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C-SUITE SURVEY

APPLICATION MODERNISATION IN HONG KONG

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CONTENTS



Page **01** **Introduction**

Page **02** **Methodology**

Page **03** **Findings**

- 03** HK firms wade into the application modernisation conundrum
- 04** Cloud reigns supreme
- 06** Cybersecurity drives application modernisation
- 09** Hybrid cloud adoption hastens application modernisation



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Introduction

We may think of digital transformation as something new, but its roots can be traced back to the 1970s when computer-aided design and manufacturing (CAD-CAM) were first used in businesses. The technology, processes and drivers for transformation may be different, but one of the core tenets remains the same: we want to do things better.

Fast forward to 2022, businesses' desire to be more agile and responsive to market dynamics and resilient against uncertainties, is what fuels many transformation efforts. In Asia, where legacy applications and systems have been around for decades, the impetus for change is tempered mainly by the concerns that any improvements do not impact existing business processes.

Essentially, what leadership wants is to have their cake and eat it too, i.e., to enjoy the benefits of modernisation without having to deal with the risks.

With the understanding that transformation and modernisation will have to go forward to be competitive, if not lead the market, CXOCIETY Research in partnership with Red Hat, surveyed 100 senior technology and operations leaders to get their perspective on their application modernisation journey.

We hope you find the insights from the survey helpful in your own application modernisation journey.





Methodology

Market representation

- Hong Kong

Target audience

With Hong Kong steadily coming out of the shadow of the pandemic, CIOs are presented with an opportunity to lead their organisation's recovery and transformation amid uncertainty and an uncertain pace of change. CXOCIETY surveyed 100 CIO and IT executives to identify common issues and challenges and how leaders in Hong Kong (as well as other parts of Asia) are facing them.

The study focused on three questions:

- What does application modernisation mean to you?
- What is/are the key driver(s) for application modernisation?
- Are you exploring any technologies to drive app modernisation and automation?

Time frame

The survey was conducted from August to October 2022

Quantitative

The data was compiled and analysed, and the results used to frame questions and observations used as part of this document.

Qualitative analysis

At CXOCIETY, we recognise that data alone is not sufficient. A roundtable discussion was conducted on 09 November 2022 to provide context to the data and round out the analysis.

HK firms wade into the application modernisation conundrum

Cloud technology, legacy systems and cybersecurity are just some of the ingredients in the potent brew of application modernisation that Hong Kong organisations have to grapple with to keep pace with rapidly changing business needs.

For years now, companies worldwide have been engaged in an uphill battle to modernise their IT applications to meet agility requirements in various areas of operations, marketing and customer engagement.

Application modernisation is a linchpin of an enterprise's digital transformation journey particularly in Asian countries like China, India and Japan in the wake of customer demand for real-time and more interactive online services.

Gartner describes the process as "the migration of legacy to new applications or platforms, including the integration of new functionality to provide the latest functions to the business". Modernisation options include re-platforming, re-hosting, recoding, re-architecting, re-engineering, interoperability, replacement, and retirement, as well as changes to the application architecture to clarify which option should be selected.

Legacy systems are a fixture in every industry – never more so in verticals such as the financial and services sector, which is notorious for running decades-old systems in the back office. Indeed, legacy systems continue to run mission-critical business processes in most organisations.

A recent survey indicates over two-thirds of businesses still use mainframe or legacy apps for core business operations, and more than 60% rely on them to power customer-facing applications. The same survey revealed 70% of global CXOs see legacy modernisation as top business priority.

Hong Kong, as a well-established business commercial hub in Asia Pacific, has been in the forefront of digitisation that enables the city to keep its competitive edge. By the same token, however, the city's heavy reliance on technology means many organisations in Hong Kong have their core business processes on old systems long in need of a refresh.

To determine the current state of application modernisation among Hong Kong enterprises, FutureCIO, on behalf of Red Hat, conducted a three-part survey of senior business and technology executives for insights into the challenges and drivers that spur their decision to reupholster application to meet agility demands of the digital era.



Cloud reigns supreme

As cloud technology continues to mature and becomes mainstream, it is now an essential component of an organisation's technology stack.

This reality is reflected by survey results which showed 39% of responses citing that the requirements of a cloud-based infrastructure means applications are built specifically to maximise the value of the new environment.

Simply rehosting applications in the cloud will likely cut some costs and solve some technical debt issues. But to truly reap the benefits of the cloud, companies must modernise their application for the new platform.

Meanwhile, nearly a quarter or 24% of responses said migrating legacy systems to the cloud is a trigger for application modernisation.

The transition of legacy systems onto newer platforms is typically precipitated by several factors ranging from increased regulation, client demand for transparency, real-time reporting, and the ability to support and take advantage of new growth opportunities. These factors have all put increased pressure on 30- or 40-year-old systems that were not designed to cope with such challenges.

Legacy systems also have more significant cost implications the longer they are used, with increased IT spend being budgeted toward simply keeping them up as opposed to innovating.

Nevertheless, these systems are key strategic assets that were built over time – delivering significant business value to organisations. By moving them to the cloud, companies are able to continue extracting value out of legacy systems while planning for a future in which they could remain for quite some time.

For one, cloud migration maybe an ideal strategy if an organisation is seeking to reduce its rack and server room space since maintaining and upgrading

old hardware and operating systems in-house is challenging and expensive.

Meanwhile, Hong Kong companies embrace application modernisation as a natural consequence of deploying microservices, with 13% of survey responses equating this contemporary approach to application development as responsible for the rise of agile applications.

Microservices allows a large application to be built from modular components or services. Each module supports a specific task or business goal and uses a simple, well-defined interface, such as an application programming interface (API), to communicate with other sets of services.

This means an enterprise application is modernised by having developers reorganise it into a microservices architecture. This separates the application's feature sets into microservices that can scale independently from one another. For example, an e-commerce store might need to scale up the transaction processing service independently from the quotation service during peak sales times.

Again, cloud technology – with its capabilities to scale resources dynamically based on what's needed – makes it the natural home for microservices.

Changes, fixes and updates on microservices can also now be done incrementally, in some cases during the middle of a business day, instead of updating the complete application.

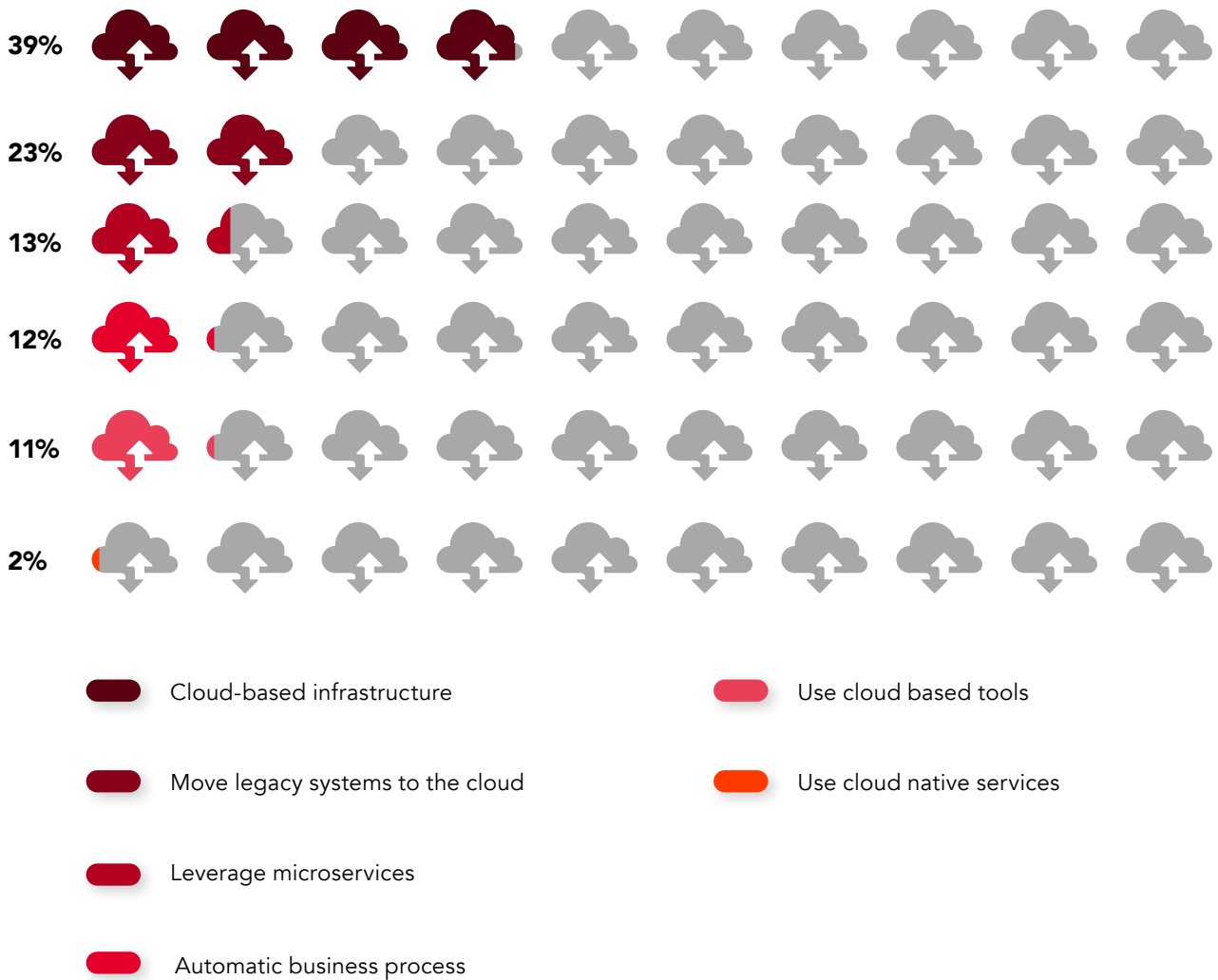
It is now quite common to see applications running in the cloud as if they were simply "lifted and shifted" there, with some components or feature sets being implemented as microservices. This is a more gradual approach, but it works for many applications and offsets the cost and time problem, as components are modernised in a phased manner.



Figure 1

What does application modernisation mean to you?

n=100



CXOCIETY RESEARCH SURVEY OF APPLICATION MODERNISATION IN HONG KONG

Cybersecurity drives application modernisation

The imperative to protect their organisation against cyberattacks is the major reason Hong Kong companies undertake application modernisation.

The Hong Kong survey results (see Figure 2) showed that cybersecurity trumped all other drivers with 23% of the responses; followed by operational excellence at 16%, and automation of business operations and services at 14%.

As a regional financial and trading hub, Hong Kong is a prime target for cybercriminal elements. According to the [Hong Kong Computer Emergency Response Team Coordination Centre](#), the city noted a 94% increase in unique security events in the second quarter of 2022, in the form of Phishing (57%) and Bots (41%).

Among respondents to the survey, 23% cited security, above all others, as the top driver of their application modernisation strategy. Coincidentally, among the respondents to the survey, 33% come from the banking and financial services sector with participants most recently required to design, implement, and operate a Secure Tertiary Database. (see Figure 3)

This [KPMG Hong Kong Banking Report 2022](#) noted that the majority of banks plan to increase investments in IT, risk and cybersecurity. Additionally, for much of 2022, the [Hong Kong Monetary Authority](#) has updated guidance on anti-DDoS protection, payment card security, operational resilience, business continuity, and customer data protection – affirming the importance placed on cybersecurity as a means to ensuring the banking system is secure.

In a research paper by the Financial Services Development Council (FSDC) titled “Cybersecurity Strategy for Hong Kong’s Financial Services Industry” it was noted that level of cybersecurity preparedness among the city’s financial institutions is uneven. This comes as Hong Kong emerged as a key target of cyberattacks globally behind the U.S. (39%), the U.K. (7%) and Russia (6%).

InfoSec data from the Office of the Government Chief Information Officer, Computer Related Crime: Recent Statistics, revealed that Hong Kong companies and residents lost more than HK\$2.9 billion to cybercriminals in 2019.

As for improving operational excellence (16%) and automating business operations and processes (14%), these data points are in line with IDC’s APEJ Enterprise IT and Business Services Sourcing Survey 2022 which revealed that the need for better process optimisation through automation to drive efficiency and agility as the top reason for modernising legacy applications.

With revenue continuing to be impacted by COVID-19 restrictions, leaders also see modernisation as leading them to pursue initiatives such as reliability, performance efficiency, and cost optimisation – each of which garnered 11% of votes among respondents to the survey.

Since 2019, FutureCIO dialogue with technology, operations and finance leaders suggests that the primary purpose of digital transformation is centred around innovation and driving customer value.

However, in this survey only two per cent of responses cited accelerating innovation and improving time-to-market as drivers behind their application modernisation efforts.

Another holy grail – meeting expectations for enhanced customer experience – does not rank high among survey respondents as a compelling enough reason for modernising their organisation’s applications. It too only garnered two per cent of responses.

These two ‘odd’ responses can be attributed to the profile of participants to the survey – mostly technology leaders – people whose primary focus centres around technology.

As such, it is not surprising that cybersecurity ranked high among participants to the survey. Rapid digitisation and the rise of hybrid work as a result of the current pandemic have raised the risk of malware and hackers attacking computer networks.

The recently released State of Cybersecurity in Hong Kong study by Palo Alto Networks showed that more than half (56%) of the city’s decision-makers are giving cybersecurity more attention, with 62% of them calling it a top agenda item in their boardroom discussions.

Hence, Hong Kong companies – particularly medium and large enterprises – are spending more to fortify the protection of their digital assets against growing threats. The study showed 40% have increased their cybersecurity budgets for the year, with about half of them raising their budget spend by 20%.

Indeed, as organisations progressively shift to the cloud and as hybrid work becomes a mainstay, cybersecurity must be integrated with business strategy. This ensures companies have the security infrastructure to deal with any potential cyber threats.

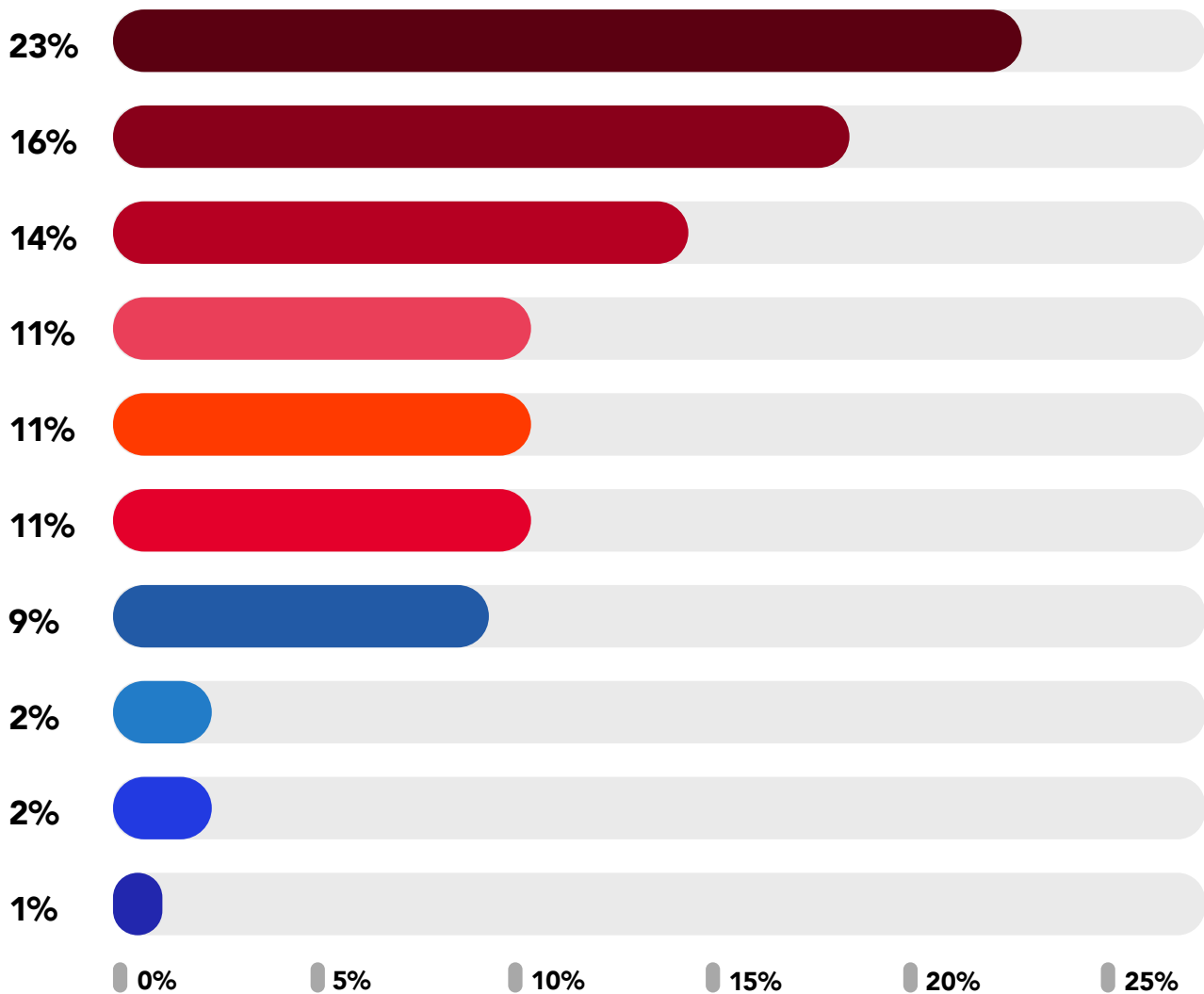
It is interesting to note that the priority placed on security among respondents in Hong Kong aligns well with a global report of 1,703 information technology leaders. In its ninth year, the report titled 2023 Global Tech Outlook, conducted by Red Hat, which aimed to understand where organisations were on their digital transformation journey noted that security was the top funding priority among 44% of respondents.

A notable observation from the global survey was the proportion of respondents that noted: “somewhat increased” (25%) and “significantly increased” (53%) investments in secure access by applications to other applications or data sources, or both, for 2022. Nearly as many increased their investments in securing access by people.

The global report concluded that security overtook innovation as a priority in response to the well-publicised threats and data breaches.

Figure 2

What does application modernisation mean to you? (Select all that apply) n=100



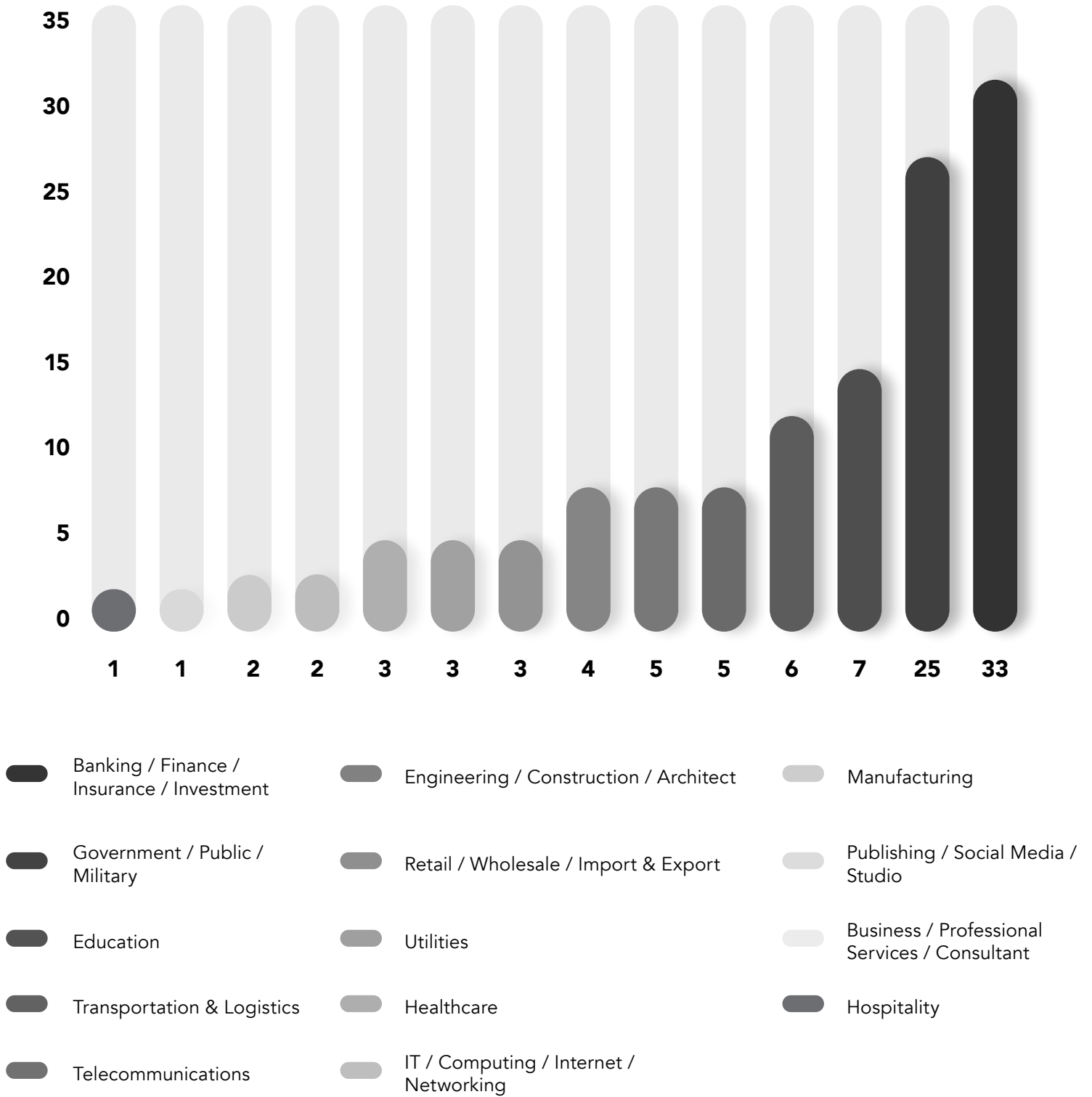
- Security
- Operational excellence
- Automate business operations and processes
- Reliability
- Performance efficiency
- Cost optimisation
- Industry driven standard
- Accelerate innovation and improve time to market
- Address high customer experience expectation
- Others: Agility

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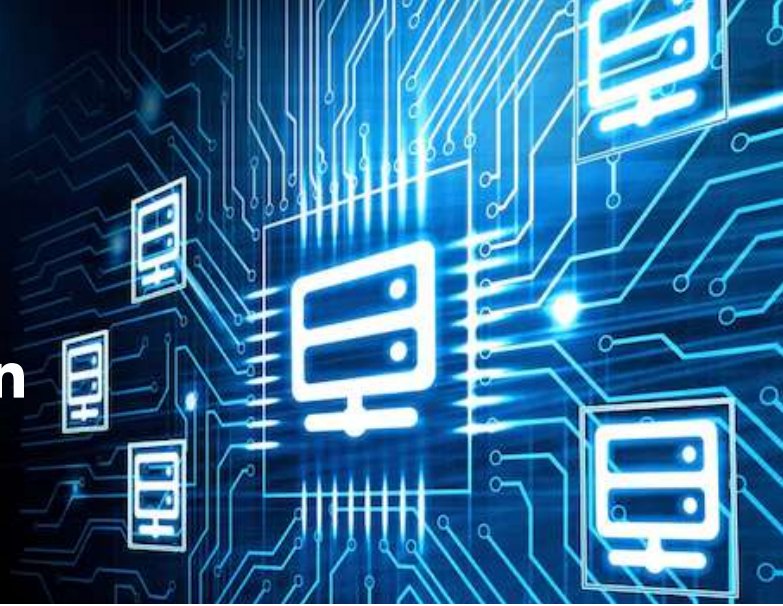
Figure 3

Industry representation

n=100



CXOCIETY RESEARCH SURVEY OF APPLICATION MODERNISATION IN HONG KONG



Hybrid cloud adoption hastens application modernisation

Hong Kong is ahead of global average in terms of hybrid cloud adoption. In the NTT report, 2021 Hybrid Cloud Report, nearly 96% of Hong Kong organisation agree that hybrid cloud is critical to meeting their immediate business needs. Last year, about two-thirds or 65.3% of them are already using or piloting a hybrid cloud solution.

This reality is echoed in the FutureCIO survey (see Figure 4) which showed more than half or 52% of responses saying they are exploring hybrid cloud adoption to drive application modernisation, followed by containerisation and microservices at 19% and DevOps agility at 18%.

In the cloud era, modern application environment now includes components such as open source,

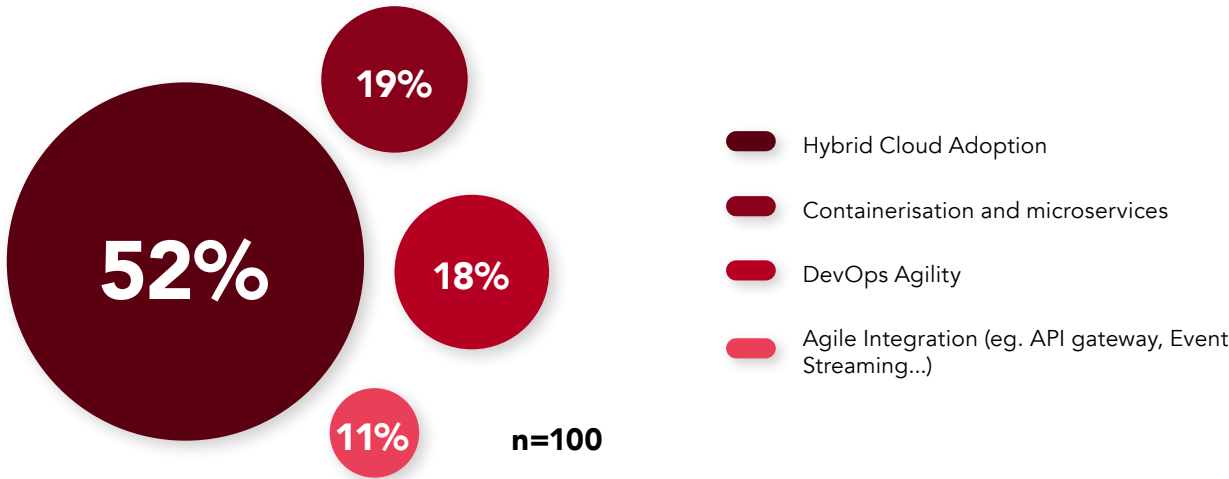
hybrid and multicloud, containers and DevOps, which continue to advance digital transformation. However, many organisations are still working with legacy virtualisation, tiered architectures, and outmoded development approaches.

The lift-and-shift approach is not enough. Taking legacy applications and moving them to the cloud will not automatically yield the benefits that cloud infrastructure and systems can provide.

Organisations must find a structured way – an orderly, prescriptive process that combines products and migration tools with consulting and training services – to move from restrictive, proprietary application platforms to more flexible and cost-effective open-source alternatives.

Figure 4

Are you exploring any technologies to drive app modernisation and automation? (Select all that apply)





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