CASE STUDY · AI VALUE AT SCALE

# How DBS became an AI bank.

Fifteen years of technology, organisation and data work before AI returned about S$1 billion in economic value in 2025, and the outages that came with the speed.

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ABOUT YOUR SPEAKER

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Twenty-five years leading digital and AI transformation across Asia and the Middle East: national smart-city programmes, critical infrastructure and enterprise operations. Today I help leadership teams put AI into production with controls they can show a board, an auditor and a regulator.

| | |
|---|---|
| **Built** | A governed AI platform serving more than 6,000 engineers, with zero security incidents |
| **Certified** | ISO/IEC 42001 Lead Auditor Professional (BSI) · AIGP (SMU) · Registered Management Consultant |
| **Serving** | CTCB CPSC Advisory Board · UN ESCAP AI for Developing Countries Forum |
| **Awards** | CDO Vision Award 2026 · Singapore's Most Influential Data & AI Leaders 2026 · Google Trailblazer Transformation Award 2024 |

Independent analysis from public sources. The views in this session are mine.

THIS SESSION

# Seventeen years of one bank, examined in eight parts.

01
### Where DBS started
A policy bank with the lowest service scores in Singapore

02
### Fixing the basics
Insourcing, data centres and resilience, 2009 to 2014

03
### The digital vision
A board decision, three pillars and a culture built into KPIs

04
### Platforms
33 platforms, each led two-in-a-box on one scorecard

05
### The data and AI layer
PURE, the ADA data platform and the ALAN AI platform

06
### The S$1 billion
What DBS counts, how it measures it, and how peers compare

07
### Outages and the regulator
Capital penalties, a six-month pause and what followed

08
### People and lessons
Workforce, succession and what boards can take from it

THE SHORT VERSION

# AI value came at the end of a long sequence.

**~S$1bn**

economic value from data analytics and AI/ML in 2025, as DBS reports it

**2,000+**

models in production, across more than 430 use cases

**33**

platforms from 2018, each led by a business lead and a technology lead

**13**

years from the 2009 start to the first published AI value figure in 2022

The figure blends revenue uplift, cost avoidance and productivity, and losses averted. DBS measures it with test and control groups. It is reported in the narrative part of the annual report and is not audited.

[25] DBS Annual Report 2025. [33] Google Cloud interview with Nimish Panchmatia, March 2026. [18] [22]

2009 TO 2026

# Each phase built the base for the next.

**2009**

### New CEO

Piyush Gupta appointed. About 85% of technology work outsourced.

**2009 to 2014**

### Fix the basics

Resilience, data centres, insourcing.

**2014**

### Digital to the core

SGD 200m extra over three years.

**2018**

### 33 platforms

Two-in-a-box leadership. PURE data principles.

**2021**

### ALAN

AI/ML platform fully deployed. Two-day outage.

**2022**

### First value figure

Later restated as S$180m of economic value.

**2023 to 2024**

### Regulator acts

1.8x capital multiplier and a six-month pause.

**2025 to 2026**

### About S$1bn

New CEO. Agents, and MAS AI risk guidelines.

[1] [3] [5] [9] [18] [21] [22] [25] [35] [37] [84] [90] Full chronology in the case study.

PART 1 · 1968 TO 2009

# Where DBS started.

A development bank founded to finance industrialisation, which gained its mass retail base when it bought POSBank in 1998.

2008 TO 2009

# The bank had the lowest service scores in Singapore and outsourced most of its technology.

### Service

A taxi driver told Paul Cobban, later Chief Transformation Officer, that DBS stood for "damn bloody slow".

### Technology

"When I arrived, 85% of our work was outsourced," said David Gledhill, who joined from J.P. Morgan in 2008.

### Leadership

Piyush Gupta, from Citi, was appointed CEO in September 2009 and took office in November.

[2] Forbes, 2016. [3] Computer Weekly, 2018. [1] DBS, 2009. [77] [78]



PART 2 · 2009 TO 2014

# Fixing the basics.

DBS's own label for its first five years. The work was unglamorous and came before any talk of digital.

PHASE 1 FOUNDATIONS

# Five foundations came before any digital product.

01
**Resiliency**
Build the reliability of core systems

02
**Data centres**
Revamp the data centres

03
**Insourcing**
Bring engineering back in-house and build bench strength

04
**Security**
Open a security operations centre

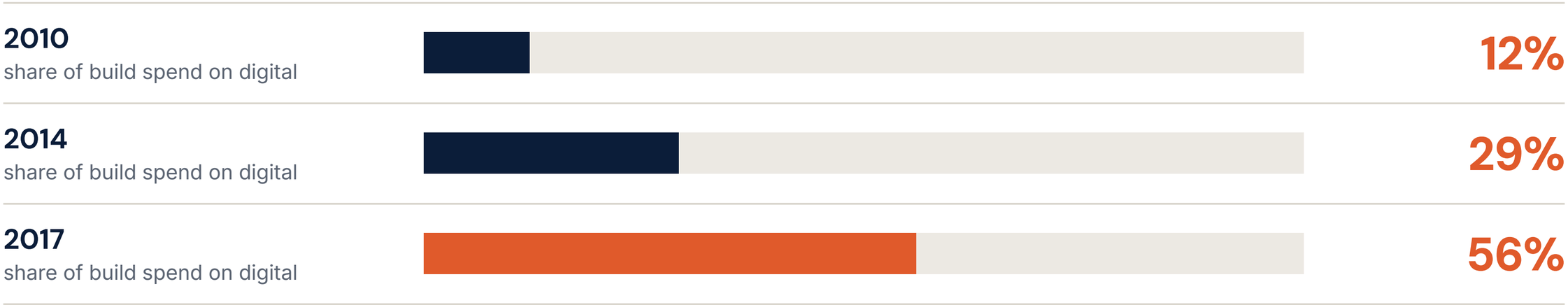
05
**Monitoring**
Open a monitoring centre

> Over half the technology team changed in Gledhill's first six months. On the service side, the bank defined "Asian service" as RED: Respectful, Easy to deal with, Dependable.

[5] DBS Investor Day 2017 technology deck. [3] Computer Weekly. [2] Forbes.

BUILD SPEND, 2010 TO 2017

# Digital went from an eighth of the build budget to more than half.




> The rest went on the core. MIT CISR researchers who followed the bank describe this phase as having "radically 'rewired' the entire enterprise for digital innovation".

[5] DBS Investor Day 2017. [26] MIT CISR Working Paper 436, 2019.

PART 3 · 2014 TO 2017

# The digital vision.

The board concluded in 2013 that the bank's future was digital and gave management an extra SGD 200 million over three years.

THE BOARD'S DECISION, 2013

# "We felt that if we didn't lead the charge, frankly, we might die."

Piyush Gupta to McKinsey Quarterly, 2017. The board gave an extra $200 million "to go blow it up". The 2014 annual report records SGD 200 million over three years, on top of SGD 1 billion already invested in strategic technology.

[7] McKinsey Quarterly, March 2017. [9] DBS Annual Report 2014.

MAKING BANKING JOYFUL

# The vision had three pillars and one technology benchmark.

## 01

### Digital to the core

Cloud-native systems, ten times the release cadence, built for APIs.

## 02

### Embedded in the customer journey

Make the bank "invisible" inside what customers already do.

## 03

### A 22,000-person start-up

Change how the whole workforce works, not only the technology team.

> The benchmark was GANDALF. Gledhill noted that Google, Amazon, Netflix, Apple, LinkedIn and Facebook spell GANALF, "missing a D… our mission became how to become the D in GANDALF".

[4] Gupta, Investor Day 2017. [8] McKinsey interview with David Gledhill, 2018. [5]



CULTURE, 2015 TO 2017

# The culture work was written into the performance system.

### Experiments

In 2015 running an experiment was in everyone's KPI; about 1,000 ran that year.

### Hackathons

Written into talent development; in Cobban's words they "replaced the executive training budget".

### Journeys

About 250 senior managers each sponsored one customer or employee journey.

### Hiring

Hack2Hire, February 2017: an online assessment, then a live two-day hackathon.

[7] [10] [2] [4] [79]. MOJO meeting rules: INSEAD reports more than 500,000 hours saved [80].

INVESTOR DAY, NOVEMBER 2017

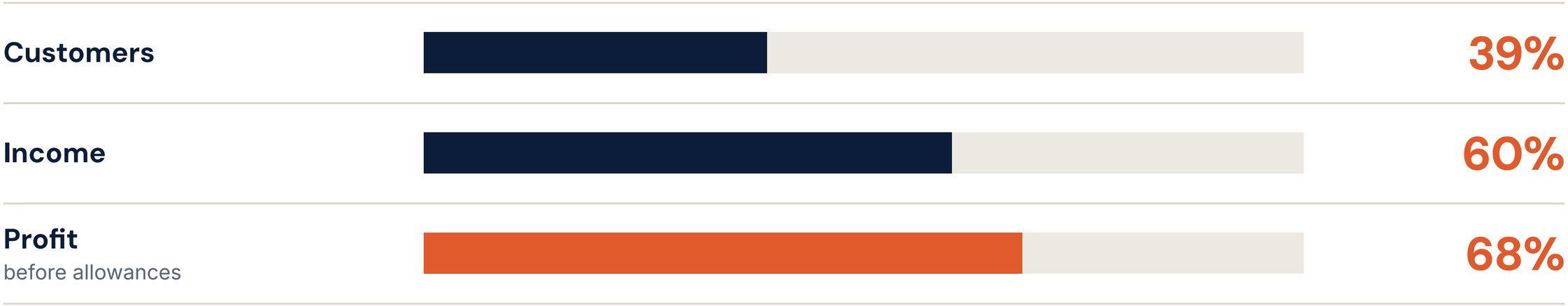
# DBS showed shareholders that digital customers paid more.

| Consumer and SME, Singapore and Hong Kong | Traditional | Digital | Total |
|---|---|---|---|
| **Customers** | 3.6m | 2.3m | 5.9m |
| **Income** | S$2.0bn | **S$3.1bn** | S$5.1bn |
| **Income per customer** | S$0.6k | **S$1.3k** | S$0.9k |
| **Cost-income ratio** | 55% | **34%** | 43% |
| **Return on equity** | 19% | **27%** | 24% |

[6] DBS Investor Day CFO deck, 2017 annualised from 1H17. A customer counted as digital if they bought through a digital channel or did more than half their transactions digitally.

DIGITAL CUSTOMERS' SHARE, 2017

# Digital customers were 39 per cent of the base and 68 per cent of the profit.




> One caution. The group cost-income ratio stayed between 43 and 45 per cent from 2012 to 2019. The gains were real at segment level and were absorbed at group level by acquisitions and new investment.

[6] DBS Investor Day CFO deck. [9] [19] DBS annual reports.

PART 4 · FROM 2018

# Reorganising around platforms.

In 2018 DBS set out "to think and behave like big technology companies by instituting the platform operating model". Thirty-three platforms were established that year.

TWO-IN-A-BOX

# Every platform has a business lead and a technology lead on one scorecard.

> "Each one had a 'two in a box' leadership model, which meant it was led jointly by someone from the business and someone from IT. They share KPI outcomes."
>
> Piyush Gupta, McKinsey, 2025

> "Bankers became product owners as a result, with the platform as the engine for transformation."
>
> Jimmy Ng, CIO, DBS Annual Report 2019

[18] [28] [19]



HOW A PLATFORM IS RUN

# Eight mechanics settle who owns an outcome, who pays and how it is measured.

| Mechanism | How DBS runs it |
|---|---|
| **Unit of organisation** | 33 platforms from 2018, each holding the people, funding, technology and applications behind a service or product |
| **Leadership** | Two-in-a-box: a business lead and a technology lead with joint accountability |
| **Funding** | Money goes to the platform and is judged on outcomes, replacing project approvals |
| **Goals and pay** | Shared KPIs; 20% of the bank scorecard on digital transformation, which drives pay |
| **Oversight** | A Platform Council of senior managers; reviews on control towers and live dashboards |
| **Cross-platform work** | Managing through Journeys from 2021: more than 60 journeys covering over 60% of revenue by 2024 |
| **Engineering practice** | About 90% insourced by 2019; site reliability engineering; 64,000 code releases a month in 2022 |
| **Data governance** | An enterprise data council; every use of data tested against PURE |

[8] [18] [19] [22] [27] [28] [29] [52]

MY READING

# Two mechanics do most of the work.

01

## Fund the platform

Funding the platform removes the annual business case for each change. Gledhill described moving from projects that need approvals and subcommittees to funding a platform, looking at its outcomes, and setting it free.

02

## Share the scorecard

Two-in-a-box leadership on one scorecard removes the argument about whether a missed target was a business or a technology failure.

THE WEAKNESS

A customer's problem usually crosses several platforms. The journey layer added from 2021 is DBS's answer.

[8] [18] [29]

PART 5 · 2013 TO 2026

# The data and AI layer.

AI at DBS did not start well. In 2013 the bank's first AI lab worked on half a dozen projects, "none of which were successful".

THE FOUNDATION UNDER THE MODELS

# The data rules and platforms came before the AI value.

**2013**
### AI lab
With A*STAR. None of its projects succeed.

**2018**
### PURE
A test for every use of customer data.

**2019**
### ADA
Data platform onboards close to 10% of the organisation.

**2021**
### ALAN
One AI/ML platform; every use case checked against PURE.

**2023**
### DBS-GPT
Generative AI for staff; bank-wide by 2025.

**2026**
### Agent registry
Accountability, observability, traceability, evaluation.

[30] MIT Sloan Management Review. [18] [19] [21] [23] [25] [47]

PURE, SET OUT IN 2018

# Every use of customer data must pass four tests.

**P**

## Purposeful

The use serves a clear purpose for the customer or the bank.

**U**

## Unsurprising

A customer would not be surprised to learn of it.

**R**

## Respectful

It respects the customer's interests and privacy.

**E**

## Explainable

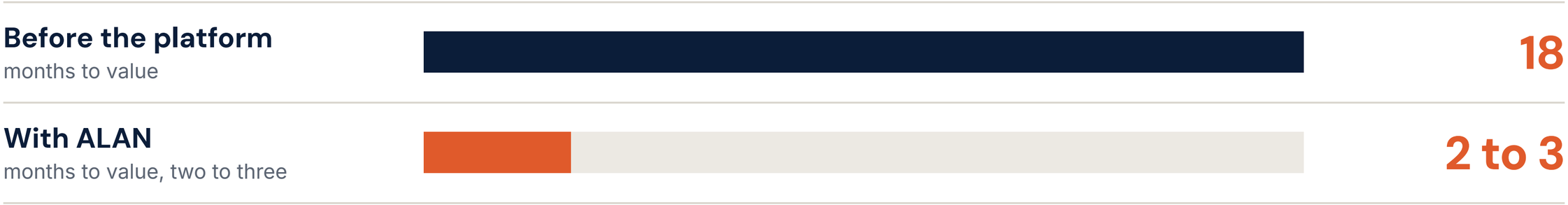
The bank can explain how and why the data was used.

ALAN checks 100 per cent of use cases and models against PURE and the AI governance framework. A Responsible Data Use Committee reports to the Risk Executive Committee.

[18] DBS Annual Report 2018. [21] Annual Report 2021. [24] Annual Report 2024. The one-line glosses are my summary of each word.

WHAT THE PLATFORM CHANGED

# Time to value for an AI use case fell from 18 months to about three.




> The customer-facing output is volume. In 2022 DBS sent 45 million personalised nudges a month to about five million customers. In 2024 it sent more than 1.2 billion to over 13 million customers.

[49] Eugene Huang, CIO, Frontier Enterprise, March 2026. [22] [24]

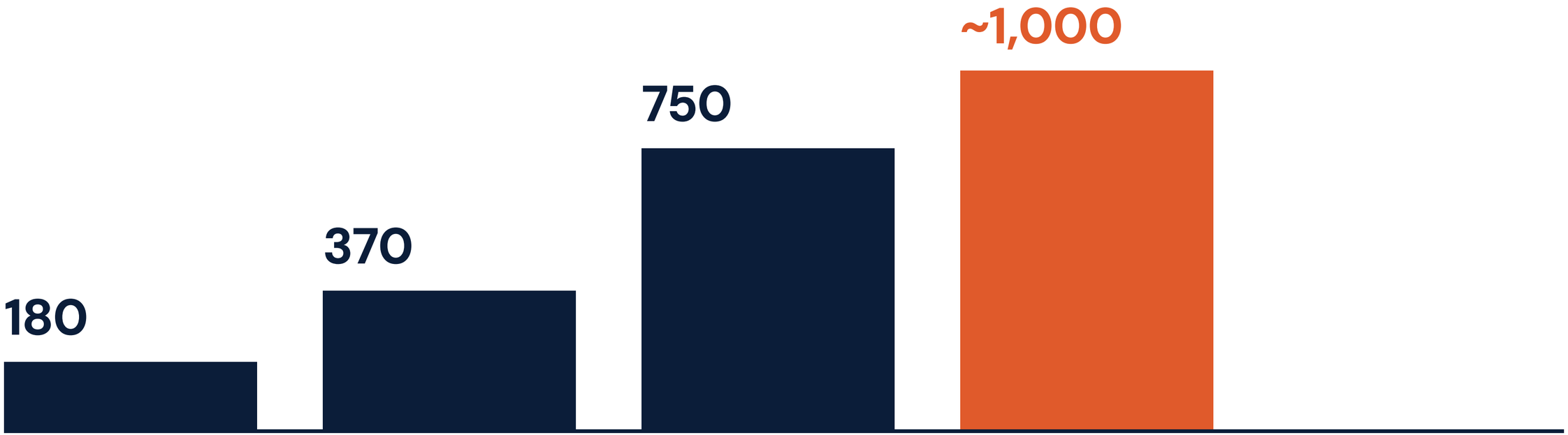
PART 6 · THE HEADLINE FIGURE

# What the S$1 billion means.

The number boards quote most. It is real in the way DBS defines it, so the definition matters.

ECONOMIC VALUE FROM DATA ANALYTICS AND AI/ML · S$ MILLIONS

# Reported value roughly doubled each year from 2022 to 2024.




**2022**
restated from S$150m revenue

**2023**
800 models, 350 use cases

**2024**
1,500+ models, 370+ use cases

**2025**
2,000+ models, 430+ use cases

[22] [23] [24] [25] DBS annual reports; [32] for the restatement. Reported by DBS and unaudited.

WHAT DBS COUNTS

# Economic value combines three things, and only part of it is cost.

## 01

### Revenue uplift

Income from anticipating customer needs, such as personalised nudges.

## 02

### Cost avoidance and productivity

Work done faster or no longer needed.

## 03

### Losses averted

Fraud, scams and credit losses avoided.

> At 2026 exchange rates about S$1 billion is roughly US$770 million. It is reported in the narrative part of the annual report, outside the audited accounts, with no per-use-case breakdown.

[23] [25] DBS annual reports. [33]

HOW DBS MEASURES IT

# "A group of people gets AI treatment, a group doesn't. That takes out the noise, and the delta is what we count as AI value."

Nimish Panchmatia, Chief Data and Transformation Officer, DBS, 2026. Test and control is a sound method. The result is still the bank's own, unaudited figure.

[33] Google Cloud, Transform, 11 March 2026.

THE DEFINITION CHANGED ONCE

# The S$1 billion target moved from revenue to economic value.

## 2022

### Revenue aspiration

S$150m of AI revenue uplift; S$1bn of revenue within five years.

## 2023

### Restated

The 2022 figure becomes S$180m of economic value.

## 2024

### New target

S$750m reported; more than S$1bn of economic value targeted for 2025.

## 2025

### Reached

"Approximately SGD 1 billion" in the 2025 annual report.

> None of that makes the figure wrong. Another organisation's number is comparable only if it is defined and measured the same way.

[22] [32] [24] [25]

EVIDENT AI INDEX, 50 LARGE BANKS

# DBS's external ranking has fallen as other banks disclosed more.

| DBS rank | 2023 | 2024 | 2025 | 2026 |
|---|---|---|---|---|
| **Overall** | 10 | 16 | 18 | **25** |
| **Leadership pillar** | 1 | 1 | 2 | **16** |

> In 2024 Evident noted DBS was one of only two banks, with JPMorgan Chase, to publish a total realised value from AI. In the 2026 index twelve banks report the actual or targeted value of their AI, up from eight a year earlier. Evident scores public disclosure, so a fall in rank can reflect what others published.

[43] Evident, 2024. [55] Evident AI Index 2025. [88] Evident AI Index 2026, 6 October 2026. [89] Inside the 2026 AI Index.

PEER COMPARISON

# Only DBS publishes a bank-wide AI value figure with a stated method.

| Bank | Published AI value figure, as each bank describes it | Evident 2026 |
|---|---|---|
| **DBS** | About S$1bn economic value, 2025; test and control | 25 |
| **JPMorgan Chase** | "About $2 billion of benefits" (CEO interview, 2025); no method disclosed | 1 |
| **Bank of America** | No value figure published | 7 |
| **HSBC** | No value figure published | 11 |
| **BBVA** | None; "still too early to accurately quantify" (CFO, 2026) | 13 |
| **Commonwealth Bank** | No bank-wide figure; one fraud model, about A$29m of losses reduced | 4 |
| **OCBC** | No AI total; close to S$80m cost avoidance from modernisation (2025) | Not indexed |
| **UOB** | None; "an uplift in overall productivity" (2025) | Not indexed |
| **Standard Chartered** | No AI total; $10m a year from one monitoring platform | 23 |

[25] [60] [63] [64] [66] [68] [71] [74] [75] [88]. These are different measures and should not be ranked against each other.

PART 7 · 2021 TO 2026

# The outages and the regulator.

The same speed that produced the awards produced a capital penalty and a six-month restriction from the Monetary Authority of Singapore.

DISRUPTIONS AND MAS ACTIONS

# The regulator escalated three times in two years.

**Nov 2021**
**Outage**
Digital services down for two days.

**Feb 2022**
**1.5x**
Operational-risk multiplier: about S$930m of capital.

**Mar 2023**
**Outage**
Another disruption on 29 March.

**May 2023**
**1.8x**
About S$1.6bn of additional capital in total.

**Oct 2023**
**Data centre**
Cooling fault hit DBS and Citibank; a back-up site misconfiguration slowed DBS.

**Nov 2023**
**Pause**
Six months: no non-essential IT changes or new ventures.

**Apr 2024**
**Pause ends**
The 1.8x multiplier stays.

**Mar 2026**
**One hour**
Error in a system change; MAS to follow up on change management.

[34] [35] [36] [37] [40] [91] MAS releases and parliamentary replies. No MAS notice lifting the 1.8x multiplier found as of 12 October 2026.

OCTOBER 2023

# MAS counted five disruptions in eight months and called it unacceptable.

**810,000**

failed attempts to access the digital platforms of DBS and Citibank, up to

**2.5m**

payment and ATM transactions not completed, about (MAS does not split by bank)

**S$1.6bn**

additional regulatory capital under the 1.8x multiplier, about

**6**

months of pause on non-essential IT changes and new business ventures

[36] MAS oral reply to Parliament, 6 November 2023. [35] [37]

1 NOVEMBER 2023

# MAS named four shortcomings, and the board answered the same day.

## MAS found shortcomings in

- System resilience
- Incident management
- Change management
- Technology risk governance and oversight

CONSEQUENCE

## Variable pay cut

Senior management's 2023 variable pay down 21%; the CEO's down 30%.

## DBS's board

- Set up a board committee for technology risk
- Moved technology risk under the Chief Risk Officer
- Split technology and operations
- Set aside SGD 80 million for resilience

[37] MAS, 1 November 2023. [38] DBS, 1 November 2023. [39] DBS 4Q23 statement.



DBS'S OWN DIAGNOSIS

# The architecture that enabled the platforms also made failures harder to contain.

> **"The shift from a monolithic mainframe to a cloud-native, microservices-based approach… created a more complex infrastructure requiring additional operational rigour and oversight."**
>
> DBS Annual Report 2023

In March 2026 MAS traced a one-hour disruption to "an erroneous step when performing a system change". Change management was one of the four shortcomings named in 2023.

[23] [91]

PART 8 · PEOPLE AND LEADERSHIP

# The workforce and the handover.

Insourcing created the talent base. AI is now changing which roles the bank needs.

THE WORKFORCE

# DBS named the roles that would go and the people it would reskill.

**~6,000**

technology professionals in 2019, up 24% that year

**3,000+**

staff in the 2020 DeepRacer machine-learning league

**~4,000**

contract and temporary roles to go over three years (Feb 2025)

**11,000+**

employees identified for deeper reskilling (Aug 2026)

"In my 15 years of being a CEO, for the first time, I'm struggling to create jobs." Piyush Gupta, February 2025. Permanent staff were not affected. All 40,000 employees are to get foundational AI skills.

[19] [81] [41] Fortune, 25 February 2025. [42] DBS and IBF, August 2026.

LEADERSHIP

# The CEO handover was planned for a decade.

**2010**
Tan Su Shan joins DBS; she later runs wealth, consumer and institutional banking.

**August 2024**
Named Deputy CEO and CEO-designate after "a decade-long succession process".

**28 March 2025**
Succeeds Piyush Gupta as CEO, the first woman to lead DBS.

**End of 2025**
Staff have built about 26,000 personal AI agents, by Forbes Asia's reporting.

[84] DBS, August 2024. [25] [86] VnExpress citing Forbes Asia; no DBS filing states the agent figure.



THE LINEAGE, 2009 TO 2025

# Each capability became the base for the next.

| Capability | Built | What it made possible |
|---|---|---|
| **In-house engineering** | 2009 to 2019 | Teams that own their code, which the platform model requires |
| **Data centres and private cloud** | 2009 to 2019 | Cheap, elastic compute for analytics and, later, 2,000 models |
| **Experiment culture** | 2015 | The test-and-control habit DBS now uses to count AI value |
| **Customer journeys** | 2015 to 2016 | Managing through Journeys, the layer that ties platforms to revenue |
| **APIs** | 2017 to 2018 | Components an AI use case can call |
| **Platform operating model** | 2018 | A named business owner for every AI use case |
| **Data platform and PURE** | 2018 to 2019 | Governed data, without a new data project for each model |
| **AI platform (ALAN)** | 2021 | Model reuse; time to value down from 18 months to 2 to 3 |
| **Measured AI value** | 2022 to 2025 | A board-level number that funds the next round, now agents |

[3] [5] [7] [14] [18] [19] [21] [22] [25] [27] [29] [49]. The lineage is my reading; no study isolates it.

LESSONS

# What boards and agencies can take from it.

Six lessons, each tied to the record. The lessons are my reading of it.



LESSONS 1 AND 2

# Benchmark against the sequence and give every model a business owner.

01

## Benchmark against the sequence

DBS published its first AI value figure after thirteen years of engineering, data and organisational work.

DO THIS

Before quoting the DBS curve, check which of its foundations your organisation has built.

02

## Put a business owner on every model

Two-in-a-box on one scorecard is what lets DBS book AI value to a platform.

DO THIS

Name the business owner accountable for each AI use case's result, with the result on their scorecard.

LESSONS 3 AND 4

# Define the measure first and price resilience into speed.

03

## Decide the measure before the claim

Test and control is the right method. DBS changed its measure once, from revenue to economic value.

DO THIS

Write the definition down before the first number is published, and state it whenever the number is used.

04

## Price resilience into speed

The move off the mainframe also created the complexity behind the outages. The answer was about S$1.6 billion of capital and a freeze.

DO THIS

Put board oversight of technology risk in place before the failures.

LESSONS 5 AND 6

# Plan the workforce change in the open and prepare for the supervisor.

05

## Plan the workforce change in the open

DBS named the 4,000 roles and the 11,000 people to reskill.

DO THIS

Say early which roles change and what the retraining path is. The same applies to a public agency.

06

## Prepare for the MAS AI risk guidelines

Issued 7 October 2026 for all financial institutions and all forms of AI, including agents.

DO THIS

Build the AI inventory and materiality assessment now. DBS's agent registry is one form of it.

[41] [42] [90]

MAS GUIDELINES ON AI RISK MANAGEMENT

# Supervisory expectations for AI now have dates.

## 7 Oct 2026

### Issued

Applies to all financial institutions and all forms of AI, including generative AI and AI agents.

## 7 Oct 2027

### Oversight and risk systems

Board and senior management oversight; inventory of AI use; materiality assessment of each use case.

## 7 Oct 2028

### Life cycle and capability

Life-cycle controls and the capability and capacity to use AI.

> Controls are to be proportionate to risk. A board outside Singapore can read the guidelines as a list of what a supervisor will ask.

[90] MAS media release, 7 October 2026.

FOR DISCUSSION

# Four questions to take back to your own organisation.

## 01

**Which of the DBS foundations, from insourcing to a data platform, does your organisation lack today?**

## 02

**Who is the named business owner of your largest AI use case, and is its result on their scorecard?**

## 03

**How is your AI value figure defined, and who outside the AI team has checked it?**

## 04

**When did your board last review technology resilience before an incident rather than after one?**

Free tools at terencekok.com/resources: the DBS sequence diagnostic, the AI value ledger and the technology risk board pack.

EVIDENCE AND METHODOLOGY

# Each claim is graded by what it rests on.

| Claim | Source | Grade |
|---|---|---|
| About S$1bn of economic value, 2025 | DBS Annual Report 2025; test and control; no per-use-case breakdown | **Reported by DBS, unaudited** |
| S$180m (2022) to S$750m (2024) | DBS annual reports; 2022 restated from S$150m revenue | **Reported by DBS; definition changed once** |
| Digital customers: twice the income, 27% ROE | Investor Day 2017; Singapore and Hong Kong consumer and SME only | **Reported by DBS, segment only** |
| 33 platforms, two-in-a-box, Platform Council | AR2018; MIT CISR; McKinsey interviews | **Primary plus independent research** |
| 1.5x and 1.8x multipliers; six-month pause; March 2026 disruption | MAS releases and parliamentary replies, 2022 to 2026 | **Regulator record** |
| Evident ranks 10, 16, 18, 25 | Evident index pages, 2023 to 2026; disclosure-based scoring | **Independent index** |
| 26,000 agents; MOJO's 500,000 hours | VnExpress citing Forbes Asia; INSEAD Knowledge | **Single secondary source** |
| The AI result depends on the work before it | My reading of the sequence; no study isolates it | **My call** |

SOURCES 1 OF 4

# Sources 1 to 24.


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Thank you. Questions and discussion.

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