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New ICT Disrupts Vertical Markets

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In an increasingly digitized world, enterprises are faced with disruptions that challenge their survival. They recognize the need for a transformative platform that offers products and solutions based on industry-specific adaptations and enhancements.

Information and Communications Technology (ICT) has become the crucial enabler of transformation for business, government, and academia. Cloud computing, Big Data, the Internet of Things (IoT), Software-Defined Networking (SDN), and 4G/5G mobile broadband contribute to an overarching enterprise-transformation effort.

Huawei has adopted these disruptive technologies to propel its own ICT initiatives. Integrated mission-critical systems support efficient production, operations, and decision making. Huawei provides comprehensive vertical industry solutions for the ecosystems of technology companies, enterprise partners, system integrators, developers, and customers.

Disruption Leads to Transformation

This roundup begins with an article that focuses on how financial services are utilizing the new ICT paradigm. Banking institutions are moving away from rigid architectures that require heavy investment to an architecture that supports extending and expanding current IT infrastructure as well as providing complete mobile digital services.

The second article describes how power utilities are transforming their operations by implementing smart energy solutions that increase efficiency in generating needed power. For example, European and U.S. enterprises are using Big Data analysis and data mining to gain insights into electricity consumption that help improve responses to electricity demands.

In the third article, we finish with a look at the move towards developing safer cities to keep pace with growing urban populations. Based on a report published by the United Nations, urban centers will be home to 66 percent of the world's population by 2050. Such population shifts have raised concerns among countries like Kenya, which has adopted a Safe City solution that uses an open collaboration platform to improve efficiency and cooperation between municipal departments.

Common Solutions Bridge Vertical Sectors

Huawei recognizes the importance of a partner ecosystem that ensures openness, collaboration, and shared success through a common ICT framework. While the ICT framework provides benefits to virtually any vertical sector, the framework's transformative power can also disrupt any given sector.

One technology in particular — Big Data — is proving to have an especially large impact across many industries.

Similar to power utilities, many vertical sectors are finding disruptive power in Big Data analytics, while others rely on their ability to gather real-time data using sensors for Smart Homes, connected cars, and other intelligent devices in the environment. These capabilities are essential to the success of different enterprises in different vertical sectors. With the flexibility to respond faster to end-user needs, the open ICT platform promises to transform vertical sectors at an increasingly rapid pace.

New ICT

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Financial Services Cash in on Agility

Consumer financial services received shocking news last year that they were under the greatest threat of digital disruption among 15 verticals that were surveyed by Russell Reynolds Associates, a group of executive search consultants. The 2015 'Digital Pulse' survey of C-level executives analyzed the impact of digital technologies, which revealed a telling concern among business leaders regarding the threats and opportunities posed by digital disruption.

Financial technology (fintech) companies offer banking capabilities ranging from digital wallets and peer-to-peer payments to marketing services. The transformative power of these capabilities means that banks and other financial enterprises must continually rethink their ICT investments to remain profitable.

ICT Financial Blueprint

Huawei's ICT platform offers powerful solutions to the finance industry. From extending and expanding current IT infrastructure to offering complete mobile digital services, such solutions ensure that banks have an incremental roadmap to follow when upgrading their current IT infrastructure or developing disruptive new capabilities.

Legacy banking infrastructure often uses a full-stack approach, from hardware to applications.

ICT offers systematic solutions for smarter energy, advanced consumer services, and Smart Grid management. >>

Because these architectures represent a significant capital investment and many activities are subject to tight regulations, complete ICT replacement is not always an option.

Huawei's financial and banking ICT architecture addresses this situation using three levels:

- **Customer Data:** Huawei offers a Big Data platform that provides transformative analytics without requiring banks to change their current databases. This cost-effective approach allows a high degree of flexibility.
- **Platform:** Huawei's cloud platform is based on OpenStack, which cost-effectively enables banks to transform their old architectures to new ones without being locked into any single technology provider.
- **Service:** The aim of Huawei's approach to service is to deliver a broad range of solutions that support customer convenience while reducing reliance on expensive physical branches — one of the major cost concerns for banks.

ICT Platform in Practice

Banks easily improve business operations with comprehensive ICT solutions. For example, China Merchants Bank (CMB) built its second data plane three years ago to improve credit checking. Big Data platforms can aggregate data from multiple sources to conduct deep analytics for accurate credit scores.

Huawei's comprehensive ICT platform helps banks and fintechs compete on an even playing field. A data-driven marketing platform creates agility based on evolving customer needs while strengthening the trusted relationships already established with existing bank customers. Such ICT solutions extend banks' current IT investments, making the disruptive transition more cost effective.

Smart Energy Enables Efficient Power Generation

Comprehensive ICT solutions help coordinate every phase of electric power generation and use, from real-time analysis of grid conditions to automated customer billing. Around the world, power utilities are transforming their operations.

In Asia, for example, "The overarching reason for this interest is energy efficiency across the value chain," according to Ravi Krishnaswamy, Vice President for Energy and Environment at Frost & Sullivan. "At the moment, power utility use is very inefficient with a lot of wastage from generation to distribution. It is also very difficult to accurately measure and match demand and supply."

Powering through ICT

Companies in Europe and the U.S. have started to correlate the large quantities of data generated by smart electric meters, weather stations, and sensors providing building information. By using Big Data analysis and data mining, power companies and enterprise users obtain insights into electricity consumption to help improve responses to electricity demands.

In China, the recently released Power Distribution Network Construction & Reform Action Plan calls for a USD 314 billion upgrade of power distribution networks by 2020, as well as the construction of smart distribution networks.

Additionally, ICT supports alternative power sources. At the end of 2012, the total installed renewable-energy capacity made up 20 percent of the electricity consumed. By 2050, renewable sources will account for 80 percent of consumption. In Germany, their Renewable Energy Act requires that power generated by renewable energies should always be preferentially fed to the grid.

To help manage both traditional and renewable energy resources, Huawei offers broadband HiSilicon-enabled Power-Line Communication (Hi-PLC) products, which use electrical power lines to also carry data. Traditional PLC technology is known for a low transmission rate and poor reliability, but Hi-PLC improves reliability and supports rates higher than 2 Mbit/s — more than 20 times that of traditional PLC technology.

Super Grids Accelerate Power

Comprehensive ICT solutions will become increasingly vital as new super grids come online. For example, the European Super Grid will connect coastal wind power generators and pumped-storage power plants in the north with solar farms in the south to high-load centers in the U.K., Germany, and France. Similarly, the U.S. Grid 2030 Program aims to interconnect a variety of separate grids with Canada and Mexico.

The 36,000-kilometer Asian Super Grid aims to develop and interconnect wind and solar power in Mongolia, hydro and thermal power in Russia, wind and solar power in China, and photovoltaic and wind power in South Korea and Japan.

ICT allows super grids to function efficiently with a combination of traditional and renewable energy suppliers, including distributed power sources, bidirectional electricity flows, and smart metering. More broadly, ICT solutions for High-Performance Computing (HPC) for automated surveillance systems help protect safety and security throughout the energy sector, including oil and gas pipelines. The bottom line is that ICT powers the energy industry to better achieve the reliability, efficiency, and business goals of their customers and investors.

ICT Brings Public Safety to Smart Cities

Country populations are gravitating towards urban centers in high numbers, according to the United Nations (UN) report titled *World Urbanization Prospects (2014 Revision)*. The UN study predicts that by 2050, 66 percent of the world's population will be urban.

Despite being home to 53 percent of the world's city dwellers, Asia remains mostly rural today. By 2050, urbanization within Asia is projected to grow from 48 percent to 64 percent, including the addition of 404 million people from rural areas to cities in India and 292 million people making a similar move in China.

In 2014, there were 28 cities in the world with populations of 10 million people or more. By 2030, the number of these so-called megacities is

New ICT

Real-time voice, video, and data collaboration among agencies makes the Smart City a Safe City. >>

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projected to reach 41. Safe City projects are being developed to help each city, from the smallest to the largest, deal with its unique safety issues around two key principles: convergence and visualization.

Convergence means implementing a collaboration system across multiple city agencies. For many governments, police, firefighters, ambulance crews, and other first responders work in separate information 'silos' that make collaboration difficult. A Computer-Aided Dispatch (CAD) system allows these different units to work together to address an emergency or incident faster and more effectively.

Visualization adds another dimension to Safe City solutions, improving on technologies that are limited to voice transmission. Huawei's Safe City solution includes video and CAD to enable better real-time collaboration. Visual communications allows decision makers to see exactly what is happening in real time using enterprise Long-Term Evolution (eLTE) technology.

For example, police use real-time surveillance to identify suspects and collect evidence. At command centers, personnel rely on information to deploy emergency units based on visual evidence. The information is also quickly shared with experts to determine, for instance, whether a fire was started by a chemical or electrical source.

Kenya's Safe City

Huawei recently worked with the Kenyan government and its mobile service provider Safaricom to implement a Safe City solution that has reduced crime in Nairobi by using such an open collaboration platform. The result is a safer city that features real-time video surveillance with enhanced monitoring for anomaly detection and operational safety.

The Kenyan government specifically wanted to improve the ability of departments to share data. The Huawei Safe City solution met this requirement by providing a broadband trunking infrastructure that supports video, voice, and data for helping decision-making officials to view live video and exchange information in real time. This infrastructure has significantly reduced the number of security incidents and has shortened emergency response times.

Safe City Joins Smart City

In a recent survey among government agencies, first responders, and systems integrators, the strongest trend for the future is seen to be the continuing growth of technology integration. Strategic investments in infrastructure, smart buildings, and communication networks are understood to offer the best opportunities for delivering large-scale solutions via elastic ICT architectures.

Huawei's global perspective views its Leading New ICT campaign as an integral component of Smart City initiatives being rolled out in many countries around the world. Huawei builds Safe City solutions that assist local governments to extend their legacy architectures by integrating modern Smart City platforms. ▲