

Operational Briefing

Presentation to Investors and Analysts

6 February 2018





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Unless otherwise specified all information is as at 31 December 2017.

Technology





Please visit the following link to view:
macq.co/technology



Macquarie's Technology capability

Investment in people and culture creating opportunities to continue to grow and develop

Business-focused strategy benefits from close alignment with technology specialists

Deep expertise in technology allows the adoption of new and disruptive technologies

Open API architecture connecting our platforms

Cloud-first strategy supports agility, scalability and efficiency

Partner with entrepreneurs, with a focus on long-term relationships

MACQUARIE ASSET MANAGEMENT

MIRA: automating data collection and analytics from portfolio companies to streamline reporting and improve portfolio company oversight

MIM: investing in real time global portfolio management and risk management platform

Relying on technology for better investing, operational processes and investor engagement

CORPORATE AND ASSET FINANCE

Asset Finance: investing in **market leading platforms** to create an engaging and seamless customer journey

Principal Finance: provides **flexible primary financing solutions** and engages in secondary market investing, across the capital structure

\$A465m
Secured debt software financing by CAF Principal Finance

BANKING AND FINANCIAL SERVICES

Investment in **a real-time core banking platform** for loans and retail deposits

Built **Australia's first open banking platform** to give customers control over their own data and the power to manage how they want to share it

Support **innovative digital banking solutions** for our customers with the launch of ApplePay and AndroidPay

Best Digital
Banking Offering¹
Most Innovative
Card Product¹

COMMODITIES AND GLOBAL MARKETS

Global institutional securities house with **specialist expertise in the technology sector** – including deep quantitative expertise in machine learning and AI, **gaining insights** from complex data sets

Investment in electronic execution/DMA systems

420+
stocks under coverage globally in Telecoms, Media and Technology; by **45+ analysts**

MACQUARIE CAPITAL

Dedicated global team providing advisory and capital raising services

Work with entrepreneurs to provide capital and advice to grow their business, including the creation of platforms through subsequent acquisitions

\$A1b+ invested in technology companies since 2000

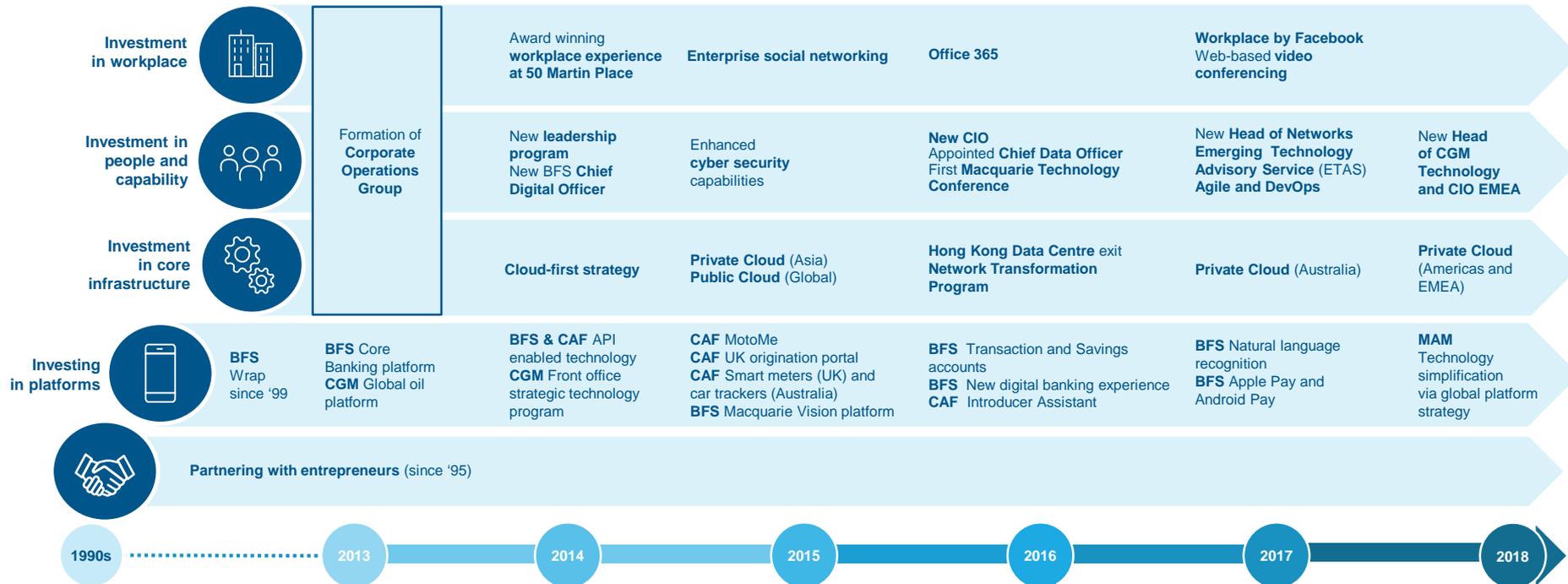
Invested in **36** technology-related transactions
No. 1 financial advisor on Technology²

ENABLED BY CORPORATE OPERATIONS GROUP

Corporate Operations Group manages Macquarie's core infrastructure, designs, develops and supports applications and services; provides strategic leadership on disruptive technology opportunities



Investing in our people and platforms, and partnering with entrepreneurs





Case study: Operating Groups are supported and enabled by the Corporate Operations Group

Corporate Operations Group manages Macquarie's core infrastructure, designs, develops and supports applications and services and provides strategic leadership on disruptive technology opportunities

CORE INFRASTRUCTURE AND WORKPLACE



36% servers running in the **Cloud**



Workplace by Facebook for enterprise social networking

13.5k users migrated to **Office 365**



Network transformation and next generation firewalls

APPLICATIONS AND SERVICES



99.9% platform availability

DevOps and Agile



Open API architecture

Digital transformation

M O T O M E

Introducer Assistant |



I bank with Macquarie

DEFT

PEOPLE AND LEADERSHIP



Cyber Awareness educating staff about security threats

ambition
Automate, Simplify, Innovate

Inspiring staff through the **Macquarie Technology Conference**

ETAS

Specialist knowledge in **emerging technologies**

TechEd



Investing in **professional and technical skills**



MACQUARIE

CAF: investment in platforms

Case study

Core strengths in Technology



Business-focused strategy benefits from close alignment with technology specialists



Open API architecture connecting our platforms



Deep expertise in technology allows the adoption of new and disruptive technologies



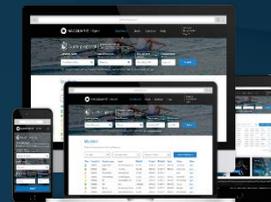
Cloud-first strategy supports agility, scalability and efficiency

Creating an engaging and seamless customer journey



MotoMe platform

A car buying and financing ecosystem, connecting digital, social and physical environments



Origination portals in Australia and EMEA

Market leading technology platforms, enabling operational efficiency and continued growth through increased market access and service differentiation



Automated credit decisions

Increasing productivity and efficiency, and optimising the customer experience



BFS: Digital Banking

Case study

Core strengths in Technology

 **Investment in people and culture** creating opportunities

 **Business-focused strategy** benefits from close alignment with technology specialists

 **Deep expertise in technology** allows the adoption of new and disruptive technologies

 **Open API architecture** connecting our platforms

 **Cloud-first strategy** supports agility, scalability and efficiency

Digital Banking



Leading digital banking experience with features that are firsts in Australian banking including client push notifications and natural language search



Datastax
The same technology as Netflix and Facebook



First Australian bank to have implemented leading API-enabled systems architecture using OpenShift technology from Redhat



Rebuilt our technology stack and are the first to offer lending and retail deposits on one core banking system

More than 1.1 million Australian clients



Open Banking
Australia's first open banking platform giving customers control over their own data



Intermediaries / partnerships
Facilitating customisable experiences that incorporate banking capability for our partners (Woolworths Money, mortgages)



Platform
Significant investment in platforms as a key part of our business and growth moving forward (Wrap, DEFT)

\$A85.3b

Funds on platform¹

\$A31.2b

Australian mortgage portfolio

\$A46.3b

Total BFS deposits²

\$A7.2b

Business banking loan portfolio



Case study

CGM: investment in platforms

Core strengths in Technology



Business-focused strategy benefits from close alignment with technology specialists



Open API architecture connecting our platforms



Investment in people and culture creating opportunities



Deep expertise in technology allows the adoption of new and disruptive technologies



Cloud-first strategy supports agility, scalability and efficiency

Electronic execution platform provides a seamless client experience with 24/6 trading coverage



Partnering with clients located around the world to help them achieve their global trading objectives through a comprehensive suite of algorithms, tools and investment analytics utilising big data and cloud computing

The platform enables clients to access over **100** liquidity venues in **50** countries through an intuitive global interface

Algorithms are designed with a deep understanding of global market microstructures and includes regional and market specific optimisation

This technology is complemented with local market insight from our regional trading desks located in 23 countries

The cost to provide innovative services to clients is declining as volumes increase

+22%

increase in transactions year on year¹

-23%

decline in total technology costs per transaction²



Case study

MacCap: PEXA

MacCap: Nuix

Core strengths in Technology



Business-focused strategy benefits from close alignment with technology specialists



Partner with entrepreneurs, with a focus on long-term relationships



Deep expertise in technology allows the adoption of new and disruptive technologies

Supported PEXA since 2012 including providing significant investment funds in its initial funding round

Transaction

Supported **company formation** and initial business planning process in 2011

Provided the **first external venture capital** in 2012 and continued to follow on in subsequent funding rounds

Highlights

Investment was underpinned by a **deep, long term relationship** with the PEXA founding CEO, together with many years of experience investing in property data and consumer credit data businesses

Macquarie's retail and business bank were **early adopters** of the PEXA platform

Operating in 5 Australian States which together represent over **90% of all Land Registry transactions in Australia** by volume¹

112 financial institutions are engaged representing in excess of 90% of all Land Registry transactions by volume²

MacCap has supported Nuix, an Australian software company that allows organisations to pinpoint critical information to act on cybersecurity, risk and compliance threats

Transaction

First invested in Nuix in 2011 and has also provided **financing in subsequent investment rounds**

Nuix, founded in 2000, is now recognised as a **global leader** in delivering solutions to address the key challenges, risks and opportunities associated with the growth and complexity of data

Highlights

Leveraged its **extensive experience** as an investor in adjacent data-focused software businesses to provide support to the Nuix team

Nuix today has over **1,800 customers** in **70 countries**

Customers include major financial regulators, law enforcement agencies, global corporations, intelligence agencies, the United Nations, and all leading advisory firms and litigation support vendors



What's next?

MACQUARIE ASSET MANAGEMENT

Further leveraging data and **analytics in portfolio management** to identify new sources of alpha generation

Leveraging **technology within operating assets** to drive performance and unlock trends across portfolio of 138 portfolio businesses, **~300 properties** and **~4.5m** hectares of farmland

Enhancing client experience through **technology-enabled interactions**

Automating middle and back office processes

COMMODITIES AND GLOBAL MARKETS

Global trade digitalisation: as supply chains becomes more efficient, 5% increase in world wide GDP and **15% increase in total trade volume**¹; well positioned to find growth in commodity markets

Digital relationships: increased sophistication of electronic execution and research platforms for clients

Internet of things: optimised commodity trading in CGM will be based on IoT data streams

Deep market insight and intellectual property: continue to be at the forefront of investment thematic for next generation technology including machine learning, AI and IoT

CORPORATE AND ASSET FINANCE

Use of technology to enhance customer purchase, including online choice (virtual reality)

Development of vehicle fleet products (including pay per ride) to facilitate driverless and shared vehicles

- Electric vehicles will account for **~50%** of vehicle sales by 2030²

Big data opportunity to gain insights into customer behaviour and understanding the asset and asset lifecycle

- Volume of business data worldwide doubles every 1.2 years³

MACQUARIE CAPITAL

Continue to work with entrepreneurs in the technology sector to support long term growth through advisory services

Investing in opportunities in the infra-tech space to take advantage of crossover with strong infrastructure business

Recently acquired a **50% stake** in environmental monitoring business EMS B&K, a global leader in real time, continuous environmental monitoring for infrastructure, resources, smart cities and industrial customers

BANKING AND FINANCIAL SERVICES

Continue with **digitisation transformation**, including mortgages and wrap

Continue **platform enhancements** and **automation** to:

- Improve the customer experience through self-service and a more personalised experience
- Allow intermediaries to be more efficient and offer more tailored experiences to their clients
- Platform enhancements in Wealth Management will provide advanced smart searching capabilities, data analytics, practice management reporting, and integration with digital advice solutions for advisors

CORPORATE OPERATIONS GROUP

Drive **automation** of core infrastructure and processes, increasing opportunities for creativity and innovation

- **\$A2.2tr** boost to Australia's national income between 2015 and 2030 from productivity gains; \$A1tr from accelerating the rate of automation and \$A1.2tr from transitioning the workforce⁴
- By 2030, the average Australian worker will spend 2 hours per week less on manual and routine tasks; **71%** of the total expected reduction in work time will come from people doing the same job

Opportunity to gain customer and operational insight, leveraging **big data and analytics** to provide strategic advice to our businesses and clients

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