The Future of Blockchain in Asia-Pacific

With its dynamic socioeconomic landscape, solid interconnectivity, massive digitization of payment solutions and consistent regulatory environment, Asia is poised to become a hotbed for blockchain innovation. Financial services organizations in the region see blockchain as a game-changer, according to our recent research, and are working hard to develop strategies, increase collaborative efforts and address security and latency concerns.
EXECUTIVE SUMMARY

Two years ago, the World Economic Forum predicted that 10% of global GDP would be stored using blockchain by 2027 – a proclamation that caught many by surprise.¹ Few companies at the time had conducted proofs of concept, much less participated in the many pilots that were beginning to percolate.

Fast-forward to year-end 2017. Blockchain – the emerging distributed ledger technology with the potential to automate not just key processes but entire industries – is moving from conceptual buzz to mainstream business discussion, with a multiplicity of enterprise implications in play beyond Bitcoin, the cryptocurrency upon which blockchain is based.

Innovation in and around blockchain is currently concentrated in the U.S. and Europe, primarily focused on financial services, but application of the new technology is quickly spreading over the Asia-Pacific region. For example, China has explicitly made blockchain a pillar of its economic development strategy. As a result, many observers believe Asia will become a crucial engine for venture capital investment and a hotbed for blockchain innovation – perhaps sooner than most global economy pundits had imagined. Consider that fintech financing in Asia-Pacific doubled from $5.2 billion in 2015 to $11.2 billion in
2016, compared with $9.2 billion in the U.S. and $2.4 billion in Europe. Similarly, the region leapfrogged the adoption of mobile banking and has surpassed other geographic areas for mobile finance application usage.

Blockchain adoption may follow a similar trajectory, as the region boasts the most favorable dynamics for distributed ledger technology adoption. Key drivers include a dynamic socioeconomic landscape, solid interconnectivity, massive digitization of payment solutions, a consistent regulatory environment and a large unbanked population.

To find out more about blockchain in the Asia-Pacific region, we conducted a study of 482 banking and financial services senior executives across China, Australia, Japan and Singapore (see methodology, page 23). Although blockchain technology is on-course to change how every sector in the world economy does business, this report focuses primarily on financial services, including banks and insurance companies, in the Asia-Pacific.

The objective of this report is to provide a glimpse into how financial institutions are readying themselves in the Asia-Pacific region for a future that pivots around blockchain’s distributed ledger technology to power enterprise-grade, transactional applications.
**Key Findings**

Our research reveals the following trends, whose impact in some cases will soon ripple around the world:

- **Blockchain embodies the new business value of “trust.”** Multiple studies have found that consumers are less trusting of financial services organizations than other businesses.[4] Blockchain will federate the trust between businesses, regulators and consumers by making it “consensus-driven,” and it will increase transparency through its collaborative consumption model. In our study, 88% of Asia-Pacific respondents said they view blockchain as important or critical to the future of their industry. Institutions are banking on the huge perceived benefits of blockchain, such as cost savings through process efficiencies and the ability to create new business opportunities by reinforcing transactional trust between consumers and financial institutions.

- **Go slow before you get fast.** “Slow and steady” is the pace set for blockchain adoption, with nearly 75% of respondents saying they have adopted a prototype approach to blockchain and are piloting initiatives. While the future remains uncertain, the key is to latch onto the distributed ledger technology in its early phase to be well equipped to move forward as it moves toward the mainstream.

  Respondents said their organizations are busy setting up blockchain labs (59%) with dedicated resources and putting together a blockchain interdisciplinary task force (60%), in addition to investing in start-ups, forming alliances and leveraging accelerators. In addition, 51% of respondents said their firm had defined a blockchain strategy, and 45% said their organization was developing one. Companies must first grasp the complexities of blockchain, and then identify and implant it to start building their blockchain future.

- **Heed the trust trade-off: Permissioned vs. permissionless blockchain.** As Ethereum founder Vitalik Buterin once noted, “Neither companies nor individuals are particularly keen on publishing all of their information onto a public database that can be arbitrarily read without any restrictions by one’s own government, foreign governments, family members, coworkers and business competitors.”[5]

  Permissioned networks can help allay concerns about data privacy by limiting the number of parties that can access a ledger, although they can only go so far. Forty-five percent of our respondents expressed greater interest in permissioned blockchain, while 37% favored permissionless blockchain. Looking forward, 61% of respondents said their firms expect participation in blockchain networks to span multiple divisions or subsidiaries within their own organization or to include one or two outside organizations (i.e., a micro-consortium), leading to greater adoption of permissioned and private blockchains.

- **IT infrastructure readiness will make or break the future of blockchain.** A lack of IT infrastructure readiness poses a bigger competitive threat to blockchain adoption than any ingenious start-up or disruptive market force. While the legacy IT industry of servers, databases and cables is still important, it has essentially become a utility, taking a backseat to the need for an agile,
While 36% of respondents said their firms plan to replace parts of their legacy system to enable blockchain adoption, 24% said they are still looking for a hybrid approach to ensure that legacy infrastructure and distributed ledger models coexist.

Flexible and quickly scalable technology foundation to drive business. Companies with legacy technology architectures, therefore, face a dilemma: striking a balance between the present and future state of IT infrastructure with blockchain.

Only 27% of respondents said they were highly confident in their organization’s ability to integrate blockchain thinking and technology into existing enterprise processes and systems. While 36% of respondents said their firms plan to replace parts of their legacy system to enable blockchain adoption, 24% said they are still looking for a hybrid approach to ensure that legacy infrastructure and distributed ledger models coexist. IT departments need to be brutally honest in accepting which parts of the IT infrastructure are the major bottlenecks in becoming a digital business and address them to boost blockchain adoption.

- **A flexible strategy will help overcome security, privacy, scalability and interoperability challenges.** As with other new technologies, it will take time for businesses to become comfortable with blockchain. This could be the reason privacy and security emerged as the number one external barrier (71%) to blockchain adoption. The concerns over blockchain security can be compared to the early days of cloud computing, before businesses realized that the infrastructure provided by cloud providers is typically more secure than their own. We believe blockchain will follow a similar trajectory, with companies concerned about security and privacy first adopting private and permissioned platforms. Ultimately, privacy and security concerns will not blunt blockchain adoption.

- **Collaboration is the basis for blockchain innovation.** Blockchain innovation cannot happen in isolation. This means companies need internal and external collaboration. Notably, 66% of our respondents said they had commitments from top management to explore blockchain, which will encourage buy-in from key stakeholders across the organization. It is only when individual function heads are engaged, committed and willing to fund blockchain initiatives that true transformation will happen.

Industry-wide collaboration among participants, exchanges and regulators is also critical to blockchain adoption. Forty-six percent of respondents said they believe an industry consortium will govern their blockchain network of choice, whereas 22% believe a third-party will do so. This could be the reason 45% of our Asia-Pacific respondents believe they are well prepared to deal with current regulatory implications of blockchain; in fact, 54% claimed to be well prepared to accommodate future regulations.
BLOCKCHAINING ASIA’S DIGITAL FUTURE

Asia-Pac faces a serious problem: Like elsewhere in the world, established brands are increasingly losing consumer trust. In a study conducted by the Cognizant Center for the Future of Work, only 43% of respondents in the Asia-Pacific said they had a high level of trust in institutions across industries when it came to the use of their data. Moreover, over two billion adults (almost one-third of the earth’s population) have never banked in their lives, many of whom live in developing nations.

What if we could ensure financial access as a basic human right? What if we could build better mechanisms to trust each other? What if we could enable people and machines to cooperate in a myriad of unimaginable ways? We now have the opportunity to address big industry and societal issues with blockchain technology, as transparency can bridge the “trust deficit” that governments and institutions face.

The postulation that “banking is essential, but banks are not” is especially true for blockchain, whose emerging ecosystem pivots around distributed shared infrastructure, powerful cryptography and immutable records that threaten to marginalize central authorities, such as banks, brokerage houses or insurance firms. (For a more thorough definition of blockchain, see the Quick Take, next page, or our e-book “Demystifying Blockchain”)

We now have the opportunity to address big industry and societal issues with blockchain technology, as transparency can bridge the “trust deficit” that governments and institutions face.
A Blockchain Primer

Blockchain is a decentralized software mechanism that enables a public distributed ledger system. The technology allows the tracking and recording of assets and transactions without the presence of a central trust authority such as a bank.

Blockchain networks create proof of ownership by using unique digital signatures that rely on public encryption keys known to everyone on the network and private keys known only to the owner. Complex algorithms drive consensus among users, ensuring that transaction data cannot be tampered with after verification, reducing the risk of fraud.

These networks also enable peer-to-peer exchange of data, assets and currencies through rules-based smart contracts in a more efficient, transparent and cost-effective manner. Once created, smart contracts execute automatically once their terms are met, without the need for human intervention. Smart contracts are not unique to blockchain, but they are greatly enhanced by blockchain networks.

Blockchain platforms can be public (i.e., permissionless) like Bitcoin, with anyone allowed to submit a transaction and take part in validating other transactions. They can also be private (i.e., permissioned), where only authorized parties participate in sharing and validating information.
Regulators in Australia, Hong Kong and Singapore are providing the necessary thrust for blockchain innovation by establishing regulatory sandboxes to ease testing and piloting of blockchain projects.

Asia could become a dynamic testing ground for the new business models promised by blockchain, as the region has high demand for financial inclusion and the need for more efficient, convenient and affordable products and services. Moreover, by 2020, more than half of the world’s middle class could be in Asia-Pacific, accounting for over 40% of global middle-class consumption, and leading to a larger market for financial services in the region. For instance, MicroMoney, a global blockchain-based lending services company, aims to serve at least one million unbanked people in Asia with first-time loans by 2020.

Another factor driving blockchain adoption is that many individuals across Asia working outside of their home country are increasingly demanding a more efficient and affordable system to send money home. The current average fee for sending money ranges from 5% to 20%. Blockchain has the potential to cut current cross-border settlement costs significantly.

Maybank Singapore plans to leverage blockchain technology to allow 19,000 migrants to transact without banking access. The real-time, cost-effective, international payments could become the norm in Asia-Pacific.

Innovation is often spurred by changing or unrecognized market needs. Blockchain start-ups are springing up across many segments, such as payments, cross-border remittances, loans, digital wallets and post-trade clearances and settlements. Their aim is simple: Gain advantage by providing an alternative to traditional financial services that effectively solves sticky business problems associated with payments and makes financial facilities available where none exist. Regulators in Australia, Hong Kong and Singapore are providing the necessary thrust for blockchain innovation by establishing regulatory sandboxes to ease testing and piloting of blockchain projects.

Asia-Pacific is also home to a forward-looking regulatory environment. Japan and South Korea have regulated cryptocurrency environments, and their central banks are in the process of licensing exchanges; in fact, the U.S. may follow Japan to license Bitcoin and cryptocurrency exchanges. The Monetary Authority of Singapore has adopted a proactive approach toward blockchain, and China’s Central Bank is piloting a sovereign blockchain digital currency to provide a flexible regulatory environment. Despite this supportive regulatory environment, trust is a significant issue; only 39% of respondents have a high trust in the current ecosystem (internal, external and industry partners). Financial services firms should capitalize on the growing support from central authorities for blockchain and work with them closely to shape the future of blockchain in their industry.

Financial institutions have been the busiest blockchain adopters in the region, in their efforts to avoid being left behind. While 88% of respondents view blockchain as important or critical for the future of their industry, a similar percentage of respondents said it will be game-changing for their business (see Figure 1, page 10). What’s also interesting is that over the next 12 years, 58% of respondents foresee blockchain replacing the current financial system with a distributed, transparent and autono-
Only 51% of respondents said their firm had defined a blockchain strategy, and 45% said their organization was in the process of developing one. Moreover, just 42% said their organization has the required internal policies and governance.
mous system to help improve regulatory compliance-related processes, such as know-your-customer (KYC), anti-money-laundering (AML) rules and others. For insurance companies, 88% of respondents believe blockchain has the potential to simplify distribution and reduce dependency on agents or brokers. Experiments range from relatively straightforward solutions such as money transfers, to more complex financial instruments such as trade clearance and settlement.

However, many firms have not yet developed a formal blockchain strategy to move forward. Only 51% of respondents said their firm had defined a blockchain strategy, and 45% said their organization was in the process of developing one. Moreover, just 42% said their organization has the required internal policies and governance.

In our view, firms need a single blockchain strategy that spans business, operations, IT and security. Financial services organizations need to create a multidisciplinary team to oversee blockchain initiatives, with a leader who can connect with all stakeholders, be a catalyst for change across organizational silos, and create a collaborative culture that is open to new business-technology ecosystems. (To learn more about developing an effective blockchain strategy, read our white paper “Financial Services: Building Blockchain One Block at a Time.”) The good news is that 79% of respondents believe they already have at least one strong blockchain expert driving blockchain adoption across the organization.

Moreover, firms should collaborate with educational and fellow financial institutions to understand the social impact of blockchain and how they can integrate it as part of their strategy. For instance, RMIT University in Australia launched the world’s first Blockchain Innovation Hub, with the aim to develop and implement blockchain policies, and engage in public debate over the societal impact of such technology.19

**THE PROMISE OF A NEW COMPETITIVE ADVANTAGE**

Blockchain’s benefits can be bucketed under two main categories:

- Potential cost savings through process efficiencies and shared distributed IT infrastructure.
- The drive to create new markets by serving previously underserved consumer segments.
Interestingly, 68% of respondents said their organizations are exploring blockchain use cases to improve customer experience. Blockchain gives control back to consumers, allowing them to choose the information they share.

Unlocking Competitive Advantage with Blockchain

<table>
<thead>
<tr>
<th>Major Factors for Pursuing Blockchain</th>
<th>New Business Opportunities</th>
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<tr>
<td>To use blockchain as differentiator/to gain competitive advantage</td>
<td>58% New services lines</td>
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<td>Perceived benefits of blockchain</td>
<td>53% New markets</td>
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<td>Test new technologies</td>
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<tr>
<td>Competition</td>
<td>49% New customer segments</td>
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<td>Because other players can disrupt our business model using blockchain</td>
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Base: 482 senior executives in Asia-Pacific
Note: Multiple responses permitted.

Seventy-two percent of respondents said they believe blockchain will resolve their industry’s longstanding pain points, such as high operating costs, legacy systems, fraud and poor data management. In fact, by cutting out the middlemen and boosting efficiency, some estimates show that blockchain technology could reduce banks’ infrastructure costs by $15 billion to $20 billion annually through 2022. Study respondents are aiming for a 6% savings in future costs across business processes such as KYC, trade finance, international remittance and AML compliance, among others. Respondents were also more likely to use blockchain for intra-organizational projects intended to reduce organizational complexity, improve efficiency and lower costs. While this can be a good way to get started with the technology, blockchain will ultimately be more suited for interorganizational applications, where the level of trust between parties is lower.

Seventy percent of respondents cited the ability to gain a competitive edge as a top reason for pursuing blockchain-enabled projects (see Figure 2), and 53% of respondents believe that blockchain will help create new business opportunities (new markets, service lines and customer segments). Financial services firms clearly view the use of blockchain technology as a way to position themselves with a sustainable business model for the post-blockchain marketplace.
Interestingly, 68% of respondents said their organizations are exploring blockchain use cases to improve customer experience. Blockchain gives control back to consumers, allowing them to choose the information they share. The technology can also accelerate transactions, improve transparency and provide customers with real-time access to data. With blockchain, organizations will have to rethink and redesign how they deliver new, more sophisticated services based on data, as customer data will no longer be up for grabs, and trust dynamics will drive the experience.

**Think Big, Start Small, Learn Fast and Adapt Quickly**

As with any major business change or technology cycle, discretion is the better part of valor, and our advice with blockchain is to start small. For example, target a subset of a work activity, a single process or a set of focused customer interactions that can be improved by blockchain thinking and technology, either through an internal application or using a consortium approach. You’ll need the data, the platform and a clear understanding of what happens before, during and after the blockchain solution goes live.

Half of our respondents said their companies are either investing in a start-up or established company or are piloting blockchain initiatives internally (see Figure 3). Almost every major bank in the Asia-Pacific region has, at the very least, a team experimenting with blockchain technology. A few are leading by example:

- **OCBC Bank** is the first Southeast Asian Bank to use a payment blockchain solution to make local and cross-border interbank fund transfers between itself and its subsidiaries.\(^\text{21}\)
- **The Hong Kong Monetary Authority and the Monetary Authority of Singapore** plan to launch a project using distributed ledger technology for trade finance cross-border infrastructure.\(^\text{22}\)
- **The Australian Securities Exchange** is considering the use of a distributed ledger platform to upgrade its settlement system.\(^\text{23}\)
- **BOC Hong Kong (Holdings) Ltd.** is planning to use the technology to improve the efficiency of processing mortgages.\(^\text{24}\)

**Innovating with Blockchain**

![Innovating with Blockchain](image)

*Figure 3: How are you pursuing blockchain?*

- **Invested in a start-up/established company** 27%
- **Acquired a small/medium-size start-up focusing on a specific niche area** 23%
- **Internally** 17%
- **Partnering with a start-up** 16%
- **Partnering with an established vendor** 15%
- **Joined a consortium of start-ups and competitors** 2%

*Base: 482 senior executives in Asia-Pacific*
To find the best way forward, many companies are taking a two-pronged approach: They are investing in start-ups, forming alliances and leveraging accelerators, while also setting up blockchain labs with dedicated resources and putting together a blockchain interdisciplinary taskforce.

- Saudi Arabia’s Islamic Development Bank plans to use blockchain technology to develop Sharia-compliant products, aiming to support financial inclusion efforts across its member countries.

- The Monetary Authority of Singapore has completed a proof-of-concept trial that uses distributed ledger technology to power domestic interbank payments, proving that early adoption is possible in areas with relatively modest technical, legal and regulatory demands.

- Japan’s megabanks and SBI Holdings are backing initiatives on blockchain technology and applications in the areas of digital currency, infrastructure, payment and transactions.

To find the best way forward, many companies are taking a two-pronged approach: They are investing in start-ups, forming alliances and leveraging accelerators, while also setting up blockchain labs (59%) with dedicated resources and putting together a blockchain interdisciplinary taskforce (60%). The latter approach is useful because blockchain is not the exclusive province of IT, and early involvement from business leaders will accelerate the pace of blockchain understanding and speed enterprise adoption.

For example, South Korean banks are investing in blockchain start-ups with the aim of outsourcing the process of developing technology and applications to the ventures they are funding. In an interesting development, banks in China are partnering with local e-commerce giants such as Tencent to trial blockchain technology in financial applications. And recently, a consortium of banks collaborated with one of Singapore’s government agencies, the Infocomm Media Development Authority, to successfully launch Southeast Asia’s first KYC blockchain. Financial institutions dedicate a significant amount of resources to complying with KYC requirements, and KYC costs financial companies an average of $60 million per year.

Also, firms are assessing the impact of blockchain alongside emerging technologies such as the IoT, advanced analytics and robotics, and are conducting internal pilots to understand blockchain’s benefits and implications for existing systems, using dedicated teams to identify use cases and opportunities for innovation. With the emergence of cloud-based blockchain infrastructure by start-ups and established players like Amazon and Microsoft, experimentation is becoming easier for more companies to engage in.

Respondents cited international payments, interbank settlements and cross-currency transfers as the top three blockchain use cases they are exploring. Respondents from insurance companies said they...
are more interested in payment processing, automation and smart contracts.

**Building Trust with Permissioned Blockchain**

Blockchain-based networks can be either public or private (with respect to how data is shared) and permissioned or permissionless (with respect to who can access the network). Permission levels may be tiered so that different companies and individuals can access restricted data. Of the firms surveyed, 45% expressed greater interest in permissioned blockchain, while 37% favor permissionless blockchain (see Figure 4). The most notable permissioned blockchains include R3 Corda, Hyperledger Fabric and Quorum. Ripple, meanwhile, is being piloted by banks worldwide for cross-border payments.

Only 15% of respondents expressed interest in private blockchain networks. Instead, firms are thinking more in terms of currency trading as an early use case of blockchain, an application dominated by public networks.

Given the amount of commercial data that banks use for transactional and interactional purposes, it is difficult to imagine organizations absorbing the risk of participating in a public blockchain network. Instead, they are gravitating toward solutions that run on permissioned networks, where they can maintain greater control over rule design and dispute resolution. This is very similar to the way cloud computing was adopted - companies started with private cloud first, where banks experimented but were careful not to house sensitive data or mission-critical apps/services. Only later did they move to public and hybrid cloud.

As a result, the vast majority of commercial applications (customer identity management, loyalty platforms, trade finance, mortgage lending, etc.) will use private or permissioned blockchains for the immediate future. Moreover, 61% of respondents expect participation in blockchain networks to span multiple divisions or subsidiaries within their own organization or to include one or two outside organizations (i.e., a micro-consortium), leading to greater adoption of permissioned and private blockchains.

Depending on the complexity of the process, the degree of trust required by participants and compliance requirements, firms will decide on the blockchain network type they need and whether they will be better served by developing the project in collaboration with external partners or in a consortium approach. For instance, three consortia pursuing blockchain networks include Ping An Insurance and
Tencent Holdings Ltd. in China; Japan’s Mizuho Bank and SBI Holdings; and Commonwealth Bank of Australia, National Australia Bank and Westpac Banking Corp.

**MASTERING THE NEW BUSINESS OPERATING MODEL OF THE FUTURE**

As blockchain’s impact increases, adoption will require significant institutional change. Our data shows that 80% of respondents believe that blockchain will either add a new operating model to their existing one or will outperform their existing conventional operating model and eventually replace it. We expect blockchain networks to coexist with other approaches until companies in the region figure out how to align existing business models with the technology.

The starting point for a truly digital business model based on blockchain is to think about the ways in which the technology unlocks innovative thinking and action. Adding blockchain to an existing business process introduces a once-in-a-generation opportunity to change the cost structure of the firm, while at the same time increasing the velocity and quality of business results. In fact, 60% of respondents believe that blockchain will significantly change the way business processes are carried out.

Given the nascent state of the technology, it’s no surprise that the organizations we surveyed are just beginning their blockchain journeys. In fact, over half (52%) said they are in the process of identifying functional areas and business processes that could be impacted by blockchain, and 44% said they have already done so (see Figure 5).

**Blockchain Is Not Optional**

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**Base:** 482 senior executives in Asia-Pacific

**Figure 5**
The impact of blockchain should not be limited to one or two processes, as companies will need to scale the pilots in order to get the biggest bang for the money spent to achieve a true network effect. Blockchain will change each and every function by not only making processes better, faster and less expensive, but also by restructuring them. Early use cases will test blockchain technology as a replacement for paper-based and manual transaction processes in such areas as trade finance, foreign exchange, cross-border settlement and securities settlement. (For more on blockchain’s applicability in trade finance, read our white papers “How Blockchain Can Revitalize Trade Finance” and “Blockchain for Trade Finance: Payment Method Automation.”)

Moreover, companies have an opportunity to radically re-think buyer-supplier and even employer-employee relationships by using smart contracts to be more transparent and responsive. That’s why 46% of firms said they are actively identifying processes that can be improved through the use of smart contracts, which provide pre-defined rules that eliminate manual work, allowing fully automated operations in a decentralized environment. Smart contracts are not unique to blockchain, but they are greatly enhanced by blockchain networks.

Early experiments with self-executing contracts are emerging in the areas of venture funding, banking and digital rights management. And now, platforms such as Corda are bringing further innovation by developing a framework for managing financial instruments in coded form. The Commonwealth Bank of Australia, Wells Fargo and international cotton producer Brighann Cotton executed the first global trade transaction between two independent banks that combined blockchain with smart contracts and the Internet of Things (IoT). The trade involved an open account transaction, mirroring a letter of credit, executed through a collaborative workflow on a private distributed ledger between the seller and buyer. The use of blockchain technology created transparency, a higher level of security and the ability to track a shipment in real time.  

A Lack of IT Infrastructure Readiness May Crash the Blockchain Party

Regardless of whether your organization is recreating a business process from scratch or injecting blockchain into front-, middle- or back-office processes, success will depend on how well the IT infrastructure is integrated with blockchain solutions. Only 27% of respondents said they were highly confident of their organization’s ability to integrate blockchain thinking and technology into existing enterprise processes and systems.

While 36% of respondents said their firm plans to replace parts of their legacy systems to enable blockchain adoption, 24% said they are still looking for a hybrid approach to ensure the coexistence of legacy infrastructure and distributed ledger models. Companies that wish to make the switch will need to think hard about how to effect this transition because blockchain’s distributed ledger operates on a decentralized/shared infrastructure and functions differently than a centralized legacy IT foundation. Several IT infrastructure components, including security, networking and storage, will be
influenced by the blockchain network type (permission or permissionless) and deployment strategy. Blockchain can upgrade existing inefficient systems or even introduce infrastructure that didn’t exist before. Two proactive IT approaches will help ensure a successful blockchain deployment:

- **Retire obsolete IT systems.** For decades, IT has followed the theory of “Why fix what’s not broken?” This approach has led to the massive accumulation of outdated legacy infrastructure. If your ancient system is holding your organization back, it’s time to reboot its core IT. Do you own the infrastructure, or does the infrastructure own you? Without eliminating systems and processes that are no longer fit for purpose, companies are undermining their ability to invest the budget, time, resources and energy in the future. This means dropping the buy-and-hold mentality and replacing it with a pay-as-you-go model via cloud, mobile and as-a-service offerings, and leveraging partners to offload the legacy systems. With their shared distributed ledgers, blockchain networks turbocharge this model. (Learn more on this topic by reading our white paper “The Future of IT infrastructure.”)

- **Create open APIs to open new ways.** Open application protocol interfaces (APIs) have the potential to radically shift the dynamics of firms’ interactions with customers and with each other. Unfortunately, willingness has been uneven, with some businesses adapting their processes and operating models much faster than others. Mastercard recently launched a blockchain network to enable partner banks and merchants to make cross-border payments more quickly and securely by providing access to its blockchain network via an exposed API. Also, The Bill and Melinda Gates Foundation launched Mojaloop, an open-source payment platform designed for people who lack access to traditional payment services. An open API will make it easier for mobile money providers to integrate their services with the platform and build new products. These moves will help solve long-standing industry challenges, including speed, transparency and costs in cross-border payments.

**CHALLENGING THE FUTURE: ARE YOU AN OPTIMIST OR A PESSIMIST?**

Embracing blockchain in the still-percolating blockchain world can be daunting. As with any early-state technology, there’s a substantial learning curve. Blockchain presents new ways of working and a new set of internal and external challenges. Companies need to overcome hurdles ranging from building a business case and handling government regulations, to creating a cultural fit for mainstream adoption (see Figure 6, next page).

Every organization is struggling with defining business cases for blockchain, and how and where to apply their efforts. In fact, 93% of respondents cited the difficulty of identifying and finalizing blockchain use cases while working with external partners or stakeholders. Given this uncertainty, we suggest that firms identify blockchain experts, consultants and thought leaders to help find and build a business case for blockchain. Moreover, providers can help financial institutions by sharing pilot data, providing connectivity services and offering guidance on choosing the right platform.

Potential applications of blockchain span the financial services gamut: cards and payments (international payments, interbank settlements, cryptocurrencies), capital markets (repurchase agreements, smart bonds), banking (automotive finance, mortgage lending, trade finance) and utilities (document management, asset digitization, bill payment). The way firms handle challenges will shape their future path. Our recommendations:
Challenges to Shape the Future Direction

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<td>Ensuring data security</td>
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<td>Procuring talent and expertise</td>
<td>Creating standards</td>
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Base: 482 senior executives in Asia-Pacific
Note: Multiple responses permitted.
Figure 6

- **Embrace a top-to-bottom approach for blockchain adoption.** Blockchain initiatives are usually run by a company’s innovation (32%) and strategy (29%) teams, but business functions also need to be involved. Notably, 66% of respondents had committed their top management for blockchain adoption, which helps ensure buy-in from various stakeholders. It is only when individual function heads are engaged and committed and can fund blockchain initiatives that true transformation happens.

  We found that more than 90% of respondents either identified or were in the process of identifying internal stakeholders/partners to accelerate blockchain efforts. Yet, only 43% of respondents said they provide frequent communication to top leadership about blockchain’s potential impact, and are seeking direct feedback as part of their change management strategy. Thirty-seven percent of respondents said their organizations are developing training programs to help employees work in a new environment.

- **Manage security and privacy concerns proactively.** Privacy and security emerged as the number one external barrier to blockchain adoption. However, with its reliance on public key encryption (PKI) and hashing, blockchain actually has a much stronger defense mechanism than other approaches. Only those with the correct private keys can unlock data. Before deploying their blockchain solutions, financial institutions need to educate consumers and regulators on the technology’s robustness and safety.

  Because blockchain provides a high level of transactional transparency, firms inevitably voice concern about the privacy of confidential transactions. Permissioned blockchains, on the other hand, enable firms to determine which participants can access data. R3 recently enabled a restricted data-sharing approach for its Corda platform. Transaction data is made available only to those with a recognized “need to know” (parties involved and regulators). While these innovations have not yet been tested at scale in live production, they are helping to reduce privacy and security concerns for permissioned platforms.
Privacy and security emerged as the number one external barrier to blockchain adoption. However, with its reliance on public key encryption, blockchain actually has a much stronger defense mechanism than other approaches.
Blockchain innovation cannot happen in isolation. Our results show that the establishment of industry-wide collaboration among participants, exchanges and regulators is critical to speed blockchain adoption.

- **Scalability/latency is being addressed faster than many expected.** Innovators are working to overcome scalability and latency challenges, particularly within permissionless environments. Although estimates vary widely, Visa claims to manage 2,000 transactions per second and PayPal, 193 transactions per second, compared with Ethereum’s 20 transactions per second and Bitcoin’s seven transactions per second.\(^{37}\)

However, the landscape is rapidly evolving. Ripple says its new Ripple Consensus Ledger can handle nearly 1,000 transactions per second,\(^ {38}\) and researchers at University of Sydney in Australia are currently developing a new model of blockchain that is said to process 440,000 transactions per second.\(^ {39}\)

- **Collaboration will form the basis of governance.** With private or permissioned blockchain solutions, the question remains who controls and ultimately governs the network. Forty-six percent of respondents said they believe that an industry consortium will successfully govern their blockchain network of choice, whereas 22% believe a third-party (e.g., a start-up) will do so. Blockchain innovation cannot happen in isolation. Our results show that the establishment of industry-wide collaboration among participants, exchanges and regulators is critical to speed blockchain adoption.

Only 17% of respondents are working with industry partners/consortia to identify areas of focus and pitfalls to avoid. Firms must take advantage of regulatory support and developments happening around them. For instance, R3 recently collaborated with the Monetary Authority of Singapore to launch its first dedicated distributed ledger technology center of excellence in Asia to foster collaboration across competing institutions in the region on use cases and projects in order to innovate and further the advancement of technology.\(^ {40}\) The early tangible outputs from such collaborations can then be socialized internally within participating firms, generating interest for large-scale projects.

- **Flexible strategy will help adapt regulatory changes.** We found that 57% of our respondents view existing industry regulations as a hurdle for blockchain adoption. Moreover, a lack of globally accepted technical standards to enable interoperability is another bottleneck for a strong blockchain ecosystem. Blockchain-based distributed ledgers will need to be legitimized by regulators in order for companies to rely on them as a single source of truth.

Respondents overall were confident in their ability to deal with both current regulatory implications of blockchain (45%) and future regulations (54%). Their confidence pivots around blockchain’s openness and flexibility. In fact, 68% of respondents said their firms plan to focus on developing a blockchain strategy that can accommodate impending regulatory changes. (Learn more by reading about the Smart Dubai Initiative.\(^ {41}\))
UNBLOCKING THE FUTURE OF BLOCKCHAIN IN ASIA

Before embarking on a blockchain journey, firms need to be laser-focused on understanding how blockchain will address existing business problems and building a roadmap to integrate it into the business strategy. While the potential of blockchain is immense, so is the uncertainty surrounding it. What follows are our recommendations for preparing for the blockchain future and maximizing the benefits from blockchain’s slow and steady rise:

• **Take a pragmatic, iterative approach.** We believe firms should assess blockchain technology on a use case basis. Organizations should make careful, pragmatic investments to advance their understanding and plan to iterate and learn as they go, abandoning unpromising applications. To do this, ensure that several members of your core technology teams are immersed in all things blockchain. Create alliances with key blockchain technology vendors (both product and service). Ultimately, the companies that lay these foundations now will emerge as the real leaders in this space.

For instance, Japanese megabank Mizuho Financial Group is expanding its blockchain investments after successful trials. We are working with Mizuho to develop a blockchain solution for sharing sensitive documents among its subsidiaries around the world and also enabling its subsidiaries to tokenize internal money transfers. (See the complete case study on page 14 of our white paper “Financial Services: Building Blockchain One Block at a Time.”)

• **Blockchain is not the answer to every business problem.** As with all technology trends, there will be blockchain fanatics who see blockchain’s applicability to almost everything in the company. Scattershot initiatives or overly general suggestions to “just do blockchain” invariably backfire because those carrying out the order typically do not know the difference between “fast” and “far.” In such instances, precious time, money and effort are spent on technology-first initiatives without anybody asking, “What’s the business benefit here?” If a business problem doesn’t involve consensus-driven trust and complexity or an intersection of the two, then you probably don’t need blockchain.

• **Turn security issues upside down.** Security has always been a key consideration when deploying new technology, but its relevance has skyrocketed in recent years amid cybercrime’s substantial rise. What if we build better defense mechanisms to safeguard sensitive information assets by blending blockchain and artificial intelligence? While blockchains could help to verify, execute and record, AI could help to assess, understand and recognize cyber threats. That’s why some large corporations are betting on blockchain for cybersecurity to mitigate cyberattacks in real-time. 

If a business problem doesn’t involve consensus-driven trust and complexity or an intersection of the two, then you probably don’t need blockchain.
Moreover, recent research reveals that Asia-Pacific is less likely to fall prey to the serious cybersecurity lapses that have roiled the West due to its belated embrace of digitization, which has given the region an advantage to leapfrog initial challenges and deploy strong and proven off-the-shelf enterprise solutions. We suggest organizations work with both privacy/security and blockchain communities to discover solutions that work best.

• **Review, refine, repeat.** There’s a famous saying that “in theory, theory and practice are the same. In practice they are not.” What has your organization learned from its pilot? What went well or not so well? Ask your team to be brutally honest - hypercritical, in fact. Pivot, adjust, recalibrate and repeat. Make sure all the exploration doesn’t become a graveyard of pilots - unused toys lying around your innovation lab. For new systems to be effective, companies should recognize that the move to blockchain won’t happen in a vacuum. Many companies may take longer than expected to migrate from pilot projects to scale, particularly as they grapple with internal and external challenges.

• **Consider converging West-East strategy for innovation and growth.** Global financial services companies will need to deal with aggressive technology-charged companies in the Asia-Pacific region, many of which are free from the burden of legacy systems and outdated business practices, and are able to quickly adapt to innovative processes, and take greater risks. Global companies need to move beyond leveraging emerging markets as a low-cost, low-quality product-push destination, to converting constraints into technological breakthroughs. The mindset shift should be rooted in global headquarters and executed at the local level to leverage Asia as a hotspot of the global blockchain strategy.

**BLOCKCHAIN: A MEANS, NOT AN END**

2017 has raised the curtain on what is about to come our way in 2018 and beyond in the form of new products, business models, ways of working and trust mechanisms. For the Asia-Pacific region, blockchain represents the most significant technological opportunity of the next decade, and is likely to be a wellspring of innovative ideas for leaders across the globe. Thoughtful observers of the blockchain phenomenon already recognize that they cannot ignore the cost efficiency and business effectiveness promises of distributed ledger technology. Just as the Internet upended the way we connect with the world, blockchain will provide a new model of trust. It’s time to find your organization’s digital business identity with blockchain.

Blockchain offers a once-in-a-lifetime opportunity for firms and leaders in the Asia-Pacific region to provide an example to the rest of the world of how the blockchain revolution will unfold. Leaders that can separate blockchain noise from reality and adopt a flexible strategy in overcoming the inevitable business-technology and cultural challenges that occur along the way will be best positioned to reap significant advantage in business value far into the future. Ultimate success will require an open mind, perseverance and courage.
METHODOLOGY

We conducted an online survey of 482 senior executives in the banking and financial services (320) and insurance (162) industries between January and August 2017.

The objectives of this research were to understand the perspectives of senior executives on their blockchain strategy, the major factors affecting the adoption of blockchain, and the external and internal roadblocks of blockchain adoption.

When asked to describe their level of understanding blockchain, 34% described themselves as expert, 42% as proficient, 19% as competent and 5% as beginner or novice. The respondents included C-suite executives (18%), vice-presidents (31%), directors (17%), senior managers (30%) and managers (4%). The research was conducted across the Asia-Pacific, including Australia, China, Japan and Singapore.
FOOTNOTES


8 Trust is central to blockchain because when transactions are executed and settled on a distributed ledger, counterparties don’t need to have an established trust relationship. For more information on how blockchain works, please see our e-book “Demystifying Blockchain,” Cognizant Technology Solutions, 2017, https://www.cognizant.com/whitepapers/demystifying-blockchain-codex2199.pdf.


12 MicroMoney website: https://micromoney.io/.


“Hong Kong and Singapore to Collaborate on Fintech, Blockchain,” Financial Times, https://www.ft.com/content/535881c7-524c-37e0-ae9a-33c4e68978f9.


R3 website: http://r3cev.com/.


This quote is often been attributed to Albert Einstein: [https://www.ruhanirabin.com/famous-quotes-from-albert-einstein/](https://www.ruhanirabin.com/famous-quotes-from-albert-einstein/).
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ACKNOWLEDGMENTS

The author would like to thank Ben Pring, Global Director of the Cognizant Center for the Future of Work, Alan Alper, Cognizant’s Editorial Director, and Anand Chandramouli, Director of Primary Research, for their assistance in creating this report. Others who contributed to this report include Olesya Gorbunova, a Senior Consultant in Cognizant’s Blockchain & Distributed Ledger Technology Practice, and Fletcher McCraw, Partnerships and Alliance Lead in Cognizant’s Blockchain & Distributed Ledger Technology Practice. The author would also like to thank Cognizant research analysts Akhil Tandulwadikar, Vinaya Kumar Mylavarapu and Sanjay Fuloria for their insightful contributions.
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Cognizant’s Blockchain and Distributed Ledger Technology Practice offers advisory, consulting and blockchain implementation services to organizations across industries. We uniquely bring together deep industry experience, extensive blockchain technical expertise, and intimate knowledge of the enterprise IT environment to guide our clients’ journeys from prototype and pilot through production. Our collaboration with the industry’s leading lights, combined with hands-on expertise with both open source and proprietary frameworks, gives us the business and technological capabilities to assist organizations industry-wide in their efforts to make blockchain a value-yielding and dependable shared infrastructure solution across the extended enterprise. For more information, please visit www.cognizant.com/blockchain.

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