



Digital Strategy

Digital Maturity Assessment

FBNQuest

January 2019



Private and confidential

The Chief Executive Officer

FBNQuest

2nd Floor, 10 Keffi Street Ikoyi

Lagos, Nigeria

25 January 2019

Attention: Funke Ladimeji

Dear Sir,

Digital Strategy

We are pleased to submit our report on Digital Maturity Assessment for FBNQuest Merchant Bank ("Client" or "FBNQuest" or "the Bank"). This report was prepared in accordance with the scope of work outlined in our engagement letter to FBNQuest dated 06 August 2018 as part of our deliverables to FBNQuest.

The report has been prepared from documents supplied to us by the Bank, walkthroughs and stakeholder engagements conducted as part of assisting the Bank with articulating its Digital Strategy.

To the extent that this report includes recommendations to address gaps and issues identified in the course of this assignment, the management of the Bank shall be solely responsible for all implementation decisions and for any future action with respect to all matters covered in this report.

This report, including the information contained therein, is intended solely for use by FBNQuest and shall not be quoted, referred to or transmitted to any other party, in whole or in part, without the express prior written consent of KPMG Advisory Services.

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We thank you for the opportunity to be of service to you on this major assignment and look forward to continue working with the Bank on its digital program.

Yours faithfully



Boye Ademola
Partner & Lead, Digital Transformation

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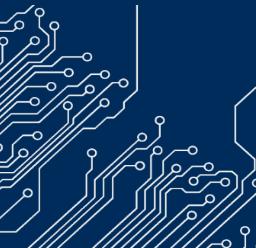
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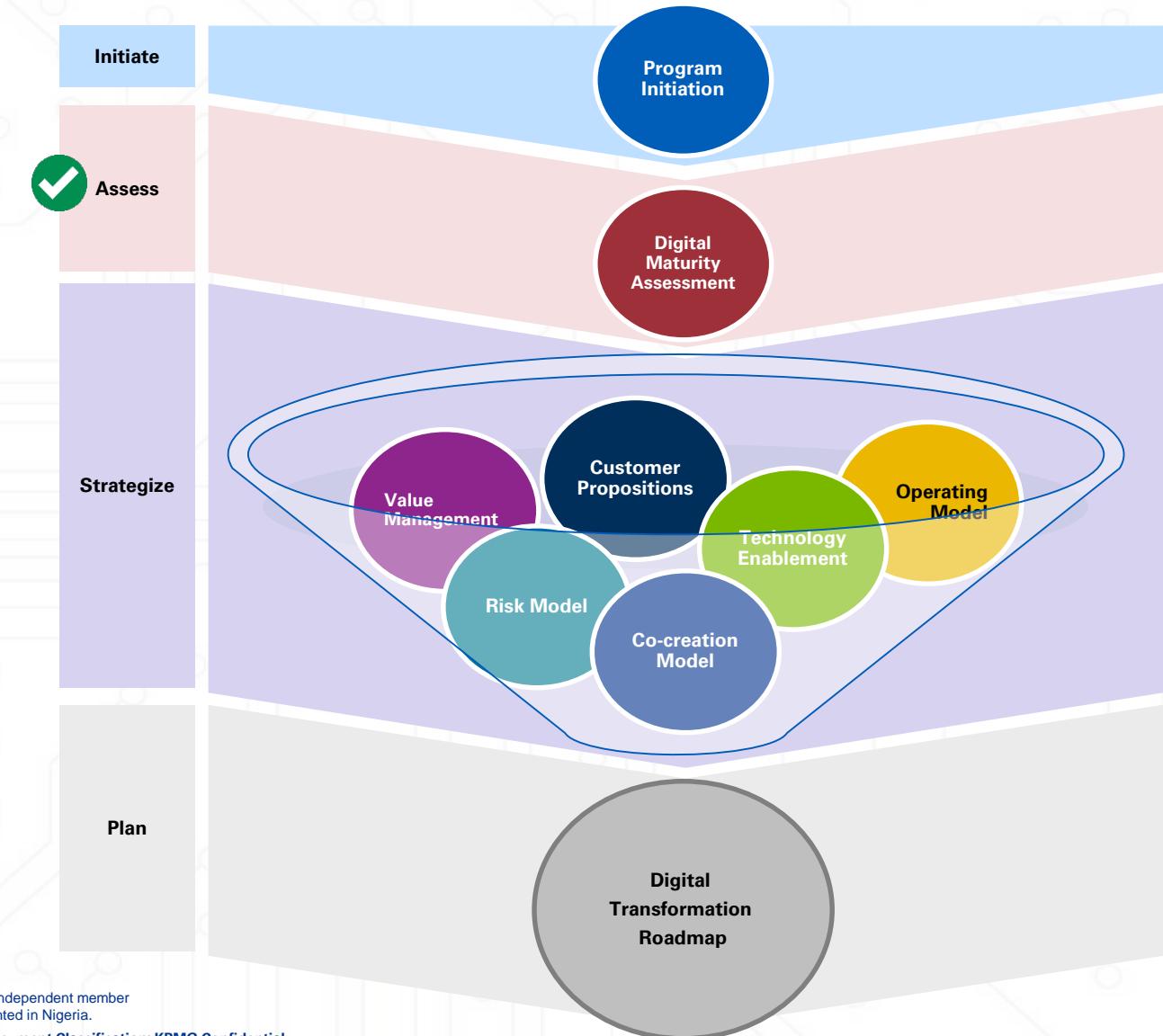
01

Background

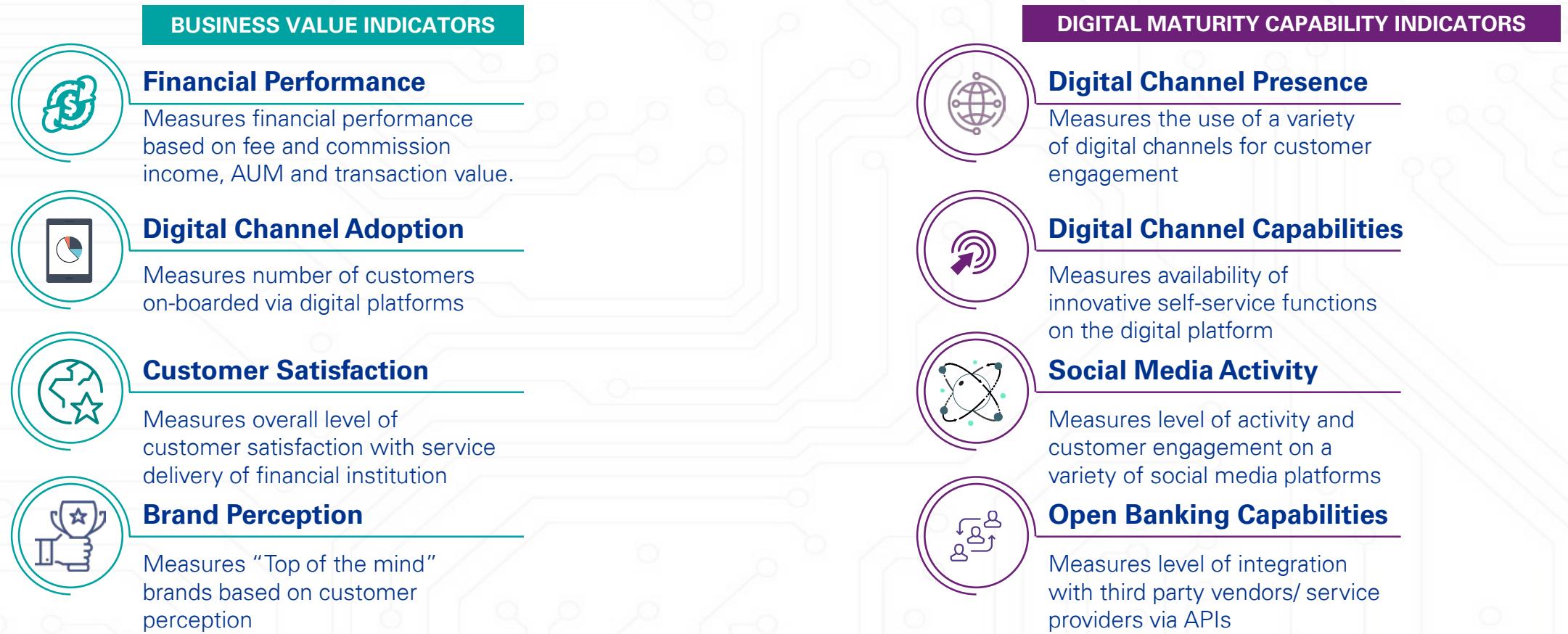


A key objective of the Digital Maturity Assessment is to assess FBNQuest's current digital maturity level in comparison with other market players

- Following the Group's ambition of becoming the leading Merchant Bank and Asset Manager in Africa, FBNQuest has identified digital as a critical enabler for the realisation of this ambition. Consequently, the Group has engaged KPMG to provide the assistance required to drive the development of its digital strategy intended to reposition the Group within its target markets.
- As part of the Assess phase of the Digital Strategy Program, we have performed the Digital Maturity Assessment (DMA) that details FBNQuest's current baseline and starting position for Digital.
- The objective of the Digital Maturity Assessment is to obtain a diagnosis of how well positioned FBNQuest is to successfully navigate the digital transformation journey and identify existing gaps by benchmarking its capabilities against those of its peers and global players in similar lines of business.



A set of quantitative indicators were used to assess FBNQuest's digital maturity in relation to its competitors leveraging a number of data sources



Data sources



Google Playstore

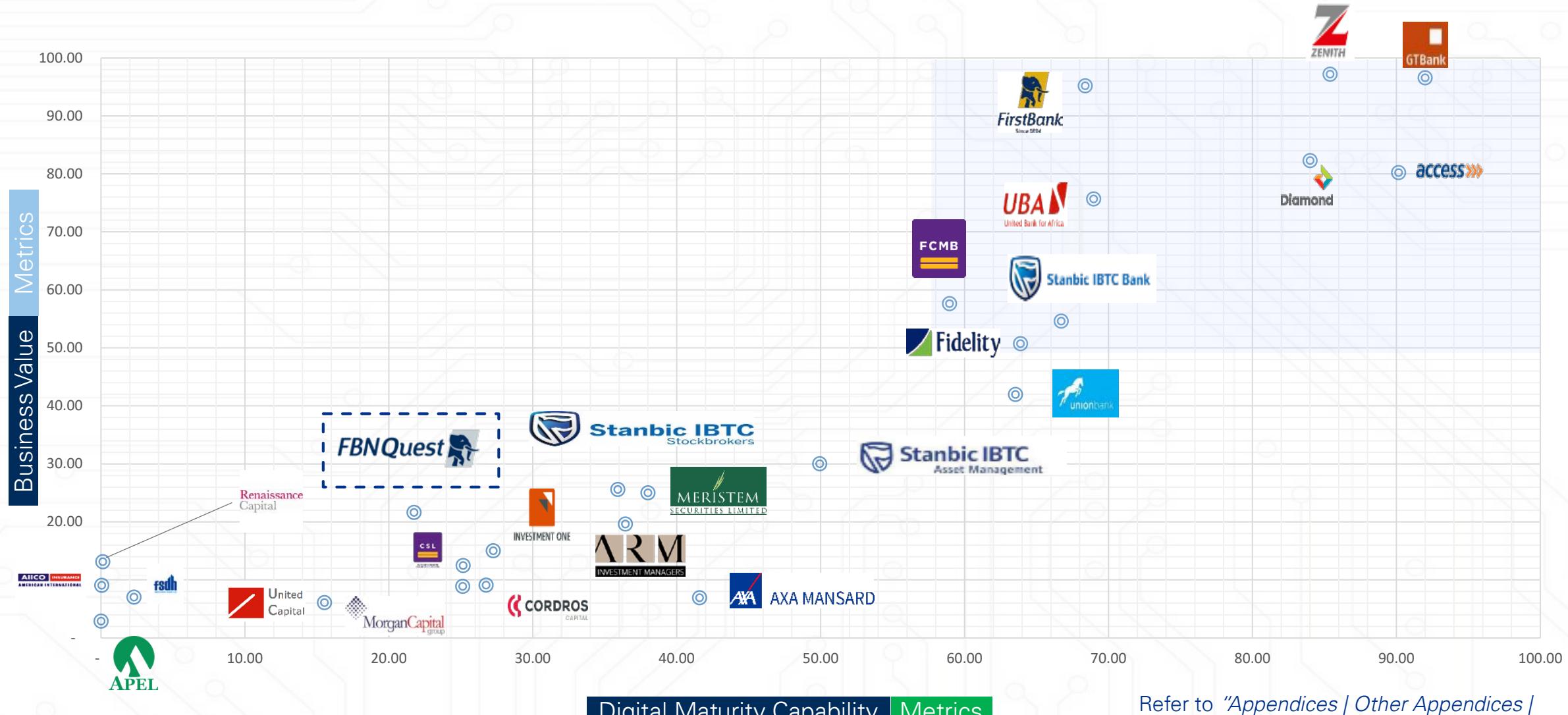


Audited Financial Statements
KPMG BICSS

02

Assessment Summary

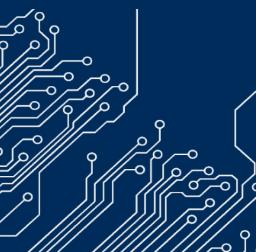
Our model is based on Business Value and Digital Capability Matrix from various sources



Refer to "Appendices / Other Appendices / Assessment Summary / Detailed Scoring" for details

03

Detailed Assessment



3-1

Business Value

03 Detailed Assessment

3-1 Business Value

3-1.1 Key Metrics

3-1.2 Assessment Details

- Financial Performance
- Channel Adoption Rate
- Customer Satisfaction Ratings
- Brand Perception

3-2 Digital Maturity Capabilities

3-2.1 Key Metrics

3-2.2 Assessment Details

- Digital Channels Presence
- Digital Channel Capabilities
- Social Media Activity Level
- Open Banking Capabilities

3-1.1 Key Metrics

03 Detailed Assessment

3-1 Business Value

3-1.1 Key Metrics

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- Channel Adoption Rate
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3-2.1 Key Metrics

3-2.2 Assessment Details

- Digital Channels Presence
- Digital Channel Capabilities
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- Open Banking Capabilities

Business value, through digital channels, has been measured using identified key value metrics to quantify maturity across local players



Renaissance Capital
Since 1894

access >>>

Diamond



AXA MANSARD



United Capital



INVESTMENT ONE



Key value metrics across the digital channels...



Financial Performance



Channel Adoption Rate



Customer Satisfaction Ratings



Brand Perception

3-1.2

Assessment

Details

03 Detailed Assessment

3-1 Business Value

3-1.1 Key Metrics

3-1.2 Assessment Details

- Financial Performance
- Channel Adoption Rate
- Customer Satisfaction Ratings
- Brand Perception

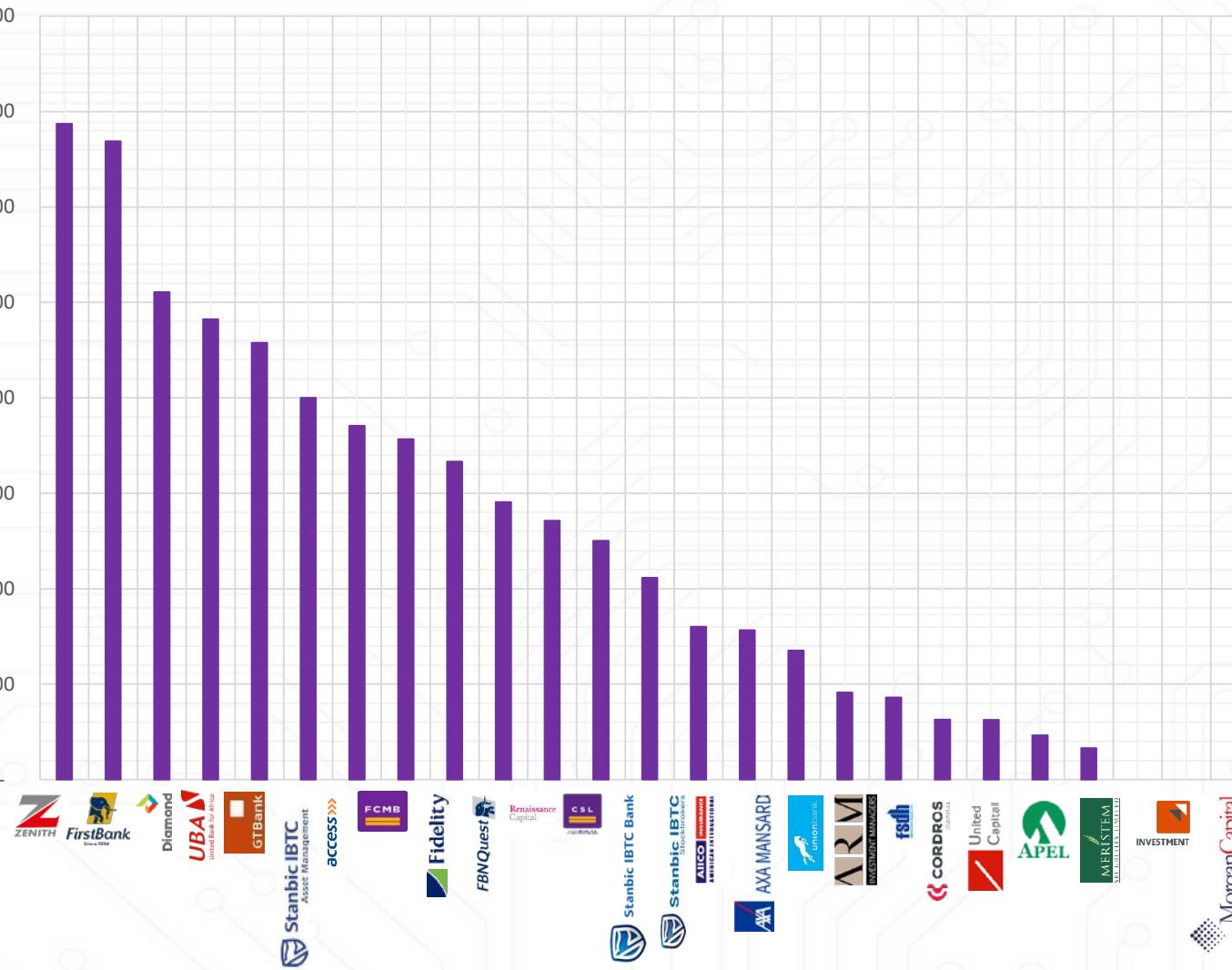
3-2 Digital Maturity Capabilities

3-2.1 Key Metrics

3-2.2 Assessment Details

- Digital Channels Presence
- Digital Channel Capabilities
- Social Media Activity Level
- Open Banking Capabilities

Digital platforms are the key drivers of financial performance as majority of income comes from the volume of transactions processed across the platform.



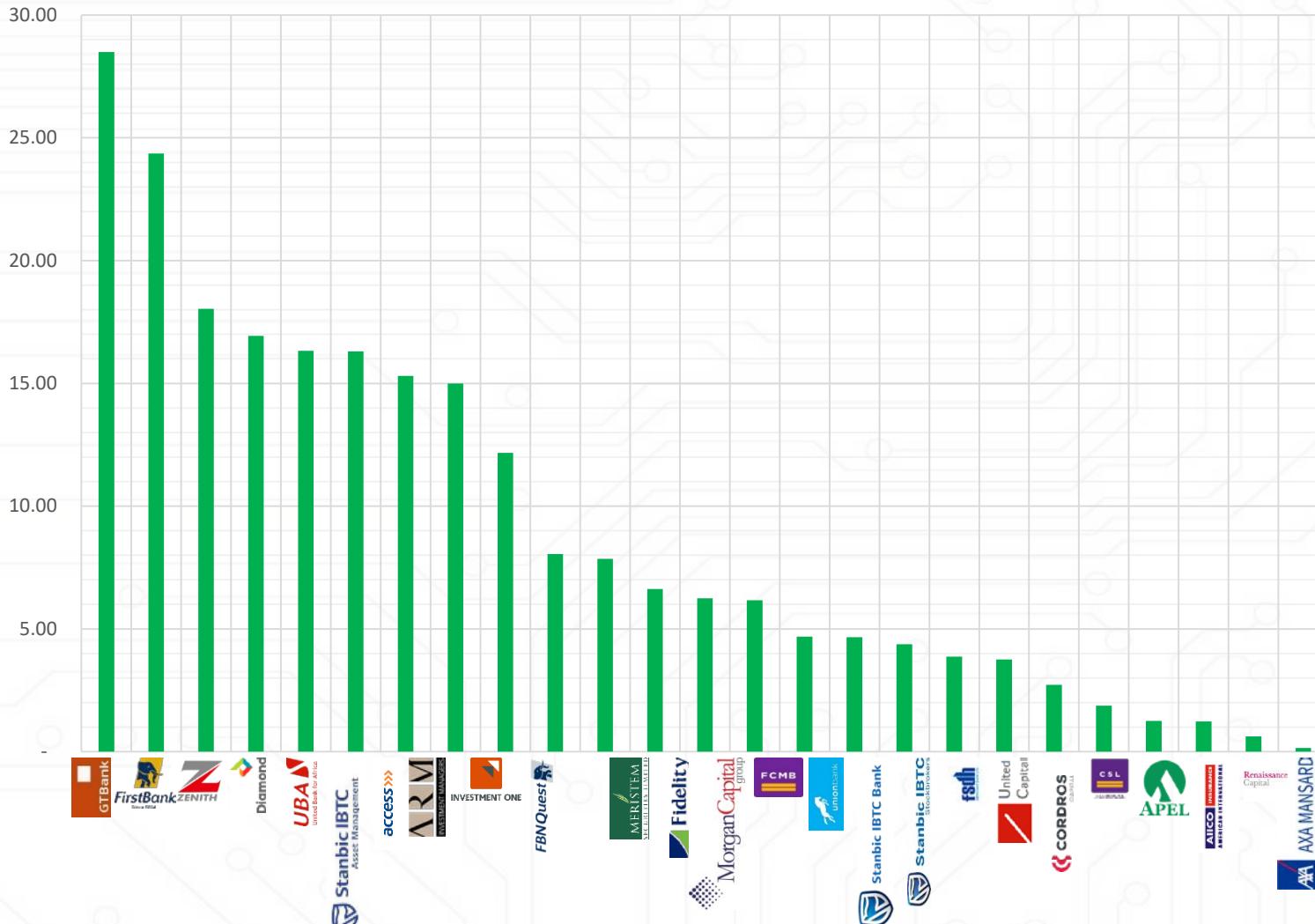
| Player | Score |
|---------------------------------------|-------|
| Zenith Bank Plc | 34.36 |
| First Bank Nigeria Limited | 33.43 |
| Diamond Bank Plc | 25.54 |
| United Bank For Africa Plc | 24.11 |
| Guaranty Trust Bank Plc | 22.88 |
| Stanbic IBTC Securities | 20.00 |
| Access Bank Plc | 18.54 |
| Stanbic Ibtc Asset Management Limited | 17.83 |
| First City Monument Bank Plc | 16.66 |
| Fidelity Bank Plc | 14.54 |
| Fbnquest | 13.56 |
| Rencap | 12.50 |
| CSL Stockbrokers | 10.58 |
| Stanbic IBTC Bank Ltd. | 8.01 |
| Aiico Capital Limited | 7.82 |
| Axa Mansard Investment Limited | 6.76 |
| Union Bank Of Nigeria Plc | 4.56 |
| Arm Investment Managers Limited | 4.31 |
| Fsdh | 3.15 |
| Cordros | 3.13 |
| United Capital | 2.32 |
| Apel | 1.64 |
| Meristem Securities | - |
| Investment One Stockbrokers | - |
| Morgan Capital Securities | - |

The rankings of local players for financial performance was based on data from:

- **NIBSS** monthly statistical report between (August to October 2018)
- Fee commission earned, Asset under management from **audited financial statements for 2017 FY**.
- **NSE 2018** half year report for stock transaction value

Refer to "Appendices / Other Appendices / Business Value / Detailed Scoring" for details

Customers have shown great interest in the use of new digital platforms to perform daily banking activities swiftly and conveniently



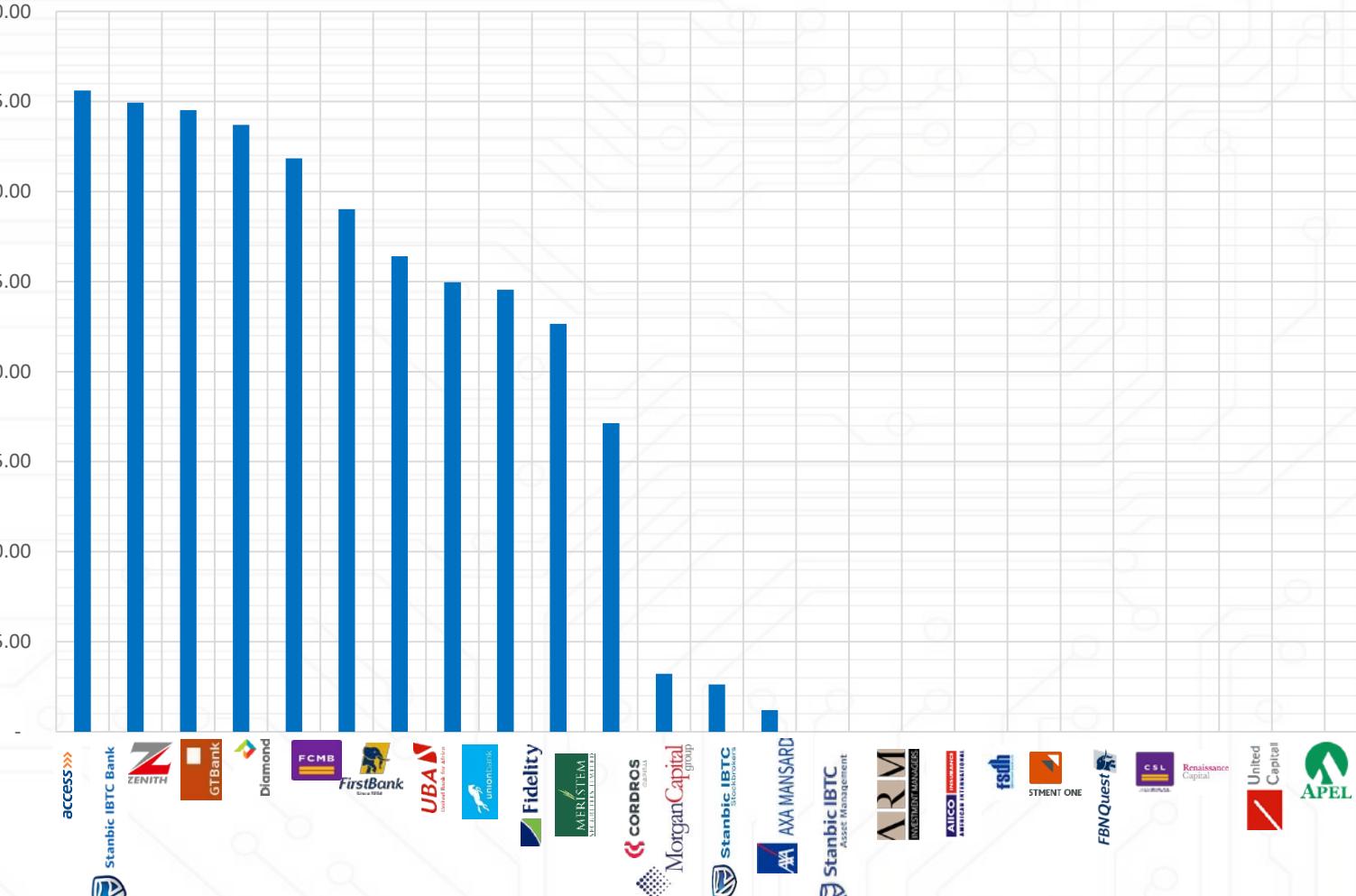
| Player | Score |
|---------------------------------------|-------|
| Guaranty Trust Bank Plc | 28.49 |
| First Bank Nigeria Limited | 24.36 |
| Zenith Bank Plc | 18.03 |
| Diamond Bank Plc | 16.93 |
| United Bank For Africa Plc | 16.33 |
| Access Bank Plc | 16.31 |
| Arm Investment Managers Limited | 15.30 |
| Investment One Stockbrokers | 15.00 |
| Stanbic Ibtc Asset Management Limited | 12.17 |
| Fbnquest | 8.05 |
| Meristem Securities | 7.86 |
| Fidelity Bank Plc | 6.63 |
| Morgan Capital Securities | 6.25 |
| First City Monument Bank Plc | 6.17 |
| Union Bank Of Nigeria Plc | 4.69 |
| Stanbic IBTC Bank Ltd. | 4.67 |
| Stanbic IBTC Securities | 4.38 |
| Fsdh | 3.87 |
| United Capital | 3.75 |
| Cordros | 2.73 |
| CSL Stockbrokers | 1.88 |
| Apel | 1.25 |
| Aiico Capital Limited | 1.23 |
| Rencap | 0.63 |
| Axa Mansard Investment Limited | 0.15 |

The rankings of local players for channel adoption were based on :

- App downloads, Site visits (from **Similarweb**)
- NIP transaction volumes from the **NIBSS** monthly statistical report (August to October 2018).

Refer to "Appendices / Other Appendices / Business Value / Detailed Scoring" for details

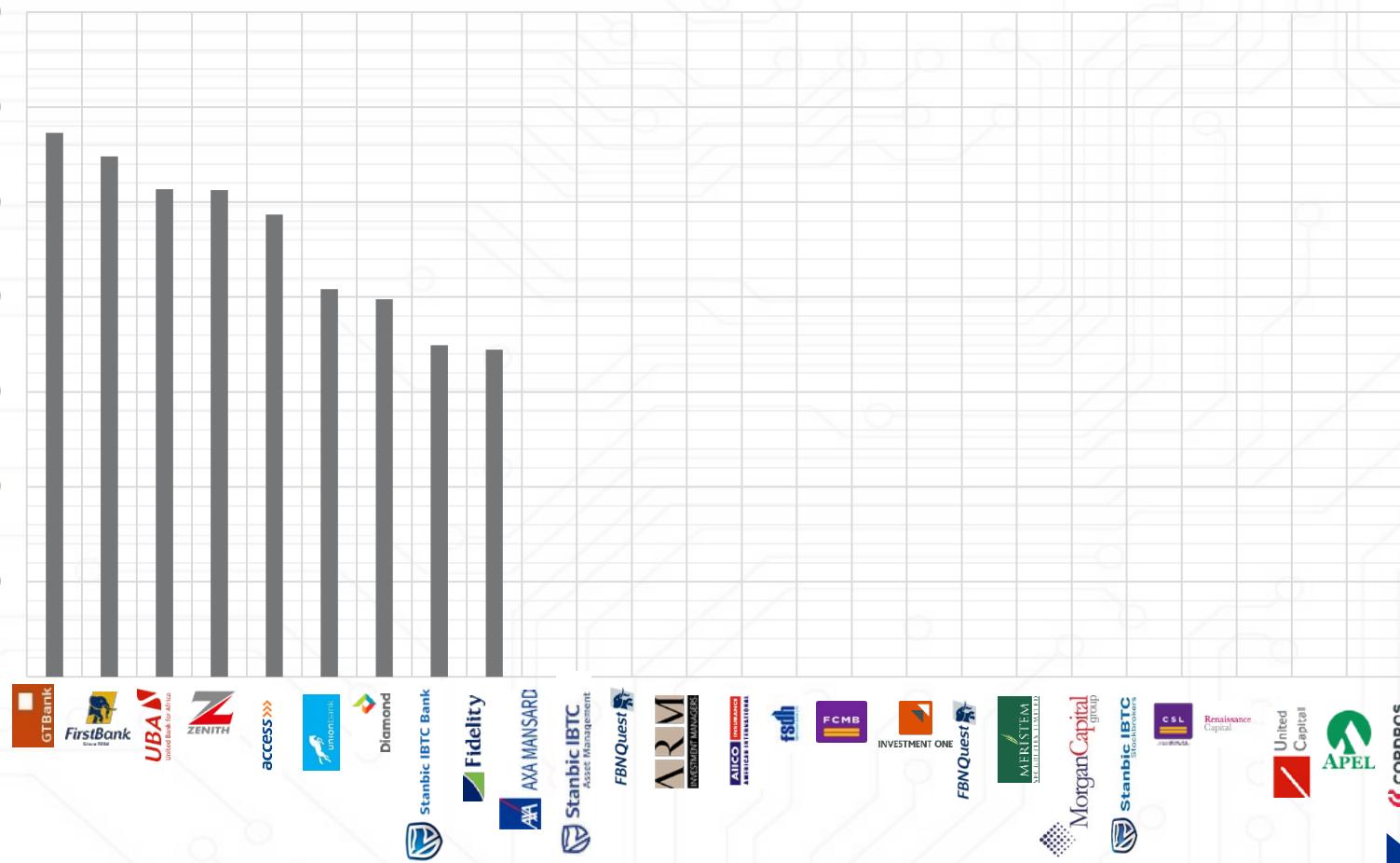
Customer satisfaction is greatly dependent on the speed and ease of use of available digital platforms and the rate at which transactions are successfully processed once initiated.



| Player | Score |
|---------------------------------------|-------|
| Access Bank Plc | 35.60 |
| Stanbic IBTC Bank Ltd. | 34.95 |
| Zenith Bank Plc | 34.53 |
| Guaranty Trust Bank Plc | 33.71 |
| Diamond Bank Plc | 31.84 |
| First City Monument Bank Plc | 29.03 |
| First Bank Nigeria Limited | 26.40 |
| United Bank For Africa Plc | 24.96 |
| Union Bank Of Nigeria Plc | 24.55 |
| Fidelity Bank Plc | 22.65 |
| Meristem Securities | 17.14 |
| Cordros | 3.23 |
| Morgan Capital Securities | 2.63 |
| Stanbic IBTC Securities | 1.20 |
| Axa Mansard Investment Limited | - |
| Stanbic Ibtc Asset Management Limited | - |
| Fbnquest | - |
| Arm Investment Managers Limited | - |
| Aiico Capital Limited | - |
| Fsdh | - |
| Investment One Stockbrokers | - |
| CSL Stockbrokers | - |
| Rencap | - |
| United Capital | - |
| Apel | - |

- The rankings of local players for customer satisfaction was based on :
- Customer Digital Satisfaction Index (**Augusto & Co Research**) report for 2018
 - KPMG **BICSS** Report for 2018.
- Refer to "Appendices / Other Appendices / Business Value / Detailed Scoring" for details

Brands are built on the quality of products and services. Digital platforms are at the forefront of brand quality, as customer perceptions are shaped based on the satisfaction they get from the usage of these products and services



| Player | Score |
|---------------------------------------|-------|
| Guaranty Trust Bank Plc | 11.46 |
| First Bank Nigeria Limited | 10.96 |
| United Bank For Africa Plc | 10.27 |
| Zenith Bank Plc | 10.25 |
| Access Bank Plc | 9.73 |
| Union Bank of Nigeria Plc | 8.16 |
| Diamond Bank Plc | 7.95 |
| Stanbic IBTC Bank Ltd. | 6.99 |
| Fidelity Bank Plc | 6.89 |
| Axa Mansard Investment Limited | - |
| Stanbic Ibtc Asset Management Limited | - |
| Fbnquest | - |
| Arm Investment Managers Limited | - |
| Aiico Capital Limited | - |
| Fsdh | - |
| First City Monument Bank Plc | - |
| Investment One Stockbrokers | - |
| Meristem Securities | - |
| Morgan Capital Securities | - |
| Stanbic IBTC Securities | - |
| CSL Stockbrokers | - |
| Rencap | - |
| United Capital | - |
| Apel | - |
| Cordros | - |

The rankings of local players for brand perception was based on data from:

- **Top 50 brands Nigeria.**

Refer to "Appendices / Other Appendices / Business Value / Detailed Scoring" for details

3-2

Digital Maturity Capabilities



03 Detailed Assessment

3-1 Business Value

3-1.1 Key Metrics

3-1.2 Assessment Details

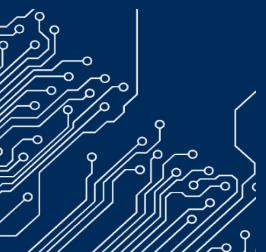
- Financial Performance
- Channel Adoption Rate
- Customer Satisfaction Ratings
- Brand Perception

3-2 Digital Maturity Capabilities

3-2.1 Key Metrics

3-2.2 Assessment Details

- Digital Channels Presence
- Digital Channel Capabilities
- Social Media Activity Level
- Open Banking Capabilities



3-2.1 Key Metrics

03 Detailed Assessment

3-1 Business Value

3-1.1 Key Metrics

3-1.2 Assessment Details

- Financial Performance
- Channel Adoption Rate
- Customer Satisfaction Ratings
- Brand Perception

3-2 Digital Maturity Capabilities

3-2.1 Key Metrics

3-2.2 Assessment Details

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Digital maturity capabilities looks at those essential digital platform features that empower customers to do more from wherever they are at anytime.



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Diamond



INVESTMENT ONE



Key value metrics across the digital channels...

Digital Channels Presence

Digital Channel Capabilities

Social Media Activity Level

Open Banking Capabilities

3-2.2

Assessment

Details

03 Detailed Assessment

3-1 Business Value

3-1.1 Key Metrics

3-1.2 Assessment Details

- Financial Performance
- Channel Adoption Rate
- Customer Satisfaction Ratings
- Brand Perception

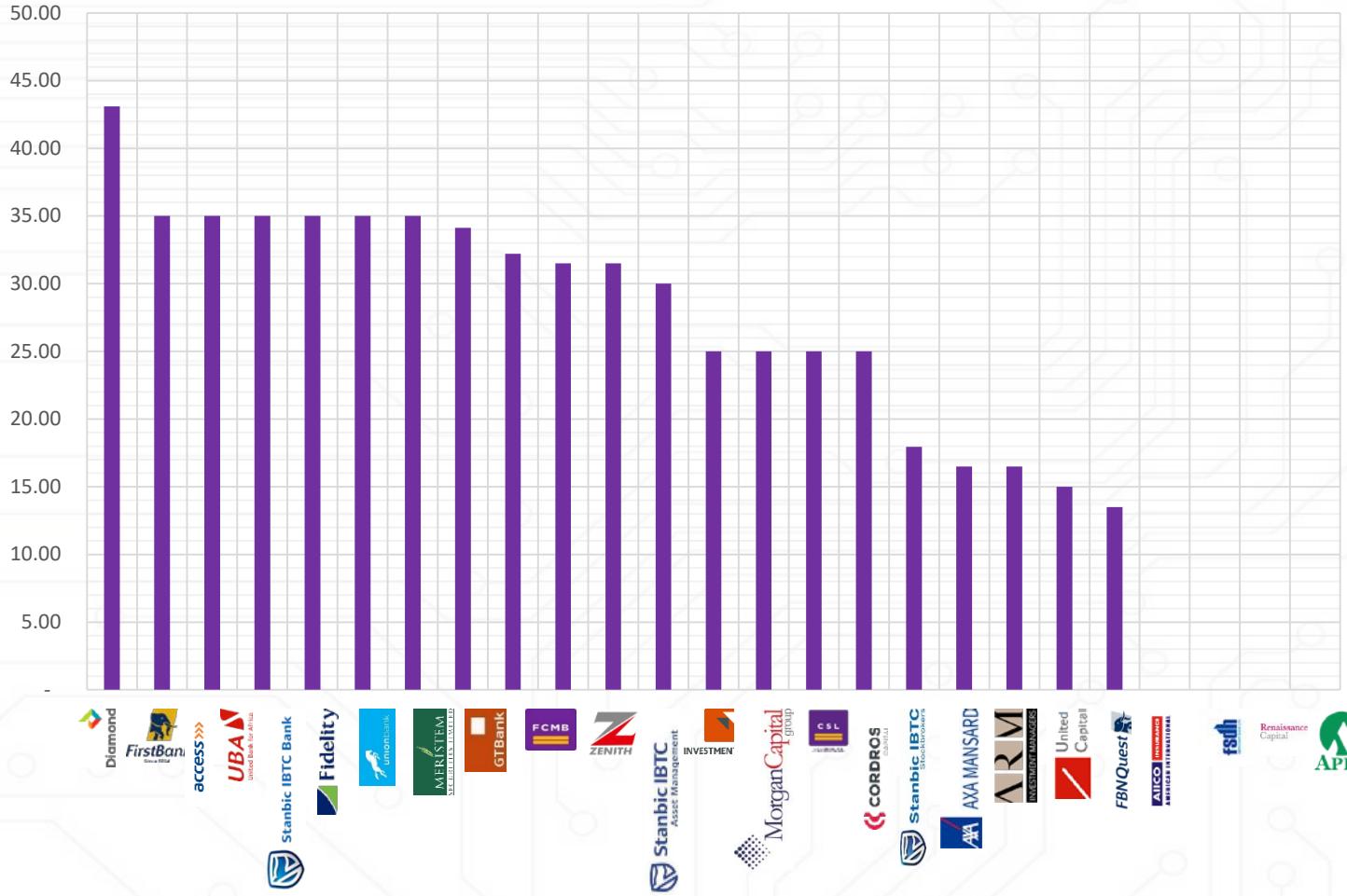
3-2 Digital Maturity Capabilities

3-2.1 Key Metrics

3-2.2 Assessment Details

- Digital Channels Presence
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FBNQuest needs to adopt more digital channels to extend their products and features to appeal to their customers and onboard more customers as well

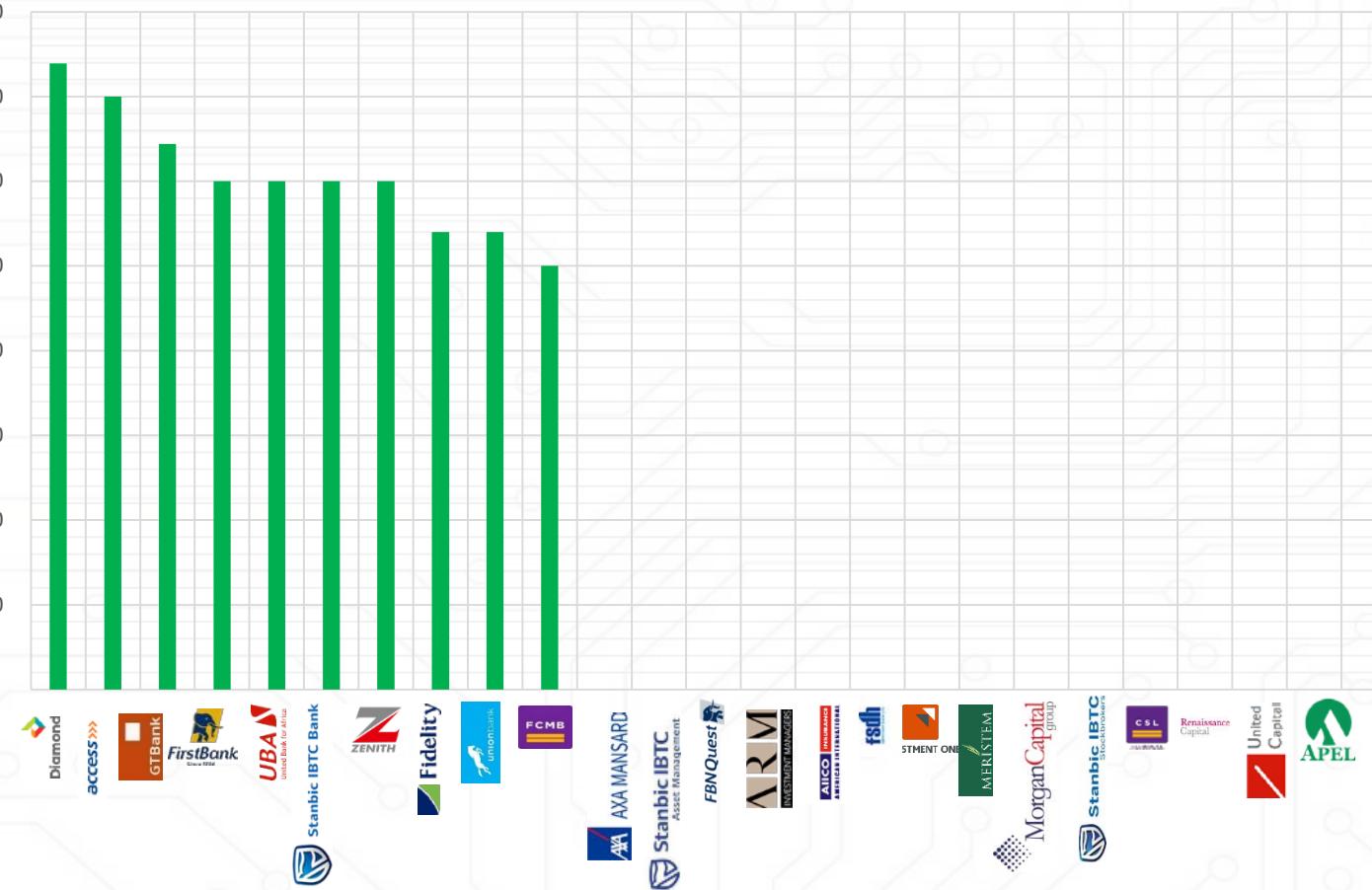


| Player | Score |
|---------------------------------------|-------|
| Diamond Bank Plc | 43.10 |
| First Bank Nigeria Limited | 35.00 |
| Access Bank Plc | 35.00 |
| United Bank For Africa Plc | 35.00 |
| Stanbic IBTC Bank Ltd. | 35.00 |
| Fidelity Bank Plc | 35.00 |
| Union Bank Of Nigeria Plc | 35.00 |
| Meristem Securities | 34.12 |
| Guaranty Trust Bank Plc | 32.20 |
| First City Monument Bank Plc | 31.50 |
| Zenith Bank Plc | 31.50 |
| Stanbic Ibtc Asset Management Limited | 30.00 |
| Investment One Stockbrokers | 25.00 |
| Morgan Capital Securities | 25.00 |
| CSL Stockbrokers | 25.00 |
| Cordros | 25.00 |
| Stanbic IBTC Securities | 17.95 |
| Axa Mansard Investment Limited | 16.50 |
| Arm Investment Managers Limited | 16.50 |
| United Capital | 15.00 |
| Fbnquest | 13.50 |
| Aiico Capital Limited | - |
| Fsdh | - |
| Rencap | - |
| Apel | - |

The rankings of local players for digital channels presence was based on research that indicates the availability of digital platforms across the ranked banks.

Refer to "Appendices / Other Appendices / Digital Maturity Capabilities / Detailed Scoring" for details

Customers have shown delight when given alternative options for banking that can equip them with capabilities to accelerate their daily banking activities



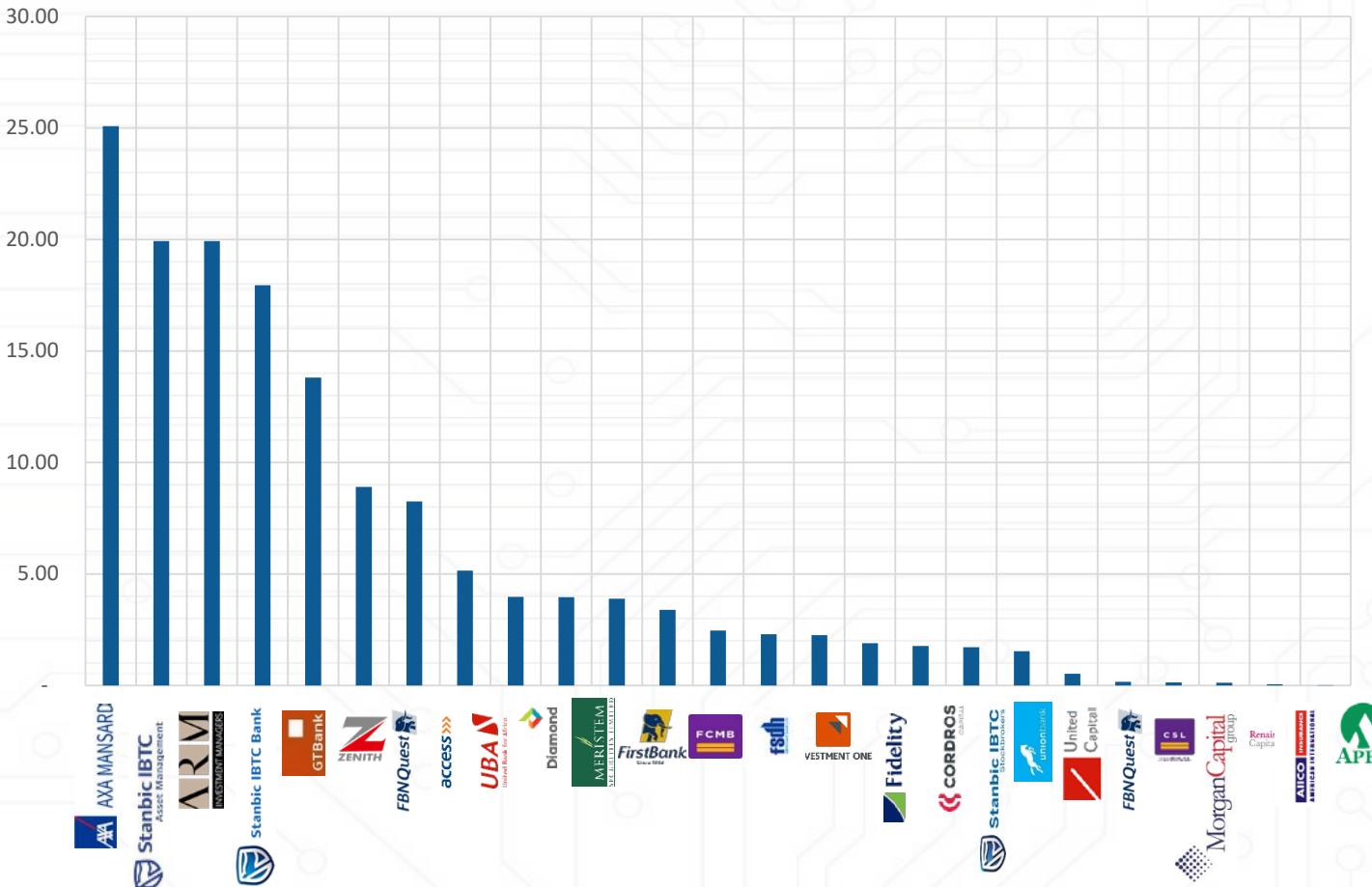
| Player | Score |
|---------------------------------------|-------|
| Diamond Bank Plc | 36.95 |
| Access Bank Plc | 35.00 |
| Guaranty Trust Bank Plc | 32.20 |
| First Bank Nigeria Limited | 30.00 |
| United Bank For Africa Plc | 30.00 |
| Stanbic IBTC Bank Ltd. | 30.00 |
| Zenith Bank Plc | 30.00 |
| Fidelity Bank Plc | 27.00 |
| Union Bank Of Nigeria Plc | 27.00 |
| First City Monument Bank Plc | 25.00 |
| Axa Mansard Investment Limited | - |
| Stanbic Ibtc Asset Management Limited | - |
| Fbnquest | - |
| Arm Investment Managers Limited | - |
| Aiico Capital Limited | - |
| Fsdh | - |
| Investment One Stockbrokers | - |
| Meristem Securities | - |
| Morgan Capital Securities | - |
| Stanbic IBTC Securities | - |
| CSL Stockbrokers | - |
| Rencap | - |
| United Capital | - |
| Apel | - |
| Cordros | - |

The rankings of local players for digital channel capability was based on feature review of digital platforms from :

- **Google playstore**, actual usage of the platform and benchmarking capabilities as opposed to what other players have implemented.

Refer to "Appendices / Other Appendices / Digital Maturity Capabilities / Detailed Scoring" for details

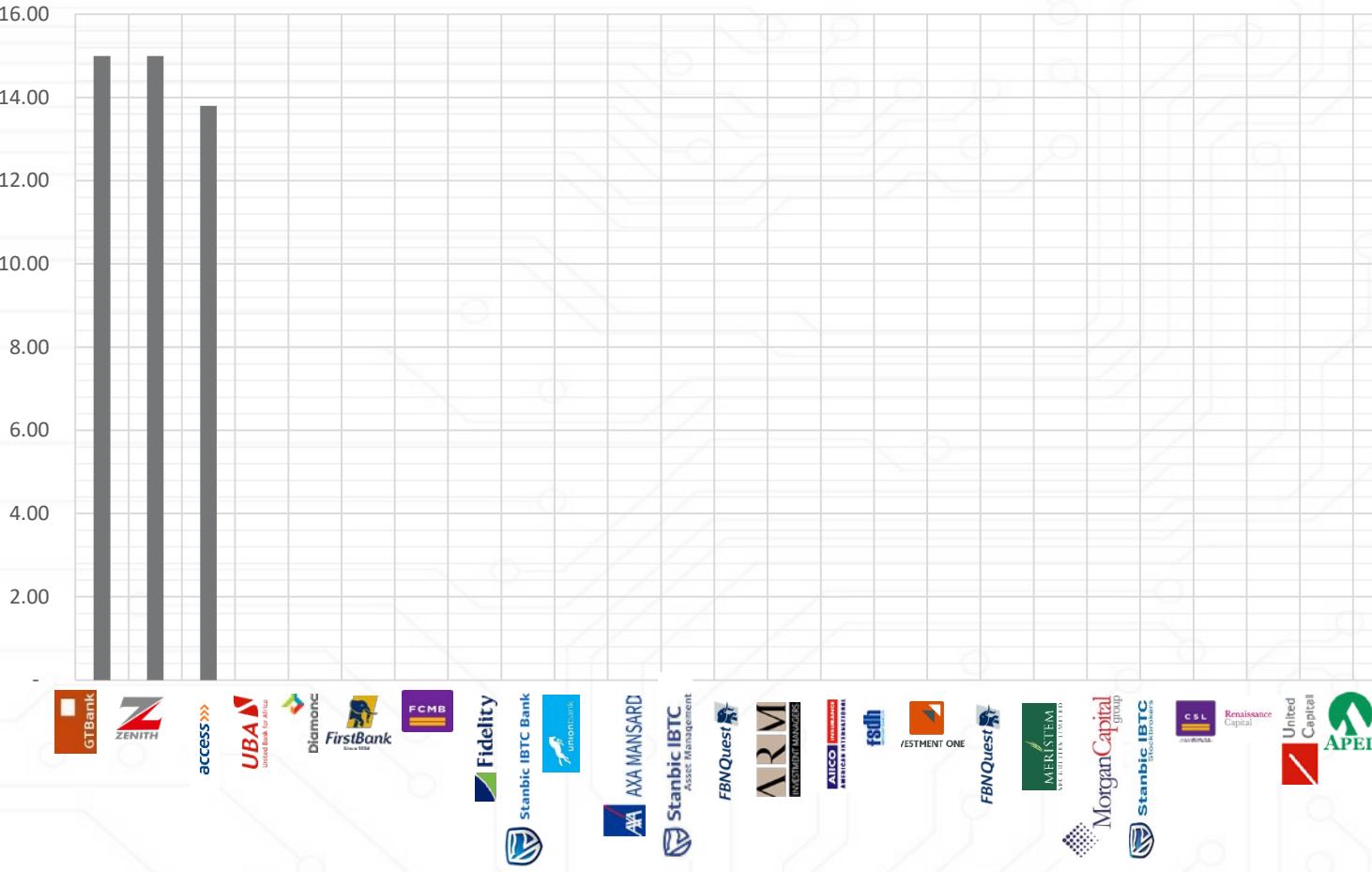
Social Media is growing as it integrates more into the everyday life of people.
 Customers would like to interact with their financial service providers more and even bank with them through social media platforms.



| Player | Score |
|---------------------------------------|-------|
| Axa Mansard Investment Limited | 25.08 |
| Stanbic Ibtc Asset Management Limited | 19.93 |
| Arm Investment Managers Limited | 19.93 |
| Stanbic IBTC Securities | 17.95 |
| Guaranty Trust Bank Plc | 13.80 |
| Zenith Bank Plc | 8.90 |
| Fbnquest | 8.25 |
| Access Bank Plc | 5.15 |
| United Bank For Africa Plc | 3.97 |
| Diamond Bank Plc | 3.95 |
| Meristem Securities | 3.88 |
| First Bank Nigeria Limited | 3.39 |
| First City Monument Bank Plc | 2.46 |
| Fsdh | 2.29 |
| Investment One Stockbrokers | 2.26 |
| Fidelity Bank Plc | 1.89 |
| Cordros | 1.76 |
| Stanbic IBTC Bank Ltd. | 1.71 |
| Union Bank Of Nigeria Plc | 1.54 |
| United Capital | 0.52 |
| CSL Stockbrokers | 0.16 |
| Morgan Capital Securities | 0.13 |
| Rencap | 0.12 |
| Aiico Capital Limited | 0.05 |
| Apel | 0.01 |

- The rankings of local players for Social Media Activity was based on:
- Number of likes on the **Facebook** platform
 - Number of followers on **twitter** platform
 - Number of followers on **Instagram** platform.

APIs are the best way to derive more value from customers by allowing innovative products be built through partnerships and collaborations



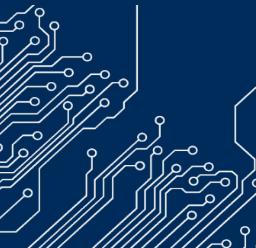
| Player | Score |
|---------------------------------------|-------|
| Guaranty Trust Bank Plc | 15.00 |
| Zenith Bank Plc | 15.00 |
| Access Bank Plc | 13.80 |
| United Bank For Africa Plc | - |
| Diamond Bank Plc | - |
| First Bank Nigeria Limited | - |
| First City Monument Bank Plc | - |
| Fidelity Bank Plc | - |
| Stanbic IBTC Bank Ltd. | - |
| Union Bank of Nigeria Plc | - |
| AXA MANSARD INVESTMENT LIMITED | - |
| STANBIC IBTC ASSET MANAGEMENT LIMITED | - |
| FBNQuest | - |
| ARM INVESTMENT MANAGERS LIMITED | - |
| AIICO CAPITAL LIMITED | - |
| FSDH | - |
| Investment One Stockbrokers | - |
| Meristem Securities | - |
| Morgan Capital Securities | - |
| Stanbic IBTC Securities | - |
| CSL Stockbrokers | - |
| Rencap | - |
| United Capital | - |
| Apel | - |
| Cordros | - |

The rankings of local players for Open Banking Capabilities was based research that looked at the availability of developer portals that exposed open banking APIs to developers and FINTECHs to empower them build applications that leverage on the power of the banking assets the banks possess.

Refer to "Appendices / Other Appendices / Digital Maturity Capabilities / Detailed Scoring" for details

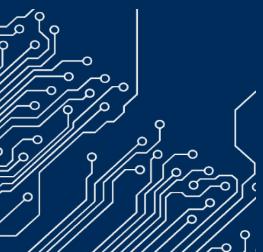
04

Appendices



4-1

Qualitative Assessment



4-1.1

Background

The following approach was adopted for the qualitative digital maturity assessment

- ▶ **1** Relevant domains and sub-domains were identified for the Digital Maturity Assessment
- ▶ **2** For each domain and sub-domain, current state assessment and benchmarking were carried out utilising the following sources of information:
 - A** **Digital Maturity Survey, Interviews & Current State Documentation Review**
Digital maturity assessment surveys were deployed, current-state documents were reviewed and relevant stakeholders were interviewed across FBNQuest business entities and enabling functions to elicit feedback on the current state with respect to the digital journey.
 - B** **Relative Industry Comparison**
Based on external insights from research and industry-knowledge, FBNQuest was benchmarked against local peers and global leaders in its line of business. Consequently, the bank's aspirational state was defined based on input from the benchmarking as well as the inferred target state per the DMA survey.
- ▶ **3** Calibrate FBNQuest's current maturity relative to local & global benchmarks and the aspiration state

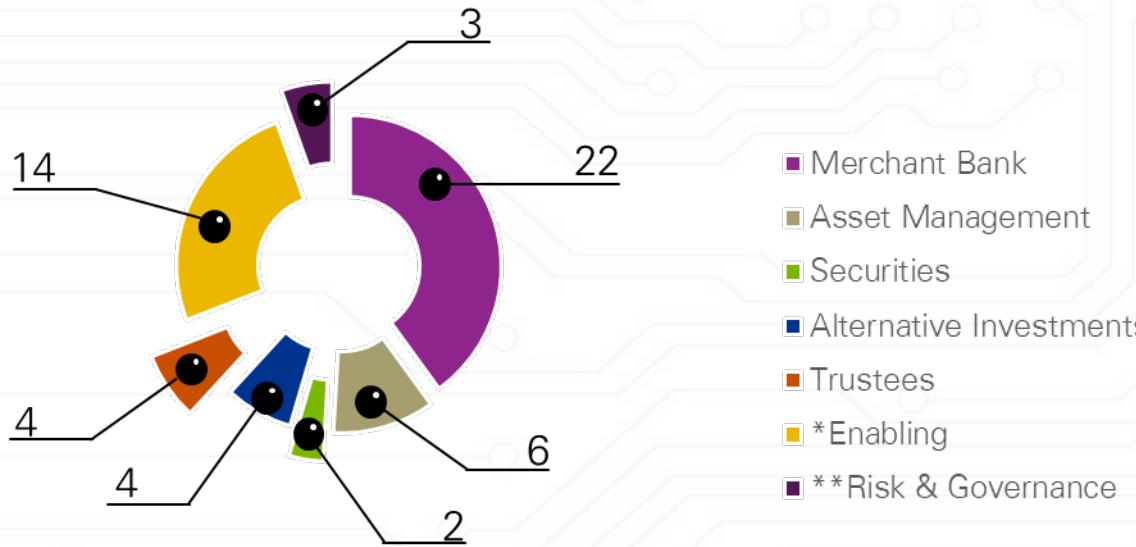
| Maturity Rating | |
|------------------------|---|
| Lagging | Behind the industry |
| Basic | Fit for purpose |
| Progressed | Foundational capability in place to enable progression to leading state |
| Leading | Aligned to leading industry players |
| Innovating | Leading the leaders, experimenting with emerging capability |

The qualitative assessment for FBNQuest covered six (6) dimensions and twenty (20) sub dimensions of Digital, as follows:



The DMA survey cut across over fifty (50) stakeholders across the FBNQuest's business entities and enabling functions, as follows:

Digital Maturity Assessment by Entity

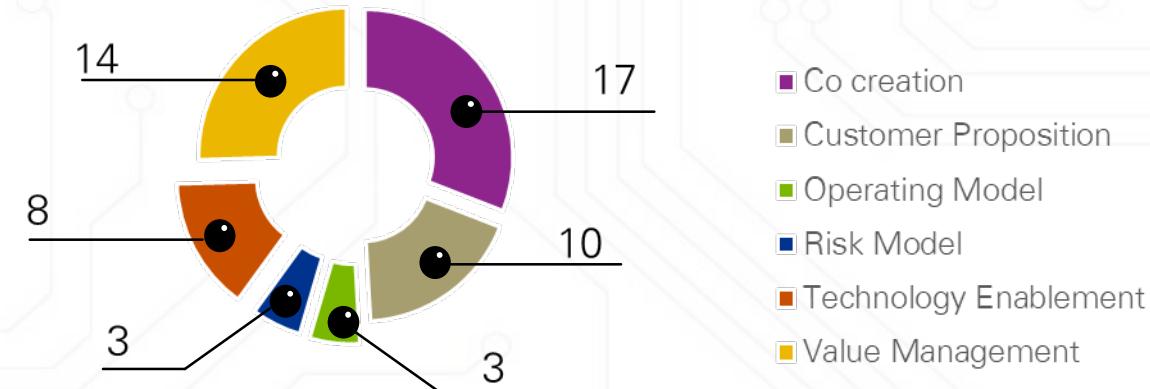


The above chart shows the participation spread across various business entities for the Digital Maturity Assessment across all work streams in scope of the digital strategy.

- *Enabling** – Information Technology, Human Resources, Corporate Communication & Marketing, Operations and General Services
- **Risk & Governance** – Strategy, Risk, Compliance, FINCON, Legal and Audit



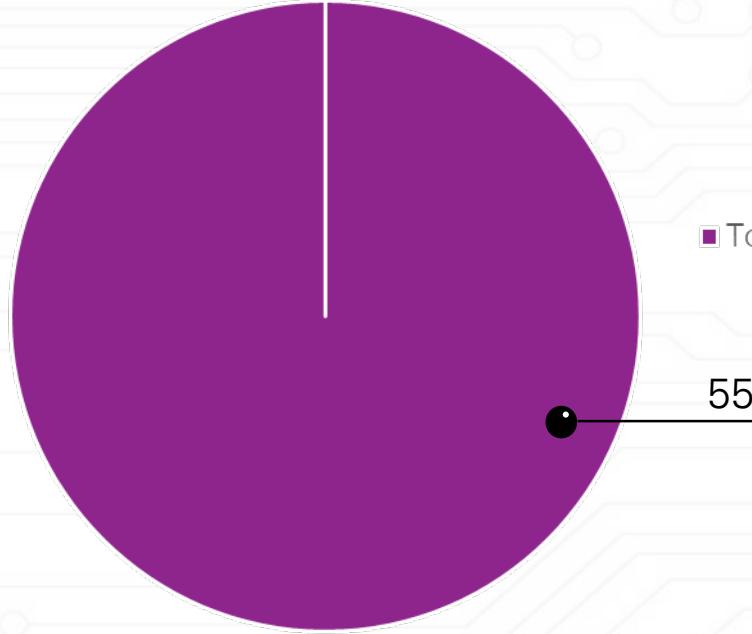
Digital Maturity Assessment by Sections



The above chart shows the spread of participation firm wide across the various work streams for the Digital Maturity Assessment

Digital Maturity Assessment - Analysis of Respondents (1/3)

Total Respondents



The chart on the left depicts the total number of responses gathered for the Digital Maturity Assessment that was conducted for FBNQuest. Respondents span across the following business units in FBNQuest:

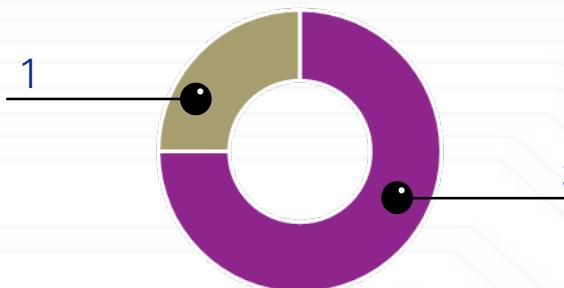
- Merchant Banking – 22
- Asset Management - 6
- Securities – 2
- Trustees - 4
- Alternative Investments - 4
- Enabling – 14
- Risk & Governance – 3

All summing to a total of **55** respondents

Digital Maturity Assessment - Analysis of Respondents (2/3)

1

Alternative Investments

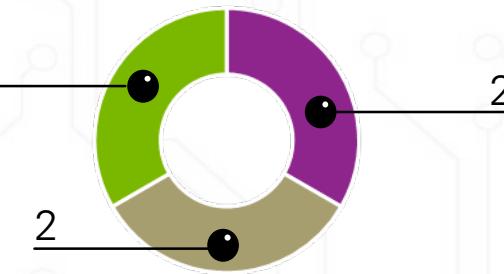


■ Co creation
■ Value Management

The above chart shows participation for Alternative Investments resources across the various Digital maturity Assessment work streams

2

Asset Management

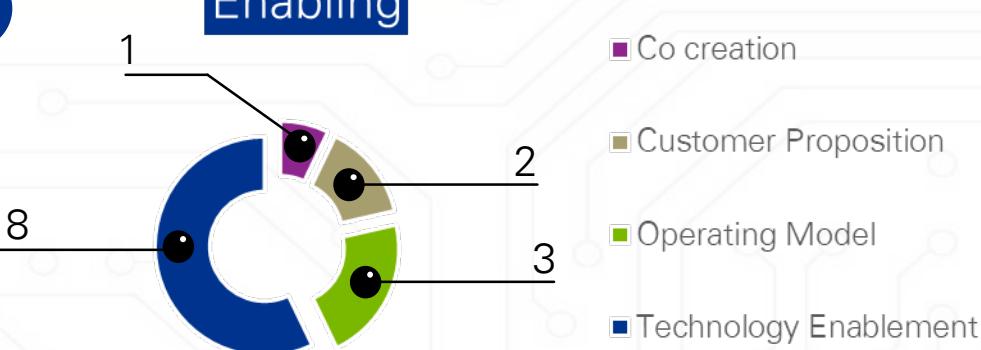


■ Co creation
■ Customer Proposition
■ Value Management

The above chart shows participation for Asset Management resources across the various Digital maturity Assessment work streams

3

Enabling

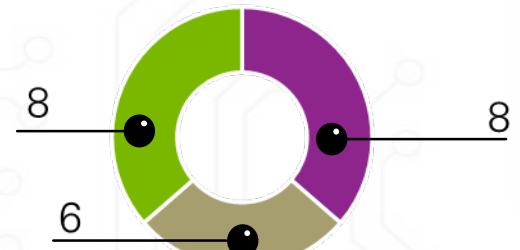


■ Co creation
■ Customer Proposition
■ Operating Model
■ Technology Enablement

The above chart shows participation for Enabling resources across the various Digital maturity Assessment work streams

4

Merchant Banking

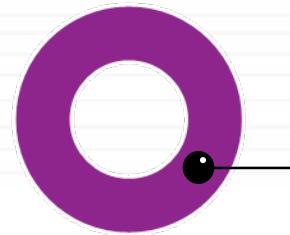


■ Co creation
■ Customer Proposition
■ Value Management

The above chart shows participation for Merchant Banking resources across the various Digital maturity Assessment work streams

Digital Maturity Assessment - Analysis of Respondents (3/3)

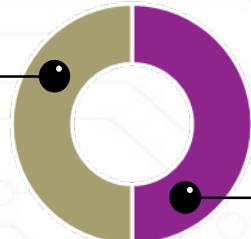
1 Risk & Governance



■ Risk Model

The above chart shows participation for Risk & Governance resources for the Risk Model work stream for Digital maturity Assessment

2 Trustees

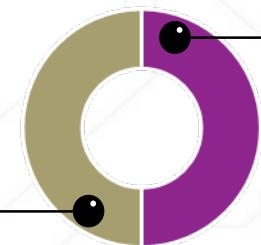


■ Co creation
■ Value Management

The above chart shows participation for Trustees resources across the various Digital maturity Assessment work streams

3

Securities



1

■ Co creation
■ Value Management

The above chart shows participation Securities resources across the various Digital maturity Assessment work streams.

FBNQuest was benchmarked against a number of local peers and global leaders in its lines of business

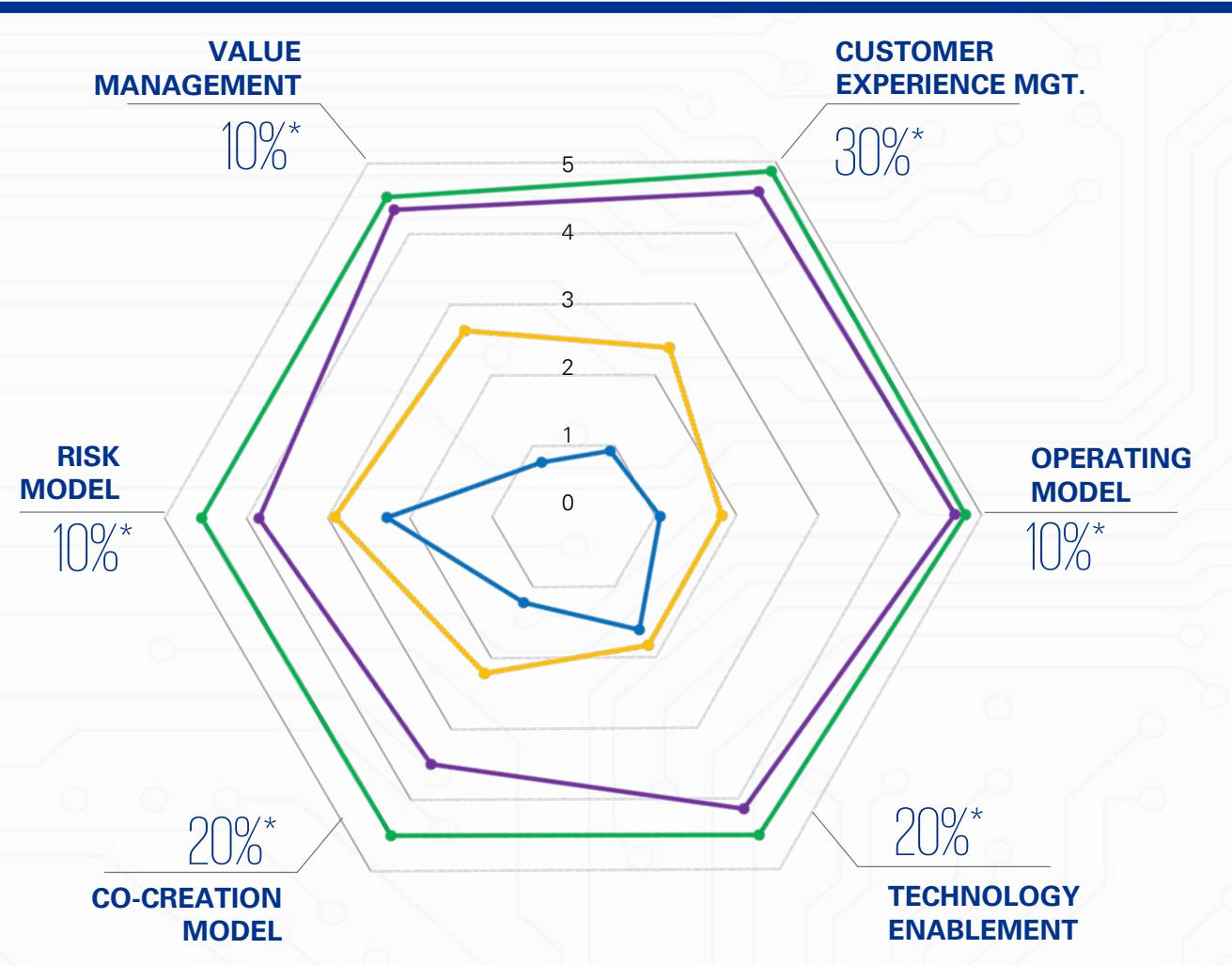


4-12

Assessment Summary

Digital Maturity Assessment Result Summary

Key:  Current  Peer Group  Global Industry Benchmark  Aspiration *Domain Weighting



Overall Assessment of FBNQuest's Digital Maturity Level

Lagging Basic Progressed Leading Innovating



- Whilst FBNQuest is currently digitally immature, a number of digital initiatives have been identified to support the Group's ambition to grow the business significantly within the next 4 years.
- Historically, FBNQuest has offered personalized customer engagement through Relationship Managers rather than via electronic channels.
- The online and mobile platform were found to offer limited transactional or servicing capabilities.
- Enabling segments of the business also rely on traditional methods, and will require significant changes to culture and processes to accommodate the digital transformation objectives.
- Overall FBNQuest's digital maturity level was found to be lagging behind both local and global peers in the industry.

The breakdown of weightings applied is as follows:

| Weight* | Impact | | | | | Domain | Maturity Index | Impact | | | | | Weight** |
|---------|-----------|------|--------|-----|----------|--------------------------|---|----------|-----|--------|------|-----------|----------|
| | Very High | High | Medium | Low | Very Low | | | Very Low | Low | Medium | High | Very High | |
| ~10% | | | | 2 | | Value Management | Leadership ambition and strategy | | | | | 5 | 56% |
| | | | | | | | Digital KPIs and value realisation | | | | | 4 | |
| ~30% | 5 | | | | | Customer Experience Mgt. | Utilisation of customer insight to drive customer satisfaction | | | | | 5 | 28% |
| | | | | | | | Customer experience feedback and measurement | | | | | 4 | |
| | | | | | | | Data-driven digital marketing | | | | | 4 | |
| | | | | | | | Use of digital channels | | | | | 4 | |
| ~10% | | | | 2 | | Operating Model | Establishment of robust digital governance model | | | | | 5 | 38% |
| | | | | | | | Digital workforce | | | | | 3 | |
| | | | | | | | Digitisation of key operational processes | | | | | 5 | |
| ~20% | | | | 3 | | Technology Enablement | API implementation and management | | | | | 5 | 28% |
| | | | | | | | Scalable cloud service models | | | | | 4 | |
| | | | | | | | Optimal utilization of data & analytics and artificial intelligence | | | | | 4 | |
| | | | | | | | Application of best practice user experience (UX) standards | | | | | 4 | |
| ~20% | | 3 | | | | Co-creation | Establishment of Innovation Strategy | | | | | 5 | 46% |
| | | | | | | | Mature internal innovation sourcing processes and platforms | | | | | 3 | |
| | | | | | | | Measured and value-driven digital partnerships & collaborations | | | | | 3 | |
| ~10% | | | | 2 | | Risk Model | Risk Governance | | | | | 5 | 29% |
| | | | | | | | Risk Monitoring | | | | | 4 | |
| | | | | | | | Risk definition & ownership | | | | | 3 | |
| | | | | | | | Cybersecurity | | | | | 5 | |

Value Management

Defining the ambition that set the agenda for digital with clearly articulated key performance indicators.



Lagging | Basic | Progressed | Leading | Innovating

Clarity and consistency of vision & strategy



Utilisation of digital KPIs for value realisation & monitoring



The following key initiatives have been identified for FBNQuest with respect to Value Management:

| | | |
|--|--|--|
| | Leadership Support & Executive Alignment | <ul style="list-style-type: none"> Ensure executive level ownership and accountability for digital strategy setting to better drive enterprise-wide acceptance and secure bold alignment at the top |
| | Digital Initiatives Orchestration | <ul style="list-style-type: none"> Establish a system that identifies the digital initiatives with the most potential to have enterprise-wide impact |
| | Goal Congruence | <ul style="list-style-type: none"> Approach digital ambition setting emphasizing coordination at all levels of the corporation – alignment at the top, agility in the middle and mobilization at the front line |
| | Value Measurement | <ul style="list-style-type: none"> Develop a measurable framework of key performance indicators to monitor and report benefits from digital investments |



- DBS is the first bank to develop a methodology to measure digital value creation – this is done by delineating customers into two segments – digital and traditional, then, defining measurable KPI for the across digital customers across Customer Growth, Transaction Volumes, Value Creation, Customer Experience, Ecosystem Partnerships & Footprint. Refer to Detailed Assessment – Value Management for details.



Customer Experience Mgt.

The capability to provide an optimal customer experience using digital to promote to, communicate with and service customers.



Utilisation of customer insight to drive customer satisfaction



Customer experience feedback and measurement



Data-driven digital marketing



Use of digital channels



The following key initiatives have been identified for FBNQuest with respect to Customer Experience Mgt.:

| | | |
|--|--------------------------------|---|
| | Digital Channels Adoption | <ul style="list-style-type: none"> Ensure use of social media channels to drive customer engagement and periodically track adoption of social media as a channel of interaction for customers |
| | Tailored Customer Experience | <ul style="list-style-type: none"> Leverage data analytics for real-time analysis of customer behaviour and transaction trends and creation of better tailored customer experience and products |
| | Personalised Digital Marketing | <ul style="list-style-type: none"> Ensure comprehensive use of customer analytics to target and personalise digital marketing activities |
| | Digital Channels Enhancement | <ul style="list-style-type: none"> Enhance existing digital channels (web and mobile) to delivery competitive self-service functionalities for seamless customer experience across customer touch-points |



- Increased adoption of 'mobile first' and 'AI first' i.e. delivery of tailored functionalities/ services to customers via mobile, leveraging AI (artificial intelligence) for predictive behavioural analysis.
- Investments in digital content marketing to drive brand awareness.
- Refer to Detailed Assessment – Customer Experience Management for details.*



Operating Model

The extent to which an organisation is structured to deliver value to customers leveraging digital.



Establishment of Robust Digital Governance Model



Digital workforce



Digitisation of key operational processes



The following key initiatives have been identified for FBNQuest with respect to Operating Model:

| | | |
|--|------------------------------|--|
| | Digital Governance Structure | <ul style="list-style-type: none"> Establish a Centre of Excellence, led by the Chief Digital Officer, to overcome functional silos and ensure organisation-wide accountability for the digital agenda |
| | Digital Workforce | <ul style="list-style-type: none"> Establish a talent development and acquisition strategy that will equip existing talent with digital skill-sets and acquire new talents (data scientists, software engineers etc.) |
| | Process Digitisation | <ul style="list-style-type: none"> Leverage Artificial Intelligence and Robotics Process Automation to continually optimise performance |



- Digital is recognised as a 'standalone' strategic business unit where a Chief Digital/Innovation Officer drives the digital agenda and reports to the CEO.
- Automation, advanced robotics and artificial intelligence are used to improve employee productivity.
- Refer to Detailed Assessment – Operating Model for details.*



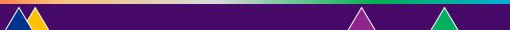
Technology Enablement

The extent to which an organisation monitors its own technology footprint in the digital marketplace and reacts to improve and enhance its digital propositions through the implementation and application of technology enablers.



Lagging Basic Progressed Leading Innovating

API implementation and management



Scalable cloud hosting models



Optimal utilisation of data & analytics and artificial intelligence



Application of best practice user experience standards



The following key initiatives have been identified for FBNQuest with respect to Technology Enablement:

| | | |
|--|-------------------------------|--|
| | API Management | <ul style="list-style-type: none"> Implement an API solution manager to better operate FBNQuest's integration architecture |
| | API Monetisation | <ul style="list-style-type: none"> Expose FBNQuest's strategic products externally via APIs to diversify revenue streams, enable customer growth and support partnerships |
| | Cloud Governance | <ul style="list-style-type: none"> Establish and execute a cloud governance framework to continuously guide the measurement, monitoring, tracking and prediction of cloud take-up |
| | Data and Analytics Automation | <ul style="list-style-type: none"> Develop a business intelligence (BI) and analytics strategy and road map to facilitate the execution of intelligent reporting and analysis |
| | User Experience Improvement | <ul style="list-style-type: none"> Establish and document a framework to guide proactive measurement of user experience and continuous improvement of the process |



- Global players are adopting robust API and cloud strategies
- 90% of **Goldman Sachs** servers (over 200,000) are cloud hosted
- DBS** and **JP Morgan** have exposed over 150 live APIs
- Hackathons are key to driving API adoption by external developers and Fintechs
- Refer to Detailed Assessment – Technology Enablement for details.*



Co-creation Model

The extent to which an organisation monitors its own technology footprint in the digital marketplace and reacts to improve and enhance its digital propositions through the implementation and application of technology enablers.



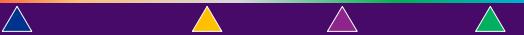
Establishment of Innovation Strategy



Mature internal innovation sourcing processes and platforms



Measured and value-driven digital partnerships & collaborations



The following key initiatives have been identified for FBNQuest with respect to Co-creation Model:

| | | |
|--|--------------------------------|--|
| | Innovation Strategy | <ul style="list-style-type: none"> Develop an innovation strategy that is aligned with the business strategy, and clearly communicated to all FBNQuest staff. This should define the strategy for internal and external innovation sourcing |
| | Innovation Sourcing Platform | <ul style="list-style-type: none"> Develop a platform to streamline and reward generation of innovative initiatives by FBNQuest staff |
| | Partnership Assessment Metrics | <ul style="list-style-type: none"> Establish and measure performance metrics to ensure that alliances and partnerships regularly add value to FBNQuest |



- **Goldman Sachs** has launched an in-house incubator, dubbed GS Accelerate, aimed at encouraging employees to develop new innovative solutions.
- **Citi** is expanding the network of its Global Innovation Labs with the opening of a new hub in London.
- Refer to Detailed Assessment – Co-creation Model for details.



Risk Model

The extent to which an organisation monitors the inherent risks in its operating environment and the risks that it will be exposed to upon the commencement of the digital journey



The following key initiatives have been identified for FBNQuest with respect to Risk Model:

| | | |
|--|--------------------------------------|--|
| | Digital Risk Strategy and Framework | <ul style="list-style-type: none"> Develop a robust digital risk strategy and framework for adequate management and mitigation of digital risks |
| | Cybersecurity Governance | <ul style="list-style-type: none"> Adequate staffing of cybersecurity function to ensure security activities are carried out by personnel within the dedicated function |
| | Cybersecurity Strategy and Framework | <ul style="list-style-type: none"> Develop a cybersecurity strategy with initiatives that align with business and IT strategy. Develop a framework to guide implementation of cybersecurity initiatives |
| | Vulnerability Management | <ul style="list-style-type: none"> Perform periodic credentialed scan of IT assets (operating system, web applications, network devices and databases) to ensure completeness of scan scope |
| | Security Monitoring | <ul style="list-style-type: none"> Implement adequate monitoring of IT infrastructure for prompt identification and resolution of security events |



- Risk is managed through a framework designed to balance strong corporate oversight with well-defined independent risk management. This framework includes the definition of cybersecurity risks.
- Citi** have pledged to partner with key financial service players and government agencies to establish a unified response to cybersecurity threats.
- Refer to Detailed Assessment – Risk Model for details.



4-1.3

Detailed Assessment



Key: ▽ Current

▼ Peer Group

▲ Global Industry Benchmark

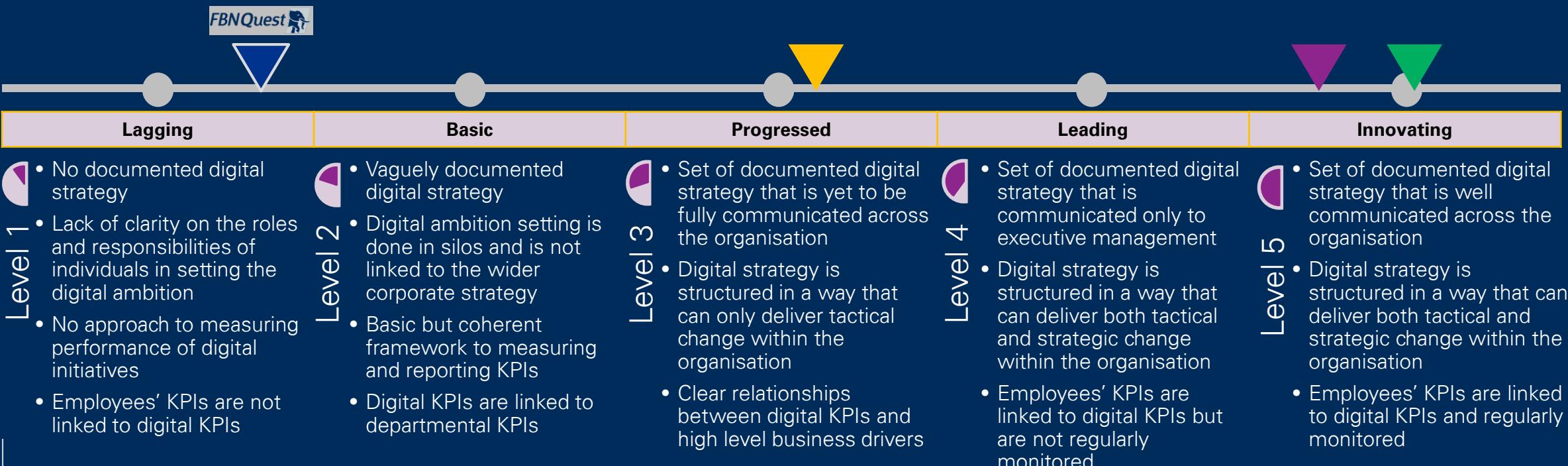
▼ Aspiration

Value Management

Defining the ambition that set the agenda for digital with clearly articulated key performance indicators.



Maturity Levels



Maturity Indicators

Clarity and consistency of vision & strategy

56%

Utilisation of digital KPIs for value realization & monitoring

44%

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

| Maturity Indicators |
|--|
| Clarity and consistency of vision & strategy |

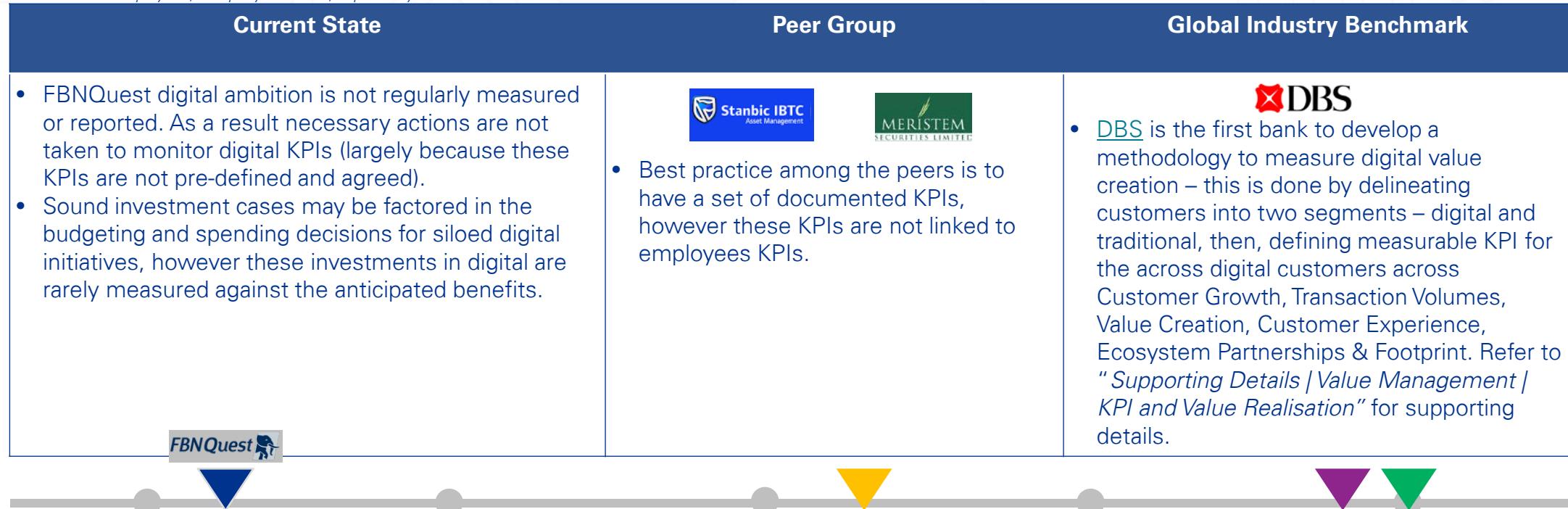
| Current State | Peer Group | Global Industry Benchmark |
|--|--|--|
| <ul style="list-style-type: none"> No documented enterprise digital ambitions & strategy. Pockets of digital initiatives are siloed within the business entities. There are a number of planned and ongoing activities which the Bank believes will guide achievement of its goals, however, these initiatives are vaguely documented and not fully known to both leadership and employees. FBNQuest has a good understanding of its strategic objectives, however, there is no clear alignment with a digital strategy. |     <ul style="list-style-type: none"> A common observation among FBNQuest peers is the existence of a high-level digital strategy and initiatives, though in some cases, vaguely documented. These initiatives are updated on a periodic basis and widely known to both executive management and employees. |   <ul style="list-style-type: none"> In early 2017, Goldman Sachs design and implemented an enterprise-wide digital strategy – one of the key outcomes of a leadership that sees the company as not just a technology firm, but a platform. With the support of its Management Committee and senior leadership, Goldman created a technology strategy for modernising the firm with a focus on internal efficiencies and creation of both internal and external platforms. <u>DBS Bank</u> has a set of documented digital strategy which highlights all the key elements of its digital journey. This was formalised and communicated to both leadership and employees. Refer to "<i>Supporting Details / Value Management / Leadership Ambition & Strategy (1)</i>" for supporting details. <u>Lloyds</u> plans to make banking simple and easier for customers whilst reducing operating costs over the next three years. It has three core drivers of its digital strategy. Refer to "<i>Supporting Details / Value Management / Leadership Ambition & Strategy (2)</i>" for supporting details. |

**Maturity Indicators**

| | Lagging | Basic | Progressed | Leading | Innovating |
|--|---|---|---|---|--|
| Clarity and consistency of vision & strategy (cont'd) | <ul style="list-style-type: none"> There is no set of documented digital ambitions or initiatives. Future business strategies do not take into consideration the importance of digital in attaining business growth. Roles and responsibilities are not clear in terms of where digital sits and who is accountable. There is a general tendency to a culture of aversion to digital initiatives with no plan to change in the near term. | <ul style="list-style-type: none"> Digital ambition setting is not dispersed across the organisation, but rather done in silos within an individual function. There is a set of documented digital aspirations that is vague and rarely considered. Digital aspirations are not linked to the firm's wider corporate strategy. There is skepticism towards adopting digital technologies with differing views on optimising digital technologies. | <ul style="list-style-type: none"> There is a set of documented digital aspirations that is not fully known to both leadership and employees. Digital ambitions are not updated and may sometimes be outdated. Digital ambition setting is recognised and structured in a manner that can only deliver change of a tactical nature. Functions operate in silos but collaborate as virtual teams for specific projects. Employees have access to digital technologies and there is a high level strategy for increasing digital adoption. | <ul style="list-style-type: none"> There is a set of documented digital aspirations that is well understood by leadership but not fully known to employees below the executive level. Digital ambition setting is recognised and structured in a manner that can deliver change of a tactical and strategic nature. The organisation is digitally competent but has a culture of caution in adopting new technologies. | <ul style="list-style-type: none"> There is a set of documented digital aspirations that is updated regularly and fully aligned with the wider corporate strategy. Digital ambition setting is well dispersed across the organisation and the organisation shares a collaborative vision for digital success. Leadership and employees are empowered to fully embrace digital initiatives and are advocates of innovation. The organisation is digitally competent and use of digital is central to how the business operates. |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

Maturity Indicators**Utilisation of digital KPIs for value realization & monitoring**

| Lagging | Basic | Progressed | Leading | Innovating |
|---|--|--|---|---|
| <ul style="list-style-type: none"> There is an arbitrary approach to measuring and reporting on digital KPIs. KPI does not link employees/divisional digital performance to the Firm's digital success. | <ul style="list-style-type: none"> There is a basic but coherent framework approach to measuring and reporting on digital KPIs. Broad KPIs exist but typically measures divisional performance against the Firm's digital success. | <ul style="list-style-type: none"> There is a well established KPI tree with clear relationships between digital KPIs and high level business drivers. The uptake of digital across the organisation is consistently measured via departmental KPIs. | <ul style="list-style-type: none"> There is a comprehensive KPI tree with clear relationships between digital KPIs and high level business drivers. Employee performance is linked to the Firm's digital success but these KPIs are neither monitored nor reviewed regularly. | <ul style="list-style-type: none"> There is a comprehensive KPI tree with clear relationships between digital KPIs and high level business drivers. Employee performance is linked to the organisation's digital success, closely monitored and reviewed regularly. |

Proposed Aspirations for FBNQuest



An organisation that has a well documented set of digital ambition that is cascaded to all employees across its business entities

An organisation that has clearly articulated key performance measures for digital initiatives

An organisation whose digital KPIs are linked to employee and departmental KPIs

Proposed Initiatives



Leadership Support & Executive Alignment

Ensure executive level ownership and accountability for digital strategy setting to better drive enterprise-wide acceptance and secure bold alignment at the top



Digital Initiatives Orchestration

Establish a system that identifies the digital initiatives with the most potential to have enterprise-wide impact



Goal Congruence

Approach digital ambition setting emphasizing coordination at all levels of the corporation—alignment at the top, agility in the middle and mobilization at the front line



Value Measurement

Develop a measurable framework of key performance indicators to monitor and report benefits from digital investments



Key: ▽ Current

▼ Peer Group

▼ Global Industry Benchmark

▼ Aspiration

Customer Experience Management

The capability to provide an optimal customer experience using digital to promote to, communicate with and service customers.

FBNQuest

Maturity Levels

- Lagging**
- Little or no use of customer analytics with unconsolidated data across the organization.
 - No meaningful metric in place for measuring customer experience.
 - No defined strategy, team or process for digital marketing.
 - Little to no integration across channels.

- Basic**
- Little focus on customer analytics.
 - General customer experience metrics with emphasis on reducing costs.
 - Views digital as a new marketing channel and allocates budget and staff accordingly.
 - Integration across channels exists but is not consistently useful.

- Progressed**
- Some focus on customer analytics with centralized management of customer data.
 - Customer experience metrics are in place with specific customer experience KPIs.
 - Defined, integrated digital marketing strategy.
 - Integrated, cross-channel visibility.

- Leading**
- Utilization of sophisticated data analytics tools.
 - Significant customer experience metrics to improve customer experience.
 - Personalised and predictive marketing based on customer behaviour.
 - Holistic, cross-channel customer engagement.

- Innovating**
- Market leading focus on customer analytics with specialized data and analytics teams.
 - Significant customer experience metrics that supports organisation strategy.
 - Digital marketing is a key component of customer engagement strategy.
 - Permanent and repeatable Omni-channel journeys.

Maturity Indicators



| Maturity Indicators | Current State | | Peer Group | Global Industry Benchmark | |
|--|---|--|--|--|----------------|
| | <ul style="list-style-type: none"> Customer data is stored in various databases, with demographic and transactional data collected disparately, resulting in no single comprehensive view of the customer. No evidence of data analytics used to draw insights from customer behavior, offer personalised offerings and optimise overall customer experience. Presence of missing customer data fields in some cases e.g. bio data, thus limiting the organisation's understanding of its customers. | |  <ul style="list-style-type: none"> Customer data is analysed by a dedicated data and analytics team and customised offerings are provided based on this analysis. | J.P.Morgan | Morgan Stanley |
| Utilisation of customer insight to drive customer satisfaction |   | | | | |
| Lagging | Basic | Progressed | Leading | Innovating | |
| <ul style="list-style-type: none"> Little or no use of customer analytics. There is a large amount of customer data collected and this is not consolidated centrally. | <ul style="list-style-type: none"> Little focus on customer analytics with no structured approach to processing or consolidating customer data. | <ul style="list-style-type: none"> Some focus on customer analytics and how it can be leveraged to improve customer experience. Customer data is managed centrally and the organisation has invested in a Big Data platform, with models in place (or being designed) to predict customer behaviour. | <ul style="list-style-type: none"> Real focus on customer analytics and uses sophisticated data analytics tools to manage both structured and unstructured customer data. Customer data is collected from and provided to all areas of the organization. | <ul style="list-style-type: none"> Market-leading focus on customer analytics, with specialised data and analytics teams in place for regular customer touch points. It is widely recognised that effective use of customer data is a key element of the organisation's competitive advantage. | |

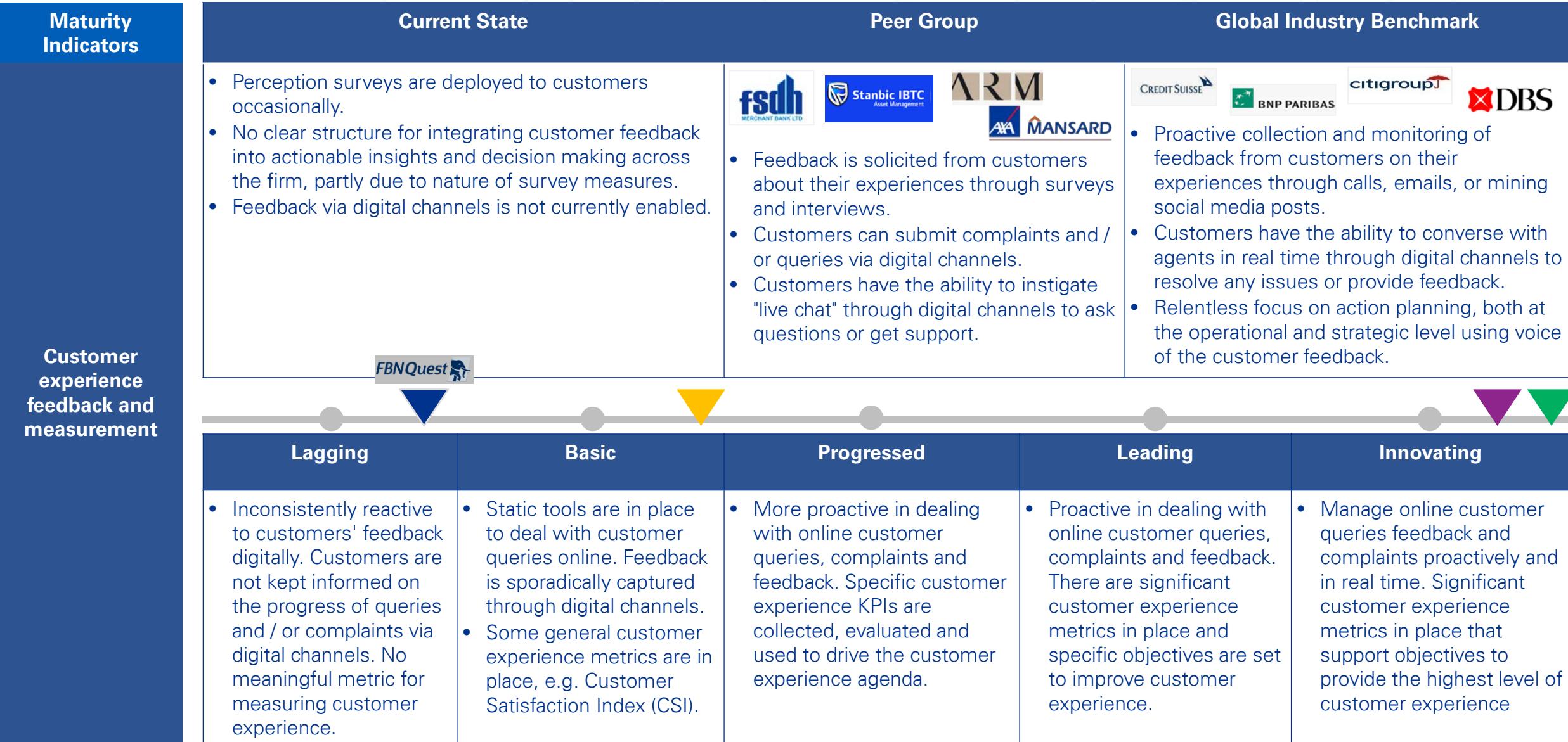
Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews



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Refer to "Supporting Details | Customer Experience Mgt. | Utilisation of customer insight to drive customer satisfaction" for supporting details.

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews



Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

| Maturity Indicators | Current State | | Peer Group | Global Industry Benchmark | |
|-------------------------------|--|--|---|---|---|
| | <ul style="list-style-type: none"> There is no defined digital marketing strategy. Dedicated resource for handling digital marketing is present. An external marketing agency shares data derived from social media channels. However there is no evidence that this data is utilised in personalising marketing information.  | |   <ul style="list-style-type: none"> High brand visibility across social media channels to improve brand awareness. Dedicated digital marketing team. |    <ul style="list-style-type: none"> Use of contextual marketing driven by big data analytics resulting in double-digit increase in revenues from campaigns. Enormous investments in digital content marketing to drive brand awareness. Bulk of marketing activities is digital with a heavy focus on content creation and social media, relying on ample data available. | |
| Data-driven digital marketing | Lagging | Basic | Progressed | Leading | Innovating |
| | <ul style="list-style-type: none"> No defined strategy or set budget for digital marketing. Digital marketing is used in an experimental way, without set targets or objectives. | <ul style="list-style-type: none"> Digital marketing is used experimentally but the organisation does track performance and measure success. There is a dedicated digital marketing team that focuses on SMS, email and banner advertising. Messaging is targeted at a segment level but is not personalised to individuals. | <ul style="list-style-type: none"> Digital marketing is viewed as a core component of their annual marketing spend. Messaging is consistent through both offline and digital channels. Customer data and analytics is utilised to target and personalise digital marketing activity. | <ul style="list-style-type: none"> Most leads are generated through digital marketing. Digital marketing is seen as the key marketing channel, and budget is allocated as such. All marketing is delivered device agnostic and messaging is unified across channels. | <ul style="list-style-type: none"> Majority of the budget is dedicated to digital marketing. The digital marketing and engagement strategy is embedded within the overall business strategy. All messaging is personalised to the individual with ability to push contextual information across integrated media. |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

| Maturity Indicators | Current State | | Peer Group | Global Industry Benchmark | | | | |
|-------------------------|---|---|--|---|--|----------------|-----------|-----|
| | FBNQuest | | Stanbic IBTC Asset Management | ARM | BNP PARIBAS | Charles Schwab | Citigroup | DBS |
| Use of digital channels | <ul style="list-style-type: none"> Existence of digital channels with limited functionalities in comparison with local and global benchmarks. Refer to Annexure – Digital Channels Review for details. Customers can access the website for information on product and service offerings. | | <ul style="list-style-type: none"> Multichannel experience exists across digital channels. Social media is used as a channel of interaction for customers e.g. complaints management, product marketing, general information dissemination etc. | | <ul style="list-style-type: none"> Seamless omnichannel experience across all channels including digital banking, call centers and branches, to improve customer experience. Adoption of 'mobile first' and 'AI first' i.e. delivery of tailored functionalities/ services to customers via mobile, leveraging AI (artificial intelligence) for predictive behavioural analysis. | | | |
| | Lagging | Basic | Progressed | Leading | Innovating | | | |
| | <ul style="list-style-type: none"> There is little to no integration across channels, limiting the ability of customers to have smooth journeys across multiple channels.. Engagements on social media such as "listening" are ad-hoc and generally initiated on the back of a customer issue | <ul style="list-style-type: none"> There is a channel strategy in place which provides limited guidance for managing customer experiences across various channels. Integration across channels exists but is not consistently useful. Content is created on social media, but quality and control varies. | <ul style="list-style-type: none"> Integrated, cross-channel visibility. There is a single view of customer data, interactions, and transactions across multiple channels, in near-real time. Customer sentiment is monitored on social media and awareness is generated through social media advertising. | <ul style="list-style-type: none"> Holistic, cross-channel customer engagement. Customer engagement in each channel is informed by offers and interactions in other channels. | <ul style="list-style-type: none"> Customer experience is optimised across integrated channels. Delivery of permanent and repeatable omnichannel journeys and processes. | | | |

Proposed Aspirations for FBNQuest



Firm-wide focus on customer behaviour and insights to drive strategic initiatives

Utilisation of data analytics to drive personalisation of customer propositions

Defined digital marketing strategy for end-to-end integration of all digital marketing platforms

Significant use of social media to drive and measure customer engagement

Seamless customer experience across integrated channels and customer touchpoints

Proposed Initiatives



Digital Channels Adoption

Ensure use of social media channels to drive customer engagement and periodically track adoption of social media as a channel of interaction for customers



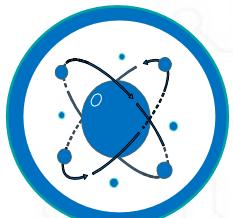
Tailored Customer Experience

Leverage data analytics for real-time analysis of customer behaviour and transaction trends and creation of better tailored customer experience and products



Personalised digital Marketing

Ensure comprehensive use of customer analytics to target and personalise digital marketing activities



Digital Channels Enhancement

Enhance existing digital channels (web and mobile) to deliver competitive self-service functionalities for seamless customer experience across customer touch-points



Key: ▽ Current

▼ Peer Group

▲ Global Industry Benchmark

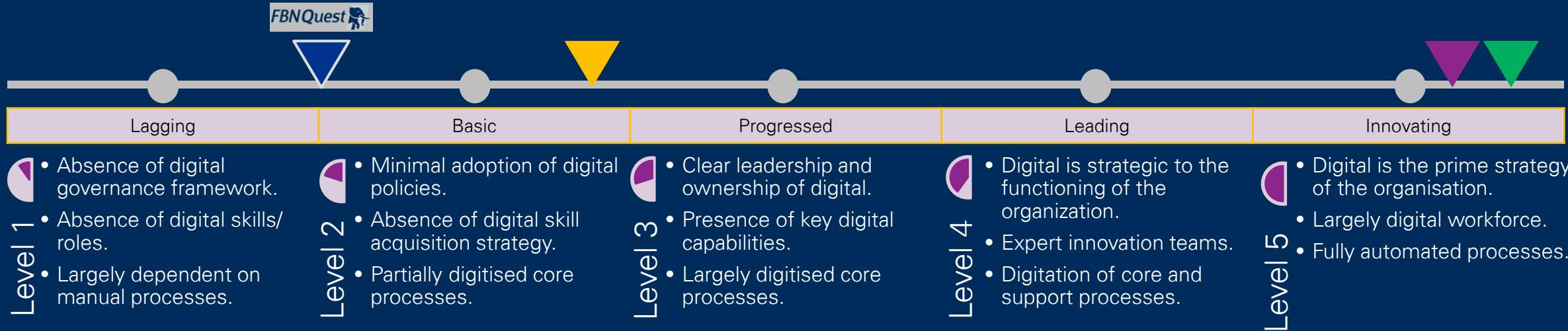
▼ Aspiration

Operating Model

The extent to which an organisation is structured to deliver value to customers leveraging digital.

FBNQuest

Maturity Levels



Maturity Indicators

Establishment of robust digital governance model

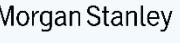
30%

Digital workforce

24%

Digitisation of key operational processes

30%

| Maturity Indicators | Current State | Peer Group | Global Industry Benchmark |
|--|--|--|--|
| Establishment of Robust Digital Governance Model | <ul style="list-style-type: none"> Establishment of an Innovation Committee chaired by the Chief Operating Officer. Presence of a Chief Technology and Digital Officer reporting to the COO. |  <ul style="list-style-type: none"> Presence of a Chief Digital Officer that reports to the CEO. |     <ul style="list-style-type: none"> Digital is recognised as a 'standalone' strategic business unit where a Chief Digital/Innovation Officer drives the digital agenda and reports to the CEO. |



Establishment of Robust Digital Governance Model

| Lagging | Basic | Progressed | Leading | Innovating |
|---|---|--|---|--|
| <ul style="list-style-type: none"> No significant focus on digital within standard governance framework. Little or no investment in developing or enhancing digital capabilities. | <ul style="list-style-type: none"> The CIO/CTO has a good understanding of emerging digital technologies. Low level of digital capability within the organisation, which is randomly dispersed. | <ul style="list-style-type: none"> Function-level governance takes account of digital issues. Recognised and structured digital capability within the organisation but can only deliver change of a tactical nature. | <ul style="list-style-type: none"> Governance framework supports rapid decision making and resource allocation at a cross-functional level. Recognised and structured digital capability that can deliver significant digital change within the organisation. | <ul style="list-style-type: none"> The Board adopts a 'digital first' approach to all appropriate business issues. Digital governance sits centrally within the business, and acts as a digital centre of excellence delivering significant change in an agile manner. |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews



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Refer to "Supporting Details | Operating Model | Establishment of Robust Digital Governance Model" for supporting details.

| Maturity Indicators | Current State | | Peer Group | | Global Industry Benchmark | |
|---------------------|--|--|---|---|--|---|
| | | | Stanbic IBTC Asset Management | CORONATION INVESTMENT TRUST | J.P.Morgan | DBS Morgan Stanley |
| Digital workforce | <ul style="list-style-type: none"> Establishment of an Innovation Committee chaired by the Chief Operating Officer. Presence of a Chief Technology and Digital Officer reporting to the COO.  | <ul style="list-style-type: none"> Presence of data scientists that deliver data-driven insights to business units. Presence of software engineers responsible for design and deployment of APIs.. | <ul style="list-style-type: none"> Employment of data scientists, programmers, data analysts, software engineers, etc. Creation of a curriculum to train staff on digital skills. Hackathons are conducted to create digital learning experiences for staff. Automation, advanced robotics and artificial intelligence are used to improve employee productivity. |    |  |  |
| | | Lagging | Basic | Progressed | Leading | Innovating |
| | <ul style="list-style-type: none"> No clear strategy for engaging employees about digital capabilities. Minimal awareness of the potential for digital to optimise operations. There are no prescribed digital roles and responsibilities within functions. | <ul style="list-style-type: none"> No formal strategy for informing employees about the importance and potential of digital. No central focus placed on educating employees about digital capabilities. Defined digital roles and responsibilities within individual functions. | <ul style="list-style-type: none"> Formal strategy for engaging employees with digital across the organisation. Established groups of digital experts in individual functions, responsible for implementing the digital strategy. | <ul style="list-style-type: none"> Employees consistently use digital tools in their day-to-day working. Dedicated digital SMEs across the business to provide digital support and guidance to all teams and functions within the organisation. | <ul style="list-style-type: none"> Organised digital expertise in a Centre of Excellence. All staff are aware of the organisation's digital capability and regularly use innovative solutions to improve organisational performance. | |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews



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Refer to "Supporting Details | Operating Model | Digital workforce" for supporting details.

| Maturity Indicators | Current State | | Peer Group | Global Industry Benchmark |
|---|---|---|------------------------------|--|
| | | | | |
| Digitisation of key operational processes | <ul style="list-style-type: none"> Most processes exist and are well defined. However, they are not all properly documented. All processes are largely manual, with only a few automated such as file storage, risk register etc. |    <ul style="list-style-type: none"> Operate automated share registration services. Automated investment purchase and redemption processes. | J.P.Morgan Morgan Stanley |  <ul style="list-style-type: none"> Automated trading platform with digitised settlement processes and some IPO processes. |
| |      | <p>Lagging</p> <ul style="list-style-type: none"> Largely dependent on manual processing and paper-based records. Processes may make use of digital in some or even most steps but these steps are not integrated in a single workflow and re-keying abounds. <p>Basic</p> <ul style="list-style-type: none"> Core processes may be all or substantially straight through processed. Physical locations have some ability to initiate processes digitally reducing the need for paper. <p>Progressed</p> <ul style="list-style-type: none"> All core customer processes are straight through processed. Most processes in physical locations have a digital front-end and the requirement for paper forms is minimal as most internal processes are digital. <p>Leading</p> <ul style="list-style-type: none"> All major customer processes are straight through processed and auxiliary are supported by effective digital platforms. Processes in physical locations are fully supported by digital tools. <p>Innovating</p> <ul style="list-style-type: none"> Paper based processes are not found except where quality demands. Internal and external processes are designed and built on a digital basis and digital processes are supported by smart algorithms. | | |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

Proposed Aspirations for FBNQuest



Effective Digital Governance framework with clear leadership and ownership of digital in the organisation

Ownership of a robust digital workforce capable of developing innovative customer centric solutions and building products to drive growth

Automation of core customer processes and support of auxiliary processes by effective digital platforms

Proposed Initiatives



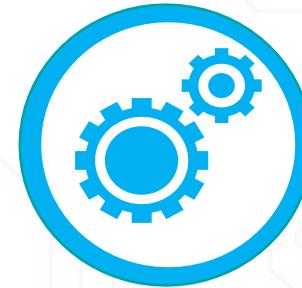
Digital Governance Structure

Establish a Centre of Excellence, led by the Chief Digital Officer, to overcome functional silos and ensure organisation-wide accountability for the digital agenda



Digital Workforce

Establish a talent development and acquisition strategy that will equip existing talent with digital skill-sets and acquire relevant talent (data scientists, software engineers etc.)



Process Digitisation

Leverage Artificial Intelligence and Robotics Process Automation to continually optimise performance

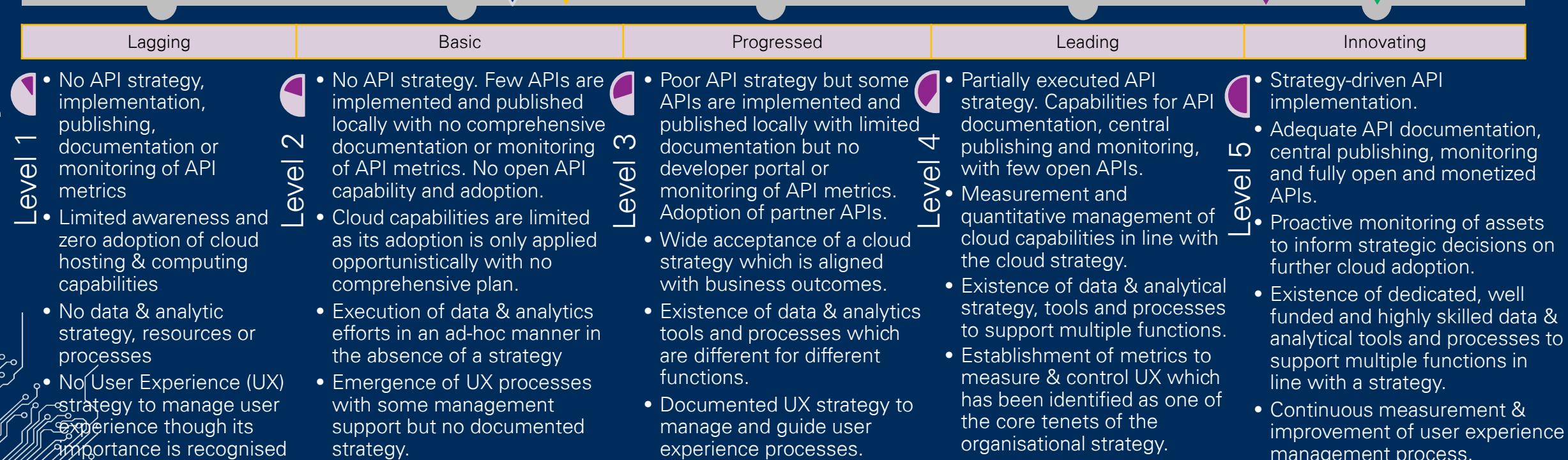


Technology Enablement

The extent to which an organisation monitors its own technology footprint in the digital marketplace and reacts to improve and enhance its digital propositions through the implementation and application of technology enablers.



Maturity Levels



Maturity Indicators

| | |
|--|-----|
| API implementation and management | 20% |
| Cloud adoption | 24% |
| Optimal utilization of data & analytics and artificial intelligence | 24% |
| Application of best practice user experience (UX) standards | 24% |



Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

| Maturity Indicators | Current State | Peer Group | Global Industry Benchmark |
|-----------------------------------|--|--|--|
| API implementation and management | <ul style="list-style-type: none"> • APIs are recognised and appreciated as a key enabler to achieve digital initiatives; • An API strategy is yet to be developed and documented; • An API governance framework including roles and responsibilities is yet to be defined; • A few APIs have been implemented for internal consumption; • There are predominant point-to-point type integrations in the architectural landscape; • The available API documentation are inadequate in terms of specifications and design; • APIs are published on local servers for access; • Expertise to build, optimise and manage APIs (including number of resources and availability of tools) are insufficient. |   <ul style="list-style-type: none"> • Minimal API capabilities are exhibited. Specifically, no comprehensive API strategy exists and fully open APIs are not yet adopted, however, some externally hosted services are consumed application within the internal IT landscape. |    <ul style="list-style-type: none"> • DBS Bank developed and documented an API strategy including an open API strategy; • The bank was noted to have launched the world's largest banking API platform as at November 2017; • <u>DBS Bank and JP Morgan have exposed over 150 live APIs externally;</u> • <u>DBS Bank staff are made to participate in API hackathons organised for the general public as well as other API skill development activities;</u> • Goldman Sachs has implemented open APIs for their banking assets (e.g. customer relationship management, access to data, analytics & execution from a browser); • The investment bank has also proactively invested in the number and expertise of API software engineers in their organisation. |



| Maturity Indicators | Lagging | Basic | Progressed | Leading | Innovating |
|--|---|--|---|--|---|
| API implementation and management (cont'd) | <ul style="list-style-type: none"> No API strategy, implementation, publishing, documentation or monitoring of API metrics. Predominantly point-to-point type integrations between applications/systems. | <ul style="list-style-type: none"> No API strategy but a few APIs are implemented and published on local servers. There is no documentation, developer portal or monitoring of API metrics. Some internal system integrations are via closed APIs, however point-to-point type integrations are largely predominant. Externally hosted APIs are consumed by internal systems, but business assets are not exposed via open APIs. | <ul style="list-style-type: none"> Documented API strategy that is largely not executed and not regularly updated. Some APIs are implemented and published on local servers with limited documentation but there is no developer portal or monitoring of API metrics. Externally hosted APIs are consumed by internal systems, and certain business assets are exposed via APIs but to a closed developer group (i.e. partner APIs). | <ul style="list-style-type: none"> Documented, partially executed and periodically updated API strategy to guide the implementation and use of APIs There are capabilities for adequate API documentation, a developer portal, central publishing of all APIs, API monetisation and monitoring of some API metrics. Adoption of a service oriented architecture (SOA) with integrations largely via APIs. Externally hosted APIs are consumed by internal apps. While a fully open API architecture is not adopted, certain business assets are exposed via open APIs. Innovation sourcing activities (e.g. hackathons) are used to promote internal and external adoption of bank APIs. | <ul style="list-style-type: none"> Documented, fully executed and regularly updated API strategy. Adoption of SOA powered by APIs. In addition to utilisation of closed APIs for system integrations internally and the integration of internal apps/ systems with externally hosted APIs, a fully open API architecture is adopted to extend business assets (e.g. platforms, data, processes, features, etc.) to the external ecosystem. Open APIs are strongly leveraged as a new business model that generates new revenues streams and drives partnerships and collaboration. API experience (APX) and documentation is at the heart of the development/publishing of open APIs. Existence of centralised API development, repository, management and analytics/ monitoring capabilities. Innovation sourcing activities (e.g. hackathons) are used to promote internal and external adoption of bank APIs. |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews



Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

| Maturity Indicators | Current State | Peer Group | Global Industry Benchmark |
|---------------------|---|---|---|
| Cloud adoption | <ul style="list-style-type: none"> Cloud adoption is recognised as a key enabler to achieve rapid scalability and reduction of infrastructure costs, however it has not been widely accepted and applied by the organisation. Tools are in place to track the performance, usage and obsolescence of IT infrastructure. Though a large number of infrastructure is co-located, cloud hosting and computing capabilities are limited, including SaaS for Customer Relationship Management {CRM} (i.e. Salesforce), SaaS for incident and service management (i.e. TOPdesk), IaaS for hosting Athena AM & SEC, iDeal Funds and Oracle (Financials & HR). |     <ul style="list-style-type: none"> Some organisations have their data centers co-located, however cloud hosting and computing capabilities are limited. Cloud services models identified include: SaaS for incident management (i.e. Remedy) and SaaS for Wireless Application Firewall. |   <ul style="list-style-type: none"> Goldman Sachs has developed and documented a cloud strategy to guide the investment bank's cloud adoption journey; <u>The bank also owns over 200,000 servers to host its applications; 90% of which are housed on the cloud;</u> <u>Goldman Sachs has over time, moved to 100% virtual desktops;</u> The investment bank deployed a fully cloud-based core banking solution (i.e. Finacle) to manage its complete consumer loan-servicing life cycle. JP Morgan strategically appointed an executive management personnel (specifically, Harish Grama from IBM) to be its CIO of cloud services; The bank also upgraded from its private cloud service model to a Platform as a Service (PaaS) model. |

Refer to "Supporting Details / Technology Enablement / Cloud Adoption" for supporting details.



| Maturity Indicators | Lagging | Basic | Progressed | Leading | Innovating |
|--|--|---|---|---|--|
| Scalable cloud hosting models (cont'd) | <ul style="list-style-type: none"> No documented cloud strategy or plan in place to implement or evaluate cloud based technology. Limited awareness and zero adoption of cloud hosting & computing capabilities. | <ul style="list-style-type: none"> Cloud adoption may be discussed or defined informally, however it has not been widely accepted by the organisation. Though there is an understanding of the benefits of cloud hosting & computing, a comprehensive cloud strategy is yet to be documented and agreed. Cloud hosting & computing capabilities are limited as cloud adoption is only applied opportunistically with no comprehensive or cohesive adoption plan. Tools and processes are established to track the performance, usage and obsolescence of IT infrastructure. | <ul style="list-style-type: none"> A cloud strategy, which is aligned with business outcomes, has been documented and agreed. There has been buy-in to the strategy across the organization and the approach is always (or nearly always) followed. | <ul style="list-style-type: none"> Processes and metrics have been defined to measure and quantitatively manage the organisation's cloud capabilities while executing the cloud strategy (e.g. Proactive monitoring and collation of operational costs to depict cloud usage statistics across the organisation, etc.) | <ul style="list-style-type: none"> Assets are proactively maintained to ensure relevancy and correctness. Metrics (backed by an adoption plan) inform strategic decision making about further cloud adoption in line with business outcomes. |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

| Maturity Indicators | Current State | Peer Group | Global Industry Benchmark |
|---|--|---|---|
| Optimal utilisation of data & analytics and artificial intelligence | <ul style="list-style-type: none"> Absence of a data & analytics strategy to fully leverage the power of data in the organisation; Lack of a centralised, structured process to ensure that data collection is standardised; Absence of a dedicated data & analytics team; Lack of training programs geared towards data & analytics skills acquisition/ upgrade; Absence of a structure in place (i.e. data aggregator, collector or warehouse) that currently collects structured data to aid data analysis in the future; Lack of a deliberate process/practice in place to ensure new digital solutions support data analytics capabilities. |     <ul style="list-style-type: none"> Review of the digital strategy of one of the asset management companies revealed its intention to invest in big data analytics; Generally, manual, ad-hoc data and analytics procedures are practiced and in some cases, a tool with analytic capabilities is utilised. |   <ul style="list-style-type: none"> DBS Bank leveraged their existing customer data along with government data to create "DBS Home Connect," a resource for home buyers; The investment bank also invested in its analytics staff strength by employing over 400 additional analytics resources; DBS Bank ensures that the application of data and analytics is pervasive throughout the organisation (e.g. in HR to reduce employee attrition, in marketing to provide advice communication to customers versus sales advice); Citigroup deployed a global, big data strategy to reduce manual reporting with a global 100 Full-time Equivalent (FTE) reduction; The group also launched an all-in-one platform called "Citi Velocity Clarity" to allow clients effectively monitor and analyse portfolio performance across a multiplicity of investments by leveraging the bank's big data and analytics infrastructure. |

Refer to "Supporting Details | Technology Enablement | Optimal utilisation of data & analytics and artificial intelligence" for supporting details.



| Maturity Indicators | Lagging | Basic | Progressed | Leading | Innovating |
|--|---|--|--|--|--|
| Optimal utilisation of data & analytics and artificial intelligence (cont'd) | <ul style="list-style-type: none"> No data & analytics strategy, resources or processes. The organisation is collecting data internally and externally but no analysis is performed. | <ul style="list-style-type: none"> Execution of data & analytics efforts in an ad-hoc manner in the absence of a strategy. The organisation is collecting data internally and externally and sometimes performs analytics procedures. | <ul style="list-style-type: none"> Existence of some data & analytics tools, processes and capabilities which are different for different functions in the absence of a strategy to guide data analytics. | <ul style="list-style-type: none"> Existence of adequate data & analytics strategy, tools, resources and processes to support multiple functions in the organisation. | <ul style="list-style-type: none"> Existence of dedicated, well funded and highly skilled data & analytical tools and processes to support multiple functions in line with a strategy. Artificial intelligence capabilities are also present and applied. |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

| Maturity Indicators | Current State | Peer Group | Global Industry Benchmark |
|--|---|---|---|
| Application of best practice user experience standards | <ul style="list-style-type: none"> A user experience strategy which is executed in line with the bank's brand identity has been developed. However, the strategy is yet to be documented; The user interface designs for the bank's digital channels are actively refreshed to keep abreast with changing customer expectations; Feedback on user experience is deliberately elicited post-implementation. |   <ul style="list-style-type: none"> Most of FBNQuest's peer have developed and documented a user experience strategy which is strongly enforced in line with their respective organisations' branding guidelines; Their user experience strategies are to an extent, widely known across their organisations and applied to guide the design and deployment of all customer facing applications and channels. |   <ul style="list-style-type: none"> Charles Schwab bank appointed an executive management personnel to drive the governance of their organisation's user experience strategy (specifically, Eliel Johnson, Vice President and Head of User Experience and Design); <u>The bank also established a user experience research and design team focused on designing great software for their customers, investors and financial advisors;</u> In addition, the bank constantly applies a prototype-first approach for digital solution implementation prior to actual build; Eastern Bank engaged a design and marketing firm with deep experience working with brand guidelines and implicit knowledge of the tenets of brand DNA to create a cohesive, consistent brand experience for their customers across all their touch points. |



| Maturity Indicators | Lagging | Basic | Progressed | Leading | Innovating |
|---|--|---|--|---|---|
| Application of best practice user experience standards (cont'd) | <ul style="list-style-type: none"> No user experience strategy to guide and manage user experience on all user touch-points (both internally and externally) though its importance to the organisation is recognised. | <ul style="list-style-type: none"> Emergence of some user experience processes with some level of executive management support but no documented strategy to guide the execution of the processes. | <ul style="list-style-type: none"> Documented user experience strategy to guide and manage user experience processes. Presence of a dedicated team to ensure the appropriate execution of the user experience strategy. | <ul style="list-style-type: none"> Establishment of metrics to measure & control user experience in addition to dedicated management of user experience processes. User experience has been identified as one of the core tenets of the organisation's strategy. | <ul style="list-style-type: none"> Continuous measurement of user experience efforts and subsequent improvement of defined processes. Proactive elicitation of feedback from users to gauge the effectiveness of user experience management processes. User experience has been identified as part of the fabric of the organisation and not discussed separately. |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

Proposed Aspirations for FBNQuest



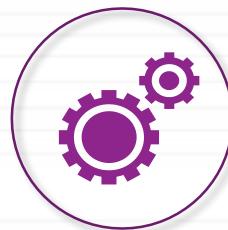
An API-driven economy that deliberately monetises bank assets by exposing APIs to the external ecosystem

An organisation with adequate reliance on cloud service models to host the bank's critical applications & infrastructure to aid scalability

An organisation that utilises sufficient data and analytics processes, tools and resources to perform business intelligence and intelligent reporting

An organisation that continuously measures and improves on user experience management which has been identified as part of the fabric of the organisation

Proposed Initiatives



API Management

Implement an API solution manager to better operate FBNQuest's integration architecture



API Monetisation

Expose FBNQuest's strategic products externally via APIs to diversify revenue streams, enable customer growth and support partnerships



Cloud Governance

Establish and execute a cloud governance framework to continuously guide the measurement, monitoring, tracking and prediction of cloud take-up



Data and Analytics Automation

Develop a business intelligence (BI) and analytics strategy and road map to facilitate the execution of intelligent reporting and analysis



User Experience Improvement

Establish and document a framework to guide proactive measurement of user experience and continuous improvement of the process



Key: ▽ Current

▼ Peer Group

▲ Global Industry Benchmark

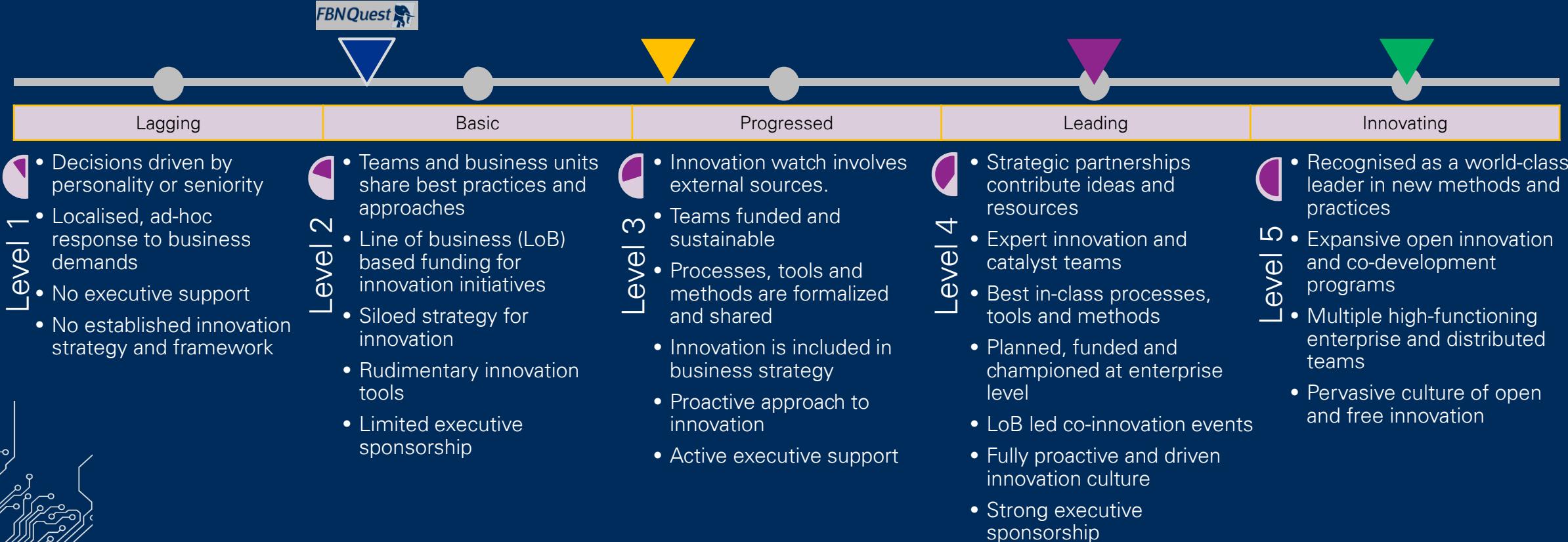
▼ Aspiration

Co-creation Model

The extent to which an organization monitors its own position in the digital marketplace and reacts to improve and enhance its digital propositions through internal and external ideation.



Maturity Levels



Maturity Indicators

Establishment of Innovation Strategy

46%

Mature internal innovation

27%

sourcing processes and platforms

27%

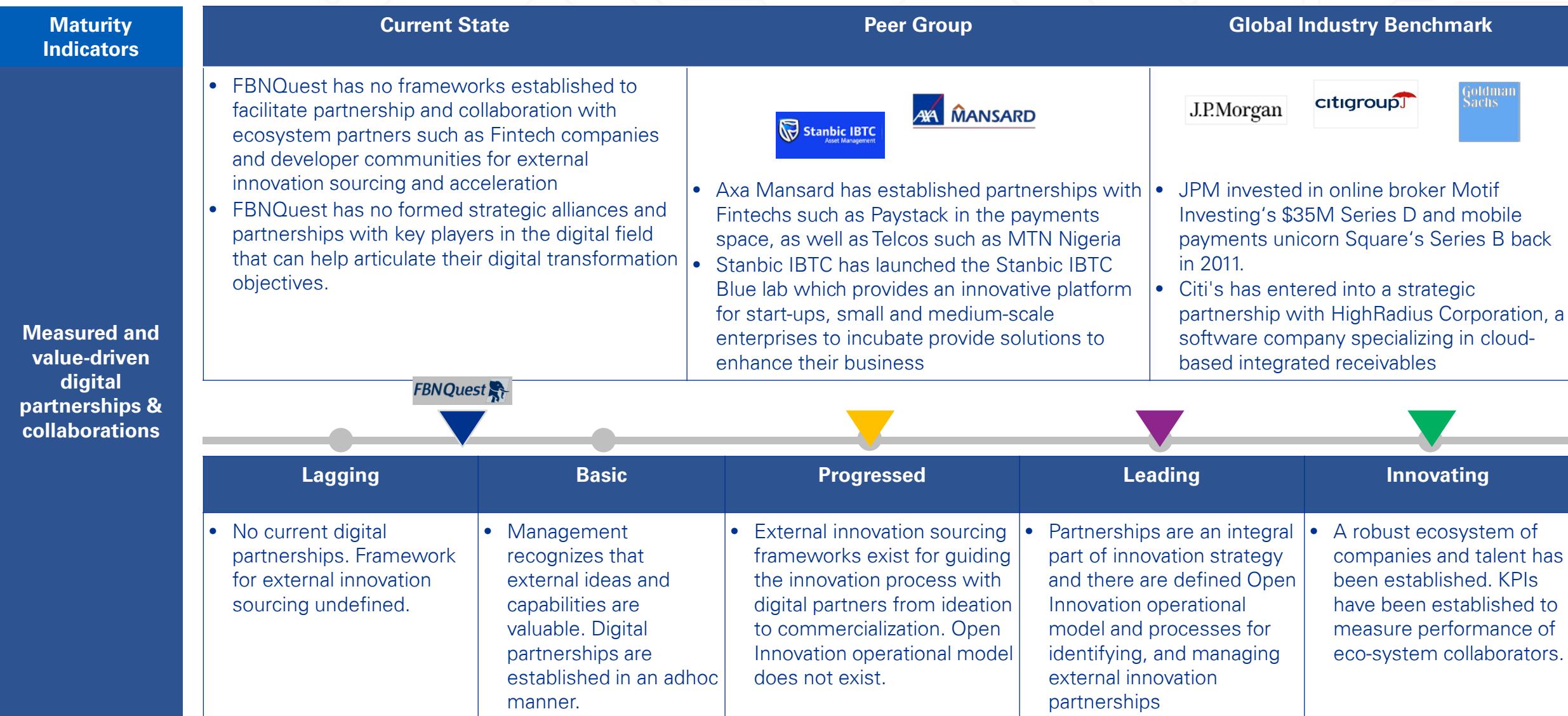
Measured and value-driven digital partnerships & collaborations

| Maturity Indicators | Current State | Peer Group | Global Industry Benchmark | |
|---|--|---|--|---|
| Establishment of Innovation Strategy | <ul style="list-style-type: none"> An innovation committee exists however a strategy for innovation has not been defined. FBNQuest is yet to establish a well communicated incentive for proposing and implementing new ideas or solutions |  <ul style="list-style-type: none"> Certain local peers have documented their innovation strategies to guide internal and external innovation sourcing and partnerships. Other peers are yet to document an innovation strategy to guide innovation sourcing and partnerships. |  <ul style="list-style-type: none"> JPMorgan has a framework for implementing new ideas or solutions as well as a corporate culture that deeply drives innovation. | |
|  | | | | |
| Lagging | Basic | Progressed | Leading | Innovating |
| <ul style="list-style-type: none"> Innovation committee exists, but no defined strategy exists to guide their actions. | <ul style="list-style-type: none"> Business leaders are actively involved in the identification and creation of well planned and targeted idea generation initiatives. | <ul style="list-style-type: none"> Corporate innovation strategy is defined and focused with resources allocated to support strategy. | <ul style="list-style-type: none"> Leadership is actively engaged in innovation portfolio management, culture maintenance and validating innovation/corporate strategy alignment. | <ul style="list-style-type: none"> The link between corporate strategy and innovation is continuously strengthened, improved and built upon so that strategy drives innovation and vice versa. |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

| Maturity Indicators | Current State | | Peer Group | Global Industry Benchmark |
|--|---|--|---|---|
| | | | | |
| Mature internal innovation sourcing processes and platforms | <ul style="list-style-type: none"> FBNQuest has setup a team that is tasked with scanning the digital market for innovators however these activities have little visibility to the wider firm. FBNQuest has not developed and implemented platforms for internal innovation sourcing beyond the activities carried out by the innovation committee. FBNQuest has not implemented a mechanism that allows regular review of failed innovative implementations and incorporation of learnings. Organizational change and innovation has not been embedded into the core of FBNQuest |  <ul style="list-style-type: none"> Peers such as Stanbic IBTC have set up an Innovation & Digital Enablement team in order to facilitate the growth of their innovation stack, innovation culture as well as manage partnerships with the local technology ecosystem. |   <ul style="list-style-type: none"> Goldman Sachs has launched an in-house incubator, dubbed GS Accelerate, aimed at encouraging employees to develop new innovative solutions. Citi is expanding the network of its Global Innovation Labs with the opening of a new hub in London. | |
| |   |  |  |  |
| Lagging | Basic | Progressed | Leading | Innovating |
| <ul style="list-style-type: none"> Committee responsible for innovation sourcing has been setup. Process not fully understood by wider business | <ul style="list-style-type: none"> Staff are actively viewed as a source for new ideas. Idea generation, creative problem solving and innovation systems exist. Technology is implemented for idea capture/logging and to track/monitor idea status | <ul style="list-style-type: none"> Idea database/storage and idea platform along with idea campaigns are fully utilized to capture and harvest ideas across the organization. Harvested ideas are managed via technology to track and monitor idea status across the organization. | <ul style="list-style-type: none"> Culture embraces new ideas and collaborative innovation efforts. Innovation culture, processes, platform and technology undergo continuous improvement in consultation with stakeholders. | <ul style="list-style-type: none"> Metrics exists to measure the feasibility, frequency and success rate of innovative ideas generated by employees. Dedicated funding exist for rewarding and executing innovative ideas. |



Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

Proposed Aspirations for FBNQuest



Robust strategy for internal innovation sourcing

Clearly communicated incentives for the proposal and implementation of new ideas and solutions

Simple and intuitive platform that supports internal innovation sourcing

Clearly defined and robust mechanism or regular review of failed innovative implementations and extraction of insight

Strong change and innovation mindset embedded in the core FBNQuest culture

Frameworks to help strengthen partnerships and collaboration with Fintechs and developer communities

Established and measured performance metrics for tracking partners and collaborators

Proposed Initiatives



Innovation Strategy

Develop an innovation strategy that is aligned with the business strategy, and clearly communicated to all FBNQuest staff. This should define the strategy for internal and external innovation sourcing



Innovation Sourcing Platform

Develop a platform to streamline and reward generation of innovative initiatives by FBNQuest staff



Partnership Assessment Metrics

Establish and measure performance metrics to ensure that alliances and partnerships regularly add value to FBNQuest



Key: ▽ Current

▼ Peer Group

▲ Global Industry Benchmark

▼ Aspiration

Risk Model

The extent to which an organization monitors the inherent risks in its operating environment and the risks that it will be exposed to upon the commencement of the digital journey

FBNQuest



Maturity Levels

| | Lagging | Basic | Progressed | Leading | Innovating |
|----------------|--|--|---|---|--|
| Level 1 | <ul style="list-style-type: none"> The organisation is compliant with legal and regulatory requirements, but without consistent, formalised or documented processes. Primitive level of ERM maturity where risk management typically depends on the actions of specific individuals, with improvised procedures and poorly understood processes. | <ul style="list-style-type: none"> There is awareness of the need for a more formal risk management approach. Risk management processes are structured, but incompletely put into practice. Risk is managed independently, with little integration or risk gathering from all parts of the organization. Processes typically lack discipline and rigor. Risk definitions often vary across the organisation. Risk is managed in silos, with little integration or risk aggregation. | <ul style="list-style-type: none"> Risk management (RM) processes are standardised with defined, documented and repeatable procedures. Risk awareness may be included in organisational training. RM is aligned with the organisation's external and internal environment, and risk profile. Risk assessments are conducted firm-wide to gather input which is aggregated to the board of directors, senior management, committees and regulators for risk overviews. | <ul style="list-style-type: none"> Enterprise-wide RM activities are harmonized with measures and controls established at all levels of the organisation. Measurement metrics are standardised and incorporated into the organisation's KPIs. Risk procedures are communicated and fully understood throughout the organisation with principles integrated fully within the management process. Mechanisms are in place for tracking changes in the organisation's risk profile that affect their objectives. | <ul style="list-style-type: none"> Risk-based discussions are embedded at strategic levels, such as long-term planning, capital allocation and decision-making. Risk appetite and tolerance is clearly understood with systems in place to ensure the board of directors and executive management is aware when thresholds are exceeded. Critical review of the RM program are regularly carried out to adjust/improve the application of risk management principles and processes across the organization to advance objectives. |
| Level 2 | | | | | |
| Level 3 | | | | | |
| Level 4 | | | | | |
| Level 5 | | | | | |

Maturity Indicators



| Maturity Indicators | Current State | Peer Group | Global Industry Benchmark |
|---------------------|--|--|---|
| Risk Governance | <ul style="list-style-type: none"> Risk priorities and progress are reported to the board of directors or senior leadership. Risk assessments are required for all new initiatives (i.e. projects, operational changes, vendor on-boarding, etc.). The consequences of risks are identified and communicated across the enterprise. Risk management education and comprehension is considered in employee performance reviews at FBNQuest but there is little knowledge of the process to the wider group. |  <ul style="list-style-type: none"> Local peers utilize global best practice risk governance frameworks which including the definition of robust risk management policies, constitution of board-level risk committees, as well as the appointment of Executive Management personnel to oversee the risk management function. Top local peers have also incorporated the oversight of digital and cyber risks into their Enterprise Risk Management frameworks. |  <ul style="list-style-type: none"> Global players have developed appropriate risk governance models that help in conducting comprehensive reviews of their exposure to inherent and digital risks. In addition, top global players have also setup risk management committees which are responsible for the development and maintenance of the risk management framework including the policies and procedures for managing credit, market, operational, digital and other risks. |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews



| Maturity Indicators | Lagging | Basic | Progressed | Leading | Innovating |
|--------------------------|--|---|---|---|---|
| Risk Governance (cont'd) | <ul style="list-style-type: none"> No one is formally responsible for risk management, it may have been discussed internally, but with no leadership, little action has been taken. No formal risk management budget or resources are in place. Since there is little overall organizational capability in risk management, specifically Digital risk management is correspondingly poor. | <ul style="list-style-type: none"> There is awareness of the need to manage risks, but no clarity on how it may be benefit the organization. There is a budget, but it is limited, and allows for basic assessment and analysis across a narrow scope. Risk Management is acknowledge in new projects, but is of low priority. The Risk Management team are looking for leadership and guidance. | <ul style="list-style-type: none"> The organization has a formal risk management framework and carry out risk management when time permits. There is awareness of the benefits that risk management brings to the organization. The leadership team recognizes the priority of risk management and commits resources and develops Standards and training. The tone of risk management is set from the top of the organization, with policies, procedures and risk authorities defined and communication to the business. | <ul style="list-style-type: none"> There is a formal accountability at a senior level for Digital risk management and this works in tandem with other areas. Risk Management is embedded and integrated within the organization, with integrated responses to adverse events. There are performance-linked metrics and rapid escalation procedures in place. | <ul style="list-style-type: none"> Risk management is embedded in the organization and decision making. Risk management is incorporated into business planning and strategic thinking. There is optimum budget which address development, maintenance and testing of the risk management tools in place. |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

| Maturity Indicators | Current State | Peer Group | Global Industry Benchmark |
|---------------------|---|--|---|
| Risk Monitoring | <ul style="list-style-type: none"> Risk assessments and reviews are conducted by an independent function in FBNQuest. There are clear and measurable indicators of impact and likelihood of all identified risks however there is little visibility on those indicators to the wider firm. Feedback from risk assessments are considered in the re-calibration of identified risks in the register. There is a clear means of evaluating risks to ensure that potential opportunities are not ignored. Identified risks are tracked to ensure the effectiveness of mitigation plans. | Stanbic IBTC Asset Management, NOVA, AXA MANSARD, CORONATION | Goldman Sachs, J.P. Morgan, Citigroup |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews



| Maturity Indicators | Lagging | Basic | Progressed | Leading | Innovating |
|--------------------------|--|--|--|--|--|
| Risk Monitoring (cont'd) | <ul style="list-style-type: none"> Use of established standards, tools and techniques is patchy and largely dependent on the skills and experience of individuals rather than organizational capability | <ul style="list-style-type: none"> Formal risk management processes exist to some degree in critical areas such as premises security, operations and information security but have a narrow focus. There is awareness of the need to conduct formalized risk management, but insufficient clarity of why or how to embed it throughout the organization. Digital-specific risks are only identified to a limited extend and are inadequately managed. | <ul style="list-style-type: none"> Standards, tools and techniques are used along with a dedicated budget and resources. The dynamics of balancing risk management against commercial or operational productivity may not be fully understood or measured and reported against. Core risks around Digital channels and technologies are understood and mitigated. | <ul style="list-style-type: none"> There is a comprehensive risk management framework in place within the organization which recognises digital risk management as a distinct sub-discipline with clear ownership and appropriate policies and procedures. Digital risk is managed across all dimensions including operational, commercial and change management. Risk identification and reporting happens in a timely manner using some automation. | <ul style="list-style-type: none"> There is a sound understanding of Standards and their application and a good use of tools to support the process. Risk management is embedded in the organization and decision making. The leadership team recognizes the most critical systems and their necessity to company prosperity and growth. Risk management is driving the organization. |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

Maturity Indicators**Risk Definition & Ownership**

| | Current State | Peer Group | Global Industry Benchmark |
|--|--|--|--|
| | <ul style="list-style-type: none"> There is a standard process and/or classification model for identifying risks, which considers new and emergent risks however there is little visibility to the wider firm. Risks are reviewed to identify their sources and/or root-causes. Business areas are responsible for identifying process-related risks. Process owners currently do not manage their risks, threats and opportunities within regular planning and strategizing processes. All risks, threats and opportunities are communicated and acted upon in a timely manner. Risk identification considers input across all verticals within FBNQuest. |  <ul style="list-style-type: none"> Local peers manage operational risk through a framework designed to balance strong corporate oversight with well-defined independent risk management. In addition, a number of local peers manage digital and cybersecurity risks as part of the Technology rather than the Risk function, which is not in line with leading practices. |  <ul style="list-style-type: none"> Risk is managed through a framework designed to balance strong corporate oversight with well-defined independent risk management. This framework includes the definition of cybersecurity risks. |

| Lagging | Basic | Progressed | Leading | Innovating |
|--|---|--|--|---|
| <ul style="list-style-type: none"> Limited awareness of risks and outcomes. Risk averse culture. Ad-hoc implementation of risk management | <ul style="list-style-type: none"> Risk tools available but not fully embedded in enterprise. Risk awareness across enterprise is still low, and risk management is perceived as a process | <ul style="list-style-type: none"> Functional risk framework implemented. Risk is viewed positively. Key risk behaviors embedded. General awareness of risks and outcomes | <ul style="list-style-type: none"> Focus on continuous improvement. System facilitates risk and outcome analysis and response. Regulatory delivery is assured. Key risk behaviors evidenced within industry | <ul style="list-style-type: none"> Risk and outcomes drive all activity. All stakeholders recognise, understand and support approach. Organisation wide understanding of risk tolerances and treatment |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

| Maturity Indicators | Current State | Peer Group | Global Industry Benchmark |
|---------------------|--|--|--|
| Cybersecurity | <ul style="list-style-type: none"> FBNQuest has a dedicated information security function within Risk management. However, security configuration and management activities are currently carried out by IT. FBNQuest is yet to document comprehensive security configuration baselines for operating systems, applications, databases and network devices to ensure uniform security standard for new additions to IT infrastructure. FBNQuest is yet to document a cybersecurity strategy and framework tailored to its environment which guides the security of its IT infrastructure. Vulnerability scans of servers are performed on a monthly basis to identify existing weaknesses. However, the scans performed are not credentialled which limits the scope. In addition, there is no dedicated scanning solution tailored to web applications. FBNQuest is yet to implement a Privileged Access Management (PAM) solution (e.g. LAPS) to manage credentials of privileged accounts such as local administrators and root users. FBNQuest has implemented network access control to prevent unauthorized access to its network. In addition, a network monitoring solution (Solarwinds) has been deployed to monitor the status of network resources. However, there is no real time monitoring of the capacity of network elements such as storage. FBNQuest has implemented an IT asset management solution to ensure the maintenance of an updated inventory. However, software utilities in use within the environment are not tracked and a whitelist of acceptable utilities is yet to be developed. FBNQuest has outsourced its Security Operation Center (SOC) for real time monitoring and log analysis. However, it is yet to implement a file integrity monitoring solution to track changes and modifications to critical file systems. |  <ul style="list-style-type: none"> Leading local peers have defined a cybersecurity framework and strategy. Processes have been defined and appropriate tools have been implemented to effectively manage the processes Leading local peers have defined cybersecurity policies and procedures. Tools have been implemented for security monitoring and generated reports are reviewed periodically. They have also defined cybersecurity roles and responsibilities to manage emerging security risks. |  <ul style="list-style-type: none"> Top global peers have defined a cybersecurity framework and strategy. Processes have been defined and appropriate tools have been implemented to effectively manage the processes They have also defined cybersecurity policies and procedures. Tools have been implemented for security monitoring and generated reports are reviewed periodically. Citi have pledged to partner with key financial service players and government agencies to establish a unified response to cybersecurity threats. This has allowed for real-time collaboration on mitigation measures and provided a forum to request and acquire specific governmental technical assistance. |



| Maturity Indicators | Lagging | Basic | Progressed | Leading | Innovating |
|------------------------|--|---|--|--|--|
| Cybersecurity (cont'd) | <ul style="list-style-type: none"> Cybersecurity processes are undefined and are performed in an ad hoc manner. Lack of or ineffective tools necessary to perform the required duties | <ul style="list-style-type: none"> Cybersecurity roles and responsibilities are vaguely defined. Processes and policies are not defined, but are consistently applied. Tools may be used, but are not standardized | <ul style="list-style-type: none"> Defined cybersecurity roles and responsibilities. No mandatory training. Policies and processes are defined and executed consistently. Tools are defined and used consistently | <ul style="list-style-type: none"> Cybersecurity policies and processes are defined and approved by management. Tools are properly maintained and there is a set level of automation. Capability assessed and monitored according to a plan | <ul style="list-style-type: none"> Effectiveness of cybersecurity skills are measured to enable calibration. Practices are regularly evaluated to influence process redesign. Effective tools are employed with a high degree of automation |

Source: DMA survey, interviews with FBNQuest employees, company websites, exploratory interviews

Proposed Aspirations for FBNQuest



Risk management processes and practices are tightly integrated and embedded within business processes.

Risk management framework that covers identification and mitigation of digital risks

Articulated and documented strategic initiatives and framework to mitigate cyber risks

Enhanced cybersecurity posture with adequate monitoring.

Clearly defined and documented security configuration baselines to ensure uniform security standards across IT platforms.

Proposed Initiatives



Digital Risk Strategy and Framework

Develop a robust digital risk strategy and framework for adequate management and mitigation of digital risks.



Cybersecurity Governance

Adequate staffing of cybersecurity function to ensure security activities are carried out by personnel within the dedicated function.



Cybersecurity Strategy and Framework

Develop a cybersecurity strategy with initiatives that align with business and IT strategy. Develop a framework to guide implementation of cybersecurity initiatives



Vulnerability Management

Perform periodic credentialed scan of IT assets (operating system, web applications, network devices and databases) to ensure completeness of scan scope.



Security Monitoring

Implement adequate monitoring of IT infrastructure for prompt identification and resolution of security events.

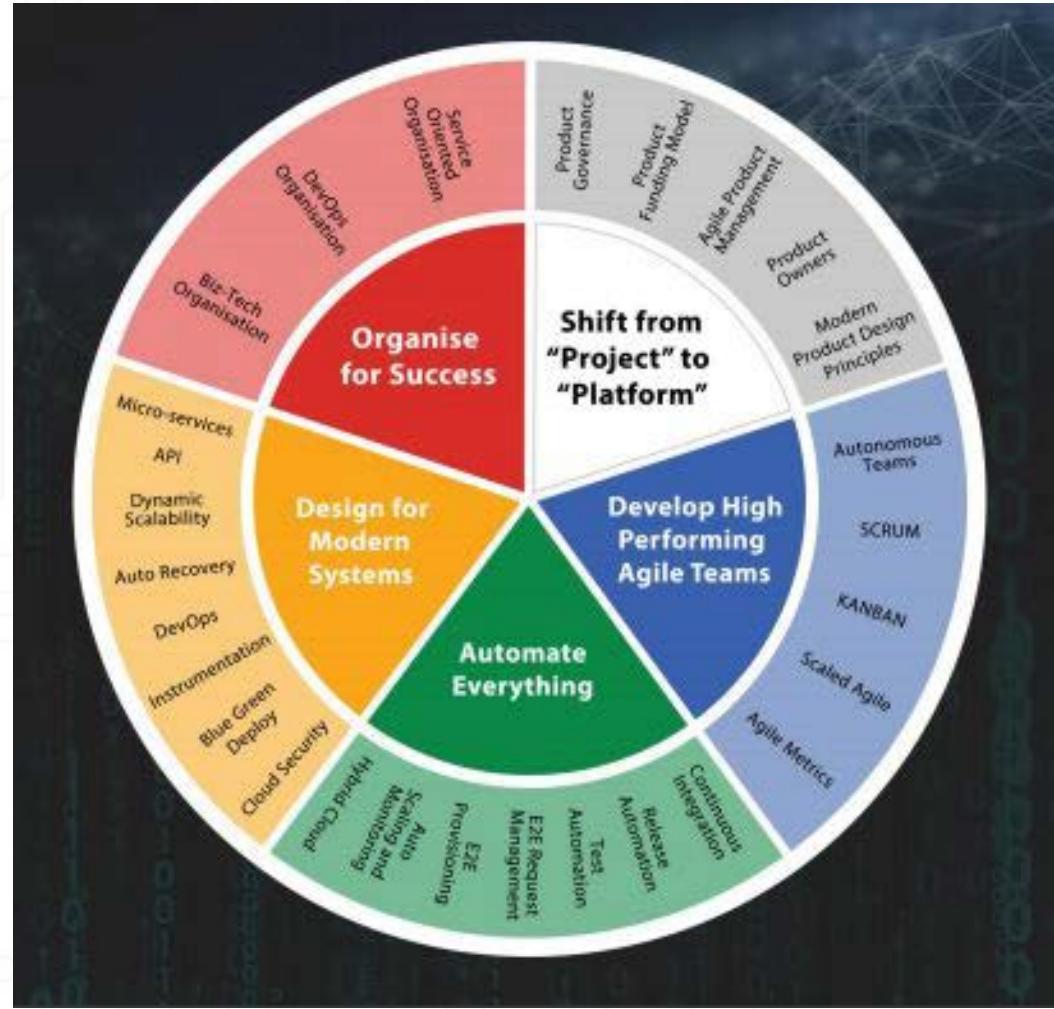
The scoring details are as follows:

| Dimension | Weight | Weighted (W) Score | | | | Sub Dimension or Maturity Indicator | Weight | Current | | | Local | | | Global | | | Aspiration | | |
|-----------------------------------|--------|--------------------|---------------|---------------|--------------|---|--------|---------|--------------------|---------------|-------|--------------------|---------------|--------|--------------------|---------------|------------|--------------------|---------------|
| | | Current | Local | Global | Aspiration | | | Score | Weighted (W) Score | Total W Score | Score | Weighted (W) Score | Total W Score | Score | Weighted (W) Score | Total W Score | Score | Weighted (W) Score | Total W Score |
| Value Management | 10% | 0.0768 | 0.2632 | 0.4528 | 0.4356 | Clarity and consistency of vision & strategy | 56% | 0.9 | 0.504 | 0.768 | 2.5 | 1.4 | 2.632 | 4.55 | 2.548 | 4.528 | 4.4 | 2.464 | 4.356 |
| | | | | | | Utilisation of digital KPIs for value realization & monitoring | 44% | 0.6 | 0.264 | | 2.8 | 1.232 | | 4.5 | 1.98 | | 4.3 | 1.892 | |
| Customer Experience Management | 30% | 0.2772 | 0.714 | 1.4616 | 1.3752 | Utilisation of customer insight to drive customer satisfaction | 28% | 0.9 | 0.252 | 0.924 | 2.8 | 0.784 | 2.38 | 4.8 | 1.344 | 4.872 | 4.2 | 1.176 | 4.584 |
| | | | | | | Customer experience feedback and measurement | 24% | 0.9 | 0.216 | | 2.9 | 0.696 | | 4.9 | 1.176 | | 4.7 | 1.128 | |
| | | | | | | Data-driven digital marketing | 24% | 1 | 0.24 | | 1.9 | 0.456 | | 4.9 | 1.176 | | 4.8 | 1.152 | |
| | | | | | | Use of digital channels | 24% | 0.9 | 0.216 | | 1.85 | 0.444 | | 4.9 | 1.176 | | 4.7 | 1.128 | |
| Operating Model | 10% | 0.1062 | 0.1814 | 0.48 | 0.4676 | Establishment of robust digital governance model | 38% | 1.2 | 0.456 | 1.062 | 1.8 | 0.684 | 1.814 | 4.8 | 1.824 | 4.8 | 4.7 | 1.786 | 4.676 |
| | | | | | | Digital workforce | 24% | 1.1 | 0.264 | | 1.7 | 0.408 | | 4.8 | 1.152 | | 4.6 | 1.104 | |
| | | | | | | Digitisation of key operational processes | 38% | 0.9 | 0.342 | | 1.9 | 0.722 | | 4.8 | 1.824 | | 4.7 | 1.786 | |
| Technology Enablement | 20% | 0.3224 | 0.3664 | 0.904 | 0.8296 | API implementation and management | 28% | 1.3 | 0.364 | 1.612 | 1.4 | 0.392 | 1.832 | 4.4 | 1.232 | 4.52 | 3.8 | 1.064 | 4.148 |
| | | | | | | Scalable cloud service models | 24% | 1.6 | 0.384 | | 1.4 | 0.336 | | 4.7 | 1.128 | | 4.6 | 1.104 | |
| | | | | | | Optimal utilization of data & analytics and artificial intelligence | 24% | 1.3 | 0.312 | | 1.8 | 0.432 | | 4.5 | 1.08 | | 3.85 | 0.924 | |
| | | | | | | Application of best practice user experience (UX) standards | 24% | 2.3 | 0.552 | | 2.8 | 0.672 | | 4.5 | 1.08 | | 4.4 | 1.056 | |
| Co-creation Mode | 20% | 0.2438 | 0.4426 | 0.9 | 0.7 | Establishment of Innovation Strategy | 46% | 1.3 | 0.598 | 1.219 | 1.7 | 0.782 | 2.213 | 4.5 | 2.07 | 4.5 | 3.5 | 1.61 | 3.5 |
| | | | | | | Mature internal innovation sourcing processes and platforms | 27% | 1.4 | 0.378 | | 2.8 | 0.756 | | 4.5 | 1.215 | | 3.5 | 0.945 | |
| | | | | | | Measured and value-driven digital partnerships & collaborations | 27% | 0.9 | 0.243 | | 2.5 | 0.675 | | 4.5 | 1.215 | | 3.5 | 0.945 | |
| Risk Model | 10% | 0.229 | 0.2925 | 0.4553 | 0.385 | Risk Governance | 29% | 2.2 | 0.638 | 2.29 | 2.9 | 0.841 | 2.925 | 4.5 | 1.305 | 4.553 | 3.9 | 1.131 | 3.85 |
| | | | | | | Risk Monitoring | 24% | 2.2 | 0.528 | | 3.2 | 0.768 | | 4.6 | 1.104 | | 3.8 | 0.912 | |
| | | | | | | Risk definition & ownership | 18% | 2.7 | 0.486 | | 2.8 | 0.504 | | 4.5 | 0.81 | | 4.4 | 0.792 | |
| | | | | | | Cybersecurity | 29% | 2.2 | 0.638 | | 2.8 | 0.812 | | 4.6 | 1.334 | | 3.5 | 1.015 | |
| Overall Assessment Summary | | 1.2554 | 2.2601 | 4.6537 | 4.193 | | | | | | | | | | | | | | |

4-1.4 Supporting Details



DBS embarked on a strategy of five-key elements to drive change within the organisation





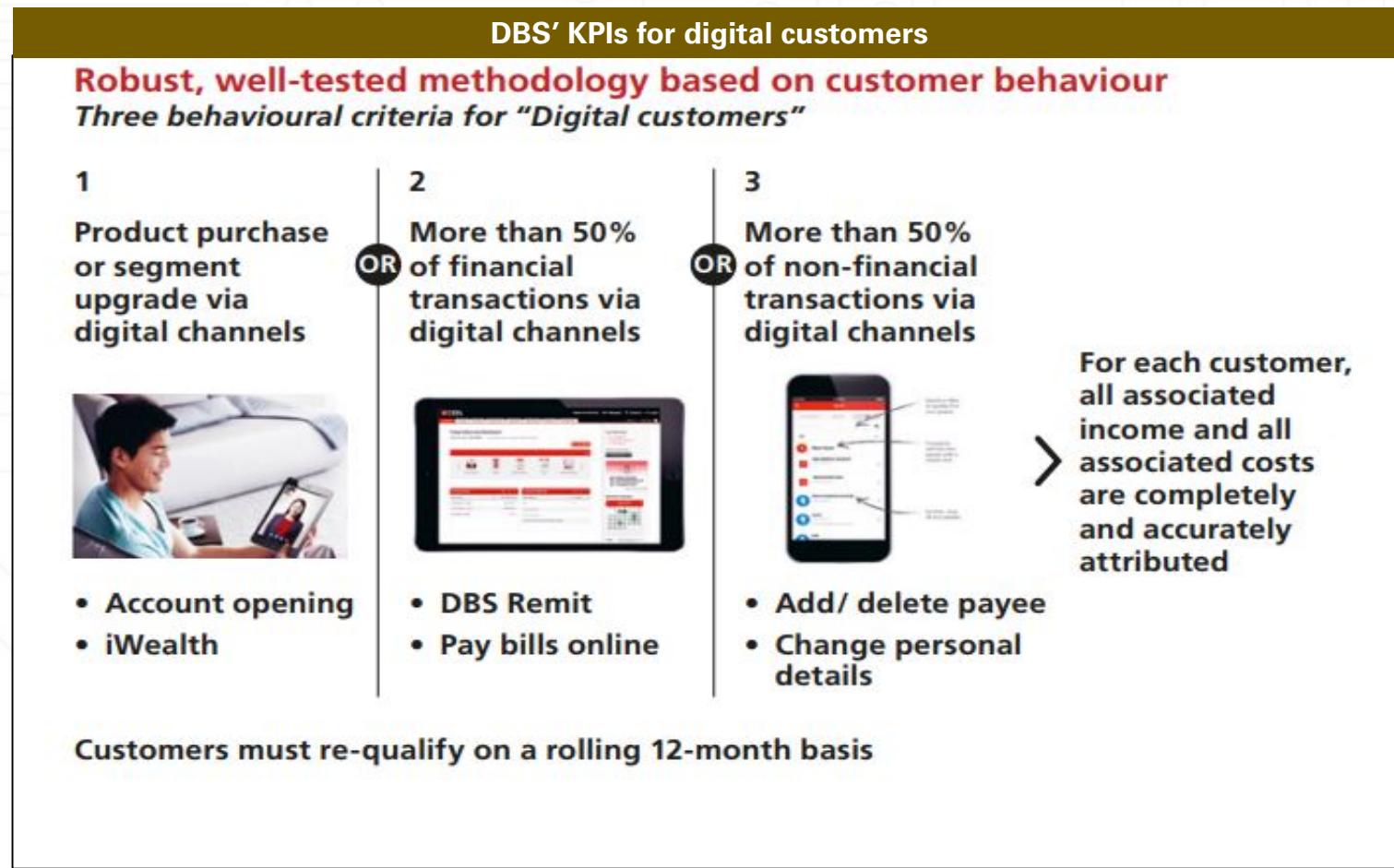
Lloyds puts digital banking at the heart of its three-year strategy

Transform the group into a digitized, simple, low-risk, customer-focused, financial services provider

Leverage multi-brand and multi-channel model to be the best bank for its customers

Invest more than £3 billion in strategic initiatives, an increase of more than 40 percent on its previous strategy

An organisation that has clearly articulated key performance measures for digital initiatives



"Making Banking Joyful" KPIs

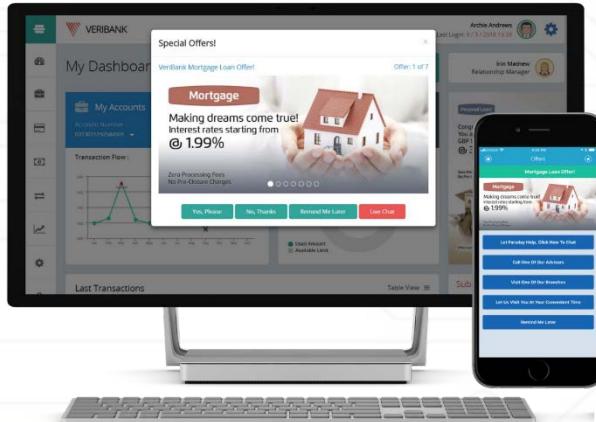
| KPI | Target | Outcome |
|--|---|--|
| Digital Transformation | Ecosystems Grow ecosystem partnerships | Leverage ecosystems and our digital footprint to grow digital interactions with customers We launched the world's largest banking application programming interface (API) developer platform, making available a wide array of APIs for external partners to plug into. We have since published over 180 APIs and connected with more than 60 partners. We grew our digital footprint, broadened access to customers, increased our social media fanbase by 15% to 8 million and grew engagements by 12 million through the SPARKS mini-series. |
| | Acquire Grow number of customers acquired digitally | Channel share of retail products sold digitally ⁽⁵⁾  <small>(5) includes digitally-assisted channels for bancassurance</small> |
| | | Growth in digibank India  Over 1.8 million customers acquired since launch |
| Transact Reduce manual efforts by driving straight-through processing and instant fulfilment | Reduce current efforts in targeted manual transacting processes | Channel share of wealth customers acquired digitally  Achieved 9% reduction in efforts in 2017 by driving straight-through processing and instant fulfilment, as well as increasing customer-initiated transactions through digital channels. |
| | | Digital channel share of customers' financial transactions (Consumer, Singapore and Hong Kong)  |
| | | Digital channel share of customers' financial transactions (SME, Singapore and Hong Kong)  |

"Making Banking Joyful" KPIs (continued)

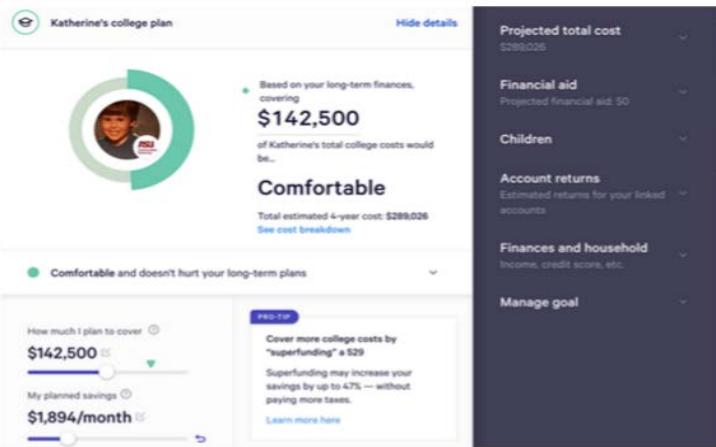
| KPI | Target | Outcome |
|--|---|--|
| Engage Grow customers' digital engagements with the bank | Drive engagement of customers through digital channels | The use of big data analytics and models has allowed us to better engage customers in contextual marketing, resulting in a double-digit increase in campaign revenues for CBG in Singapore and allowing us to garner incremental deposits in the SME space. |
| | | We improved the user experience in our retail digital platforms, resulting in higher usage rates and better user ratings. Digital customers are more engaged. For example, users of our OMNI credit card companion app in Hong Kong grew more than 50% year-on-year (yoY) with users spending 2.5 times more than non-users. |
| | | We offer differentiated insights on key Asian economies and industries via our Asian Insights platform across our digital channels. The traffic to our Asian Insights content continues to grow. We observed a 59% increase in monthly page views YoY as a greater number of customers value our depth of insights and advice. |
| Capturing value created from digitalisation | Grow digital customers (Consumer and SME, Singapore and Hong Kong) | The number of digital customers increased from 2.2 million in 2016 to 2.5 million in 2017 ⁽⁶⁾ . |
| | | <small>(6) A digital customer has either (within the past 12 months): (i) made a product purchase or segment upgrade via a digital channel; (ii) done more than 50% of financial transactions via digital channels; (iii) done more than 50% of non-financial transactions via digital channels</small> |
| | Drive digital customers' income (Consumer and SME, Singapore and Hong Kong) | The income from digital customers increased 21% YoY. In addition, the income of a digital customer was two times the income of a traditional customer. |
| Reimagining customer and employee experiences | Drive journey thinking and demonstrate outcomes from journeys started in 2016 | 448 journeys across the bank, with 71% of them delivering or having delivered outcomes during the year. In total, 1.1 million customer hours and 327,000 employee hours were saved. Many of these journeys leverage data analytics to make banking joyful for both customers and employees. |

Utilising customer data, companies have developed digital platforms to provide customised investment advice to customers

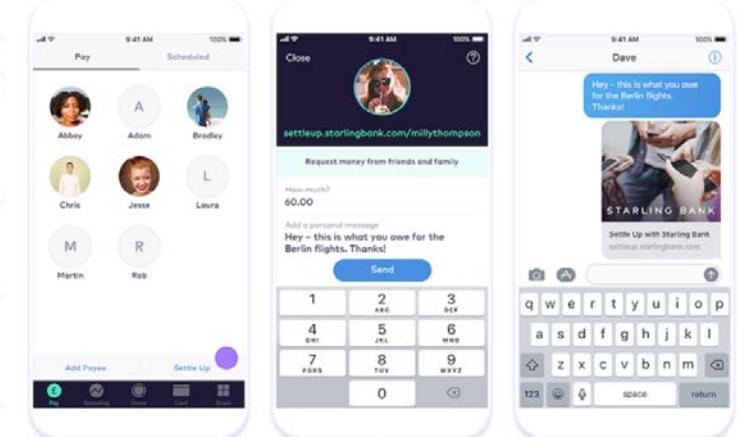
VIRTUAL ASSISTANT



ROBO-ADVISORY SERVICES



SELF-SERVICE TOOL



- **JP Morgan** has integrated Amazon's Voice-recognition artificial intelligence, Alexa, which specialises in providing access to analyst reports and stock information for investment banking clients. Clients are able to get information on the bank's research reports and even financial assets price data.

- **Wealthfront's** automated investment service combines proven investment strategies with software to maximise client returns by providing live customer support. It also provides resource centers and blogs that offer insights to understand customer financial future

- **Goldmann Sachs** utilises machine learning and artificial intelligence tools to reduce turnaround time of enquiries and encourage self-service using its application, StrategyStudio, which allows clients monitor and manage their portfolios on a day to day basis and reduces the need to communicate regularly with investment managers

Companies have utilized analytics to predict customer behaviour and deliver quality service

INTERACTIVE ANALYTICS



- **DBS** deployed the analytics-based solution, NICE, to improve customer satisfaction and operational efficiency by providing comprehensive analysis of customer interactions and highlighting areas for improvement.
- With NICE's analytics technology, DBS can effectively identify the type of calls that require longer handling time - whether these relate to products or services. The bank then uses this information to determine the underlying causes of complaints, such as unclear communications, process issues, or agent knowledge gaps and utilizes the information to improve customer satisfaction.

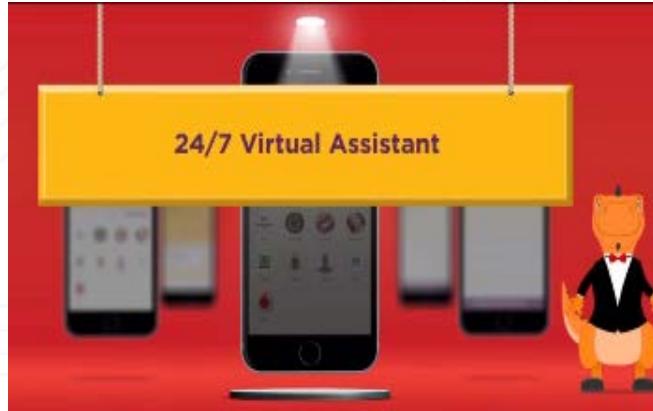
Source: Company Websites



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AI POWERED VIRTUAL ASSISTANT



- **DBS in 2017**, used the platform of Amazon's cloud based virtual assistant to create an in-app virtual assistant that answers questions and resolves complaints. Customers are able to converse with this assistant to get queries answered or banking transactions performed through voice or by text. It is not limited to answering basic questions as it understands natural language and has learning ability, it is able to respond in real time and can anticipate and answer 10,000 questions. It is akin to having a banker round the clock but without the wait time

AI ENABLED DIGITAL MARKETING



- **Citigroup** deploys AI along with customer data for its marketing to help acquire new and improved ideas for reaching out to current and potential clients. It integrates part of Youtube's software called "Director Mix" and customizes different versions of commercials for each individual based on several factors such as websites often visited, their current location, weather, etc., to make the commercials more relatable.

Global benchmarks are more aggressive in customer engagement via social media channels than local benchmarks

Top 100 Banks Using Social Media, Q2 2018

| Rank | Bank | Facebook Likes | Twitter Followers | Youtube Views |
|------|---------------------|----------------|-------------------|---------------|
| 1 | State Bank of India | 16,725,529 | 3,391,045 | 165,337,163 |
| 2 | Wells Fargo | 1,069,315 | 283,457 | 220,965,299 |
| 3 | Yes | 7,412,846 | 3,285,435 | 83,373,274 |
| 4 | ICICI | 5,526,165 | 446,222 | 101,625,014 |
| 5 | GTBank | 5,719,449 | 1,354,508 | 12,058,388 |
| 6 | Axis | 3,692,091 | 257,314 | 66,880,294 |
| 7 | CIMB | 1,573,240 | 133,823 | 72,957,776 |
| 8 | Kotak Mahindra | 1,373,361 | 214,297 | 67,210,980 |
| 9 | HDFC | 2,701,067 | 286,597 | 48,779,636 |
| 10 | Zenith Bank | 3,862,219 | 838,625 | 13,253,841 |
| 12 | Citi | 1,196,929 | 926,992 | 27,115,516 |
| 14 | Goldmann Sachs | 193,455 | 690,645 | 40,797,486 |
| 28 | DBS | 850,097 | 22,775 | 21,967,513 |
| 57 | Stanbic IBTC | 508,263 | 219,670 | 4,144,920 |

Source: The Financial Brand Q2 2018 Top 100 Banks Using Social Media, Instagram



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465 posts 4,649 followers 58 following

Investment One
We inspire trust, build partnerships and provide insightful financial solutions. We are licensed by the NSE and SEC #myinvestmentplan [linktree/investment_one](#)

Followed by smartmoneyarese, chef_fregz, thrive_invest + 1 more

POSTS

TAGGED

68% of the past 100 posts are product related

axamansard [Follow](#)

987 posts 13.4k followers 133 following

AXA MANSARD INSURANCE PLC
Welcome to the official Instagram page of AXA Mansard Insurance plc. [www.axamansard.com](#)

Followed by smartmoneyarese, omonioboli, and bellanaijaonline

POSTS

TAGGED

52% of the past 100 posts are product related

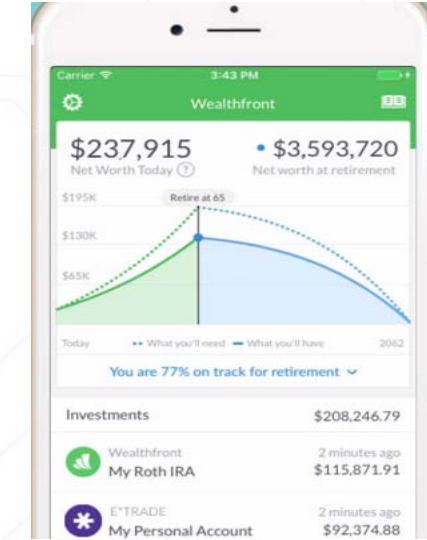
Global companies have succeeded in delivering seamless omnichannel experiences which has improved customer acquisition

OMNICHANNEL PLATFORMS



CitiDirect BE, Citigroup's strategic omni-channel digital platform that includes mobile and tablet banking, provides direct access to all corporate online banking product and services and allows customers initiate, authorize, analyze and monitor transactions across all their accounts.

SEAMLESS CUSTOMER EXPERIENCE



DBS introduced a comprehensive mobile banking suite, DBS iWealth, that allows customers conduct trading, gain personalised insights, take action to invest and seize opportunities, and meet their lifestyle needs while on the move.

Elevated the role of innovation with new Chief Innovation Officer appointment (Mr Neal Cross)

DBS names new chief innovation officer

AsiaOne | Monday, Apr 21, 2014



Photo: Handout

SINGAPORE – DBS Bank announced today that it has appointed former MasterCard Labs vice president Neal Cross as Managing Director and Chief Innovation Officer of the Technology and Operations team.

FINTECH

JPMorgan recruits head of digital from rival Goldman Sachs



Morgan Stanley Appoints Naureen Hassan Chief Digital Officer for Wealth Management

Jan 27, 2016



BUSINESS
INSIDER

Goldman Sachs has hired a former Silicon Valley executive to recruit tech talent

Frank Chaparro Aug. 15, 2017, 5:15 PM



AMERICAN BANKER

By
Gaurav Verma

Published
September 05 2018, 10:02am
EDT

Goldman Sachs CEO Lloyd Blankfein calls the investment bank a [tech company](#) — and roughly 25% of its 33,000 employees are engineers. JPMorgan reportedly employs 50,000 technology workers (including a former Google artificial intelligence executive), which is nearly double the total number of employees at Facebook. And Morgan Stanley recently announced the creation of a new executive role to lead the company's tech transformation.



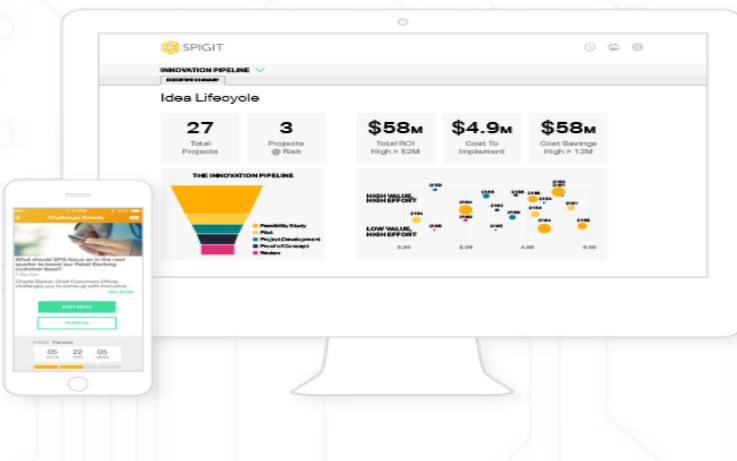
JP Morgan Technology Hub



Stanbic Blue Lab Innovation Space



DBS Innovation lab



02/04/2015 Thu 20:59 in All markets by Jerene Ang

DBS first in Singapore to include hackathons in talent development



4 Hackathons

**160+ entrepreneurs
50+ prototypes co-created**

As the bank embarks on its digital journey, it is essential to groom the next generation of digitally-minded leaders through exposure, education and experiential learning.

- Lee Yan Hong, DBS Head of Group HR

250+ DBS Employees

“...if we wish to remain relevant, our employees must embrace a culture of innovation and be intrapreneurs.

- Dave Gledhill, DBS Head of Group Technology & Operations



Deposits



Fund Transfers



Loans



Parties



Rewards



Reference Data



Research & Analytics



Pricing & Structuring



Execution



Post-trade



Banking

Over 150+ APIs available in the above categories for DBS Bank

The above categories of open APIs are available from J.P. Morgan



Organise API hackathons for the general public and get employees involved in other external API hackathons to:

- Source innovations free from any restrictions;
- Boost innovation;
- Discover new and better solutions to problems;
- Create a more cool and current image of your company for your audience;
- Push your employees to explore their creative boundaries in the lookout for the next best product.

Goldman
Sachs

**90% of
servers
on Cloud**

Over 200,000 servers

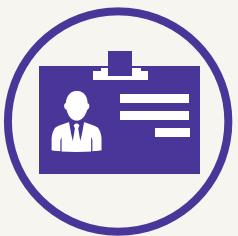
are owned by Goldman Sachs;

90%

of which are hosted on the cloud



100% virtual desktops



Customer Data



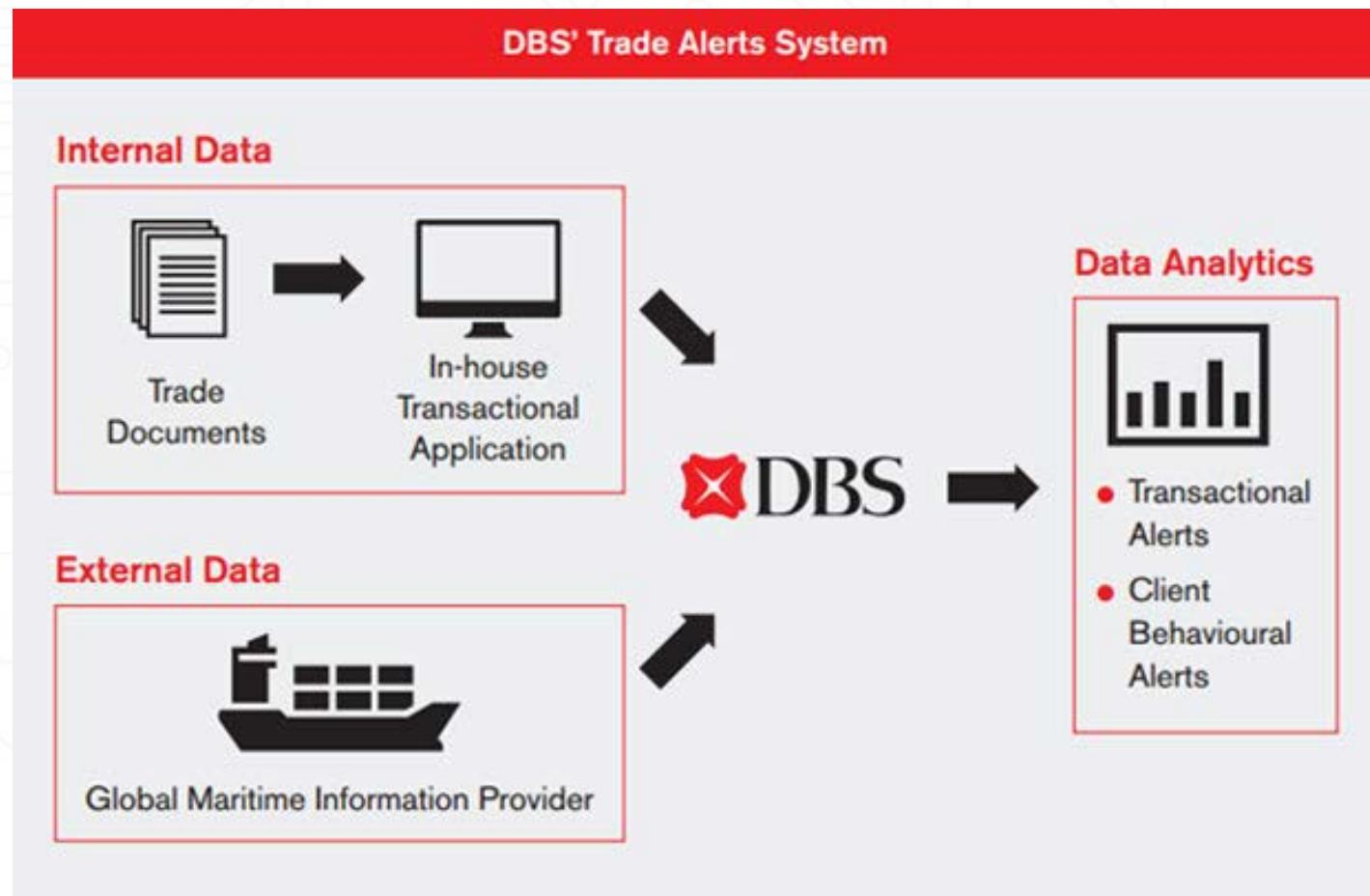
Government
Data



DBS Home
Connect; a
resource for
home buyers

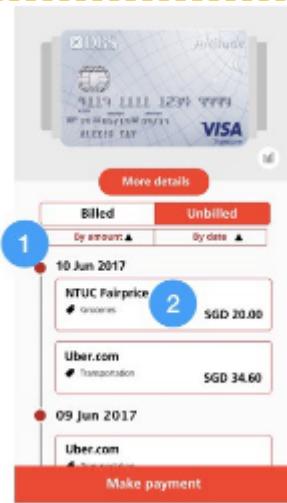
Internal data is collected in a structured format

External data is collected from external sources



Both the internal data and external data are collated and analysed to provide business intelligence reports

A user experience team dedicated to research and design of great software for customers, investors and financial advisors was set up



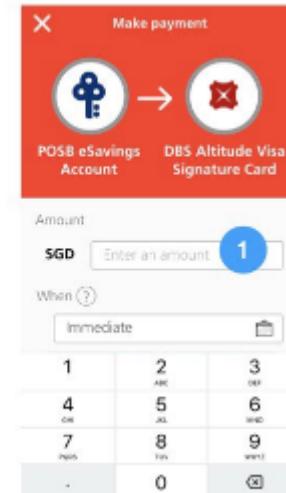
Comments

- 1 Sort by amount and date
- 2 Visual cues such as the red circle used facilitates easier reading for users to know the first and last transaction of the day.



Comments

- 1 Use of the bank's logo may help users to identify the card quicker.



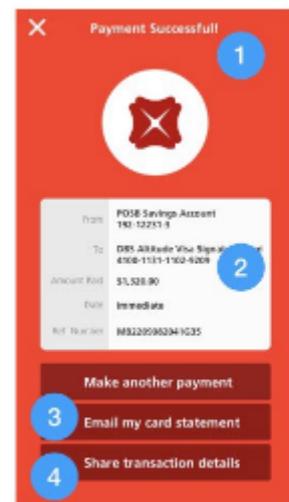
Comments

- 1 When users enter in an amount, ensure that the amount is appropriately separated with comma and decimal places.
This prevents users from entering the wrong amount. E.g. User means to enter \$13.20, but instead enters \$1320.



Comments

- 1 The amount to pay should also reflect in the button. Sliding from the left will cause a green overlay to transit in from the left.

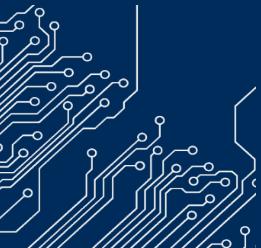


Comments

- 1 New design for the payment successful page.
- 2 Current account balance is hidden as users tend to screenshot for sharing.
- 3 Allow users to send their statement to their default email
- 4 Users can share transaction details easily. The amount paid (not shown currently) is also included in the sharing.

4-2

Other Appendices



| Player | Business Value Overall | Digital Maturity Overall |
|---------------------------------------|------------------------|--------------------------|
| Guaranty Trust Bank Plc | 96.55 | 92.00 |
| Zenith Bank Plc | 97.17 | 85.40 |
| Access Bank Plc | 80.19 | 90.15 |
| Diamond Bank Plc | 82.26 | 84.00 |
| First Bank Nigeria Limited | 95.16 | 68.39 |
| United Bank For Africa Plc | 75.67 | 68.97 |
| Stanbic IBTC Bank Ltd. | 54.60 | 66.71 |
| First City Monument Bank Plc | 57.61 | 58.96 |
| Fidelity Bank Plc | 50.71 | 63.89 |
| Union Bank Of Nigeria Plc | 41.96 | 63.54 |
| Stanbic Ibtc Asset Management Limited | 30.00 | 49.93 |
| Meristem Securities | 25.00 | 38.00 |
| Stanbic IBTC Securities | 25.58 | 35.90 |
| Arm Investment Managers Limited | 19.61 | 36.43 |
| Axa Mansard Investment Limited | 6.91 | 41.58 |
| Fbnquest | 21.61 | 21.75 |
| Investment One Stockbrokers | 15.00 | 27.26 |
| CSL Stockbrokers | 12.45 | 25.16 |
| Cordros | 9.08 | 26.76 |
| Morgan Capital Securities | 8.88 | 25.13 |
| United Capital | 6.07 | 15.52 |
| Rencap | 13.13 | 0.12 |
| Fsdh | 7.02 | 2.29 |
| Aiico Capital Limited | 9.05 | 0.05 |
| Apel | 2.89 | 0.01 |

| Player | Financial Performance | Digital Channel Adoption | Customer Satisfaction Rating | Brand Perception | Overall |
|---------------------------------------|-----------------------|--------------------------|------------------------------|------------------|---------|
| Zenith Bank Plc | 34.36 | 18.03 | 34.53 | 10.25 | 97.17 |
| Guaranty Trust Bank Plc | 22.88 | 28.49 | 33.71 | 11.46 | 96.55 |
| First Bank Nigeria Limited | 33.43 | 24.36 | 26.40 | 10.96 | 95.16 |
| Diamond Bank Plc | 25.54 | 16.93 | 31.84 | 7.95 | 82.26 |
| Access Bank Plc | 18.54 | 16.31 | 35.60 | 9.73 | 80.19 |
| United Bank For Africa Plc | 24.11 | 16.33 | 24.96 | 10.27 | 75.67 |
| Stanbic IBTC Bank Ltd. | 8.01 | 4.67 | 34.95 | 6.99 | 54.60 |
| First City Monument Bank Plc | 16.66 | 6.17 | 29.03 | - | 51.85 |
| Fidelity Bank Plc | 14.54 | 6.63 | 22.65 | 6.89 | 50.71 |
| Union Bank Of Nigeria Plc | 4.56 | 4.69 | 24.55 | 8.16 | 41.96 |
| Stanbic Ibtc Asset Management Limited | 17.83 | 12.17 | - | - | 30.00 |
| Stanbic IBTC Securities | 20.00 | 4.38 | 1.20 | - | 25.58 |
| Meristem Securities | - | 7.86 | 17.14 | - | 25.00 |
| Fbnquest | 13.56 | 8.05 | - | - | 21.61 |
| Arm Investment Managers Limited | 4.31 | 15.30 | - | - | 19.61 |
| Investment One Stockbrokers | - | 15.00 | - | - | 15.00 |
| Rencap | 12.50 | 0.63 | - | - | 13.13 |
| CSL Stockbrokers | 10.58 | 1.88 | - | - | 12.45 |
| Cordros | 3.13 | 2.73 | 3.23 | - | 9.08 |
| Aiico Capital Limited | 7.82 | 1.23 | - | - | 9.05 |
| Morgan Capital Securities | - | 6.25 | 2.63 | - | 8.88 |
| Fsdh | 3.15 | 3.87 | - | - | 7.02 |
| Axa Mansard Investment Limited | 6.76 | 0.15 | - | - | 6.91 |
| United Capital | 2.32 | 3.75 | - | - | 6.07 |
| Apel | 1.64 | 1.25 | - | - | 2.89 |

| Player | Digital Channel Presence | Digital Channel Capabilities | Social Media Activity Level | Open Banking Capabilities | Overall |
|---------------------------------------|--------------------------|------------------------------|-----------------------------|---------------------------|---------|
| Guaranty Trust Bank Plc | 32.20 | 32.20 | 13.80 | 13.80 | 92.00 |
| Access Bank Plc | 35.00 | 35.00 | 5.15 | 15.00 | 90.15 |
| Zenith Bank Plc | 31.50 | 30.00 | 8.90 | 15.00 | 85.40 |
| Diamond Bank Plc | 43.10 | 36.95 | 3.95 | - | 84.00 |
| United Bank For Africa Plc | 35.00 | 30.00 | 3.97 | - | 68.97 |
| First Bank Nigeria Limited | 35.00 | 30.00 | 3.39 | - | 68.39 |
| Stanbic IBTC Bank Ltd. | 35.00 | 30.00 | 1.71 | - | 66.71 |
| Fidelity Bank Plc | 35.00 | 27.00 | 1.89 | - | 63.89 |
| Union Bank Of Nigeria Plc | 35.00 | 27.00 | 1.54 | - | 63.54 |
| First City Monument Bank Plc | 31.50 | 25.00 | 2.46 | - | 58.96 |
| Stanbic Ibtc Asset Management Limited | 30.00 | - | 19.93 | - | 49.93 |
| Axa Mansard Investment Limited | 16.50 | - | 25.08 | - | 41.58 |
| Meristem Securities | 34.12 | - | 3.88 | - | 38.00 |
| Arm Investment Managers Limited | 16.50 | - | 19.93 | - | 36.43 |
| Stanbic IBTC Securities | 17.95 | - | 17.95 | - | 35.90 |
| Investment One Stockbrokers | 25.00 | - | 2.26 | - | 27.26 |
| Cordros | 25.00 | - | 1.76 | - | 26.76 |
| CSL Stockbrokers | 25.00 | - | 0.16 | - | 25.16 |
| Morgan Capital Securities | 25.00 | - | 0.13 | - | 25.13 |
| Fbnquest | 13.50 | - | 8.25 | - | 21.75 |
| United Capital | 15.00 | - | 0.52 | - | 15.52 |
| Fsdh | - | - | 2.29 | - | 2.29 |
| Rencap | - | - | 0.12 | - | 0.12 |
| Aiico Capital Limited | - | - | 0.05 | - | 0.05 |
| Apel | - | - | 0.01 | - | 0.01 |

Snapshot of top 10 banks in retail service delivery across digital channels

Rank Score

| | |
|----|------|
| 1 | 76.9 |
| 2 | 76.7 |
| 3 | 74.8 |
| 4 | 74.8 |
| 5 | 74 |
| 6 | 72.7 |
| 7 | 72.2 |
| 8 | 71.9 |
| 9 | 71.8 |
| 10 | 71.4 |



Mobile Banking

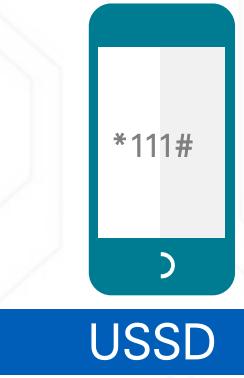


Internet Banking



Rank Score

| | |
|----|------|
| 1 | 75.9 |
| 2 | 75 |
| 3 | 74.1 |
| 4 | 72.1 |
| 5 | 71.9 |
| 6 | 71.9 |
| 7 | 71.4 |
| 8 | 71.3 |
| 9 | 71.3 |
| 10 | 70.5 |



USSD

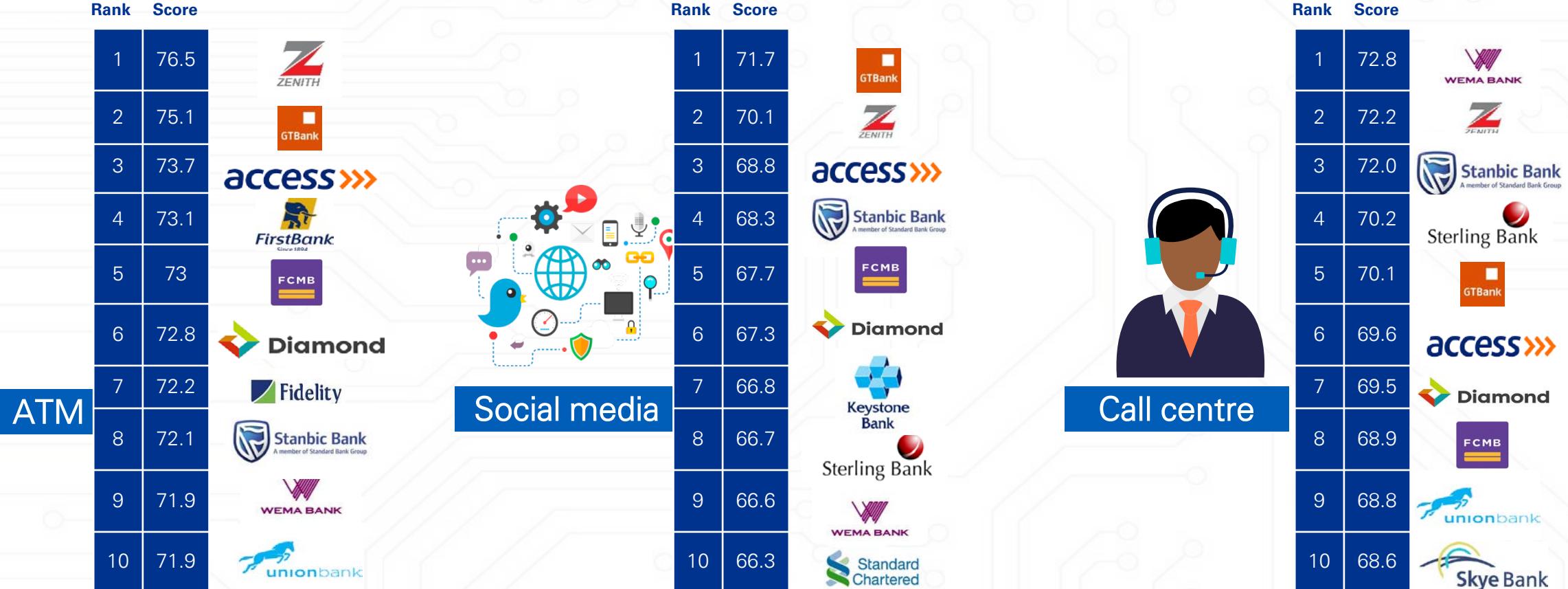
Rank Score

| | |
|----|------|
| 1 | 78.7 |
| 2 | 76.4 |
| 3 | 75.2 |
| 4 | 75 |
| 5 | 74.5 |
| 6 | 74 |
| 7 | 73.8 |
| 8 | 73.7 |
| 9 | 73.4 |
| 10 | 73.3 |



Source: KPMG BICSS - 2018

Snapshot of top 10 banks in retail service delivery across digital channels



Source: KPMG BICSS - 2018