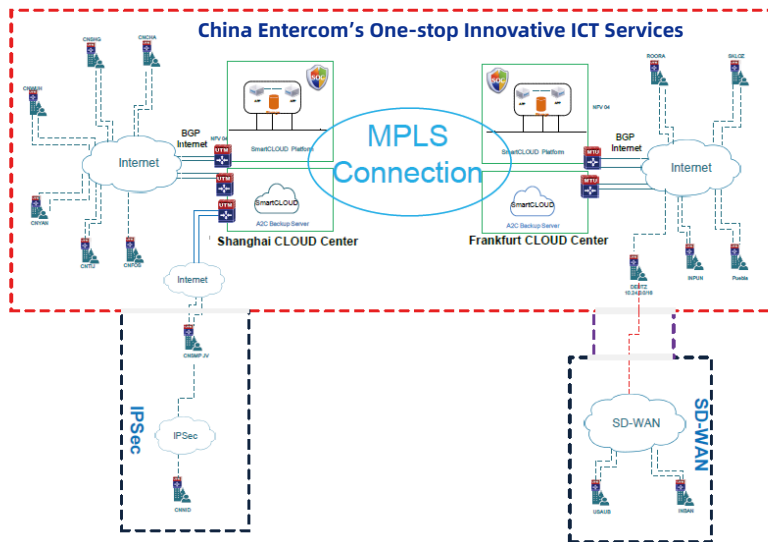
"For this solution, we joined hands with our partner Fortinet to integrate and quickly deploy the SD-WAN solution with built-in security protection and a visualization setting for CIE Golde to monitor its network and security, say, the platform traffic and the number of attacks the solution has resisted. Apart from that, CIE Golde can enjoy **7x24 network monitoring, management and backup services supported by our team of experts,** optimizing the network connectivity with our best-in-class services." introduced Henry Ko, General Manager, Enterprise Solutions, China Entercom.

Collaboration Empowers All-around Construction

Considering that the Belt and Road straddles different regions, development stages and civilizations, a beneficial partnership can enhance the development and global trades of international enterprises, so as to satisfy varying IT requirements, comply with laws and regulations of various regions, familiarize with local markets and services.

The partnership between CIE Golde and China Entercom is a testament to it. Driven by the demand for digitalization, the collaboration has expanded from network services to one-stop ICT solutions of "hybrid network, cloud computing and information security".

Global-Local Intelligent DICT Service Partner

Global Knowledge • Regional Coverage • Local Service

Over **160+** Points of Presence (PoPs)

Worldwide Network Coverage in nearly **160** Countries in Asia Pacific Europe, America, Middle East, and Central Asia

BIG DATA
IOT
5G+
AI
AR
BLOCKCHAIN

ICT-MIIND
INNOVATION NEVER STOPS

Backed by World-class Infrastructure includes
30+ Data Centers
21+ Cloud Service Centers
3 SOCs

Provides Serivces to nearly **16,000+** Customer Sites

US & CANADA
SOUTH AMERICA
EUROPE & CIS
MAINLAND CHINA
AFRICA
APAC

Global Coverage of China Entercom and Its Parent Company CITIC Telecom CPC

As forementioned, CIE Golde has introduced cloud computing and shifted various applications to clouds due to delivery cycles, cost, flexibility and other factors. For instance, the bill system, printing system, FortiAnalyzer and other critical applications have been relocated to the public clouds of China Entercom and CITIC Telecom CPC in Shanghai and Frankfurt.

Powered by VMware's virtualization technology and oriented by operations and services, China Entercom's cloud solution empowers reasonable scheduling, automated management, shared use and quick deployment of software and hardware resources, as well as meeting the standard SLA level of 99.99% and achieving cloud certifications and multiple ISO certifications, said Henry Ko, General Manager, Enterprise Solutions, China Entercom.

From now on, the collaboration between CIE Golde and China Entercom will be intensified to strengthen the cloud solution and migrate other global and regional applications to clouds, such as the domain controller and network management server, as revealed by Gao Xiayun.

As for compliance, every global enterprise must not cross the red line. The one-stop ICT solutions offered by China Entercom and its parent company CITIC Telecom CPC to CIE Golde encompasses Europe, Americas and Asia, and are subject to China's Data Security Law and Cybersecurity Law and Europe's General Data Protection Regulation (GDPR). To ensure lawful operations, China Entercom has accumulated relevant experience during its years of globalization journey, and guarantees that its services comply with the regulations of various countries and regions without affecting its quality.

Given the increasing number of cyberattacks, how can enterprises overcome information security challenges? To reinforce the integrated information security of CIE Golde, the TrustCSI™ Information Security Services launched by China Entercom and Fortinet performs security incident detection, real-time response, post incident report and regular evaluations to realize a closed-loop management of security protection.

Going Global from the Belt and Road with Digitalization

Over the past 20 years, China Entercom has gained recognition from and offered digitalization services to almost 300 Fortune 500 companies across the world, and CIE Golde is one of them.

What makes China Entercom unique? Henry Ko, General Manager, Enterprise Solutions, China Entercom, believed it is their one-stop ICT integrated solutions, global resource deployment enabled by the parent company and partners, close relationships with 600+ telecommunications carriers worldwide, and the ability to connect to overseas carriers. Thanks to the experience and extensive resources, China Entercom is able to bridge the gap with foreign providers, and facilitate communication and coordination for multinational clients, who have already partnered with other providers in Europe and the United States yet adopting China Entercom's services in Southeast Asia.

Since the proposal of the Belt and Road, China Entercom has actively deployed resources and formulated solutions in response to the policy. Up to now, China Entercom and its parent company CITIC Telecom CPC have built their competitive advantages along the Belt and Road with over 160 PoPs, 21+ cloud service centers and 30+ data centers across the globe.

As a result, a number of large-scale Chinese companies have successfully gone abroad, given that China Entercom has provided them with one-stop ICT solutions covering network, cloud services, data centers and information security. In recent years, China Entercom has been digging into its pioneering ICT-MiIND strategy for the convergence of ICT solutions and innovations inclusive of algorithms, computing power, big data, AR, AI and blockchain, thus enhancing business resilience and injecting new dynamics of digitalization and intelligence into enterprises.

Centuries ago, camels and sailboats were the primary means of trade. Today, infrastructure, digital and intelligent technologies have ushered in a new chapter in global economic exchange and development.

Hopefully, the advancement of Belt and Road will result in flourishing development of CIE Golde and other international companies; and the digitalization and intelligentization by China Entercom and its partner VMware will take more Chinese companies to the world.

TRUE
CONNECT
Private Network Solutions

TRUST
CSI
Information Security Services

SMART
CLOUD
Cloud Computing Solutions

DATA
HOUSE
Cloud Data Center

Global-Local Intelligent DICT Service Partner

西艾科德

數字化轉型系列之

西艾科德

古代絲綢之路上，無數駝隊滿載貨物，連接東西方貿易往來。

今天，共建"一帶一路"，為沿線各國帶來經濟繁榮，令千行百業收穫蓬勃發展。這一次，飛馳著的不只有中歐班列、海陸聯運，還有一條看不見的數字"一帶一路"連接全球。

數字時代互聯互通，串連起跨地域的線上與線下業務，助力眾多公司的國際化業務拓展，也催生出新需求新機遇，帶來企業間的合作共贏。西艾科德與中企通信的合作與深化，正是朝著國際化、數智化、專業化的步伐前行。

乘勢發展 ≫
IT建設先行

西艾科德（CIE Golde）
全球基礎架構經理
高夏雲

西艾科德的母公司CIE Automotive集團是一家成立於2002年的西班牙公司，在全球範圍內設計並生產汽車組件與零部件。2019年，CIE Automotive收購恩坦華天窗事業部，命名為西艾科德，專司汽車天窗製造。

作為全球知名天窗製造企業，西艾科德有超過50家重要客戶，與寶馬、通用、大眾、奔馳、克萊斯勒等著名汽車製造企業，都保持穩定的合作關係。在中國，西艾科德將研發總部設立於上海，還在上海、長春、天津、煙台、武漢等地建立了5家獨資子公司和1家合資子公司。

雖屬傳統製造業，但西艾科德一直深諳數字化的重要性。西艾科德全球基礎架構經理高夏雲介紹，早在2004年，公司就注意到IT在業務中正體現出越來越高的價值，啟動IT建設，至今已經歷企業IT建設的四個階段，走在行業前列。

負責西艾科德全球基礎架構，管轄網絡、服務器、安全、桌面支持等工作的高夏雲，正是在2004年加入公司，可以說參與和推動了公司IT演進全過程，他為筆者做了詳細介紹。

第一階段

基礎建設。新世紀之初，汽車行業飛速發展，公司業務規模持續擴大，IT建設正式起步：應用電腦辦公，進行初始的基礎網絡和局域網建設，引入一些簡單的本地應用系統。

第二階段

整合階段。針對IT分散管理問題，公司將分散的數據資源、IT資源進行物理整合，形成了具有一定規模的企業級數據中心，並完成自身標準化工作。在數據整合的同時，公司不斷實施數據與業務整合，最終實現了"IT易管理、業務數字化"。

第三階段

虛擬化階段。業務快速發展，數據中心的IT設備隨之不斷擴張，系統建設週期長，軟硬件採購和調試成本高，業務實現耗費時間長等問題隨之出現。公司遂採用虛擬化部署，大大提升IT架構的靈活性與數據中心資源利用率，也實現了成本降低。

第四階段

雲計算階段。雖然實施了虛擬化，數據中心仍然存在投入大、硬件生命週期短，軟件技術升級快等難題。現階段，可以滿足IT資源彈性擴張、按需服務的雲計算，成為西艾科德更合適的選擇。高夏雲表示，採用租賃形式的雲計算服務後，西艾科德的IT需求得以及時滿足，交付週期縮短，IT資源擴展性提高，用戶體驗極佳。

技術與需求，是IT演進的主要驅動力。企業IT建設如何順時而變，勇於突破？西艾科德的發展之路做出了優秀示範。

互聯互通 >>> 構建數字紐帶

CIE Automotive集團收購西艾科德後，將其納入CIE天窗系統，該系統在全球擁有16個生產與7個研發中心，員工總數逾6000人，遍及19個國家和地區，幾乎均為"一帶一路"沿線國家。

全球化時代，像西艾科德這樣的國際化企業，生產、貿易、辦公部署在世界多地，如何實現分支機構、工廠、總部、數據中心以及雲之間的互聯互通？穩定、高效的網絡顯得尤為重要。

高夏雲介紹，過去，公司使用單一網絡，面臨網絡費用貴、跨國數據傳輸存在問題等痛點。2019年加入CIE Automotive集團後，網絡連接愈發重要，西艾科德經過研究，決定嘗試SD-WAN這一新的組網形式。

中企通信由此進入西艾科德的視線。

相較於其他供應商，中企通信的國際化網絡資源優勢明顯。聯合母公司中信國際電訊CPC及集團，中企通信在全球約160個國家，佈局超過**160多個網絡據點**，SD-WAN中央網關服務節點**60+個**，滿足西艾科德全球多地的組網需求。

2019年底到2020年初，中企通信為西艾科德創建上海到德國的測試線路，線路在上海與德國當地採用公網部署，傳輸經由MPLS級別的中企通信骨幹網絡。實際使用中，中企通信提供的該線路，路由跳轉等網絡表現超出其預期，打消了西艾科德的疑慮，很快由中企通信聯合母公司中信國際電訊CPC在其全球分支機構、工廠等進行大規模的網絡部署，總體網絡成本降低近一半。

目前，中企通信聯合母公司中信國際電訊CPC為西艾科德提供的混合組網服務，既包括連接中國大陸地區上海、佛山、長春、煙台、武漢、天津、福建七省市，以及海外法蘭克福、印度、斯洛伐克、德國、羅馬尼亞、墨西哥、美國等地的SD-WAN服務，也包括基於SD-WAN架構，利用中企通信網絡訪問SAP等系統的專網服務。
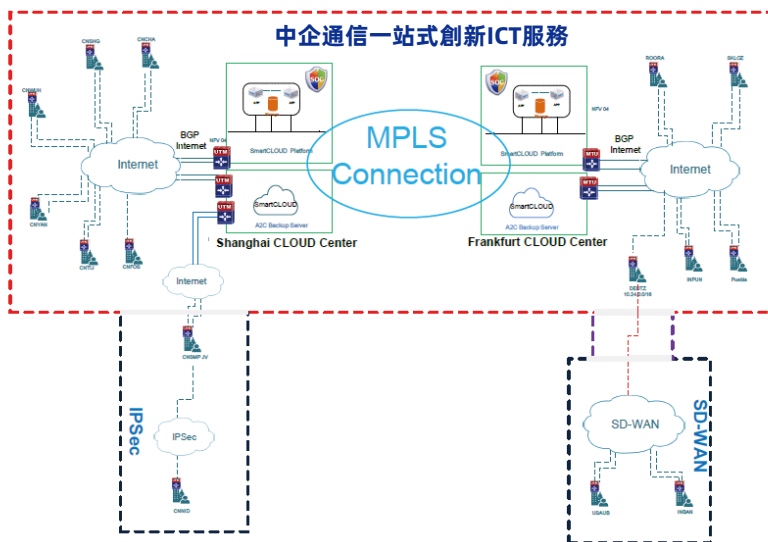
中企通信銷售總經理高力衡介紹，本次方案中，攜手緊密合作夥伴Fortinet集成安全性的SD-WAN解決方案，能夠幫助西艾科德快速部署實施，同時具有原生的安全防禦能力，可為客戶提供一個可視化環境，方便了解其網絡和安全情況，比如平台流量，或者是抵擋多少次攻擊等。除上述網絡服務外，中企通信還為西艾科德提供了**7*24小時網絡監控、網絡管理及備份，並且配有專家團隊全天候在線支持**，用高水平的服務質量保障西艾科德的網絡連接。
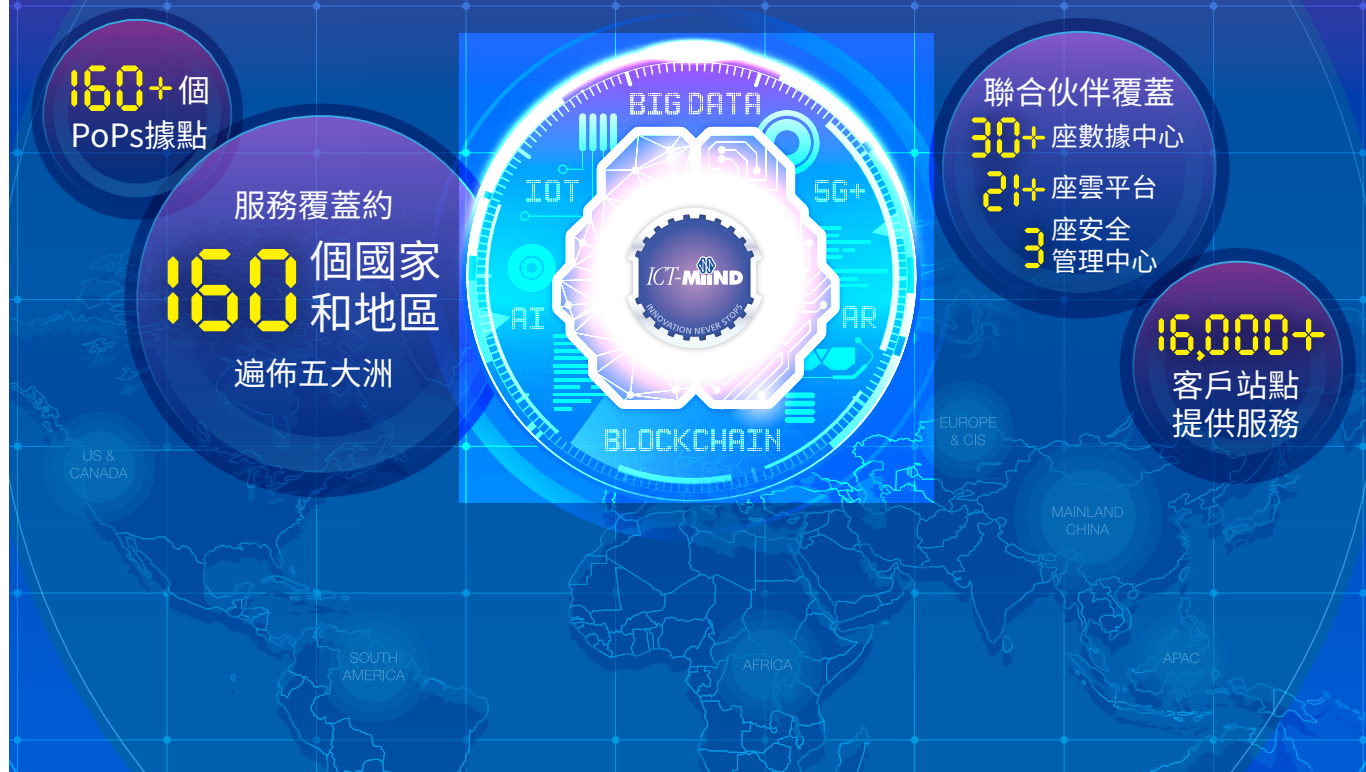
》全面賦能
攜手前行

"一帶一路"建設，跨越不同地域、不同發展階段、不同文明。國際化企業的全球貿易與發展，在不同階段IT需求不同，還需要遵守不同地域的法律法規，熟悉當地市場與服務，擁有一個好的合作夥伴，往往能事倍功半。

西艾科德與中企通信的合作正是如此。在企業數字化發展需求的推動下，雙方合作不斷升級，服務內容從最初的網絡，拓展到"混合組網+雲計算+信息安全"的一站式ICT服務。

服務在地 連接全球的數智通訊服務伙伴

全球視野·區域覆蓋·本地支持

160+個 PoPs據點

服務覆蓋約 160 個國家和地區 遍佈五大洲

BIG DATA
IOT
5G+
ICT-MiiND
INNOVATION NEVER STOPS
AI
AR
BLOCKCHAIN

聯合伙伴覆蓋
30+ 座數據中心
21+ 座雲平台
3 座安全管理中心

16,000+ 客戶站點提供服務

中企通信協同母公司中信國際電訊CPC資源佈局

如前文所說，由於交付週期、成本、彈性等因素，西艾科德進入雲計算階段，各類應用系統逐步上雲，重要的票據系統、打印系統、FortiAnalyzer均已遷移到中企通信及母公司中信國際電訊CPC位於上海和法蘭克福的公有雲上。

中企通信銷售總經理高力衡表示，中企通信雲服務以VMware虛擬化技術為基礎、以運營服務為導向，可以幫助西艾科德實現基礎軟硬件設施資源合理調度、自動管控、共享使用和業務快速部署，滿足統一SLA標準（99.99%），且通過可信雲、多重ISO認證。

高夏雲向筆者透露，未來，西艾科德將深化與中企通信的雲服務合作，繼續推進企業的其他全球性應用，以及區域性應用如域控、網絡管理服務器等遷移上雲。

對於全球性企業來說，合規經營是不可逾越的紅線。中企通信聯合母公司中信國際電訊CPC為西艾科德提供的一站式ICT服務，涉及歐洲、美洲、亞洲多地區，中國的《數據安全法》和《網絡安全法》、歐洲《GDPR通用數據保護條例》等多個區域與國家的法律法規均需遵守。基於自身多年的全球化發展，中企通信具備完善的業務合規經驗，確保服務達到需求的同時，必須滿足不同國家，不同地區的法規要求，為客戶解決合規的擔憂。

網絡攻擊事件頻發，企業如何應對信息安全挑戰？中企通信聯合Fortinet提供的TrustCSI信息安全管理服務對事前檢測、事中響應、事後總結、定期評估等環節的多方面覆蓋，實現安全事件的全閉環處理，提升西艾科德綜合信息安全防護能力。

⟫佈局"一帶一路"
以數字化助力出海

與西艾科德的合作並非個例，成立二十多年來，中企通信一直受到國際化企業的青睞，已經為近300家世界500強企業提供數字化服務。

中企通信銷售總經理高力衡表示，中企通信的獨特之處在於，既能提供一站式ICT整體解決方案，又因母公司及夥伴在全球的資源部署，與全球600+電信運營商達成緊密合作，具備與海外運營商的溝通對接能力。當某跨國企業在歐美等地區已有供應商，又在東南亞地區使用中企通信的服務時，中企通信基於資源與經驗，可為客戶打通與其他地區供應商的對接，做好全球範圍內的溝通與協同。

共建"一帶一路"倡議提出以來，中企通信響應政策號召，在"一帶一路"沿線積極部署資源與方案，到目前為止，已聯合母公司中信國際電訊CPC，在全球擁有超過160個服務據點、21+座雲平台、30+座數據中心，率先在"一帶一路"沿線形成優勢覆蓋。

基於以上種種獨特競爭力，中企通信已助力諸多大型中國企業出海，為他們在"一帶一路"沿線提供涵蓋網絡、雲服務、數據中心、信息安全的一站式ICT服務。除此之外，中企通信還在近年間持續發展ICT-MiiND(ICT-智賦)策略，大力拓展研發算法算力、大數據、AR、AI、區塊鏈等創新能力與ICT服務的融合，走在未來趨勢的前沿，智慧賦能企業的業務韌性為企業注入數智化新動能。

古時，貿易往來靠的是駝鈴聲聲，船帆片片。今天，基礎建設與數字化智能化技術，已成為全球經濟交流發展的新篇章。

我們相信，隨著"一帶一路"的推進，以西艾科德為代表的國際化企業，將在中國迎來新發展，在中企通信及其緊密夥伴VMware的數字化智能化助力下，也將有更多中國企業走向世界。

TRUE
CONNECT
專用網絡方案

TRUST
CSI
信息安全管理服務

SMART
CLOUD
雲端運算方案

DATA
HOUSE
雲數據中心

服務在地 連接全球的數智通訊服務伙伴

Success Case in Automotive Manufacturing Industry
Autoneum Going Global with Green Digitalization Solutions

Digital Transformation
Success Stories

Autoneum

The automotive industry is no exception in the rising tide of digitalization, steadily intensifying and evolving into "electric, connected, autonomous and shared" automobiles. In the meantime, the industry is also driven by advanced technologies to go global, such as networking, data storage and cloud computing.

Autoneum, headquartered in Switzerland, is a globally-leading company specializing and pioneering in acoustic and thermal management of vehicles. Thanks to the partnership with China Entercom, its management system has been smoothly implemented and business development is flourishing in China, which set a successful example of globalization and digitalization for automotive enterprises. **To look into the new trends and demands for digitalization in both the global and Chinese automotive industry, Yuanhua Xu (IT Operation and Maintenance Manager, Autoneum), Henry Ko (General Manager, Enterprise Solutions, China Entercom) and Lava Lin (Regional Sales Manager, China Entercom) have discussed in an interview lately based on their collaboration.**

Established DX Solutions »»
Key for Multinational Automotive Companies Entering China

Yuanhua Xu
IT Operation and Maintenance Manager
Autoneum

Strategically, China is a crucial market for multinational automotive companies as it has become a major producer and consumer of vehicles with the fast-growing economy, and ranked among the top in the world in terms of production and car parc. To expand their market, the overseas companies have been improving the data centers with key technology to realize digitalization, which cannot be done without ICT service providers.

With his experience with China Entercom, Xu believed that an ideal partner of automotive enterprises is able to offer secure and quality services with high qualification and creditability, and China Entercom has exactly what Autoneum needs.

> **"** In terms of security, Xu pointed out that China Entercom is more assuring given that it has accumulated extensive experience in the market and cooperated with many technology partners. As for services, customers can enjoy 7x24 support, which guarantees engineers respond to queries and tackle problems in less than two hours. China Entercom is also second to none regarding qualification and creditability, as it can deploy remote servers and disaster tolerance backups perfectly. When a city's system is suspended, it is able to activate the backup facility and the switchover is tested to be done within one hour, and no data will be lost.

**Yuanhua Xu
Autoneum**

**Henry Ko
China Entercom**

> Henry continued speaking about China Entercom's implementation of digitalization, as a service provider. It has engaged in networks and other IT services for more than 20 years and formulated mature products and services with operating licenses in multiple areas such as data centers, cloud computing, networks and security. In the case of working with Autoneum, China Entercom combined several products and services into one integrated solution to construct a comprehensive framework. In the meantime, it established a separated channel and a dedicated team for 7x24 support and quick responses in the course of serving Autoneum. Once there is an emergency, their team consisting managers of after-sales and services, and experts in cloud computing, networks and security can handle the problems promptly depending on the situation. **"**

The collaboration between China Entercom and Autoneum is a miniature of the digitalization of automobiles in China and globalization of the automotive industry. Professional ICT service providers like China Entercom is a must for automotive enterprises. China Entercom drives the globalization and digitalization forward by providing long-term and professional services and quality products. It can expand the resource pool and adjust their services according to clients' development needs and increase in data volume as well.

Green Digitalization: Diminishing Life-cycle Carbon Emissions of Vehicles

As the world is calling for energy saving and carbon emissions reduction, the development of alternative fuel vehicles is thriving across the globe, especially in China. To demonstrate, the production and sales volume of alternative fuel vehicles in China reached 13,000 units in 2012, and 10 years later, they are growing at a compound annual growth rate of 86%. Since 2022, the production and sales volume has soared and car parc has amounted to more than 10 million (units). All of these figures signify that the industry and the market are expanding, and constructing green digitalization also deserves significant attention.

When Autoneum entered the China market, it was absolutely aware of the vigorous effort China has put into alternative fuel vehicles, compared with other countries. Xu indicated that the whole industry chain is supported by multiple preferential policies to promote reduction in carbon emissions. Seemingly, China is expected to overtake the corner as its development of alternative fuel vehicles is flourishing.

Known for noise insulation and environmentally-friendly components, Autoneum has been in pursuit of saving energy and reducing carbon emissions, and has strictly followed the corresponding standards in the course of R&D and manufacturing to meet the requirements of alternative fuel vehicles. To help realizing the carbon peaking and carbon neutrality goals, Autoneum will go further to satisfy the requirements of alternative fuel vehicles in China and launch more green products.

When Autoneum was deploying digitalization, China Entercom played an important role in green development, which Autoneum takes very seriously. According to Henry, their services promote energy saving and carbon emissions reduction in order to support China's carbon neutrality policy. Besides, China Entercom is particularly selective when it comes to green data centers, considering that it is crucial to realize green development for customers. By leveraging AI technology and AR glasses, its AI-AR Remote Hand service elevates the efficiency of saving energy, facilitating remote office and management in operation and maintenance during the pandemic, as well as diminishing carbon emissions in traffic and other aspects.

Lava added that the cloud service offered by China Entercom to Autoneum operates on a certified green data center. For example, the data center in Baoshan, Shanghai, uses water-cooling technology with higher cooling efficiency, as well as natural water to save energy when temperatures are lower from November to March. Enabled by VMware virtualization, the cloud service can be integrated with China Entercom's network and security management solutions, while Autoneum has full control over resources to raise efficiency and is able to flexibly and timely allocate them to each department when needed.

As above mentioned, the life-cycle carbon emissions of vehicles can be entirely diminished with higher proportion of alternative energy, widespread use of environmentally friendly materials to promote green digitalization. Going green is undoubtedly the future direction of the automotive industry, as well as the focus that automotive enterprises and ICT service providers must not overlook.

Full-fledged Digitalization: Speeding up Globalization of Automotive Industry

The landing in China is the crux of Autoneum's globalization strategy, given that the automotive industry is growing globally at an accelerating pace.

In China, car exports are experiencing a rapid upswing according to the Ministry of Commerce, and have reached 1.6 million units from January to July this year, hitting a record high for the same period with an increase of 44.5%. It seems that some automotive companies in China have attempted to blaze a new path to the global market through technology and management. To exploit overseas opportunities, networks, data centers and cloud computing are indispensable in this digital era. The larger the scope of expansion, the higher the demand for digitalization.

In light of the shift to overseas automobile market, China Entercom, together with its parent company

CITIC Telecom CPC and CITIC Group, have completed deployments along the "Belt and Road" and in RCEP member countries where automotive enterprises can take advantage of, said Henry. They are able to build cabinets and set up cloud computing platforms based on local resources, for instance, China Entercom can activate corresponding services once clients have the need to enhance data storage and management in Germany and other foreign cities, catering all of their globalization needs.
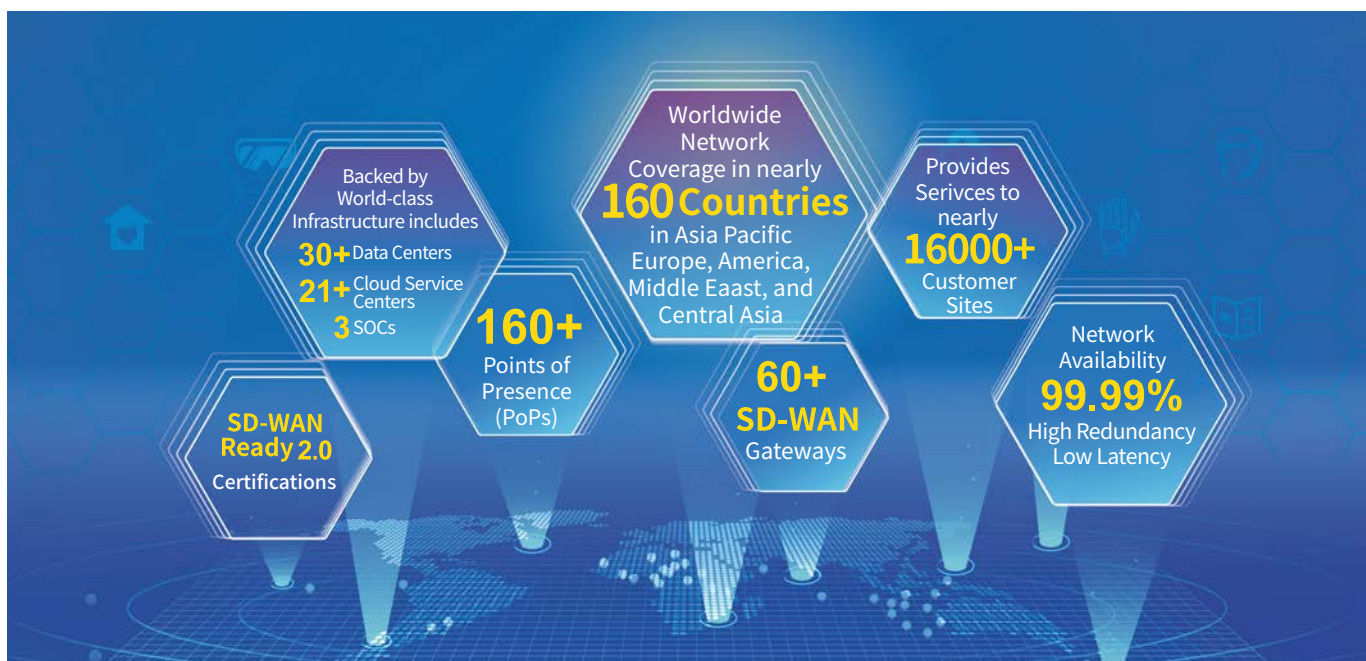
With backbone network, China Entercom's data centers are all connected, explained Lava. In the future, clients can enjoy the interconnected cloud services across the globe by integrating the global resources of China Entercom, CITIC Telecom CPC and CITIC Group, as well as the connectivity of their data centers.

To continue the success story of landing in China, Autoneum and China Entercom will step into more profound collaboration on a global scale in order to push their globalization forward. China Entercom will help Autoneum to link the distributed offices and factories together with its extensive resources to ensure local compliance, said Xu.

While digitalization drives enterprises to expand globally, globalization asks for a higher degree of digital deployments to refine and accelerate digital transformation. It is clear that digitalization and globalization are promoting each other.

On the other hand, data security is another focus of automotive enterprises and ICT service providers while carrying out digitalization, and Henry highlighted the

importance of data security standards. Automotive manufacturer will formulate corresponding standards for each segment of car production and utilization, which are also the criteria to select the service providers to ensure the data security.

Lava agreed that certifications and standards are pivotal to secure data in the policy perspective. In the meantime, China Entercom can support enterprises with certifications. In terms of application, he mentioned the firewall is necessary to safeguard data transfer and application, while China Entercom can even offer a comprehensive security system.

As data security involved in entire life-cycle of automobiles, it cannot be guaranteed by a single vendor only, said Xu. A unified data management that can inspect the whole production chains including physical and software security is what they seek. It requires cooperation from various stakeholders, such as a quality service provider like China Entercom to reinforce data security without compromising relevant regulations.

歐拓汽車

汽車製造業成功案例｜打造綠色數字化暢行通道
中企通信助力歐拓汽車全球化發展

數字化轉型系列之

歐拓汽車

數字浪潮下，汽車行業的數字化轉型程度正不斷加深，向電動化、網聯化、智能化、共享化的方向演進，為其服務的網絡、數據存儲、雲計算等也呈現出新的發展趨勢，並推動著汽車行業全球化的發展。

作為全球市場的先驅和汽車聲學熱量管理解決方案的技術領軍企業，來自瑞士的歐拓汽車通過與中企通信合作，在全國實現了管理系統的落地與業務的持續發展，是車企全球化與數字化發展的成功典範。此次，歐拓汽車亞太區IT運維經理徐元華、中企通信銷售總經理高力衡、中企通信區域銷售經理林屹接受記者的採訪，以雙方合作為基礎，對中國及全球汽車行業發展的新業態與新態勢，汽車企業數字化落地過程中的新需求等進行了剖析。

成熟的數字化服務 》
推動跨國車企落地中國

歐拓汽車亞太區
IT運維經理　徐元華

伴隨經濟的快速發展，中國已經成為汽車生產與消費的大國，產量與保有量均已位居世界前列，是跨國車企重要佈局地。為更好地拓展市場，國外車企逐漸引入核心技術，完善數據中心建設，落地數字化戰略。在這一過程中，與信息化相關服務企業進行合作也必不可少。

徐元華基於歐拓汽車與中企通信的合作實踐表示，安全、服務體系質量、企業資質與信用度則成為車企考慮信息化合作夥伴時的核心要素。這也是歐拓汽車選擇中企通信的重要原因。

**歐拓汽車亞太區
IT運維經理
徐元華**

**中企通信
銷售總經理
高力衡**

中企通信與歐拓汽車的合作也是汽車數字化戰略落地中國，推動車企全球化發展的縮影。憑藉多項資質，成熟的產品，中企通信等專業信息化服務商能夠進行長期、穩定的服務，並根據客戶的發展、數據量的提升，拓展資源池，完善服務隊伍，在車企全球化、數字化發展過程中起著重要作用。

綠色數字化
加快汽車全生命週期碳排放降低

在節能減碳大趨勢下，全球新能源汽車持續發展，中國新能源汽車發展尤為迅速。數據顯示，2012年中國新能源汽車產銷量1.3萬輛，此後十年的年均複合增長達到86%，2022年以來，新能源汽車產銷量快速增長，新能源汽車目前的保有量已超過1000萬（輛），產業發展進入全面市場化擴張期。同時，數字化戰略中的綠色化發展也成為不容忽視的一點。

歐拓汽車在進入中國市場的過程中對此深有感觸，徐元華表示，相較於其他國家，一個明顯的差異是中國正加大力度推廣新能源汽車，通過多項優惠政策扶持整個產業鏈的發展，推進行業碳排放量的降低。目前，中國新能源汽車也實現了較大的發展，有望實現彎道超車。

歐拓汽車主流產品是隔音降噪與環保材料，始終致力於推動節能減碳，嚴格按照相應標準進行操作，將之貫徹到了整個研發、生產流程，契合新能源汽車的生產要求。未來，歐拓汽車將進一步結合中國新能源汽車需求，研發更多綠色化產品，為"雙碳"目標的實現貢獻力量。

在進行數字化落地時，歐拓汽車也著重強調了綠色化發展，中企通信在其中發揮了巨大作用。高力衡表示，中企通信積極響應國家"碳中和"政策的號召，在眾多服務上推動節能減碳，尤其注重**綠色數據中心的選擇**，並以此為基礎幫助客戶實現綠色化發展。同時，中企通信也**通過AI技術提高節能效果**，如基於AI-AR技術的眼鏡，疫情之下，一方面能便利線上辦公及運維管理，另一方面，可以通過此減少交通等方面的碳排放。

林屹進一步指出，**合作過程中，中企通信為歐拓汽車提供的雲服務是基於經過認證的綠色數據中心之上的。該服務以VMware虛擬化為基礎，能夠與中企通信現有的網絡管理和安全管理方案相互融合，將整個資源區交由歐拓汽車管理，讓其能夠按各個部門所需靈活實時分配適當資源，大幅提升效益和效率。** 以中企通信位於上海寶山的數據中心為例，其採用了製冷效率更高的水冷技術，11月到次年3月，溫度較低時，可直接利用自然水冷卻，節能效果較為顯著。

從以上實踐來看，提高新能源的比例、加強環保材料的使用，促進數字化轉型的綠色化發展，汽車在全生命週期的不同層面在推動碳排放的降低，綠色化發展成為汽車行業發展的重點方向，也正成為車企及相關信息化服務商必須關注的焦點和發力方向。

完備的數字化體系
加速車企全球化拓展進程

歐拓汽車落地中國是全球化發展戰略中的核心組成，而全球化正是汽車行業的主要發展趨勢，且進程在不斷加快。

以我國汽車出海為例，據商務部，我國汽車出口正進入高速增長期，今年1至7月，出口達160萬輛，增長44.5％，創歷史同期新高。部分企業已經開始嘗試在海外用技術和管理換市場，開拓出中國車企全球化發展的新路徑。而數字化背景下，車企海外拓展更離不開網絡、數據中心、雲計算的支撐，全球範圍的數字化佈局需求更加強烈。

對此，高力衡表示，汽車方面的需求正從國內衍生到

海外，中企通信聯合母公司中信國際電訊CPC及集團，在國外相應地點也做了充分部署，尤其是"一帶一路"沿線、RCEP成員國等地區具備較大優勢，根據當地資源，建設機櫃，構造雲計算平台，舉例說，一旦車企在德國等海外城市有了相應的數據存儲、管理等方面的要求，中企通信便能啟動相應服務，滿足客戶全球化需求。

林屹進一步指出，中企通信數據中心由骨幹網打通，未來，客戶可以利用中企通信聯合母公司中信國際電訊CPC及集團全球化資源優勢，結合數據中心的連通，來進行全球雲服務的互聯。

基於此與落地中國的成功實踐，徐元華表示，歐拓汽車將與中企通信在全球範圍內展開更深入的合作，利用中企通信協同資源，打通全球各個辦公室和工廠，確保在地合規服務能力，持續推動歐拓汽車全球化發展。

由此可見，數字化與全球化是相互促進的，數字化加速全球化佈局，全球化則提出了更多的數字化需求，推動數字化轉型質量與速度的提升。

值得注意的是，數字化發展過程中，數據安全也是車企及信息化服務商著重關注的一焦點。高力衡對汽車

行業數據安全等級或者標準進行了強調，他指出，汽車在生產、使用等每個環節都會制定相應的標準，在樹立標準後，車企依據這些標準來選擇服務商，以保證汽車數據安全。

林屹從政策和應用兩方面進行了闡述，他表示，政策方面，相關等級認證是重要的安全保障，中企通信能夠幫助車企客戶進行相關認證；應用方面，防火牆等能夠進行較好的安全防護，中企通信有著完善的安全系統，能夠有效保證數據上傳、應用的安全性。

徐元華則表示，數據涉及汽車整個生命週期，單一廠商無法完全保證數據安全，因此，數據安全需要多方面的合作，包括物理安全，軟件安全等，需要對不同鏈條上的數據進行統一管理，需要中企通信等高質量的服務商來加強防護力量，以更合理合法化地確保數據安全。

Finance
金融

Lime Trading Corp.

CITIC-Prudential Life Insurance 中信保誠人壽

Datong Insurance 大童保險

Lime Trading Corp.

Success Case in Finance Industry

Lime Trading Corp. Achieves Remarkable New Levels of Scale and Speed for Global Market Expansion with Managed Hybrid Cloud Solutions

Digital Transformation
Success Stories

Lime Trading Corp.

"CITIC Telecom CPC leveraged their high-performance virtual resources and global connectivity to help us address urgent office expansion and customer base growth across the world, reaching higher levels of business operations. Their technical and business professionals dramatically enhanced our ability to develop new business applications, reduced our time to new markets, and accelerated data processing at our largest trading marketplaces, boosting order execution and service quality for traders and investors."

Oleg Gurskiy

IT-Director at Just2Trade Inc. (now Lime Trading Corp.)

International investment company of 400,000 clients worldwide rapidly expanded investment service spectrum, trading volume, data and order processing to capitalize on significant market expansions in Western countries and the Asia-Pacific region, leveraging CITIC Telecom CPC's innovative multi-cloud and global connectivity managed services.

Since 2007, Just2Trade Inc., now known as Lime Trading Corp. financial holding, has been providing an increasing portfolio of brokerage services to retail financial customers. With its ongoing expansion around the world, Just2Trade Inc. needed to greatly enhance the support of a vastly growing customer base and extended the range of financial services. It needed to achieve this without compromising service quality or transaction speed, ensuring every customer can enjoy a great user experience, particularly when it came to mission-critical real-time financial transactions. In addition, rapidly scaling IT infrastructure must have adequate security in compliance with local cybersecurity and personal data laws in the various respective markets, including geographies new to the company.

Seeking Solutions

Just2Trade Inc.'s (now Lime Trading Corp.) business expansion objective was to support its offices in the USA, Europe, and China providing a wide range of services in the international financial markets, including trading currencies, stocks, cryptocurrencies, futures, options, and investing in the Forex currency market with fast data processing and order execution on a real-time basis.

In choosing a technology partner, Just2Trade Inc. decided a key factor would be the provider's experience in global ICT infrastructure, with the ability to supply multiple CoS and guaranteed QoS at local markets including Europe and America, China and Asia. The provider's resources should ensure the necessary computing power to quickly scale professional trading and investment applications, with direct connections to more than 50 stock and currency exchanges, and process a huge volume of customer requests and online data-sharing.

Multi-faceted Managed Services

Based on the criteria of global reach, deep expertise, and proven capabilities in the specific markets around the world, Just2Trade Inc. ultimately chose CITIC Telecom CPC to handle this urgent project.

Just2Trade Inc.'s upgraded infrastructure must not only operate at high-speed, but also cope with great variations and uncertainties associated with trading across different markets with a diverse range of financial instruments. CITIC Telecom CPC's professionals proposed to utilize a high-speed multi-cloud topology to successfully cope with large data flows during peak loads, and dynamically rebalance computing resources depending on tasks and geographic locations as well as allow highly versatile service customization to maximize business flexibility and competitive agility.

With implementing this hyper-converged cloud technology, Just2Trade Inc. can rapidly deploy its new ICT infrastructure and minimize delays in addressing new global market conditions and opportunities. The new topology integrates CITIC Telecom CPC's flagship SmartCLOUD™ platform (a virtual high-performance solution uniting 21+ global Cloud Service Centers) and TrueCONNECT™ VPLS Private Ethernet connectivity. SmartCLOUD's computing resources in New York, Frankfurt, Shanghai, and on-premises infrastructure in New Jersey, formed the highly available and powerful hybrid cloud environment enabling Just2Trade Inc. crucial market access to trading exchanges in Europe, America, China and Asia.

The fully redundant cloud infrastructure delivers ultra-high availability of virtual resources at 99.99% SLA, ensuring low latency data access, critical to financial transactions. The expanded business's massive unstructured data volume is also efficiently and effectively handled via innovative object storage techniques comprising Big Data, microservices and container technologies that greatly accelerate Cloud Native development and assembly of specialized business applications. The new topology also enjoys more robust security, with comprehensive cloud data protection and round-the-clock professional support via CITIC Telecom CPC's dedicated world-class Security Operations Centers.

In addition to all the technical benefits provided by CITIC Telecom CPC, Just2Trade Inc. managed to achieve higher productivity by enabling its staff to concentrate on core business activities, letting CITIC Telecom CPC's professionals monitor and maintain the network, providing on-demand computing and connectivity adjustments. The subscription-based model also maximizes cost-effectiveness and efficient capital utilization for Just2Trade Inc.

"Our strength lies in an individual approach for each customer to maximize the potential of a multi-tier cloud platform" , said Elena Chernykh, Head of Europe Enterprise Sales at CITIC Telecom CPC. "Managed services, combined with flexible billing and payment terms, allow us to offer customized solutions that meet the needs of even the most discerning and demanding customers."

CITIC-Prudential Life Insurance

Success Case in Insurance Industry

China Entercom Empowers
CITIC-Prudential Life Insurance to Realize Digitalization

Digital Transformation
Success Stories

CITIC-Prudential
Life Insurance

When seaborne trade was booming in the 14th century, insurance sprang up along the Italian coast in the form of oral contracts to hedge against the risk of shipping. In 1384, the world's first policy was signed at a port of Pisa, which symbolized the foundation of modern insurance system. Following the rise of Britain as the hub of seaborne trade in the 17th century, London became the world's insurance center, and life insurance, annuity insurance, and reinsurance emerged in addition to marine insurance.

Having kept abreast of the economy and society over centuries, the insurance industry proactively responds to the trend of the times.

Nowadays, from Italian docks to the UK's Lombard Street, the modern insurance industry reaches every corner of the globe, nurturing countless types of insurances, products and new ventures.

This was when CITIC-Prudential Life Insurance came into being. The solid CITIC Group and the long-standing Prudential Group teamed up to set up CITIC-Prudential Life Insurance, in light of the opening-up of the industry in 2000. The company took only 22 years to blossom into a leading insurance company with total assets of RMB 209.2 billion, 23 subsidiaries and more than 220 branches in 99 cities. Besides, the company has over 1.6 million active individual customers and more than 16,000 corporate clients, and its products encompass life, health and accident insurance, and wealth management services and more.

The insurance industry has matured in terms of business models and types of business over the past six centuries. While in the 21st century, CITIC-Prudential Life Insurance has witnessed and been a part of the industrial transformation driven by advanced technologies.
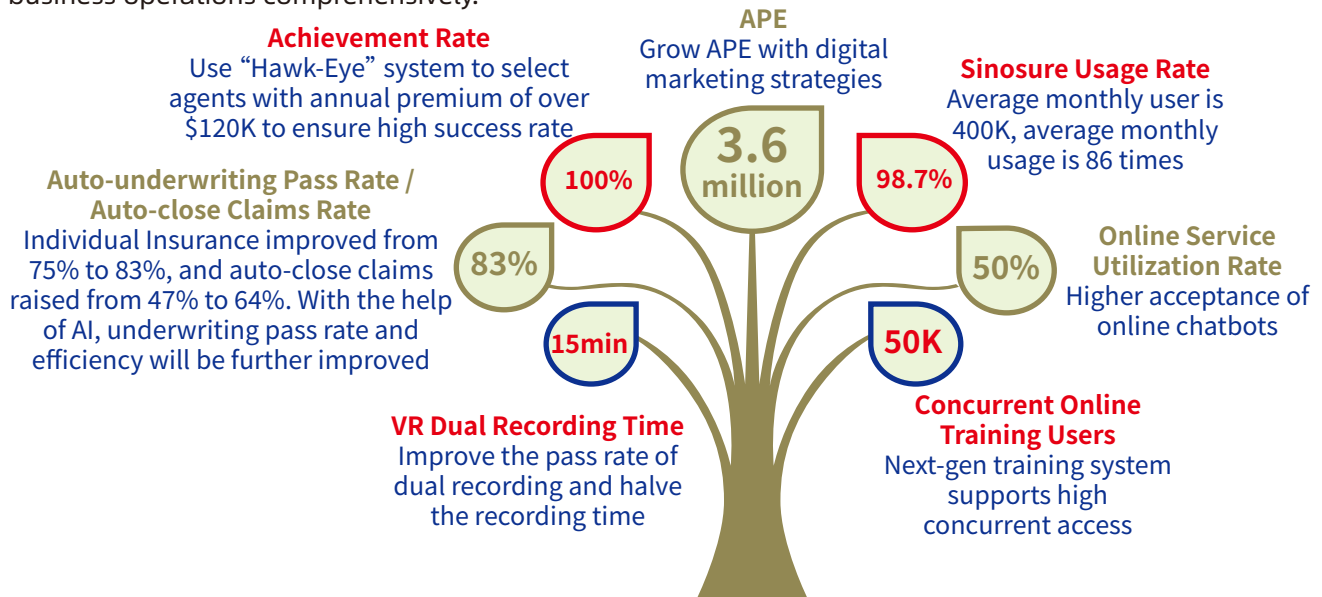
Riding the Wave of
Success

Technology ≫

Empowering High-speed Development

Thanks to the unremitting efforts over the last two decades, CITIC-Prudential Life Insurance, now a benchmark for joint-venture life insurance companies in China, has recorded sustained growth in business scale and diversification of business segments. In the meantime, it has made a significant step up from manual work to digitalization and intelligentization to enhance business development, and has become an innovator and leader in certain areas.

From paper-based tasks to industry-leading micro-services systems, from selling face-to-face to working with VR-based innovations, from traditionally complex and bulky IT infrastructure to highly flexible application systems, CITIC-Prudential Life Insurance's Innovation Team introduces the latest technologies and incorporates the proven experiences of both shareholders to blaze new trails, harnessing the power of technology to energize business development with a well-designed, stable and digitalized infrastructure that secures business operations comprehensively.

Achievement Rate
Use "Hawk-Eye" system to select agents with annual premium of over $120K to ensure high success rate

APE
Grow APE with digital marketing strategies

Sinosure Usage Rate
Average monthly user is 400K, average monthly usage is 86 times

Auto-underwriting Pass Rate / Auto-close Claims Rate
Individual Insurance improved from 75% to 83%, and auto-close claims raised from 47% to 64%. With the help of AI, underwriting pass rate and efficiency will be further improved

Online Service Utilization Rate
Higher acceptance of online chatbots

VR Dual Recording Time
Improve the pass rate of dual recording and halve the recording time

Concurrent Online Training Users
Next-gen training system supports high concurrent access

100% — 3.6 million — 98.7% — 83% — 50% — 15min — 50K

China Entercom ≫

Offering Reliable Protection

CITIC-Prudential Life Insurance is conscious of the essence of insurance — to guarantee customers' rights, and that is why its quality of services is recognized by the customers. Even on its journey of digitalization, the company managed to offer "Reliable Protection" and "High-Quality Services".

Given the ever-expanding business scale and increasing digitalized applications, the network infrastructure of CITIC-Prudential Life Insurance was under severe pressure in 2014, thus, a network deployment should be carried out on a national scale as the company owned numerous branches across China. Based on multi-dimensional assessments, China Entercom, which is also a member of the CITIC Group and offers national coverage of backbone networks and unified ICT solutions with registered licenses, stepped into the spotlight.

The backbone network and MPLS private network technology of China Entercom enabled CITIC-Prudential Life Insurance to establish a nationwide ring network for smooth business connectivity with its partners. The network was not only efficient and standardized, but also realized a private line connecting to the private network of the CITIC Group seamlessly.

In 2016, CITIC-Prudential Life Insurance was seeking an IDC service provider possessing high reliability and business continuity capabilities, as well as capable to incorporate interconnections with different carriers, to provide colocation services for disaster recovery. Once again,

China Entercom's operation and maintenance team operated 7x24 during pandemic

China Entercom stood out for its excellence, providing the company with a data center in Wuhan alongside operation and maintenance services.

Supported by the high reliability and professional operation and maintenance capabilities of China Entercom's cloud-network converged data center, there has been no failure in the services nor problems in daily operation and maintenance ever since the deployment of IDC in 2016. Even during the COVID-19 situation from late 2019 to early 2020, the data center in Wuhan had demonstrated uninterrupted operations and guaranteed service quality. Mr. Layton Lok, Chief Vice President, Mainland China Operations, China Entercom, explained, "All of these were made possible by our 99.99% highly available backbone network that guarantees stable connection, the 7x24x365 intelligent system for network monitoring, and operation and maintenance, coupled with our experienced on-site and off-site multi-tier experts, as well as regular follow-ups and proactive responses to impromptu adjustments."

Digital Transformation ⟫

Embracing Intelligent Future

Though setting sail along the unchanging Italian shores, the modern insurance industry has evolved and progressed over the past six centuries. After years of rapid expansion, the life insurance industry has embarked on in-depth transformation since the second half of 2019, leading to massive staff attrition, supply-demand mismatch, seriously homogeneous products and deviation in values. Now comes the time for change, and one of the keys to this industry's dilemma is undoubtedly digital transformation.

In response, CITIC-Prudential Life Insurance entered its third phase of transformation back in 2019 for more comprehensive and profound digitalization and intelligentization. Various applications have also shown desired results, including VR meeting rooms, VR policy owner services, VR Intelligent dual-recording systems, big data risk control intelligent platforms, as well as robotic follow-up services and AI underwriting robots launched in 2021.

The importance of transformation within the industry was also highlighted in the "Guidance on Digital Transformation of Banking and Insurance Industry" issued by China Banking and Insurance Regulatory Commission in January 2022. The issuance aims to facilitate digital transformation of personal financial services, introduce technologies to enrich marketing and services, and build an operational management system for online customers, promoting digitization and intelligentization in marketing, transactions, services and risk control. With China Entercom as its trusted partner, CITIC-Prudential Life Insurance is in line with the policies, embracing the future on the right path.

保險行業成功案例 | 中信保誠人壽的數字化之路
中企通信如何"保駕護航"?

數字化轉型系列之

中信保誠人壽

公元14世紀,海上貿易繁盛,為了規避運輸過程中的風險,保險以口頭契約的形態在意大利沿海萌芽。1384年,世界上第一張保單在比薩港口簽下,現代保險制度由此而誕生。17世紀,隨著英國成為海上貿易的中心,倫敦成為世界保險中心,繼海上保險之外,人壽保險、年金保險、再保險等業務陸續出現。

應時而生,應勢而變。幾百年來,保險業始終與經濟社會發展同頻共振。

應運而生 》》
乘風破浪

從意大利碼頭到英國倫巴第街,到今天,現代保險業已遍布全球,保險種類日益豐富,新產品層出不窮,新企業也不斷湧現。

中信保誠人壽正是這樣一家踏時代浪潮而生的保險企業。

2000年,在保險業對外開放的大背景下,實力雄厚的中信集團,歷史悠久的英國保誠集團,強強聯手創建了中信保誠人壽。僅用了22年,中信保誠人壽已發展為一家總資產2092億元、擁有23家分公司,共在99個城市設立了220多家分支機構的保險公司。目前,公司存量有效個人客戶超過160萬、企業客戶1.6餘萬,產品覆蓋壽險、疾病、醫療、意外、財富管理等多個領域。
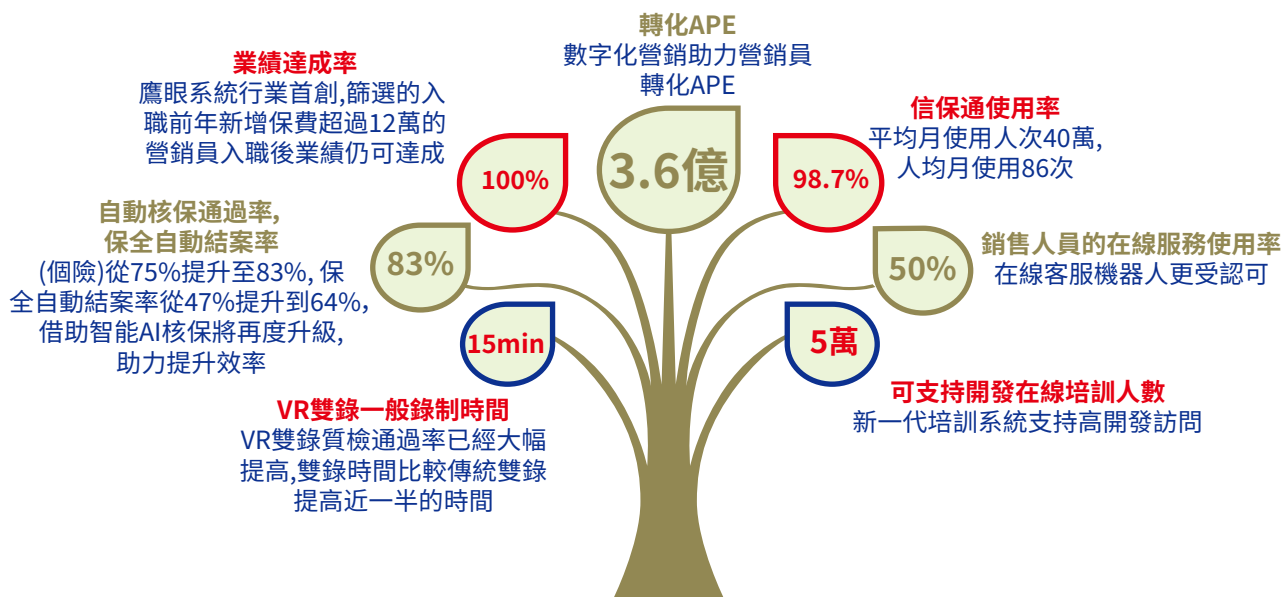
過去六百年間,保險業完成了商業模式與業務類型的成熟。進入21世紀以來,信息技術革命推動保險業的轉型升級,中信保誠人壽在成長中,見證和參與了保險業的科技發展。

科技賦能
飛速發展

中信保誠人壽在接受採訪時表示，經過二十餘年不懈努力，公司已成長為國內合資壽險企業標杆，不僅實現了業務規模持續增長、業務板塊多元，也完成了從手工作業到數智化的升級，以數字化手段有效支持業務發展，還在部分領域實現了創新和領先。

從紙質單據手工作業到行業領先的微服務系統，從面對面銷售到創新的VR虛擬現實體驗，從複雜傳統的大架構到高彈性的應用體系，中信保誠人壽科技團隊不斷創新，引入新技術，萃取雙方股東的良好實踐，運用科技的力量賦能公司業務發展。在此過程中，設計優良、安全穩定的信息化架構也為公司的整體運營提供了重要保障。

業績達成率
鷹眼系統行業首創,篩選的入職前年新增保費超過12萬的營銷員入職後業績仍可達成

轉化APE
數字化營銷助力營銷員轉化APE

信保通使用率
平均月使用人次40萬,人均月使用86次

自動核保通過率,保全自動結案率
(個險)從75%提升至83%, 保全自動結案率從47%提升到64%,借助智能AI核保將再度升級,助力提升效率

100%

3.6億

98.7%

83%

50%

15min

5萬

銷售人員的在線服務使用率
在線客服機器人更受認可

VR雙錄一般錄制時間
VR雙錄質檢通過率已經大幅提高,雙錄時間比較傳統雙錄提高近一半的時間

可支持開發在線培訓人數
新一代培訓系統支持高開發訪問

中企通信
穩健保障

保險的本質在於為客戶提供保障，中信保誠人壽的高質量服務，一直為廣大保險客戶認可。"穩健保障"與"高質量服務"兩個關鍵詞，在企業數字化進程中同樣得到貫徹。

2014年，隨著企業規模日益擴大，數字化應用越來越多樣，網絡架構面臨挑戰。中信保誠人壽擁有眾多分支機構，需要全國部署網絡，經過多維度評估，同為中信集團成員企業，並擁有全國骨幹網絡和業務牌照、提供全國統一服務的中企通信，進入了中信保誠人壽的視野。

利用中企通信的骨幹網絡和MPLS專用網絡技術，中信保誠人壽組建起一張全國環網，用於與第三方合作商的業務連接。這樣一來，既滿足了高效、統一的網絡需求，也順暢接入中信集團企業網，實現了中信保誠人壽與中信集團的專線互聯。

2016年，中信保誠人壽計劃租用機房，部署新的災備數據中心，希望IDC服務商既滿足機房線路保障多運營商互備要求，又具備高可靠性與可持續經營能力。中企通信憑藉雄厚實力再度雀屏中選，為中信保誠人壽提供位於武漢的數據中心租用及運維服務。

疫情期間中企通信運維團隊7×24小時駐守機房

自2016年雙方達成IDC合作以來，得益於中企通信雲網融合數據中心的高可靠性與專業運維能力，機房及日常運維從未出現任何事故。2019年底到2020年初新冠疫情期間，位於武漢該數據中心業務不間斷、服務質量不下降。"這背後是99.99%高可用骨幹網提供穩定網絡保障，是7×24×365的智能化網絡監控與運維，是經驗豐富的現場及遠程多層級專家服務，是定期客戶回訪和臨時性配合調整響應"，中企通信首席副總裁駱嘉釗介紹到。

轉型升級 》》》
智賦未來

六百年來，意大利海岸的風與海浪似乎沒有變化，現代保險業從此出發，卻從未停止前進與改變。

如今又到變革時。壽險行業經過多年高速擴張，從2019年下半年起，行業進入深度轉型的發展週期，出現人員快速流失、產銷供需錯配、產品嚴重同質、價值路徑偏離等現象。數字化轉型無疑是引領行業走出發展困局的核心因素之一。

正因如此，中信保誠人壽早在2019年就開啟了第三階段改革，開展更廣更深的全面數字化、智能化探索，譬如通過VR技術實現的VR會客廳、VR保全服務、VR智能雙錄系統，2021年推出的機器人回訪服務、AI核保機器人，大數據智慧風控平台等，各類應用均已經初顯成效。

監管部門也看到了保險行業轉型升級的必要性。今年1月，中國銀保監會發布《銀行業保險業數字化轉型的指導意見》，要求保險機構大力推進個人金融服務數字化轉型，可充分利用科技手段開展個人金融產品營銷和服務，構建面向互聯網客群的經營管理體系，推動營銷、交易、服務、風控線上化智能化。

從政策方向看，中信保誠人壽已經走在了正確的道路上，中企通信也將繼續"保駕護航"。

Datong Insurance

Looking into the Driving Force Behind Datong Insurance's Digital Transformation

Digital Transformation Success Stories

Datong Insurance

Among the two companies, one is the architect of the insurance industry's service ecology, and is committed to building service platforms for the lifecycle management of clients with independent agents as its business core. The other is an innovative ICT service provider, who offers one-stop solutions and leverages intelligent technologies to empower digitalization.

Ever since 2017, the two companies have cooperated to generate values for customers, and dedicated themselves to improve enterprises' management and service innovation through digitalization, writing a new chapter of the convergence of insurance and technology.

Datong Insurance's Digital Pedestal: Network, Security, Data Center and Managed Services

Homogeneous and inefficient offline operations and agency means are no longer applicable to the new market and changing supervision policies, as the insurance industry is undergoing a profound reform and restructuring itself under the pandemic.

The challenges ahead of Datong Insurance inspired a brand-new insurance ecological system — with product customization in the upstream, a sales matrix in the midstream, and a service matrix in the downstream — in addition to a high-quality circulating system for value creation, which paves the way for the company to provide multi-faceted and multi-dimensional professional insurance services.

The dynamic, digitalized engine behind that large-scale system has, indeed, pushed Datong Insurance to subvert traditional business modes, turning vision into reality.

Datong Insurance is known to be a pioneer in IT infrastructure development, as well as an active participant in empowering traditional business with technologies and innovation to enhance competitiveness in the fierce insurance industry. Through moving business processes online, deploying networks, raising mobility and more, the company started its first substantial IT reform at the beginning of 2015.

Shao An

Deputy General Manager of IT

Datong Insurance

To enable online sales, marketing and e-policy that are fast-changing and require quick responses, Datong Insurance joined hands with a well-known cloud service provider in China and commenced the project before others at that time, said Shao An, Deputy General Manager of IT, Datong Insurance.

Followed in 2017, Datong Insurance began to embrace the Internet and deploy cloud-based IT infrastructure for actualizing IT transformation. The company realized that network would be indispensable in its new infrastructure and in escalating its capability in multiple ways, and clouds would be able to resolve the problems of hybrid office, meanwhile establishing a robust and perfect network system.

For a flexible, secure and modern network architecture, Datong Insurance decided to work with China Entercom in September 2017. With its MPLS private network service, more than 20 branch offices of Datong Insurance distributed in Northern, Eastern and Southern China were quickly connected together, which enabled on-demand, reliable, robust and flexible network services with this integrated network infrastructure of the headquarter and branch offices, as well as stable data transmission to speed up business development.

Apparently, the requirements for network will only become more complex when online business gradually matures and insurance policies are issued online, which also put more pressure on digitalization.

Thanks to China Entercom's cloud-network data centers in Beijing and Shanghai that introduced a private access and a hybrid network to the network infrastructure, a part of Datong Insurance's branch offices can thus enjoy best-in-class network connectivity and cloud application access after fixing the exposed network structure and unstable access issues.

When it comes to information security, it is a whole different story. Data plays an important role in supporting business and innovation amidst progressive digital transformation, so it has given multiple missions to every insurance company: how to set up the network security perimeter, ensure information security, strengthen the supervision and protection of sensitive data, and achieve a safe, closed-loop management of lifecycle data?

The information security of Datong Insurance has been challenged by a large amount of deposited business data, said Shao An. To deal with it, prioritizing security and adopting China Entercom's managed security services protect all the network nodes and reinforce risk management of Datong Insurance, based on "Financial Industry's Implementation Guideline for Cybersecurity Classification Protection" .

 "Datong Insurance enjoys 7x24 multi-dimensional protection offered by China Entercom with a well-planned safety design and comprehensive cybersecurity technology, which has consistently improved our dynamic cybersecurity protection in terms of prevention, detection and response," continued Shao An.

For effective network management, Datong Insurance is allowed to monitor its network performance in real time to promptly eliminate risks through ManagedCONNECT, the one-stop multi-service management platform of China Entercom.

Five years of dedication enabled Datong Insurance to survive the pandemic that industries and enterprises were caught in its storm in 2020. When others were in trouble, the company quickly responded to it through online business, reduced the impacts on e-policy issuance, and established mobile office to solve online conferencing problems, all of which could not have been done without the ICT support of China Entercom.

Essentials for DX in Insurance Industry: Stable, Secure, High-quality ICT Solutions

China Entercom is one of the leading one-stop innovative ICT service providers that insurance companies can turn to for digitalization. With over 20 years of MPLS network service experience and 15 years of information security service experience, China Entercom offers premium integrated solutions of **network, cloud, data centers and security, alongside a series of value-added services.**

In the case of Datong Insurance as Shao An shared, **China Entercom has demonstrated its extensive coverage, streamlined deployment, high flexibility and scalability of the MPLS private network service, equipped with the one-stop multi-service management platform, ManagedCONNECT.**

Coupled with the stable, secure and high-quality 7x24 network service support, Datong Insurance has also benefited from business continuity, reduced IT costs and enhanced productivity as a whole with a standardized service workflow and performance, hence paying more attention to business innovation instead of network operation and maintenance.

More notably, the vast availability of global ICT resources of China Entercom has also won the heart of Datong Insurance. Together with its parent company CITIC Telecom CPC and the CITIC Group, it possesses 160+ points of presence (PoPs) in nearly 160 countries, 60+ SD-WAN service gateways, 30+ data centers and 21+ cloud service centers, which is in line with the global vision of Datong Insurance to foster business expansion across the world and evolve into a professional insurance service group, said Henry Ko, General Manager, Enterprise Solutions, China Entercom.

Datong Insurance quickly became a partner of China Entercom and contribute to the innovative development of the insurance industry, surely because of its good reputation, stable business development, continuous product innovation, perfect delivery, and operation and maintenance services, as well as high cost-performance.

According to Shao An, **China Entercom reassured him with its attentive and well-established services, besides a whole team and comprehensive system of operation and maintenance. For network, it provides early alerts and timely follow-up and feedback to adjust services when needed by adopting 7x24x365 network monitoring and maintenance with multiple cross-regional teams and centers such as NOC, SOC and COC,** let alone a Helpdesk and a specialized customer service channel for the company.

Guaranteed by China Entercom, Datong Insurance's IT department will be notified in many ways when the network is found to be in jeopardy, so that it can implement in-time protection to maintain a safe and reliable environment for digitalization.

"There have been no incidents over the past five years, so you can tell that the services of China Entercom are promising. It has also brought valuable experience to our IT team after witnessing its rigor, standardization of operation and maintenance and above-average performance. With the help of China Entercom, Datong Insurance has established a standard workflow and improved the capability of network operation and maintenance, not to mention the implementation of a holistic operation and maintenance system to stabilize and smoothen the network," said Shao An.

A Brand-new Path to Digitalization

Started from informationization to Internetization and now going ahead from digitalization to intelligentization, the insurance industry has come to the most crucial point in transformation in the post-pandemic era.

In the course of evolution, Datong Insurance has put dedicated and proactive development and the convergence of insurance and technology in the forefront, while addressing the pain points of clients with the introduction of digital technology, in order to welcome its own rapid development.

As the technology and intelligence-driven digital enabler for insurance companies, China Entercom is committed to escorting business transformation and growth with forward-looking insights, comprehensive innovative products and competent services, thus exploring a new path for Datong Insurance to embark on digitalization, and unleashing unlimited possibilities for future development.

保險行業成功案例 | 大童保險數字化轉型
背後的"硬核力量"

數字化轉型系列之

大童保險

一個是保險行業服務生態的締造者，以獨立代理人為核心，打造客戶全生命週期管理的服務平台。一個是國內一站式的創新ICT服務提供商，致力於成為以"智能科技"驅動的數字化賦能者。

2017年合作以來，這兩家企業堅持以創造客戶價值為目標，在踐行以數字化提升企業管理與服務創新的道路上，共同譜寫了一段"保險+科技"的新篇章。

以"網絡+安全+數據中心+管理服務"
夯實大童保險數字化底座

疫情之下，保險行業正在經歷一場深刻的變革和洗牌，以往同質化、低效率的線下經營及代理方式已然不再適用於新的市場環境和政策監管趨勢。

面對巨大的挑戰，作為一家提供專業化服務的企業，大童保險構建了上游產品訂製、中游銷售矩陣、下游服務矩陣的全新保險生態系統，並打造了一套為客戶創造價值的高品質自循環體系，以便提供多方位、立體化的專業保險服務。

而在這個龐大的體系背後，數字化引擎釋放了強大的推動力，幫助大童保險顛覆傳統業務模式，將理念轉化為現實。

眾所周知，大童保險從成立之初就非常重視企業IT建設，一直積極以科技創新賦能傳統業務，幫助企業在競爭激烈的保險市場塑造核心競爭力。2015年伊始，大童保險迎來了企業的第一次大規模IT改造，通過業務流程線上化、網絡化部署、提升移動化能力等方式，探索企業數字化轉型之路。

大童保險
技術服務部副總經理
邵安

大童保險技術服務部副總經理邵安表示，當時大童保險與國內知名雲服務商合作，將業務節奏變化快、需要快速應變響應的互聯網電子化出單和移動展業業務全部搬到線上。這在保險行業來說，起步相對較早。

隨著企業IT轉型的深入，從2017年開始，大童保險積極擁抱互聯網，將IT基礎設施進行雲化改造。而網絡建設作為企業新基礎架構中至關重要的一環，將多方位升級基礎能力，在雲化改造的同時，有效解決企業面臨的混合辦公難題，並構建起更加強大和完善的網絡保障體系。

為此，**2017年9月，大童保險積極牽手中企通信，構建靈活安全的現代化網絡架構。在先期項目中，大童保險主要採用了中企通信MPLS專用網絡服務，快速連接了其華北、華東和華南的20餘條分支體系**，不僅實現了總部與各分支架構網絡的一體化建設，滿足大童保險按需定制的網絡需求，而且以可靠、強大、靈活的網絡服務和穩定的數據傳輸加速業務運轉。

隨著線上業務的逐步成熟，當代理人的行為全部線上化以後，這對於網絡的基礎保障能力要求很高，也對信息化建設提出了更加嚴峻的考驗。

因此，大童保險又採用了中企通信雲網融合數據中心，通過在北京和上海數據中心引入專線接入和混合組網的方式，幫助一部分分支機構重構網絡基礎設施，破解傳統網絡結構較為暴露且訪問質量不夠穩定等難題，從而獲得高品質的網絡連接與雲端應用訪問體驗。

然而，網絡建設是一方面，信息安全又是另外一個層面。隨著企業數字化轉型的逐步深入，數據正發揮著重要的作用，為業務創新提供核心支撐。在這樣的背景下，如何打造網絡的安全邊界，如何守護客戶的信息安全，如何加強對於敏感數據的監管和防護，建立數據全生命週期的安全閉環管理，成為每一家保險企業的重中之重。

邵安表示，大量業務數據沉澱對大童保險的信息安全提出了嚴峻的挑戰。基於《金融行業網絡安全等級保護實施指引》，大童保險將安全防範前置，借助中企通信的託管式安全服務，把各個網絡節點的安全防護起來，強化企業信息安全風險管理。

"中企通信以強大的安全設計為大童保險提供7*24小時多方位防護，通過採用完善的網絡安全防禦技術，從準備防護、檢驗響應等環節著手，幫助大童保險持續提升動態的網絡安全防禦能力。"

此外，在網絡管理方面，借助中企通信的"ManagedCONNECT管理通"一站式多功能服務管理平台，大童保險可隨時監控網絡的實時情況，及時排除風險。

最終，五年的付出收到了滿意的效果。當2020年各行各業都捲入疫情的風暴中，以至於難以自救時，大童保險以很快的響應能力應對環境的挑戰。不僅快速敏捷的開展線上業務，減少對電子出單的影響，而且通過打造移動辦公場景，解決線上會議聯動的難題。這背後都有中企通信在ICT端的強力支撐。

穩定、安全、高品質ICT服務，
成為保險行業數字化建設品質之選

作為一站式的創新ICT服務提供商，中企通信憑藉多年形成的高品質**"網絡+雲+數據中心+安全+一系列增值服務" 一體化服務，**以及擁有二十多年MPLS網絡服務經驗、超過15年信息安全服務經驗，讓其正成為保險行業數字化建設的品質之選。

正如邵安所言，**中企通信MPLS專用網絡服務覆蓋廣泛，部署簡單，具有較強的靈活性、擴展性，而且通過"ManagedCONNECT管理通" 一站式多功能服務管理平台，便於企業隨時管理。**這在大童保險自身的網絡建設上，都得到了很好地詮釋。

同時，**穩定、安全、高品質的7*24網絡服務保障，不但為大童保險的日常業務運營保駕護航，而且幫助其大幅優化IT成本，提升了企業的整體生產力。**尤其是標準化的服務流程和能力，讓大童保險可以將精力更好的投入到業務創新中，而無需過多關注網絡運維。

除此之外，遍布全球ICT資源成為大童保險看中中企通信的另一大優勢。中企通信銷售總經理高力衡表示，中企通信聯合母公司中信國際電訊CPC及集團，在全球約160個國家佈置逾160個網絡節點、60+個SD-WAN接入點、超過30個數據中心、21+座雲平台。這些全球化資源優勢與大童保險的國際化戰略視野一致，可以幫助其更好地拓展國際化業務，助推其向專業保險服務集團的願景邁進。

正是如此，良好的行業口碑、穩定的業務開展、持續的產品創新、完善的實施交付和運維服務，以及更高的性價比成為大童保險與中企通信一拍即合的緣由，也是雙方共同驅動保險行業創新發展的重要保障。

根據邵安回憶，**中企通信令其欣慰之一是貼心完善的服務。中企通信擁有完善的運維團隊和機制，例如網絡方面採用7x24x365網絡監控維護，配備NOC、SOC、COC多地多中心維護團隊及Helpdesk和專屬客服，**做到提前預警和隨時跟進使用反饋，配合業務需求調整服務。

比如，當網絡遭遇風險時，中企通信能夠以多種形式告知大童保險的IT人員，以便其能夠及時的做好防護，保證數字化建設環境的安全可靠。

邵安說："這五年以來，中企通信保障服務非常妥帖，無意外情況發生。其團隊工作的嚴謹性、運維的規範性，以及服務團隊的高標準化給大童保險的IT團隊帶來了寶貴的經驗。原來，大童保險在網絡運維方面沒有形成規範的流程，但是在中企通信的幫助下，大童保險不僅提升了網絡運維的能力，而且創建了完善的運維體系和制度，以保證網絡的穩定和通暢。"

開啟數字化新征程

從早些年的信息化到後來的互聯網化，從現在的數字化到未來的智能化，保險行業在疫情過後邁出了轉型發展至關重要的一步。

在這個過程中，大童保險一直秉承深耕進取的態度，將"保險+科技"提升到戰略高度，以數字技術為動力牽引，積極解決客戶的痛點，從而驅動企業駛入發展的快車道。

而中企通信作為保險企業智能科技驅動的數字化賦能者，正以前瞻性的視角、綜合性的創新產品、強有力的服務護航企業轉型與發展，助力大童保險開啟數字化新征程，為未來的高質量發展創造無限可能！

Retail
零售

Cabbeen

卡賓服飾

Cabbeen

Success Case in Retail Industry
Middle Platforms of Data and Business: Expediting Digital Transformation for Cabbeen

Digital Transformation
Success Stories

Cabbeen

Huang Jian
Ex-IT Director, Cabbeen

Cabbeen was founded in 1997 by Mr. Cabbeen, who won the China Fashion Design Top Award, the most prestigious award in China's apparel industry. Its philosophy of subverting fashion trends, being one step ahead, and dedicating to original designs has made Cabbeen the most recognized original menswear designer brand in China today.

Cabbeen is undeniably the leading fashion brand in China's menswear industry, and has left its marks on the fashion world. As the first Chinese designer brand to debut at New York Fashion Week in February 2007, Cabbeen and the young Mr. Cabbeen captivated Manhattan with the stunningly edgy designs, turning a new page of the world-renowned designer brand.

The fashion industry is entering a highway to a reshuffling and reshaping environment with the rapid development of the digital economy, the question is, how can the industry adapt to digitalized business and make breakthroughs while reaching a turning point? On April 29, the latest issue of "Face-to-Face Interview with CIOs" will walk into the digital transformation journey of Cabbeen, the leading menswear company in China, with Huang Jian, the Ex-IT director of Cabbeen Fashion Limited.

How is digital transformation in the fashion industry going?

Huang Jian

Digital transformation in the fashion industry is apparently slower than that in other industries, given that the volume of multi-domain data and the scale of multi-domain digitalization of manufacturers at the production end are more considerable. We focus not only on technology when it comes to digitalization, but also on reshaping the structure and operation processes, which may affect the relationships of interests with franchisees and pose challenges on our traditional clothing industry.

Could you share the digital transformation journey of Cabbeen?

Cabbeen laid a solid foundation for digital transformation by unifying all franchisees, suppliers and terminals on one system beforehand. We were using the domestic, traditional ERP system before 2010, and in 2010, we adopted the SAP system and started its implementation in October of the same year to meet the financial and business demands for the IPO. In the following eight years, information systems such as the EWM HR system and PLM process management system were constructed based on the SAP system, and have been transforming to a dual-middle platform system since 2019. Our digital transformation journey has not been easy considering that the SAP system is deeply rooted in the company and there is no precedent in the industry.

Do you think the mindset of CIOs during digital transformation has changed?

Compared to the earlier technology-oriented, technology-based sort of mindset to accelerate informationization, CIOs are still proficient in technology, yet have switched to a business thinking that requires profound knowledge of business processes can promote business development through technology.

For this reason, CIOs should never limit themselves to the communication and sharing within the industry, but keep learning from the CIOs in other industries and keep growing for more in-depth insights.

What are the lessons learned from Cabbeen's digital transformation and innovation?

Cabbeen's dual middle platforms refer to data centers and business mid-end. Ten years after the adoption of SAP in 2010, we built peripheral information systems around it, since we have a different order in the construction of middle platforms.

The challenges we had at that point led us to make the first decision that differentiated us from others — setting up data middle platforms first to expose operational problems, then working backward from the process of solving those problems to deduce what should be built in the business mid-end. It took us a year to establish the data middle platform and complete data governance, and only a year and three months to finish the construction of the business middle platform, which is ahead of others.

How did Cabbeen design the full closed-loop value chain of people, goods and sites, and how is it progressing so far?

Speaking of the value chain of people, goods and sites in the traditional clothing industry, the inventory cost on goods is a pain point because of the predominance of futures, and that led to our strategy of "goods first, then sites, and finally people". For goods, we needed to foster digitalized collaboration on the mobile end with garment suppliers and fabric and accessories suppliers, thus enhancing the utilization of fabrics and accessories, improving the cost rate, reducing internal and external communication costs, and optimizing the supply chain.

In terms of sites, we facilitated store opening through visualized management tools to raise cost-efficiency.

As for people, we will carry out precision marketing, precision design or precision production based on membership tags this year.

What is Cabbeen's blueprint of digital security?

There are two areas in which Cabbeen has done a great job to ensure digital security, one is setting up a system for job positioning and specifications using business mid-end to guarantee no staff accounts can be granted extra authority and to disable the accounts of terminated employees promptly for information security, and second is the regular depth testing of enterprise systems to evaluate their safety with simulated attacks, as well as finding and fixing the vulnerabilities.

In view of the pandemic, we have adopted remote offices and often use VPN for private access to accounts, in addition to watermarking most of the core data in the system, so as to reduce about 80% of the security problems. **We are currently working with China Entercom to construct our WAN with its MPLS service for more stable networks and business,** and planning to integrate the full-ranged private network between the headquarter and branch offices.

What makes an ideal ICT service provider for enterprises?

When it comes to choosing an ICT service provider, aside from the background, resource coverage, network stability, service quality, innovation, after-sales, service stability and cost, we believe it is essential to be able to grow together to keep up with the latest trends and technology and exploit better values for Cabbeen, as information technology is ever-changing.

At present, we are adopting the MPLS, security and data center solutions from China Entercom, which have raised our efficiency, enabled our staff to focus on core business, and laid a solid foundation for Cabbeen's digitalized business scenarios with its high-quality and reliable integrated solution and professional operation and maintenance services.

What will be the challenges for Cabbeen throughout the digital transformation process?

Cabbeen will be facing two major challenges under the pandemic.

The first and foremost is the decline in investments in digital transformation. We are no exception as most retailers are experiencing declining revenues this year, and it will inevitably cause a reduction in digitalization investment, which is by far the biggest challenge.

On the other hand, the lack of sustainability of overall transformation and innovation has been an obstacle. Enterprises no longer believe there is a possibility of development during the pandemic, but simply wish to survive in the post-pandemic era given the uncertainty in society, and it will result in the suspension of innovative projects and transformation.

Conclusion

Digital transformation does not confine to technical innovation, but also innovation in operation, management and sales mode. Having connected online and offline and bridged management and people in the new retail era, digitalization will be immersed in every corner of the clothing industry and become the lifeline of innovation. Thanks to the efforts made by China Entercom and other ICT service providers, we believe Cabbeen, as well as other digitalized fashion brands, will survive and soar to the top in the new wave of digitalization.

One-stop Solution of Cloud, Network, Intelligence and Security:
Vitalizing Transformation and Innovation in Retail Industry

Stepping into the era of digital economy underlining efficiency, supply chains and the whole ecology, the direction of the retail industry is shifting from business datafication, data commercialization to data-oriented business, which highlights refined management, quick response, data mining and data utilization to win the market competition.

For the retail chain industry with numerous and vastly distributed terminals, China Entercom offers a one-stop integrated and innovative ICT solution of cloud, network, intelligence and security. Possessing extensive resources backed by its parent company and partners, as well as presences in nearly 160 countries and regions, China Entercom is able to perfect customer experience both in physical stores and on user end through its 7x24 ICT service support. Meanwhile, China Entercom's exclusive ICT-MiiND strategy empowers an in-depth convergence of digital technology and processes inclusive of service, operation and management to speed up the transmission, value exploration and creation of data, so that the operation of all stores are under full control of the headquarter, and enterprises will prevail in the game of digital transformation.

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Countries and Regions

7X24
ICT Service Support

ICT-MiiND
Strategy

零售業成功案例｜卡賓服飾前IT負責人黃健：
數據+業務雙中台建設 加速卡賓數字化轉型升級

數字化轉型系列之

卡賓服飾

黃健
卡賓服飾前IT負責人

卡賓服飾由中國時裝設計界最高獎--"金頂獎"得主卡賓先生於1997年創建。其"顛覆流行"的品牌理念，始終領先一步的個性時尚定位以及對原創設計的堅持與付出，使今日的Cabbeen已經成為中國原創設計師品牌男裝的代名詞。

不可否認，時下的卡賓服飾在中國時尚男裝界處於翹楚地位，而其在時尚界也書寫了眾多驚豔之筆。2007年2月，Cabbeen成為首個登上紐約時裝週的中國設計師品牌，並以鋒銳絕色的設計大放異彩，曼哈頓為這位來自中國的年輕設計師和原創設計師品牌而折服。而卡賓也由此掀開了打造世界知名設計師品牌的新的一頁。

隨著數字經濟的飛速發展，服裝行業正在加速洗牌與重塑，面對行業的新拐點，服裝企業是如何適應數字化業務，突破行業困局的呢？4月29日，由CIO時代、新基建創新研究院發起的最新一期"CIO面對面"系列訪談中，我們通過與卡賓服飾有限公司前IT負責人黃健先生的對話，走進了中國時尚男裝的翹楚企業--卡賓服飾的數字化轉型之路。

服裝行業數字化轉型的現狀是怎樣的？

黃 健

服裝業的數字化轉型與其他行業相比，進程較為緩慢，尤其是生產製造業在生產製造端的全域數據和全域數字化的轉型，要比服裝行業可觀很多。因為在數字化中，我們不單單要進行技術方面的轉型，更要去重塑企業的架構和業務流程，這會涉及到與加盟商之間的利益關係，所以這對傳統服飾行業來說，是一個艱難的挑戰。

卡賓服飾的數字化轉型歷程是怎樣的？

卡賓在轉型之前，就會要求所有的加盟商、供應商和終端都統在一個系統上，這為它的數字化轉型奠定了良好的基礎。2010年以前，卡賓使用的是國內傳統的ERP系統，在2010年，為了滿足公司上市的財務和業務需求，卡賓開始實施SAP系統，同年10月正式上線SAP體系系統；並在接下來的8年裡，我們以SAP系統為核心，構建了EWM HR體系、PLM流程管理等信息化體系；2019年起，以SAP、ERP為核心的信息化體系，逐漸向雙中台體系轉型，由於SAP系統在企業的參與度很深，業內也沒有轉型的先例，所以這次轉型對卡賓也是極具挑戰性的。

在數字化轉型中CIO需要進行哪些思維轉變？

之前CIO更多是從技術思維出發，以技術為核心，推動企業的信息化建設。而現在，CIO已逐漸轉變為從業務思維出發，不僅要精通技術，更要對業務流程有更深的認知，從而通過技術反向推動業務的發展。

所以，作為CIO我們需要不斷的學習與成長，並且不要局限於行業內的交流與分享，要跨出去和其他行業的CIO交流，這樣會看得更多。

卡賓在數字化轉型和創新的過程中
值得借鑒和分享的經驗有哪些？

卡賓搭建的雙中台指的是數據中心和業務中台。在建設中，我們建立中台的順序不同，從2010年應用SAP的之後十年，我們圍繞SAP建立了相關的周邊信息系統。

在此過程中遇到的挑戰，也讓我們在建設雙中台時，做出了區別於其他企業的第一個決策，先建立數據中台，以數據中台為企業暴露經營上的問題，再從完善經營問題的過程中倒推業務中台應該建設的內容，建立數據中台包括數據治理的時間週期是一年，但建立業務中台我們將時間縮短到一年零三個月，相較於其它同行已處於領先地位。

卡賓在人、貨、場全鏈路閉環鏈
路上的規劃與進展是怎樣的？

在傳統服飾行業的人、貨、場鏈路中，由於以期貨為主，所以在"貨"上的庫存成本是比較明顯的痛點。因此我們採取的是先貨、後場、再人的戰略。在"貨"上，在內部與成衣供應商和面輔料供應商在移動端上做數字化的協同，提高面輔料的利用率，優化成本率。並且也可以減少內部和外部的溝通成本，加快供應鏈的時間。

在"場"上，我們通過可視化的管理工具，提高開店的準確率，降本增效。

在"人"上面，我們今年會開始基於會員標籤輔助精準營銷或者精準設計、精準生產進行探索。

卡賓在數字安全的部署和規劃佈局是怎樣的呢？

卡賓在數字安全方面有兩個做得相對完善的地方，第一是利用業務中台構建了定崗定職的權限體系，能夠保證每一個員工的賬號權限不被擴大化，並且在員工離職時，及時在業務中台關閉賬號權限，保障信息安全。第二是定期對企業系統進行深度測試，模擬攻擊，以此評估系統安全，找到系統漏洞並及時修復。

針對當前疫情期間遠程辦公的情況，我們大部分還是利用VPN進行賬號專線訪問，並且大部分核心數據都會在系統裡做水印的安全防護，這兩點能減少大約80%的安全問題。**目前我們的廣域網依託中企通信的MPLS進行部署，來為業務提供穩定的網絡保障。**未來我們會考慮，打通總部與分公司之間的全域專線體系。

在選擇ICT服務商的考量因素有哪些？

在選擇ICT服務夥伴時，服務商的背景、資源覆蓋、網絡穩定性、客戶服務能力、創新能力和售後能力等都是我們考量的因素。其中，是否能共同成長是必備的條件，因為信息技術日新月異，供應商能否緊貼和更新技術為卡賓帶來更好的價值很重要；而服務的穩定性和成本也是考量因素之一。

基於上述考量，**卡賓服飾目前採用的是中企通信提供"MPLS+安全+數據中心"服務，高品質、高可靠性的綜合性方案以及專業的運維保障服務都幫助我們有效提高了運營效率，使我們的員工能夠更加專注核心業務，為卡賓服飾"數字賦能業務場景"打下了穩固的基礎。**

未來，卡賓在數字化轉型中面臨的挑戰有哪些？

疫情時代，卡賓數字化轉型面臨的兩大挑戰：

首當其衝是數字化轉型投資能力的下降。在今年，大部分零售企業的營收都在下降，我們也不例外，在營收下降的場景下，數字化投入一定會相應減少，這是目前面臨的最大挑戰。

第二個挑戰是整體轉型和創新的可持續性不足。社會的不確定性，導致企業從疫情時代的"還能發展"轉變為後疫情時代的"需要活著"。在此前提下，一些創新性的項目或變革都將被企業擱置。

結　語

數字化轉型不僅僅是技術的革新，還是運營管理模式的創新，更是銷售方式的創新。新零售時代下，數字化連接了線上和線下，也打通了管理和人心。在未來，數字化將貫穿於服裝行業的各個環節，成為創新的生命線。我們有理由相信，在中企通信等一系列ICT服務商的賦能下，以卡賓服飾為代表的數字化服裝品牌一定可以在數字化的新浪潮下矗立潮頭，勇攀高峰。

一站式"雲網智安"解決方案
智賦零售行業轉型創新

數字經濟時代，零售連鎖行業進入到效率、供應鏈、全生態時代，正經歷"業務數據化"到"數據業務化"再到"一切業務用數據說話"的過程，精細化運營、快速反應能力，以及挖掘、運用數據的能力，成為企業決勝市場的關鍵。

中企通信的一站式"雲網智安"一體化的創新ICT解決方案，面向終端眾多、分佈廣泛的零售連鎖行業提供優質服務。一方面基於其聯合母公司及夥伴在**全球約160個國家和地區**佈局，擁有充沛資源實力，為零售連鎖企業提供**7*24小時的ICT服務保障**，讓集團門店與用戶側均能保持良好的消費體驗；另一方面，借助中企通信獨特的**ICT-MiiND（ICT-智賦）策略**，將數字技術與業務、運營、管理等環節深度緊扣，實現數據流的加速傳遞、價值的深挖和創造，讓企業集團總部對當下各門店的運營運籌帷幄的同時，更助力企業在面向未來的數字化轉型熱潮下搶占先機。

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國家和地區

7X24
服務保障

ICT-MiiND
策略

Healthcare
大健康

Buchang Pharmaceuticals

步長製藥

Buchang Pharmaceuticals

Success Case in Healthcare Industry

Cloud and Network: A Panacea for Buchang Pharmaceuticals' Digital and Intelligent Upgrades

Shandong Buchang Pharmaceutical Co., Ltd. (Buchang Pharmaceuticals) was founded in 2001 and completed its shareholding system reform in 2012. The company's IPO application was approved by the Issuance Appraisal Committee of the China Securities Regulatory Commission in July 2016, and officially listed on November 18, 2016.

Throughout its 20 years of development, Buchang Pharmaceuticals has laid down the philosophy of "focusing on large disease species and cultivating large varieties". Centered around proprietary traditional Chinese patent medicines, the company is committed to treating "serious and chronic diseases", especially cardio-cerebrovascular diseases, with Traditional Chinese Medicine (TCM) modernization. Over the years, it has taken advantage of TCM and become the leader in the cardio-cerebrovascular field, forming a multi-faceted product landscape that focuses on large disease species and cultivates large varieties.

Pharmaceuticals are no stranger to us since they are vital to people's lives and health. Across the world, China has become the biggest market of medication due to its large population, and it is driving the pharmaceutical industry to shift from growth-oriented to quality-oriented, as well as moving toward intelligentization and digitalization after rapid development. In a post-pandemic world, the business environment of pharmaceutical companies is facing massive changes — the higher emphasis on technologies and innovations, continuous promotion of medical reform schemes and occurrence of public health emergencies and pandemics — which result in a reshuffling and reshaping landscape and increasing knowledge on digital products. While traditional pharmaceutical companies are embarking on digitalization, those that have been around are already stepping into intelligentization and taking advantage of the varied social awareness and political incentives during the pandemic.

To clarify the relationship between the development of the pharmaceutical industry and digital transformation, explore the progress of digitalization and discover its future possibilities, the reporter interviewed Shu Lian, General Manager, Information Construction and Management Center, Buchang Pharmaceuticals, and Henry Ko, General Manager, Enterprise Solutions, China Entercom, for different perspectives in the practice and development of digitalization in the pharmaceutical industry.

Digitalization in Pharmaceutical Industry: Internal and External Driving Forces

The pharmaceutical industry is indispensable in safeguarding the health and well-being of people, and has made significant progress in research, production and sales by combining advanced technologies. Entering the digital era, internal and external factors such as policy initiatives and increasing demands on digitalization have propelled the industry to further promote the digitalization progress.

On the outside, in addition to improving drug traceability in drug circulation, the pharmaceutical industry is deeply affected by the advancement of centralized procurement and negotiations in the medical reform and pays more attention to the R&D of drugs, which will only result in a higher degree of digital transformation, said Shu Lian.

From the inside, digitalization and informatization will facilitate the R&D, manufacturing and sales of pharmaceutical companies and enhance their competitiveness in today's market, said Henry Ko.

The practice of digital transformation, primarily driven by internal development needs, has benefited the pharmaceutical companies at present and in the foreseeable future. According to Shu Lian, it has also raised the efficiency of management and operations in five ways:

1. **Offer sufficient information using digital tools for more scientific and logical decision-making of the management;**

2. **Optimize business systems inclusive of production, sales, warehousing and transportation through informationization, and enhance the operation-finance integration with improved management and execution performance;**

3. **Promote marketing management with digital means to gain insights into the market and strengthen the sales ability, given that the integration, interplay and complementary relationship of online and offline businesses are critical;**

4. **Lower operating costs and enhance efficiency via digitalization to streamline processes and enable more effective communications;**

5. **Reform the pharmaceutical industry with digitalization, for instance, full tracing that involves the collaboration of multiple business entities cannot be empowered by purely manual labor.**

Innovative ICT Partners: Collaboration Fosters DX in Pharmaceutical Industry

Partners are the accelerator of digital transformation, and will be selected on a case-by-case basis due to different demands of enterprises. In the case of Buchang Pharmaceuticals, Shu Lian indicated that it is critical to be informed of the partner's clients, especially those in the pharmaceutical industry with similar scale and business, and that the maturity, experience and reliability of partners are way more important than technology and innovations.

These standards were taken into account when Buchang Pharmaceuticals chose China Entercom as its partner. To offer a one-stop, cutting-edge and reliable ICT solution integrating "networks, clouds, data centers, security and a series of value-added services", China Entercom has 21 years of experience in MPLS network services and more than 15 years of experience in information security services, with multiple domestic and overseas certifications including the TRUCS Certification, TL9000, ISO9001, ISO20000, ISO27001 and ISO27017. Their collaboration was achieved because China Entercom can cater the needs of Buchang Pharmaceuticals and support its digital transformation with various well-established solutions. Indeed, pharmaceutical companies can go further and grow bigger through digital transformation, yet they should also adopt a multi-pronged approach to overcome the difficulties in transformation and seize the opportunity to foster the development of production and operation.

Shu Lian summarized the experience of Buchang Pharmaceuticals and came up with an effective path to digital transformation. First, it is essential for pharmaceutical companies to respond to the national policies and ride the wave to advance their informationization and transformation. In China and many other regions, relevant policies

were issued to support and encourage digitalization. One example is the Plan for Development of the Digital Economy during the 14th Five-Year, which outlines the blueprint for promoting the development of digital economy in the 14th Five-Year Plan period with corresponding recommendations and requirements.

Secondly, by learning from other industries and companies, pharmaceutical companies can figure out the entry point and directions of digital transformation. Digitalization and informationization are long-term projects which cannot be done overnight, therefore enterprises need to be careful of the cost and invest steadily to empower digitalization.

Notably, the key to digital transformation of pharmaceutical companies lies in their management. Similar to the learning curve, they have to endure a long and often harsh period with various changes going on and affecting the whole picture. To deal with it, the management is required to have firm determination and comprehensive planning to promote the whole process from top to bottom regardless of how powerful the technology and solutions are.

Upgrades for DX of Pharmaceutical Companies: Shifting to Clouds and Network Construction

To address the needs of development, shifting operations and production to the clouds, as well as a more secure and stable network environment are the expectations of pharmaceutical companies as they go digital.

Moving to clouds can better respond to a large number of user requests for full tracing and sales services as clouds are known for quick deployment and stable operating costs, which encourages the migration of both upstream and downstream businesses to clouds and has already become a trend in the pharmaceutical industry, explained Shu Lian.

However, from the perspective of cloud services, pharmaceutical companies should introduce a private cloud to protect the critical and confidential information transmitted from R&D to production lines, while hybrid and private clouds can be adopted in manufacturing and sales, pinpointed Henry Ko.

With the service capabilities of public clouds, private clouds, hybrid clouds and disaster recovery and backups, China Entercom has thorough knowledge of clouds as an ICT service provider and a cloud computing service provider of VMware vCLOUD POWERED/vCan Plan in the Mainland China. Through POC testing, international certifications and years of experience, China Entercom offers integrated services with consistent pre-sales and post-sales qualities, and customizes cloud services in various areas to meet the expected costs of pharmaceutical companies.

Networking is another focus for pharmaceutical companies as they are diving deeper into digitalization. For a manufacturing industry, the enterprises need to connect cross-regional production plants and physical stores to collaborate with each other, and to enable full tracing of pharmaceuticals, which is why an effective, safe and robust network environment comes in handy.

From deploying server rooms and optimizing the intranet setting to constructing the WAN, pharmaceutical companies have developed a clear vision and embarked on a number of implementations to smoothen the network transmission, said Shu Lian. To help accelerate digitalization and the development of overseas business, they expect their partners to offer well-established and sustainable services, while accumulating abundant networking experience to deploy networks and minimize usage costs.

That is why Buchang Pharmaceuticals has entered a more profound collaboration with China Entercom. Alongside its parent company CITIC Telecom CPC and ecosystem partners, China Entercom is committed to setting up a secure, stable and seamless network transmission environment for the overseas business development of pharmaceutical companies, based on its network coverage of nearly 160 countries and regions, over 160 points of presences (POPs) and 60+ SD-WAN gateways. Started from 2021, the collaboration of Buchang Pharmaceuticals and China Entercom have been on a fast track to realize high-speed connectivity of 10+ key internal branch nodes via China Entercom's intelligent SD-WAN.

China Entercom Guides the Way to DX for Buchang Pharmaceuticals

At present, regular communication and exchange of ideas are vital to foster the future development of digitalization as it is a relatively long-term process for Chinese pharmaceutical companies, stated Henry Ko. In view of this, by digging deeper into the healthcare industry, China Entercom hopes to develop more solutions for different needs and extend its product line to accelerate the digital transformation of the healthcare industry.

In the pharmaceutical industry, enterprises are undergoing comprehensive digitalization, said Shu Lian. Despite being a continuous and time-consuming process, digital transformation in the pharmaceutical industry will be significantly driven by the internal and external environment, guided by related policies, and carried out in an organised and stable manner with China Entercom and other partners.

大健康行業成功案例 ┃ 雲網賦能
步長製藥智慧升級的數碼配方

山東步長製藥股份有限公司（簡稱"步長製藥"）成立於2001年，並於2012年完成股份制改制。2016年7月通過證監會發審會IPO審核，於2016年11月18日成功上市。

在20年的發展中，步長製藥構建了清晰的發展戰略，"聚焦大病種、培育大品種"，公司以專利中成藥為核心，致力於中藥現代化，充分發揮了中藥在心腦血管這一"大病、慢病"領域中的重要作用，形成了立足心腦血管市場、覆蓋中成藥傳統優勢領域、聚焦大病種、培育大品種的立體產品格局。

說到醫藥，大家都不陌生，因為醫藥產品與人的生命健康息息相關，而且由於人口基數大，如今我國已成為全球疾病領域用藥方面最大的市場。從高速增長轉向高質量增長，經歷過高速發展階段的醫藥行業如今正在逐步邁向智能化、數碼化。尤其是近幾年，在後疫情時代，隨著國內對科技創新日益重視，配套醫改政策不斷推進，加上疫情等突發公共衛生事件，醫藥企業生存環境已然改變，醫藥行業加速洗牌，迎來格局重塑，醫藥企業對於數碼化產品的認知越加深刻。傳統醫藥企業已經開始邁出數碼化升級的步伐，而已經開始數碼化轉型的醫藥企業正在藉著疫情下社會認知改變、政策推動等有利因素，加速向智能化前進。

為明晰醫藥行業發展與數碼化轉型之間的關係，探究醫藥行業數碼化進度與未來可能性，記者採訪了步長製藥信息化建設與管理中心總經理束煉、中企通信銷售總經理高力衡，以通過不同的視角展示醫藥行業數碼化轉型的實踐與發展。

內外因素共同推動醫藥行業 加速發展數碼化

現代生活中，醫藥行業在保障人們生命安全與幸福生活方面發揮著不可或缺的作用。通過與現代化技術相結合，醫藥行業在醫藥研究、生產銷售等多個環節取得了長足的進步。在數碼大潮下，醫藥行業數碼化進程也在不斷加快，究其原因，主要是政策推動及企業數碼化發展需求增強等內外因素在共同推動。

從外部因素來看，據束煉介紹，國家集採、統談等醫藥政策的推進，對醫藥行業產生了深遠的影響，醫藥改革推動醫藥發展方向變化，使藥企更加注重對藥品開發及研究，同時藥品流通中還需要完善藥品追溯的管理要求，這些均要求企業進行數碼化轉型，且需要越來越旺盛。

從內部因素來看，高力衡指出，在現代市場環境下，數碼化、信息化能夠為企業研發、生產、銷售等帶來便利，能夠增強醫藥企業的競爭力。

在當前具體實踐和能夠預見的未來中，數碼化轉型也為醫藥企業帶來了諸多益處，從企業內部發展需要上推動了數碼化轉型。束煉表示，醫藥行業的數碼化轉型，促進了管理和業務執行效率的提升，這主要表現為5個方面：

一是為管理層決策提供了充分的信息依據，通過數碼化手段，可以幫助管理層獲取多種信息，以此做出更科學合理的決策；

二是有利於企業經營體系的優化，藥企涉及到大量的生產、銷售、倉儲、運輸等工作，信息化能優化企業的管理和執行水平，推進業財一體化的發展；

三是能對營銷管理的提升，企業營銷越來越注重線上和線下的業務結合及相互之間影響和補充，通過數碼化的手段能夠幫助企業了解市場、分析市場、增強企業的銷售能力；

四是能夠降低運營成本，數碼化手段能夠推動企業形成更加便捷的流程，進行更有效的溝通，是提昇運營效率的重要手段；

五是數碼化有助於醫藥改革的實現，例如全流程追溯涉及到多個企業主體之間的協同，是無法依靠人工來完成的，必須採用數碼化的手段來實現。

攜手：創新ICT夥伴助力醫藥企業抓住數碼轉型機遇

在加速數碼化轉型的過程中，合作夥伴的重要性也不言而喻。束煉表示，因為需求的不同，合作夥伴的選擇標準會有一些區別，以步長製藥為例，在選擇合作夥伴時，一是要了解合作方過往服務過的客戶，尤其是在規模和業務上相似的醫藥企業；二是不一定選擇最先進的對象，但一定是最成熟、有經驗、可信賴的才能合作發展。

步長製藥在選擇中企通信時，充分考量了以上標準。中企通信可以為企業提供一站式創新ICT服務，打造"網絡+雲+數據中心+安全+一系列增值服務"可信賴的整合方案，擁有超過21年MPLS網絡服務經驗及超過15年信息安全服務經驗；擁有多重國際國內認證，包括可信雲認證、TL9000、ISO9001、ISO20000、ISO27001、ISO27017等多重標準認證。中企通信能夠滿足步長製藥多方面的需求，能夠提供多種成熟的解決方案，這促成了步長製藥與中企通信的合作，也為步長製藥數碼化轉型提速提供了支撐。數碼化轉型能有效推動醫藥企業的發展，但醫藥企業想要實現轉型卻並非易事，想要抓住這一機遇推動自身生產、業務等方面的發展，還需從多方面入手。

結合步長製藥的實踐，束煉對數碼化轉型的有效路徑進行了總結。他表示，想要進行數碼化轉型，首先，醫藥企業需要積極響應國家政策號召。國家和各地方出台了多項相關政策，以支持、鼓勵企業數碼化發展，如《"十四五"數字經濟發展規劃》，明確了"十四五"時期推動數字經濟發展的藍圖，同時也提出了相應的建議和要求。這一背景下，醫藥企業需借助這股東風，推動自身信息化轉型。

其次，醫藥企業應吸收其他行業、企業的經驗，以找到數碼化的切入點和改革點。同時，企業要謹記數碼化、信息化並非一朝一夕可以完成，是長期進行的。在這一過程中，企業需考慮成本問題，要平穩進行投資，逐步實現數碼化發展。

尤其值得注意的是，醫藥企業數碼化轉型的關鍵在於管理層。如同學習曲線一樣，企業在轉型時會有較長的痛苦期，有諸多變化影響因素，且影響的是全局。因此，不論技術和方案有多完善，都需企業從上往下推動，這就要求企業管理層堅定決心，並有全盤規劃。

升級：醫藥數碼化上雲趨勢明顯，網絡建設備受重視

在進行數碼化發展過程中，基於發展需要，醫藥行業對業務、生產等上雲需求增多，並且對安全、穩定的網絡環境越發重視。

在上雲方面，束煉指出，雲端具備快速部署、運營成本穩定等優勢，能夠較好地應對大量用戶請求，如全流程追溯、銷售服務等，這推動醫藥行業上下游業務更早進行上雲，並且業務上雲已經成為趨勢。

高力衡從雲端服務的角度進一步指出，醫藥企業從研發到生產線，所傳輸的數據，屬於高度重要、機密的信息，在選擇上雲時需要私有雲，但生產及銷售環節，混合雲與私有雲則均有涉及。

作為服務方，中企通信對此有著充分的認知，具備提供公有雲、私有雲、混合雲和容災備份的能力，能夠提供相應方案，是中國大陸VMware vCLOUD POWERED/vCan計劃的雲端運算服務提供商，並通過POC測試，而且配備國際標準與認證，提供一體化服務，確保產品效用售前、售後一致。中企通信還能夠依據經驗，在不同環節，提供差異化且符合醫藥企業成本預期的雲端服務。

除此之外，伴隨數碼化轉型進程的不斷加深，醫藥企業對網絡建設越發重視。醫藥企業屬於製造型行業，在生產層面需要眾多工廠協同，而工廠多分佈於多個區域，銷售層面同樣是遍佈各地，這就要求醫藥企業具備有效、安全、強大的網絡環境。同時，藥企作為藥品流通中的一環，在全流程追溯時也需要基於良好的網絡建設。

束煉表示，目前，醫藥企業對此已有較為清晰的認知，從機房部署，到內網環境優化，再到廣域網構建，都展開了多項實踐，以保障網絡傳輸順暢。基於此，醫藥企業對合作夥伴提出了要求，一方面是能夠提供成熟穩健的可持續服務，另一方面要有足夠的建設經驗，來幫助企業落地，並最大限度地降低使用成本，以滿足醫藥企業當前數碼化發展需求乃至於未來海外業務的發展。

也正是基於以上考慮，步長製藥正與中企通信展開逐步深入的合作。中企通信協同母公司中信國際電訊CPC及合作夥伴，網絡覆蓋約160個國家及地區，超過160個服務據點，60+個SD-WAN服務網關，能為醫藥企業提供安全、穩定、流暢的網絡傳輸環境，為海外業務的發展提供保障。這加快了步長製藥與中企通信的合作步伐，雙方合作從2021年開始，通過中企通信的智能化SD-WAN幫助其內部十餘個關鍵分支節點能夠高速連接。

中企通信助力步長製藥數碼化轉型

對於未來發展，高力衡指出，中醫藥企業的數碼化轉型是一個相對長期的過程，目前更多的是進行定期溝通、定期交流，以此來不斷推動數碼化發展。憑藉此，中企通信也在逐步了解、深度觀察大健康行業，以通過不同的方案來滿足更多需求，並以此來延伸產品線佈局，推動大健康行業的數碼化轉型。

束煉則表示，醫藥行業數碼化處於全面建設階段。在持續及長久的轉型發展過程中，內外因素環境推動下，醫藥行業數碼化轉型發展將全面加速，並將遵循相關政策指引，在中企通信等合作夥伴的支持下，更加有序、穩定地展開。

Energy
能源

Zijin Mining

紫金礦業

Zijin Mining

Success Case in Mining Industry
Leading the Digital Transformation: Non-ferrous Metal Enterprise Embarks on the DX Journey

Digital Transformation Success Stories

Zijin Mining

Unlike steel and coal enterprises, it is more challenging to realize digital transformation in the non-ferrous metal industry, due to discrete and complex operation, obstacles in data acquisition, feeble infrastructure and so on.

Zijin Mining has leveraged advanced technologies including 5G, Internet of Things (IoT), Artificial Intelligence (AI), cloud computing, big data and digital twin to actively pursue digital transformation these years, and it has established two technology companies, namely Zijin Zhixin and Zijin Zhikong, to provide self-sufficient service for its own digital transformation. By doing so, the enterprise expects to break through technical barriers and advance the core technologies for digital transformation through a series of remarkable cases. Meanwhile, they hope to forge "Smart Mines" and "Smart Factories" to empower the non-ferrous metal industry and become its pioneer of digital transformation.

Dong Wensheng
Director of Information
Zijin Mining Group

Challenges of DX in Non-ferrous Metal Industry: Tech, Mindset & Investment

Zijin Mining Group Co., Limited is a large multinational mining company specializing in exploration and exploitation of gold, copper and other mineral resources, as well as research on application of engineering technology. In an interview with D1Net, Mr. Dong Wensheng, Director of Information, Zijin Mining Group, stated that the non-ferrous metal industry is facing challenges, in terms of technology and mindset based on his decades of experience in dealing with informatization and digital transformation within this industry and the steel one.

Firstly, the industry has been facing technical challenges in data acquisition

The source of non-ferrous mineral resources is mostly uncertain. Dong indicated that it is the core of this industry, while most of the resources are sparsely distributed underground. The existing geological exploration techniques generally follow a certain density of exploration grid for drilling, then core (rock flour) sampling and laboratory tests, and lastly, building up a geological model instruct the subsequent mining layout and exploration. That being said, extracting resources for mineral mining is more or less data sampling and we cannot be 100% sure about the distribution and the grades of ores. Therefore, the accuracy of data and models are imprecise which makes digital transformation challenging.

Moreover, the data cannot be obtained in real time when mining is ongoing. Many traditional mining equipment does not support connection to network and data transfer, resulting in the absence of data and more manual workload.

The other issue is the inaccuracy of data in the process of ore dressing. The content of metal elements such as gold and copper in non-ferrous mines is very low, ranging from a few percent to a few thousandths. Thus, the industry encounters another challenge in obtaining accurate data about ore grades in real time, which is critical for organising the subsequent classification process.

Aside from the technical challenges, mindset of digitalization and willingness to invest also pose challenges.

The mindset of mining workers is relatively conservative owing to the remotely-located non-ferrous mines and poor technical support and infrastructure, so it takes effort to promote refined management and encourage investments. While the IT investment of the steel industry is 1-1.5% of sales revenue, it is only 1-2‰ for the non-ferrous industry, with tremendous room for improvement.

Zijin Mining: DX Goals & Three-step Strategy

In response to the above challenges, Zijin Mining attaches great importance to informatization and digitalization — an informatization development committee was set up in 2018 and the "Five-Year Informatization Development Plan of Zijin Mining" was approved, proposing to focus on the operation process of the company and the construction of a modern information system.

In 2021, Zijin Mining published the "Outline of the Five-Year (2+3) Plan and 2030 Development Objective," aiming at building an advanced management system for global operation and becoming a green, high-tech, first-class international mining group. The outline highlighted that the enterprise will holistically enhance its system and technologies, as well as engineering research, design and execution capabilities. It helps to exploit more competitive advantages with better technologies, quickly result in breakthroughs of mining technologies and engineering, promote the application of "integrating five ore treatment processes into one" management model, construct global information system and realize digitalization and platformization in operation and management.

Dong stated that the digital transformation of Zijin Mining is clearly based on a three-step strategy.

Step 1 Informatization. Transform core businesses operations to fully online and establish channels for data acquisition. Set up platforms for global operation to ensure interconnection of various systems and operations inside and outside of the country. Internationalize the information system to support management reform.

Step 2 Digitalization. Aggregate data to realize the fusion of operation and finance and support comprehensive budget. Complete and continue optimizing information systems and basically establish systems for data processing and operation. Combine intelligence into data application and realize international informatized systems. Drive management reform with operation innovation.

Step 3 Digital-intelligent transformation. Leverage AI, big data and more technologies for intelligent analysis with accumulated data to carry out risk prediction of operations, achieve the goal of comprehensive budget and intelligent decision-making. Realize efficient, advanced information processing and optimized operation systems. Embed the system with a high degree of intelligence. Offer high-quality, industry-leading services and solutions through our information products and public service platforms.

Digitalization in Non-ferrous Metal Industry:
Empowering from Exploration, Exploitation to Utilization

After years of efforts, Zijin Mining has now applied digital technologies to all aspects of mining resources, from exploration, exploitation to utilization, so as to enhance overall productivity.

"There are five processes in exploiting to utilizing non-ferrous metal resources: **geological exploration, survey, mining, dressing and smelting.** All these stages involve various technologies, say, to assign production tasks and collect production data based on mobile Internet, to empower the mining transportation chain using remote control and unmanned driving, to increase efficiency of grade inspection with online grade analyzer, to improve the control of ore dressing via image recognition, to enhance the intelligence on ore dressing with professional systems, to realize automated smelting by digitalization and so on," said Dong.

Geological exploration utilizes physical and chemical techniques to identify whether the mineral resources reach the available grades and their distribution. Through orchestrating the data of punching locations, density and ore-related characteristics with digital technologies for exploration and sampling, we can combine the laboratory data with the location data to create a three-dimensional geological model via modelling-enabled digitalized technologies.

Survey refers to measuring and investigating various shot holes and the amount of work on digging during mining. This section is closely associated with geological exploration and mining.

Mining can be broken into perforation, explosion, mucking, transportation, dumping and so forth when we look into strip mining. Zijin Mining has realized digital orchestration of mining plans empowered by digitalization. This enables the enterprise to notify workers of the assigned daily tasks through the allocation system supported by mobile technology, so that they can work in an organized manner on sites and facilitate mobilized data reporting and collecting.

Dressing involves ore shattering, screening, milling, grading, roughing, cleaning, scavenging and dewatering, etc. Zijin Mining leverages automated devices such as belt conveyor scales and laser scanning systems to increase the accuracy and efficiency of collecting milling data and ore output information; integrated with online grade analyzers, X-ray fluorescence analyzers and laboratory tests, the efficiency of examining the pulp grade can be enhanced and it makes up for the lower productivity of laboratory testing; dressing control systems that are fused with AI technology enables image recognition of foams. By intelligently analyzing the size, movement speed and existing time of foams and automatically adjusting the charge and air blowing, on-site dressing can be more efficient.

Smelting is a relatively seamless process involved with a high degree of automation. Among the industry, the output management of smelting of Zijin Mining is allegedly at the forefront, which can manage and automatically control every sub-section including smelting, electrolysis and acid production with their output management and automated control systems, significantly increase the productivity. As for transportation, charging and lifting anode plates that involves manual efforts, we have worked on introducing remote control of vehicles and strengthening digitalization, so as to improve the safety and efficiency of smelting.

Explore the Intelligent Mines: Safer & Smarter Production

Constructing intelligent mines is the road ahead for the mining industry. **Leveraging 5G, visual recognition, IoT, unmanned driving, smart devices, digital twin and other technologies,** Zijin Mining embarked on exploring the intelligent mine field, primarily concerning on-site devices and production management systems.

When you are in the mine site, truck dispatching systems and other smart devices enable automated and intelligentized mining process; under the shaft, manual tasks can be replaced by unmanned electric vehicles; in the open pit, smarter and safer production can be realized with unmanned driving or remote control of vehicles. As for dressing, intelligent dressing systems can strengthen its on-site automation.

"We are applying the HarmonyOS to the mining devices to intelligentize them. During mining, these devices enable real-time data transfer and thus analysis of the on-site operating situation. Instead of carrying inspection by workers under shafts, mobilized robots help to check the sources of danger for further on-site safety," continued Dong.

In terms of safety, Zijin Mining built a database of the risks and countermeasures of all aspects they collected, as well as an application on for their staff to study and enhance the awareness. The enterprise leverages image recognition technology and sensors for detection and warning, promptly discovering safety concerns such as workers with no helmet on. With slope detection and micro-seismic systems based on IoT and AI, it allows automated monitoring on the changes and tendencies of the terrain and landscape to pre-warn the site and upgrade its safety.

Regarding the production, the enterprise constructed a smart, dynamic platform that realizes the fusion of operation and finance for connecting all processes together and enabling automatic data transmission, enhancing the decision-making of the enterprise in view of production and operation. Zijin Mining also stretched to the recently prevalent digital twin technology. "It is best applied to scenarios where are not easily visible or directly measurable. In the mining industry, it is crucial to have sufficient data for building a geological model. When we combine digital twin technology with a geological 3D model and we overlay the data we obtain into it, it enables analysis of the mining progress and strengthens the prediction capability through comparison," added Dong. Zijin Mining is still working on this typical scenario.

By conducting digital twin modelling of the high-temperature, high-pressure bottom-blowing furnace, side-blowing furnace and anode furnace, as well as collecting real-time data with various sensors, Zijin Mining is able to predict the completion time of smelting after integrating the twin models to derive the reaction in the furnaces. Staff in the control center can immediately get hold of its situation in order to instruct the production process, thereby enhancing the efficiency.

Zijin Ark Platform:
Promote Independent Development of Industrial Software

"Zijin Ark Platform, built on industrial Internet, was the key to standardization, platformization and informatization when we were performing digital transformation," highlighted Dong throughout the interview with D1Net.

He continued, "We have been introducing different software over the years to improve the system. While they are developed on various platforms, it is challenging to achieve uniformity when we need to upgrade or modify them. The islanding effect between multiple systems is apparent as well." These problems are indeed common in the industry.

To overcome this dilemma, the enterprise has developed the Zijin Ark Platform since 2020 for developing industrial software independently. Adopting the currently popular IaaS+PaaS+SaaS framework, the platform offers service to the outside through the data center. The IaaS layer realizes data acquisition at the edge; PaaS is where the unified data center locates, offering data services and standardized development tools; as for SaaS, it involves production, management and other services.

Zijin Mining developed software and applications on its platform, ranging from production, procurement, sales and so on; for instance, their production management system for mines also supports the SRM system for procurement, CPS system, device management system and warehousing management system and safety control system for on-site industrial data collection.

> According to Dong, the fundamental function of Zijin Ark Platform is to facilitate data access among systems. Developers who use the same platform possess the same developing capability play a key role in standardizing, platformizing and informatizing Zijin Mining's construction, as they are able to apply the same capability in quickly developing other application systems as long as their business awareness is enhanced.

Beside supporting a single mine, the platform is also capable of backing the whole enterprise's management, and realizes the interconnectivity of data based on unified industrial Internet platform. At present, it is still improving in hope of supporting production, operation and ecosystem and empowering the industry.

Digitalization:
To Build a Global Operation and Management System

Zijin Mining has gone on a fast track to globalization since 2021 for becoming a world-class metal mining company. In view of developing the global operation management system, with their systems covering both domestic and overseas mines, Zijin Mining integrated the management of people, finance and assets into the SAP-based ERP system, so as to efficiently and timely control the production and finance of all mines. They also carried out transformations of automation and intelligentization in the production sites for better productivity and efficiency.

The mines under Zijin Mining span across the world, including Serbia (Europe), Columbia (South America) and Congo (Africa). Many of them are located in relatively less developed countries and regions, therefore their network capability of the IT infrastructure that restricts the digitalization of local mines is one of the constraints. Meanwhile, **by integrating private network and SD-WAN, Zijin Mining guarantees a smooth network experience for global operations.** Regarding the transmission of core data, private network can make it quicker; while SD-WAN comes in handy when the network is poor as it can divert part of the traffic of video conferencing and large file transmission.

Dong commented on the choice of network providers, "Our partners are very diverse, we cooperate with the three major carriers in China, while in overseas, we look thoroughly into the network condition and the overall cost of the local providers." **China Entercom, a partner of Zijin Mining, is a subsidiary of CITIC Telecom CPC whose services cover the Belt and Road and RCEP's member states with network coverage of over 160 countries. Their services met the needs of Zijin Mining: fast activation, flexibility, scalability; and they advanced the globalization progress that fast network access was established for branches in Russia, Serbia, Columbia and Australia.**

"We solve the problems on our own as much as possible to reduce costs, and those that cannot be solved internally, Zijin Mining acquires some of the resources through the group, such as private network and SD-WAN, for lower operational costs," said Dong.

Meanwhile, Zijin Mining appointed China Entercom, to develop the data PoP in Hong Kong based on the virtualization technologies of VMware (including VMware vCenter Server, vSphere + Virtual SAN and vSAN network connectivity). This operation-oriented solution provides proper software and hardware resources allocation, automatic control, co-working environment, as well as rapid deployment for operations with availability up to 99.99% and designed with an effective disaster recovery. Integrated with the existing base-level IT platform, the solution enables efficient cloud computing, backing Zijin Mining's operations in Hong Kong.

"Cooperating with various excellent suppliers helps us to develop the group-level comprehensive budgetary management system, acquiring real-time data of production and costs from all the mines. It facilitates our budget control and realizes the system with cross-departmental and multi-party collaboration," mentioned Dong.

Accelerating Digital Transformation
is key to the future of Non-ferrous Industry

As a long-term project, digital transformation will not be accomplished overnight. Zijin Mining established two technology companies in 2021, Zijin Zhixin and Zijin Zhikong, to enhance the digital capabilities for operations and services. The former focuses on developing the core systems for intelligentization, whereas the latter deals with automation and intelligence, for instance, researching on smart devices and building control systems.

"The reason why Zijin Mining set up these two enterprises is to fuse the latest technology with operation, provide sustainable, efficient and consistent services for its digital transformation journey, and improve the quality and efficiency of operations with its ever-growing capabilities," explained Dong.

Going ahead, Zijin Mining is committed to reinforcing the awareness of digital transformation at all levels, as well as accelerating its research and development in various areas to address the challenges in this industry. As the leading enterprise of the non-ferrous industry, Zijin Mining is working hard on accomplishing its digital transformation. Once Zijin Mining achieves through digital transformation, Zijin Zhixin and Zijin Zhikong will take advantage of the fruitful experience to guide the whole industry to embark on their own digital transformation journey.

TRUE	TRUST	SMART	DATA
CONNECT	CSI	CLOUD	HOUSE
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紫金礦業

｜ 紫金礦業信息總監董文生：
探索數字化實踐路徑引領有色礦業數字化轉型

數字化轉型系列之

紫金礦業

對比鋼鐵、煤炭等行業，有色礦業數字化因業務流程離散複雜、數據獲取困難、基礎設施薄弱等眾多等不利因素，實現數字化轉型的難度更大。

近年來，紫金礦業運用5G、物聯網、人工智能、雲計算、大數據、數字孿生等新一代信息技術，積極探索數字化轉型的實踐路徑，並成立紫金智信和紫金智控兩家科技公司，為紫金礦業的數字化轉型提供自主服務能力，同時期望通過一系列優秀實踐案例，突破技術壁壘和數字化轉型核心技術，打造"智慧礦山"、"智能工廠"，為行業賦能，成為有色礦業數字化轉型的引領者。

紫金礦業
集團信息總監
董文生

紫金礦業集團股份有限公司是一家以金銅等金屬礦產資源勘查、開發及工程技術應用研究為主的大型跨國礦業集團。紫金礦業集團信息總監董文生在接受企業網D1Net採訪時表示：從他多年從事鋼鐵行業和有色礦業信息化、數字化轉型的實踐經驗來看，有色礦業領域的數字化面臨技術和意識兩個方面的挑戰。

首先，在技術方面，存在數據獲取困難方面的挑戰。

一是有色礦產資源數據源的不確定性較高。董文生提到：有色礦業的核心是資源，大部分稀疏分佈在地下，現有的地質勘探技術一般按照一定的勘探網度進行鑽孔，然後進行岩心(岩粉)取樣、化驗，建立地質模型指導後續的採礦設計、生產。因此礦產資源取樣數據相當於抽樣數據，不能100%確定礦石品位分佈情況。在這個過程中，數據的準確性和模型的準確性都存在較大不確定性，這是有色礦業數字化的一大挑戰。

二是採掘生產過程數據無法實時獲取。在採礦生產過程中，很多採掘設備本身是傳統機械裝備，無法進行上網通信以及數據傳輸，導致採掘數據缺失或者必須人工填報。

三是選礦生產過程數據不夠精確，有色礦山金、銅等金屬元素的含量很低，在百分之幾至千分之幾之間，如何實時獲取礦石品位的精確數據，從而組織後續的選別工作，是一大難題。

其次，在數字化轉型意識方面，存在人員數字化意識和資源投入意願方面的挑戰。

由於有色礦山普遍分佈在偏遠地區，員工的數字化意識較保守，同時技術支撐及基礎設施較差，因此在有色礦業領域，精細化管理理念以及資源投入意願等方面都面臨一定挑戰。相對於鋼鐵行業信息化投入在銷售收入的1%~1.5%，有色礦業目前大致只有1‰~2‰，有很大提升空間。

紫金礦業數字化轉型目標及三步走戰略

針對上述挑戰，紫金礦業高度重視信息化、數字化建設，在2018年成立信息化工作委員會，並審議通過了《紫金礦業五年信息化工作發展規劃》，提出將以服務集團公司生產經營為重點，著力構建紫金礦業集團現代化信息系統。

2021年，紫金礦業對外發布《關於五年(2+3)規劃和2030年發展目標綱要》，提出了建成先進的全球運營管理體系，建設綠色高技術超一流國際礦業集團的目標。《綱要》中強調：紫金礦業將全面提升自主系統技術和工程研究、設計和實施能力，強化行業技術競爭優勢，加快採礦技術與工程突破，全面推廣應用"礦石流五環歸一"礦業工程管理模式，構建全球化信息系統，實現所有生產經營與管理活動數字化和平台化。

董文生表示：紫金礦業的數字化轉型明確為三步走的目標戰略。

第一步 數據化，實現核心業務的全面線上運轉，全面建立數據採集通道；建立適應國際化運營的數據平台，確保不同業務系統之間及境內外數據互聯互通；信息化系統開始支持國際化，支撐管理變革。

第二步 數字化，數據全面匯聚，實現業財一體，支持全面預算；信息系統全面建成並持續優化，基本建成數據治理和運營體系；對數據開始智能化應用，信息化系統全面實現國際化；以業務創新為引領，帶動管理變革。

第三步 數智化，通過數據積累，運用人工智能、大數據等技術進行智能分析，實現集團運營的風險預測，支撐集團的全面預算等戰略目標，達到智慧決策水平。實現高效先進的數據治理和運營體係並持續優化；業務系統具備高度智能化能力；信息產品及公共服務平台可為行業提供優質領先服務和解決方案。

數字化為有色礦產資源 從勘探、開發到利用的各環節賦能

經過多年建設，如今紫金礦業已將數字化技術應用於礦產資源從勘探、開發到利用的各個環節，全面提升生產效率。

"有色礦產資源從開發到利用包括'地、測、採、選、冶'五大環節，在整個過程中涉及各種技術，包括基於移動互聯網的生產任務下發和生產實績收集，通過遠程遙控和無人駕駛為採礦運輸環節賦能，通過在線品位分析儀提升品位檢測效率，通過圖像識別提高選礦控制效果，通過磨、浮專家系統提升選礦整體智能控制能力，通過數字化賦能實現冶煉環節的自動化等等。"董文生如是說。

"地"指地質勘探，通過物探、化探等數字化的勘探技術確認礦產資源是否達到可利用級別以及具體分佈情況。在勘探和取樣環節，通過數字化技術編排打孔位置、密度以及礦石相關特性等數據，在得到礦石的化驗數據後，將其與位置信息相結合，通過數字化支撐地質建模，形成三維地質模型。

"測"是測量，指開採的過程中，進行各個砲孔位置、採掘(剝)工程量測定工作。測量環節與地質、採礦環節緊密結合。

"採"指採礦環節。以露天採礦為例，分為穿孔、爆破、鏟裝、運輸和排土等環節。通過數字化賦能，紫金礦業實現了生產計劃的數字化編排，基於移動互聯技術的任務調度系統，將每日的生產任務下發至工作人員的手機，安排相關作業任務，使員工到場後能夠井然有序的安排工作，實現了移動化的採礦數據填報和數據收集。

"選"是選礦工序，主要包括礦石破碎、篩分、磨礦、分級、粗選、精選、掃選、濃縮脫水等諸多子環節。紫金礦業通過皮帶秤、激光掃描系統等各類自動化裝備，提升入磨數據、精礦產出數據的採集及精準度；通過在線品位分析儀、X熒光分析儀與實驗室化驗相結合的方式，提升礦漿品位檢測效率，補齊了實驗室化驗效率較低的短板；此外，基於人工智能的選礦控制系統，能夠對泡沫進行圖像識別，通過分析泡沫大小、移動速度和生存時間，自動控制加藥量和吹氣量，提高現場選礦效率。

"冶"是冶煉，由於冶煉環節是一個相對連續的過程，因此自動化程度較高。據悉，紫金礦業對冶煉環節的生產管理處於業界領先水平，基於生產管理系統和自動控制系統，可對熔煉、電解、制酸等環節以及各個子環節進行生產管理及自動控制，提升各環節的生產效率。對於需要人工參與的運輸、裝料以及吊裝陽極板等環節，通過開展行車遠程遙控等實踐，加強數字化賦能，逐步提升冶煉環節的生產安全水平以及生產效率。

探索智慧礦山　實現安全生產、智能生產

智慧礦山是礦業未來的發展方向，紫金礦業充分**運用5G、視覺識別、物聯網、無人駕駛、智能裝備、數字孿生等技術在智慧礦山領域進行了一系列探索，**主要涉及現場設備和生產管理系統兩方面實踐。

例如在礦山現場，採礦環節通過卡車調度系統以及一系列智能裝備，實現現場運輸的自動化、智能化；在井下，通過無人電機車替代人工作業；在露天，通過無人駕駛或遠程遙控，實現智能生產，提升安全生產水平。選礦環節，通過智能選礦專家控制系統，加強現場選礦的自動化控制能力。

"我們正在探討把鴻蒙操作系統應用到採礦裝備上去，使其變成智能裝備，在採礦過程中，通過智能裝備實現數據的實時回傳，然後利用這些數據分析現場的運行情況。此外，通過移動機器人可替代人工進行井下巡檢，查看井下的危險源，能夠進一步提升現場的安全管控。"董文生如是說。

圍繞安全領域，紫金礦業通過收集採礦行業各個環節的危險因素以及應對策略，形成知識庫平台，開發了關於安全的"應知應會"APP應用，讓員工不斷學習，時刻強化安全意識；通過圖像識別技術和傳感器檢測，能夠及時發現安全隱患，例如針對不帶安全帽的情況，及時進行預警；此外，基於物聯網和人工智能技術的邊坡檢測和微震系統等，可自動檢測地形地貌的變化和傾向，通過預測預警提升現場的安全水平。

基於生產層面建設了業財一體化的智能動態管控平台，將生產各環節、全流程打通，使數據能夠自動流轉，支撐整個礦山的生產運營管理決策。對於近兩年火熱的數字孿生技術，紫金礦業也展開了相關實踐。董文生提到："數字孿生最適合不容易看見，也無法直接測量的應用場景。對於採礦業而言，構建地質模型需要一定的數據進行模型仿真，如果將地質三維模型與數字孿生相結合，在實際採礦的過程中，將不斷獲得的數據向模型中疊加，可以分析採礦進展，與預測比對是否一致，從而提升預測能力。"對於這一典型應用場景，紫金礦業正在探索的過程中。

而在冶煉環節，紫金礦業對高溫高壓的底吹爐、側吹爐、陽極爐等進行數字孿生建模，通過各類傳感器實時採集外圍數據，結合孿生模型來推導爐內的反應情況，預測整爐冶煉的完成時間，工作人員在中控室內即可了解冶煉爐內的實際情況，從而控制和指導生產過程，提高生產效率。

打造紫金方舟平台　支撐工業軟件自主開發

在採訪過程中，董文生向企業網D1Net強調："在紫金礦業數字化轉型的過程中，基於工業互聯網技術的紫金方舟平台，對紫金信息化建設的標準化、平台化和數據化，發揮了非常關鍵的作用。"

他提到："多年以來，我們不停地引進各類軟件，進行系統建設。由於不同的供應商基於不同平台進行開發，導致項目驗收後，當業務需要對其進行升級改造時，很難實現統一。此外，各個系統之間的孤島效應也非常明顯。"實際上，紫金礦業遇到的問題，在業界也普遍存在。

為了破解這一困境，2020年起，紫金礦業自主打造了紫金方舟平台，支撐工業軟件的自主研發。紫金方舟平台採用當前比較流行的IaaS+PaaS+SaaS的架構，並通過數據中台向外提供數據服務。IaaS層實現邊緣端的數據採集以及邊緣控制；在PaaS層有統一的數據中心，向外提供數據服務和標準的開發工具；而SaaS層提供包括生產、管理在內的一系列服務。

紫金礦業基於方舟平台自主開發的軟件應用，覆蓋生產、採購、銷售等諸多環節，例如礦山的生產管理系統，支持集團採購的SRM系統、CPS系統、設備管理系統、倉儲管理系統，以及針對生產現場工業數據採集的安全管控系統等等。

> 董文生表示：紫金方舟平台使各系統之間的數據獲取更加便捷，這是最關鍵的基礎能力；此外，使用統一平台的開發人員具備統一的開發能力，在開發不同的應用系統時能力可複用，只要提升開發人員的業務認知水平，即可快速開發新的軟件平台，這對紫金信息化建設的標準化、平台化、數據化，發揮了非常關鍵的作用。

紫金方舟平台既能支撐紫金礦業對單個礦山的管理，亦可支撐集團層面的管理，實現了基於統一工業互聯網平台的數據互聯互通。目前，該平台的功能還在不斷完善的過程中，其目標是成為能夠支撐生產、運營與生態的工業互聯網平台，進而向行業賦能。

運用數字化手段 構建全球化的運營管理體系

自2021年起，紫金礦業的國際化發展進入快車道，目標是成為世界一流的金屬礦業公司。在全球化運營管理體系的建設方面，紫金礦業通過對國內外礦山的系統覆蓋，將人財物管理統一納入基於SAP的ERP系統中，從而及時對各大礦山的生產經營指標和財務指標進行有效地運營管控。此外，通過對生產現場進行一系列自動化、智能化改造，提升各礦山的生產和運營效率。

目前，紫金礦業的礦山遍布全球，例如位於歐洲的塞爾維亞、南美洲的哥倫比亞以及非洲的剛果金，有很多是在相對落後的國家和地區，而基礎設施網絡能力是制約當地礦山數字化發展的一大瓶頸。為此，**紫金礦業通過專線+SD-WAN的方式，保障全球業務的網絡體驗。**其中，專線用於保障核心數據的快速傳遞；而在一些網絡不太好的情況下，SD-WAN通過互聯網能夠中轉一部分流量，例如視頻會議系統，以及大文件的傳輸等等。

對於網絡供應商的選擇，董文生提到："我們合作的供應商是多方面的，國內以三大運營商為主，而在海外，會對服務提供商在當地的網絡情況與總體成本相結合，進行綜合考慮。"**以紫金礦業合作的中企通信為例，其聯合母公司中信國際電訊CPC，服務覆蓋"一帶一路"沿線和RCEP成員國，網絡覆蓋超160個國家，滿足紫金礦業快速開通、靈活擴展的需求，同時也可助力紫金礦業的全球化發展戰略，為紫金礦業在俄羅斯、塞爾維亞、哥倫比亞和澳大利亞的國際分支與中國總部建立快捷的網絡通道。**

"為了降低成本，能自身解決的問題我們會通過內部解決，不能內部解決的，紫金礦業通過集團層面集採一部分資源，例如專線、SD-WAN等等，通過集團採購降低運營成本。"董文生如是說。

此外，紫金礦業選擇中企通信合作建設了香港數據節點，該方案以VMware虛擬化技術為基礎(使用服務包括VMware 的vCenter Server，vSphere + Virtual SAN和vSAN網絡連接)、以運營服務為導向，實現基礎軟、硬件設施資源合理調度、自動管控、共享使用和業務快速部署，服務可用性高達99.99%，並備有真正的災難恢復設計，同時可與紫金礦業現有的基礎IT平台整合，實現高效能的雲計算方案，為紫金礦業香港公司業務提供支撐。

董文生說：「我們通過和各優秀供應商合作，建立起集團層面的全面預算管理系統，期望藉助大數據能力，從各個礦山實時獲取生產、成本等運營數據，支撐集團的預算控制，實現跨部門協同、多方聯動的全面預算運營管理體系。」

面向未來　引領礦業數字化轉型

數字化轉型是一個長期過程，不會一蹴而就。為了打造持續運營與服務的數字化能力，紫金礦業在2021年先後成立紫金智信和紫金智控兩家科技公司。其中，紫金智信負責信息化層面核心系統的建設以及基礎設施建設和運維工作，紫金智控負責自動化和智能化層面，包括智能裝備的研發以及控制系統的建設工作等等。

董文生透露：「紫金礦業成立這兩家科技公司的初衷，是希望通過自主能力的不斷成長，能夠將業界最新的技術與業務相結合，持續、高效地為紫金的數字化轉型提供標準化的服務能力，為業務的提質增效賦能。」

未來，紫金礦業將繼續從上到下強化全員的數字化轉型意識，通過加大投入，加快在數字化轉型各領域的研發，破解有色礦業數字化方面的各種挑戰。當紫金礦業的數字化轉型取得成效時，作為有色金屬行業的頭部企業，紫金智信與紫金智控兩家公司利用紫金礦業的最佳實踐為行業賦能，引領有色礦業數字化轉型。

TRUE CONNECT
專用網絡方案

TRUST CSI
信息安全管理服務

SMART CLOUD
雲端運算方案

DATA HOUSE
雲數據中心

服務在地　連接全球的數智通訊服務伙伴

ICT
信息技術

SYNTAX

信泰宜合

SYNTAX

Syntax Unravels Challenges with an Innovative One-stop Solutions

Digital Transformation Success Stories

SYNTAX

An increasing number of enterprises is taking advantage of IT technologies to optimize their products and services, considering its rapid development and prevalence of mobile connectivity. It brings tremendous benefits to business efficiency, process streamlining and digital transformation. **Syntax, a global IT service provider, has chosen the professional services offered by China Entercom, in conjunction with VMware. By enhancing its service competence and leveraging the power of technology, Syntax is capable to realize innovative one-stop IT solutions for its customers to accelerate their business development and digital transformation.**

Business Challenge

Rapid Business Growth Requires Continuous Service Enhancements

As an integrated cloud service provider, Syntax offers managed services for critical IT systems with high standard SLAs. With the growing demand of conducting operations across regions, its customers place higher requirements on IT services' availability and quality. It was hardly possible for Syntax to meet their demands with its existing solutions.

To overcome this challenge, Syntax is looking for a professional partner to support its enhancement and expansion of IT services, helping its customers actualize digitalization and manipulate a large amount of business data to serve business development and innovation enablement.

Solution

A Cloud Platform Based on Virtualization

As early as 2011, China Entercom had established a partnership with Syntax and VMware. We helped the company to transition from standalone system to a virtual infrastructure realized by VMware. Built upon the VMware Cloud Provider Program (VCPP), **SmartCLOUD™ platform was enabled with secure connections powered by China Entercom's CeOne-CONNECT MPLS private network service.**

In 2018, Syntax entered into a strategic ecosystem partnership with China Entercom and VMware, broadening the scope of technical collaboration to virtualization, data centers and networks to create one-stop solutions based on digital technologies and platforms. The partnership also extended to commercial, marketing and branding sectors.

In response to new challenges, Syntax continues the partnership because all parties share the same pursuit of technology and vision — "Innovation Never Stops", while the services and solutions are compatible and complementary. In this partnership, Syntax specializes in application management and cloud services; VMware offers the core technology for building the virtualization platform; **With global coverage of its parent company, CITIC Telecom CPC and its international partners, China Entercom provides high-quality network, cloud computing and data center resources to realize upgraded infrastructure.** The solution created by the joint effort is well suited to Syntax customers' complex requirements of cloud services, and their demands for business development.

With the joint support of China Entercom and VMware, **Syntax now provides customized and intelligent IT solutions for improving its customers' infrastructure that encompasses MPLS network, IDC, virtualization and application management.** It is believed that the cost-effective services with advanced technologies can meet the market needs of operation and maintenance, disaster recovery, as well as an IT environment that works well with private, public and hybrid clouds.

Achievements

01 Reduce Total Cost of Ownership (TCO)

Deploying excessive IT application systems is common among enterprises, but it may cause wastage if each is deployed on a single server. Leveraging the virtualization technology offered by China Entercom and VMware, it empowers the virtualization of a single server into multiple ones for several application systems. This greatly reduces the total cost of ownership of enterprise IT infrastructure while ensuring isolation between applications and security.

02 Enhance the Availability of IT systems

Recovering has always been challenging for both end-users and IT service providers. Yet, Syntax can move an IT application system between different physical servers with the help of virtualization technology provided by China Entercom and VMware, raising the availability of enterprises IT systems.

03 Improve IT Service Performance and Customer Service

Ever since Syntax has introduced the one-stop innovative IT solution, its service performance has increased from 99.3% to more than 99.8%; the guaranteed time for recovery across regions and data centers has shortened from 8 hours to no more than 4 hours, or even shorter according to customer needs. With the global resources of China Entercom's parent company CITIC Telecom CPC and the technology of VMware, Syntax further innovated and extended their services to provide its customers with 7x24 seamless and worldwide services, and to promptly respond to urgent requests and rapid service provision.

Envisioning Tomorrow

Syntax, China Entercom and VMware share many other commonalities as long-term partners: all are international corporations that offer standardized products and IT services in local languages, and target at enterprises with global business. This partnership will not only continue in other areas, but also make more digital transformation journeys possible and empower fruitful development.

Customer Review

"The partnership with China Entercom and VMware has revealed the most effective way of resources allocation. We hope to collaborate more with VMware in the future, together creating technology-driven solutions that bring long-term values to enterprises and actualize digital transformation. "

Dr. Haihong Xin, CEO of Syntax Asia

信泰宜合(SYNTAX)

信息技術行業案例｜**中企通信聯合VMware助力信泰宜合(Syntax) 建設企業專用一站式創新IT解決方案**

數字化轉型系列之

信泰宜合

伴隨著IT科技的高速發展，以及移動互聯的快速普及，越來越多的企業開始借助IT技術來為客戶提供更好的產品與服務，這對企業效率的提升、流程優化以及企業的數字化轉型具有巨大的效益。作為業務遍布全球的IT服務商，**信泰宜合（Syntax）採用中企通信與VMware聯合提供的專業服務，不斷提高服務能力，打造企業專用一站式創新IT解決方案，**幫助更多企業借技術之力，加速發展與數字化轉型。

主要挑戰

業務加速發展 需不斷提升服務能力

作為企業雲服務綜合供應商，信泰宜合（Syntax）的核心業務之一就是為企業關鍵IT系統提供基於高標準SLA的託管和管理服務。隨著客戶業務的發展以及數字化轉型需求，越來越多的客戶需要跨區域開展業務，對於服務的可用性和品質提出了更高要求。

在這種情況下，僅靠信泰宜合（Syntax）自身的解決方案，難以滿足客戶不斷延伸的服務需求和不斷提高的服務品質要求。為了幫助更多客戶實現數字化，讓大量的業務數據服務於企業業務發展和創新賦能的過程，同時，也不斷拓展和延伸自身的服務邊線，信泰宜合（Syntax）希望與專業的合作夥伴一起，提升為企業提供IT服務的能力。

解決方案

中企通信聯合VMware虛擬化
解決方案助力客戶構建雲服務平台

信泰宜合（Syntax）與中企通信以及VMware的合作始於2011年。當時雙方幫助企業客戶從單機系統轉向基於VMware虛擬化架構，通過VMware Cloud Provider Program（VCPP, VMware雲合作夥伴計劃）模式構建的**中企雲時代SmartCLOUD雲平台**，同時也開始使用**中企通信CeOne-CONNECT專用網絡服務（MPLS）。**

2018年，信泰宜合（Syntax）與中企通信、VMware達成全面生態圈戰略合作，技術層面合作範圍拓展到虛擬化、數據中心、網絡，打造基於數字化技術和平台的一站式整體解決方案，此外還在商務、市場、品牌等範圍打造全面生態圈合作。

面對新的挑戰，信泰宜合（Syntax）選擇繼續與中企通信及VMware攜手。在信泰宜合（Syntax）看來，中企通信、VMware與信泰宜合（Syntax）都有著對技術的不懈追求和共同的發展理念—基於價值，創新不斷。同時在服務和解決方案上具有適配性和互補性。信泰宜合（Syntax）以應用管理和雲服務為核心業務；VMware為虛擬化平台的搭建提供了核心技術，是虛擬化平台技術提供商；**而中企通信則可聯合母公司中信國際電訊CPC及全球化夥伴提供高品質且覆蓋全球的網絡資源、雲計算資源、數據中心資源，是基礎架構的全球化服務提供商。** 三方強強聯合打造的解決方案，很好地滿足了企業客戶複雜的雲服務需求，保障了信泰宜合（Syntax）業務發展所需。

在中企通信與VMware的共同助力下，信泰宜合（Syntax）通過使用中企通信CeOne-CONNECT專用網絡服務（MPLS），覆蓋更廣泛的基礎架構內容，為數十家國際及國內客戶**提供了量體裁衣的"網絡+IDC+虛擬化技術+應用管理"的智能化IT基礎架構整體解決方案，** 以高性價比的服務和前瞻性的技術架構滿足客戶基於私有雲、公有雲以及混合雲的IT基礎環境和運維災備的搭建和服務。

客戶收益

01 降低 IT 總體擁有成本

企業客戶往往部署了很多的業務IT應用系統。如果這些IT應用系統都逐個部署在單個服務器上，無疑會造成資源浪費。通過中企通信聯合VMware虛擬化技術，可以將一台服務器虛擬成多個基礎環境以提供給多個不同的應用系統使用，在確保應用之間的有效隔離和安全性的前提下，大大降低了企業客戶用於IT基礎架構的總體擁有成本（TCO）。

02 提高了 IT 系統的可用性

無論對於終端客戶還是IT服務商來說，物理機一旦損壞，如何將它盡快恢復，一直是非常具有挑戰性的問題。借助中企通信聯合VMware虛擬化技術，信泰宜合（Syntax）可以將一個IT應用系統在不同的物理機之間進行切換，大大提高了客戶IT系統的可用性。

03 更好提升服務品質及客服水平

借助專用一站式創新IT解決方案，信泰宜合（Syntax）為客戶提供的服務品質保障由原來的 99.3% 提升到 99.8% 以上，向客戶承諾的跨區、跨數據中心的災難恢復時間由原來的8小時縮減到不超過4小時，或根據客戶實際要求縮減至更短時間。這些提升是信泰合宜（Syntax）與中企通信聯合母公司中信國際電訊CPC資源，應用VMware技術進行聯合創新和服務延伸所取得的效果，最終可以為終端客戶在全球範圍內提供7x24小時無縫服務，實現客戶緊急需求的及時響應和快速服務交付。

展望未來

作為長期合作夥伴，信泰宜合（Syntax）與中企通信以及VMware還具有諸多共通之處：相同的企業背景 — 國際化公司，在全球範圍提供產品標準化、服務本地化；相似的目標客戶 — 全球化發展企業。在未來路上，雙方還將在更廣闊的領域達成合作，為更多企業客戶的數字化轉型和發展賦能。

客戶評價

❝ 與中企通信、VMware的合作讓我發覺，由專業的公司做專業的事，是最有效的資源共享和合作方式。希望未來與VMware持續深入合作，強強聯合，打造基於創新技術的解決方案，真正為企業客戶帶來長期價值，為數字化轉型賦能。❞

信泰宜合（Syntax）亞洲區首席執行官 忻海洪博士

智賦 "一帶一路"

INTELLIGENT "BELT AND ROAD"

率先在 "一帶一路" 區域及RCEP成員國形成獨特優勢

TAKES THE LEAD IN FORMING UNIQUE ADVANTAGES ALONG THE "BELT AND ROAD" REGIONS AND RCEP MEMBER COUNTRIES

全球總部
Global Headquarters

中信國際電訊CPC/中企通信PoP點
CITIC TELECOM CPC/ CHINA ENTERCOM PoPs

200+
世界500強客戶
Fortune 500 Customers

400000+
當地公司客戶
Local Enterprise Customers

3000+
跨國公司客戶
Multinational Corporate Customers

160+
業務服務國家地區
Service Coverage Countries & Regions

21+
雲服務中心
Cloud Service Centers

160+
網絡服務據點
Network Service PoPs

600+
全球運營商連接
Connecting Global Operators

中信國際電訊CPC
CITIC TELECOM CPC

CTM
澳門電訊

ComNet

中企通信
China Entercom

ACCLIVIS

Pacific Internet

紐約 New York
洛杉磯 Los Angeles
東京 Tokyo
首爾 Seoul
北京 Beijing
台北 Taipei
香港 Hong Kong
澳門 Macao
胡志明市 Ho Chi Minh City
河內 Hanoi
曼谷 Bangkok
吉隆坡 Kuala Lumpur
新加坡 Singapore
雅加達 Jakarta
悉尼 Sydney
墨爾本 Melbourne
孟買 Mumbai
阿拉木圖 Almaty
開普敦 Cape Town
倫敦 London
阿姆斯特丹 Amsterdam
法蘭克福 Frankfurt
斯德哥爾摩 Stockholm
赫爾辛基 Helsinki
塔林 Tallinn
里加 Riga
維爾紐斯 Vilnius
華沙 Warsaw
布達佩斯 Budapest
基輔 Kyiv
莫斯科 Moscow
聖彼得堡 Saint Petersburg
馬尼拉 Manila
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W: www.citictel-cpc.com
Asia Pacific: info@citictel-cpc.com
Europe and CIS: info-eu@citictel-cpc.com