BOSTON CONSULTING GROUP

Rethinking the Treasury: How to anticipate an evolving market?

Presentation

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ASOBANCARIA

Construyendo la Confianza y Solidez del sector financiero

Let us talk about the evolution of Treasury & ALM

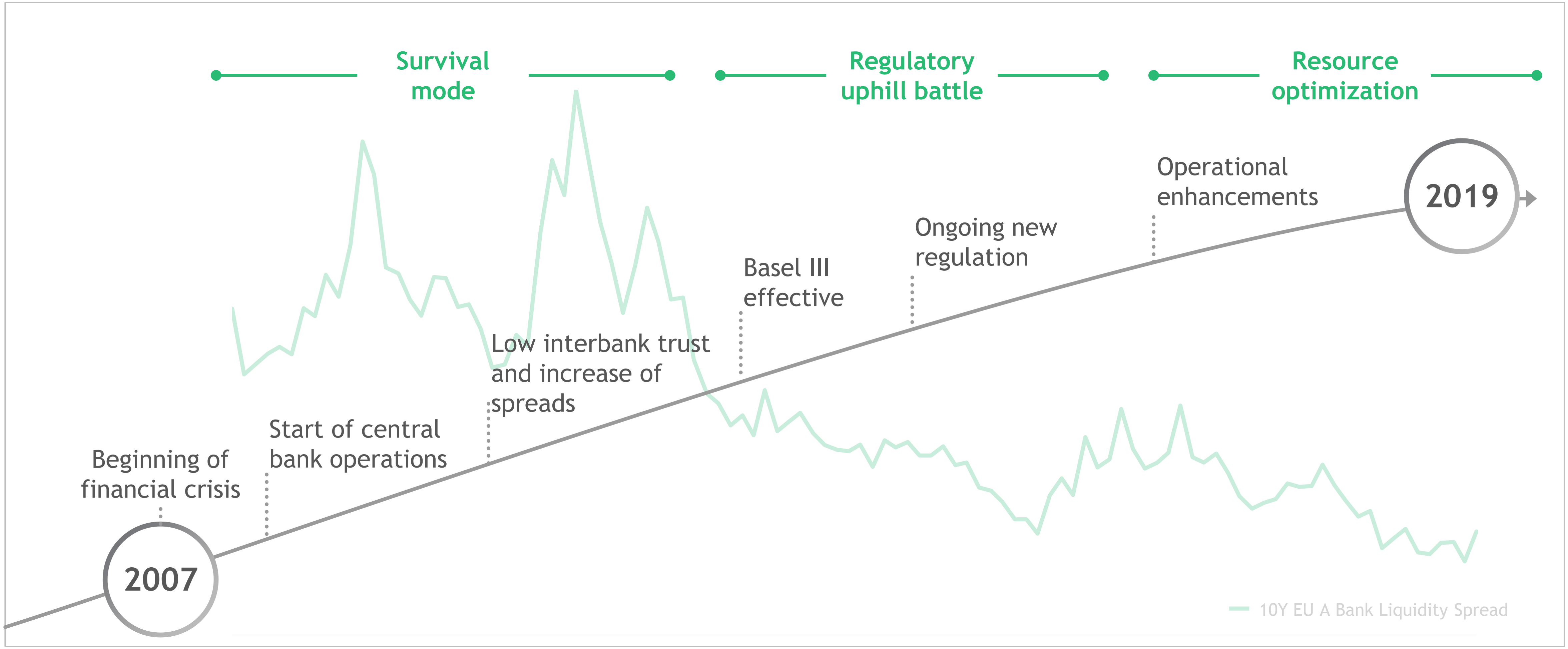
Transformation over the past decade

Moving towards a digital world

How has Treasury & ALM transformed over the past decade?

What do you think?

Time lapse of the banking environment



BCG View: Treasury Operating Model transformations along four stages over the last 10-12 years

Stage 1

- Treasury activities part of Capital Markets
- Lack of a robust framework for funding and liquidity risk
- Investment portfolio focus on return
- Limited involvement of Board of Directors in Treasury issues
- FTP focus on interest rate risk
- Steering primarily focused on present value rather than economic value

Stage 2

- Treasury transitions to Finance
- Significant increase in liquidity buffers and cash held at central banks
- Adequate risk measurement, quantification and reporting
- Mostly compliant with heightened regulatory expectations of liquidity risk
- FTP includes liquidity & funding
- No/limited transparency on P&L implications from interest rate risk and liquidity & funding
- GAAP view starts to come into focus

Stage 3

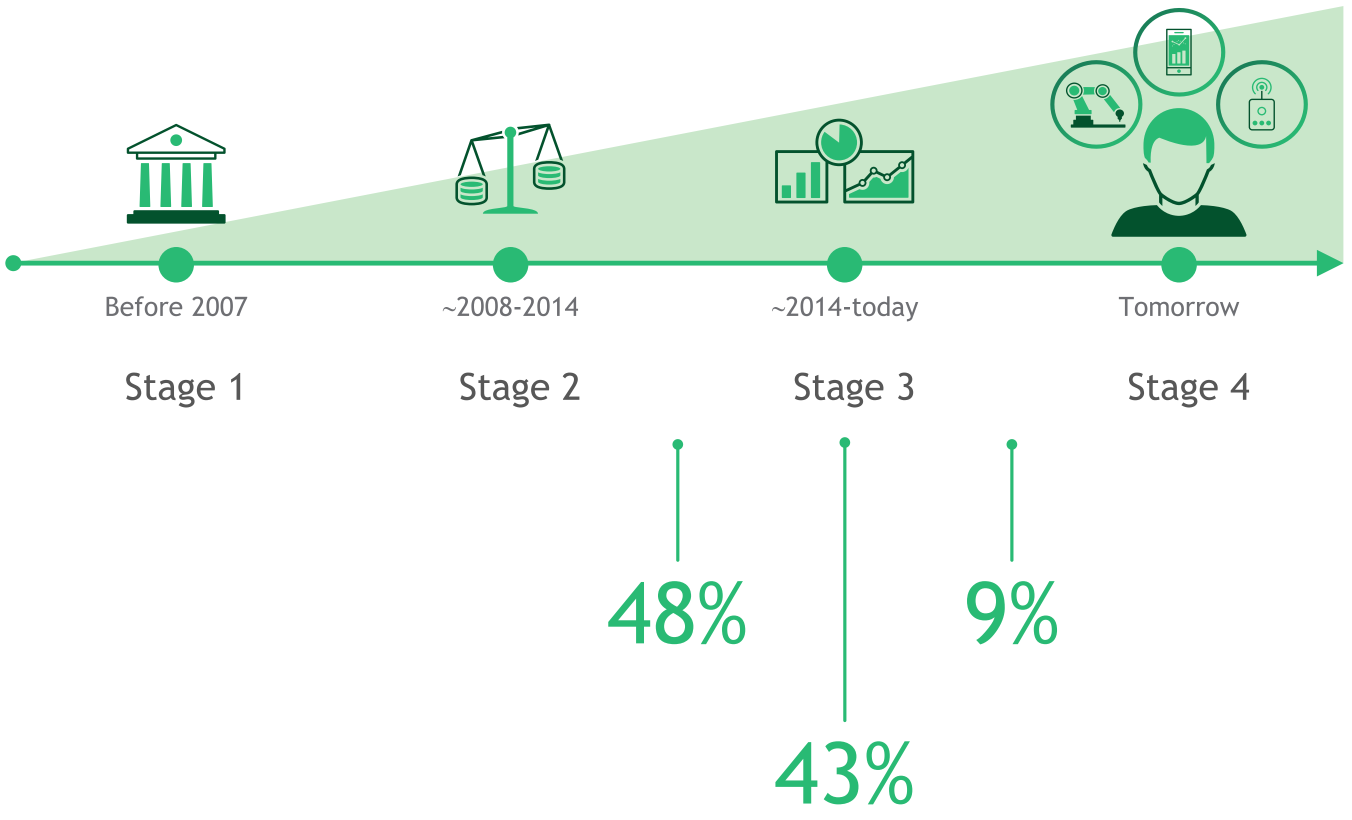
- 3 lines-of-defense construct
- Treasury steering of interest rate, liquidity and funding from overnight to extended maturities
- Integrated steering of all key financial and risk ratios, and optimization of balance sheet
- Full transparency on P&L implications from interest rate risk and liquidity & funding
- Improved collateral optimization
- Dual steering view (accounting and economic value)
- Flexible reporting based on robust data quality & control

Stage 4

- Real time data availability and usage
- Machine learning/AI broadly applied for risk quantification/modelling
- Largely automated processes with a minimum of human intervention
- Ad-hoc 'on the fly' simulation capabilities for (stress) scenarios
- Decision making supported by AI
- Fintech partnerships enrich capabilities
- 24/7/365 operability for Treasury

Source: BCG

Treasury & ALM transformation is still ongoing



Source: BCG Treasury Benchmark Survey 2018

Let us have a closer look at how to build a future-proof target operating model for Treasury & ALM

A vision for Treasury & ALM

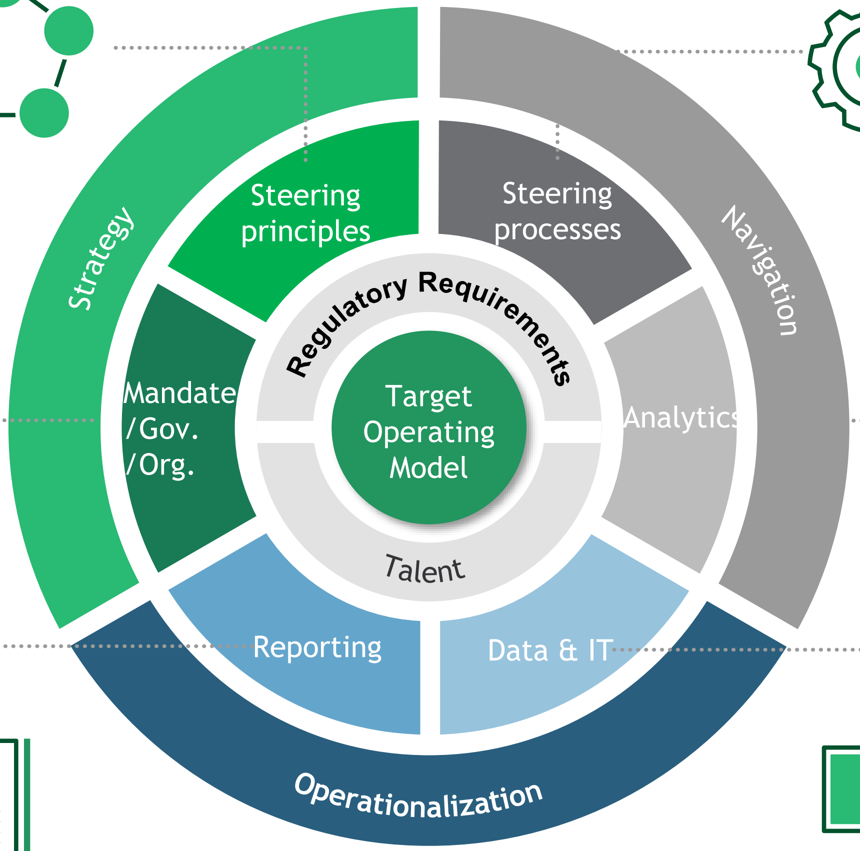
"We need a fortress balance sheet so we can continue to do our job — regardless of the environment."

Jamie Dimon
Chairman & CEO JP Morgan Chase

Robust and effective TOM needs to address fundamental questions of Treasury & ALM functions

- How should our ALM/risk strategies/policies look like?
- What is our optimal B/S, funding and capital structure?

- How should our planning and hedge acc. process look like?
- How should our capital mgmt. process look like (incl. allocation)?



- What is the role and mandate of a Treasury/ALM function?
- How is the delineation with Risk, Finance and CM units?

- How to develop behavioral/ non-linear models?
- What is the correct FTP-system and how can we measure and report it?

- How to develop a future-proof ALM-reporting system incl. scenario/sensitivity analyses?

- How to develop "best-in-class" IT/reporting-tools based on the existing IT-infrastructure?

BCG view on current better practice across target operating model dimensions

Deep dive

Mandate, governance, and organization

CFO: Treasury set-up under CFO/ALCo governance; ALCo chaired by CFO
Organization: Separate execution and steering functions within treasury
Mandate: Treasury mandated to safeguard the bank but also for NII contribution
Central vs. local setup: Central steering and local execution
Profit center: Treasury P&L measured internally – then allocated back to BU

Steering principles

Risk transfer: Fully transfer banking book liquidity and interest rate risk to treasury
Risk split: Split banking book position between risk types within treasury
Desk structure: Manage liquidity and IR risk in competence centers from O/N to ∞
Natural Hedging: Maximize benefit from natural hedging – "net first, then hedge"
Positioning: Build Strategic positioning around natural flow of the banking book

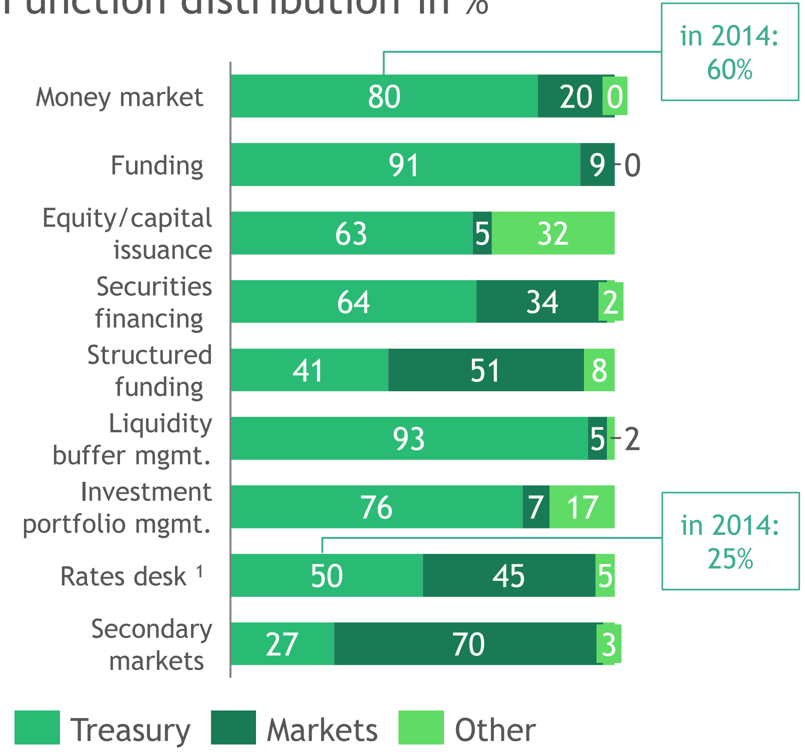
Steering processes

Risk appetite framework: (i) Define risk appetite/limits (RiskCom), (ii) strategic positioning within risk appetite/limits (ALCo), (iii) give treasury mandate to operate
Balance sheet positioning: (i) Include entire banking book risk, (ii) use natural hedging as much as possible, (iii) use natural flow for positioning, (iv) hedge last
Risk/return optimization: Treasury optimizes risk/return within ALCo mandate (i) steering balances, (ii) economic view/NII, (iii) setting incentives on top of FTP

Still several operating models regarding distribution of tasks between treasury, markets and risk in the market

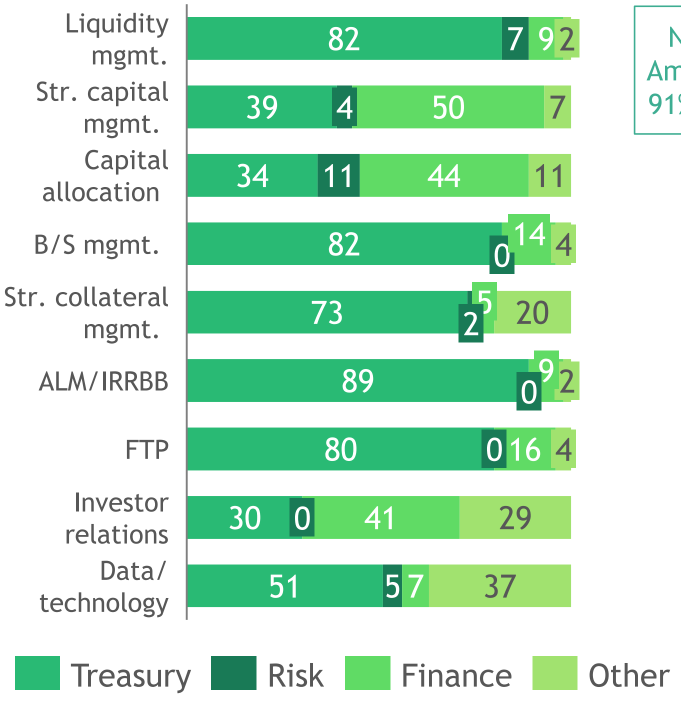
Distribution of execution functions

Function distribution in %



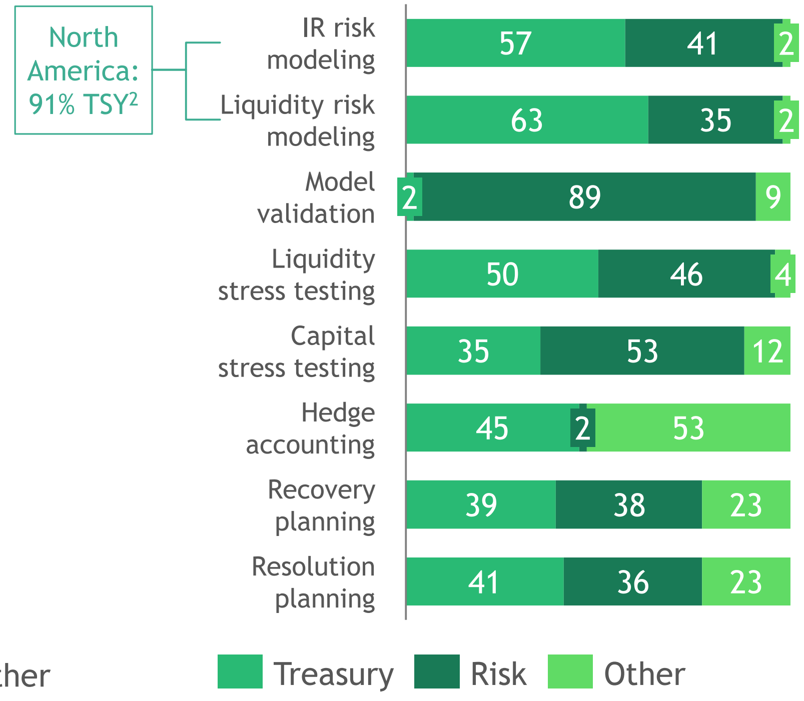
Distribution of steering functions

Function distribution in %



Distribution of tasks

Task distribution in %



1. Duplication for 18% with Markets 2. TSY=Treasury
Source: BCG Treasury Benchmark Survey 2018

Three core tasks of financial resource management …

Risk Management

Interest rate risk & liquidity management

FX risk management

Manage credit risk of Treasury portfolios

Collateral management

Credit portfolio management

Steering

Strategic planning of financial resources

Funds transfer pricing

Guidance for refinancing

Steering of model books (equity, deposits, options)

Service Center

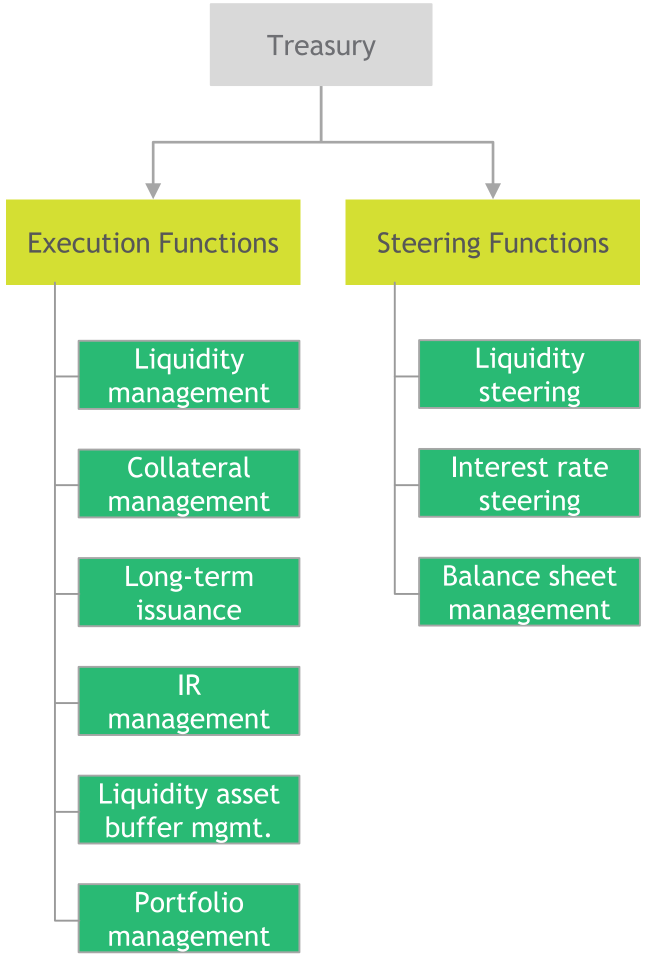
Investor relations & refinancing

Enhancement of Treasury systems & projects

Implementation of regulation

Business Management

… typically in Treasury



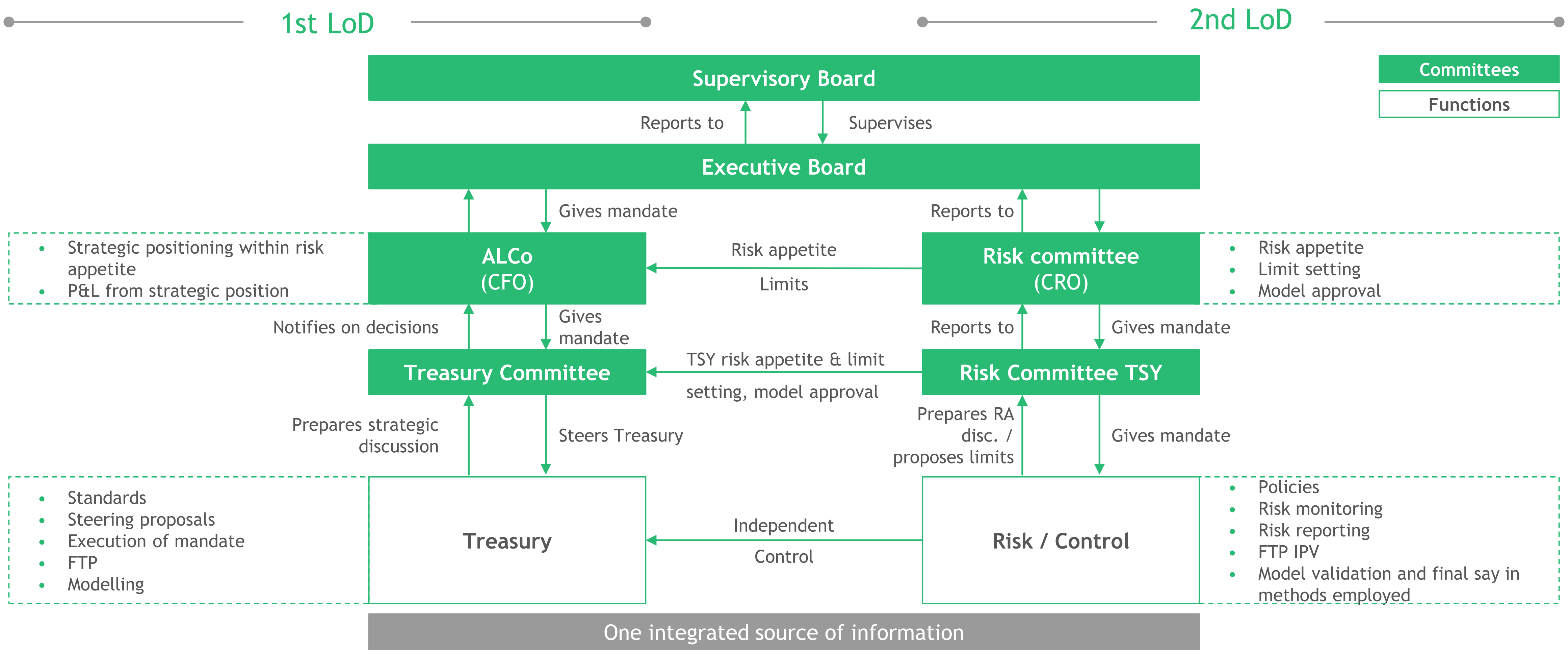
Typical mandate: Treasury is the key financial resources manager

Priority		Treasury ambition
1	Resource management	Steering of group-wide liquidity, funding and structural banking book risks
2	Strategic positioning	Realization of economic value from strategic positioning—within clear ALCo mandate
3	Additional value contribution	Use of free resources for additional economic value contribution[1]

1. In line with risk appetite and limits
Source: BCG analysis

Hierarchy ensures potential conflicts of interest managed appropriately

Typical governance framework: Operational model with separation of 1st and 2nd LoD



ALCo as central committee for balance sheet, liquidity, capital, interest and FX steering

Focus on "BB positioning" → Fully fledged resource management

Basic areas of responsibility

Balance sheet/asset liability management	1. Monitoring of B/S topics when related to liquidity/funding or IR position
Liquidity steering	1. Refinancing strategy and funding plan/monitoring 2. Strategic position for liquidity maturity transformation 3. Product steering/pricing (FTP)
Capital steering	1. Detailing of target capital structure and initiation of capital transactions (e.g., issuance) 2. Investment strategy for the bank's equity model book
Interest and FX steering	1. Investment strategy and risk profile for bank's investments 2. Definition of strategic IR position of banking book

\+

Additional areas of responsibility

Balance sheet/asset liability management	2. Standards/policies for BSM/ALM 3. Definition of target balance sheet structure and target balance sheet ratios, e.g., loan-to-deposit ratio, leverage ratio, NSFR
Liquidity steering	4. Risk appetite suggestion as input for RiCo 5. Liquidity buffer optimization 6. Liquidity contingency plan 7. Discussion of behavioral models, e.g., deposits, prepayments
Capital steering	3. Target capital ratios and capital structure 4. Capital allocation 5. Monitoring of capital requirements
Interest and FX steering	3. Risk appetite suggestion as input for RiCo 4. Policies for market risk positioning of banking book

BCG view on current better practice across target operating model dimensions

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BCG view on current better practice across target operating model dimensions

Analytics

Governance: Behavioral modeling & FTP performed in Treasury – Risk responsible for setting global standards/policies and validating models and FTP curve(s)

Scenario analyses & simulation capabilities: Link modeling practices closely with NII / balance sheet stress and simulation under different scenarios

Prototyping: Support adequate modelling with front office prototyping activities in an agile working style

Data & IT

FO system: (i) Manage complete ALM position in one FO-system on a daily basis and (ii) build desk structure in FO-system along risk types

ALM system: Ensure comprehensive position in Front-to-Back-to-Risk-Finance/ Control systems – e.g., ensure golden / same database / reconciliation of data

Simulation capabilities: Ability to run simulations on balance sheet, P&L and regulatory ratios on same database/within same tool, T+1

Data: Invest in (i) data capturing (recognition capabilities), (ii) data storage (cloud), (iii) data analysis (big data, AI) and (iv) data management

Reporting

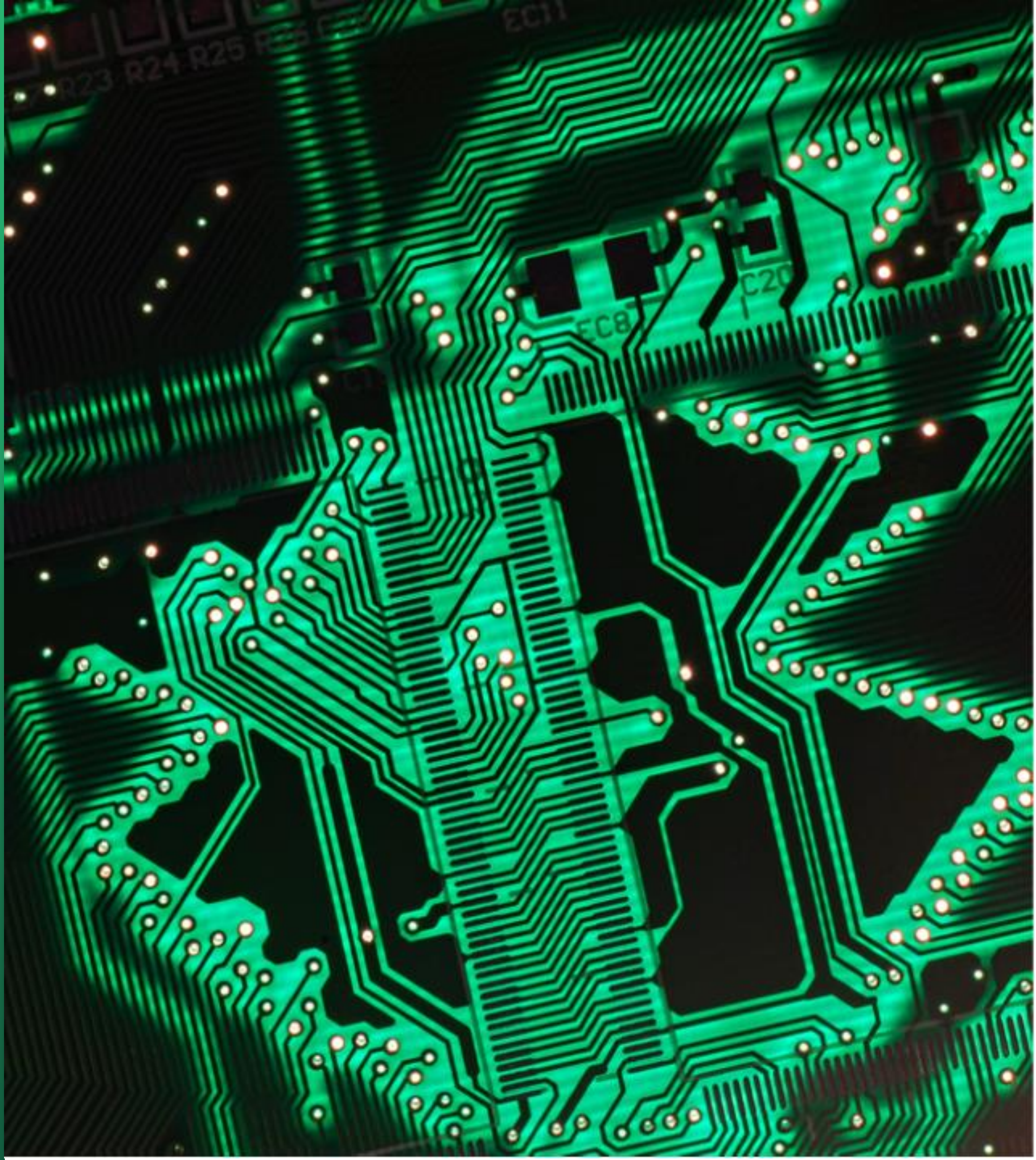
Consistency: Base reporting on all levels on KPIs/KRIs in tree structure

Timely: Base reporting frequency/monitoring on possible volatility of KPI/KRI, e.g. daily interest rate risk monitoring/reporting for the banking book

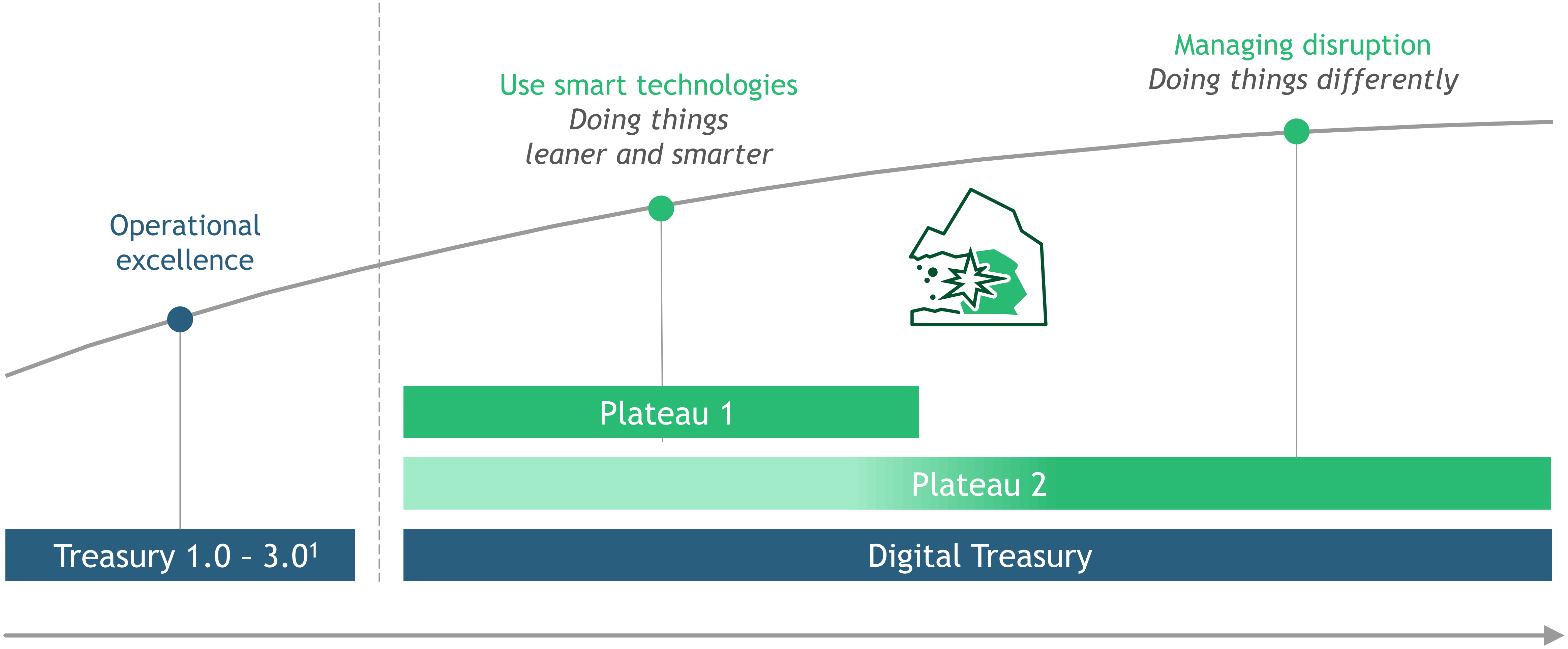
Granularity: Link economic view with NII/external P&L view within steering processes/decision making under different scenarios

Processes: Ensure sufficient level of control, auditability and repeatability of reporting processes

Let us now talk about Treasury & ALMs future in a digital world



BCG view: transition to Digital Treasury in two steps

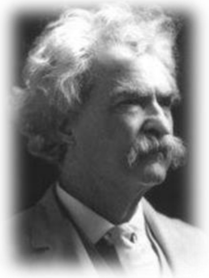


1. Equals the Treasury evolution described on page 5 (i.e. Capital Markets Treasury, Guardian of Liquidity and Balance Sheet Manager)

How to manage disruption?

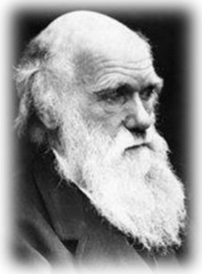
Henry Ford

“ *If I had asked people what they wanted, they would have said faster horses*



Mark Twain

“ *The man with a new idea is a crank — until the idea succeeds*

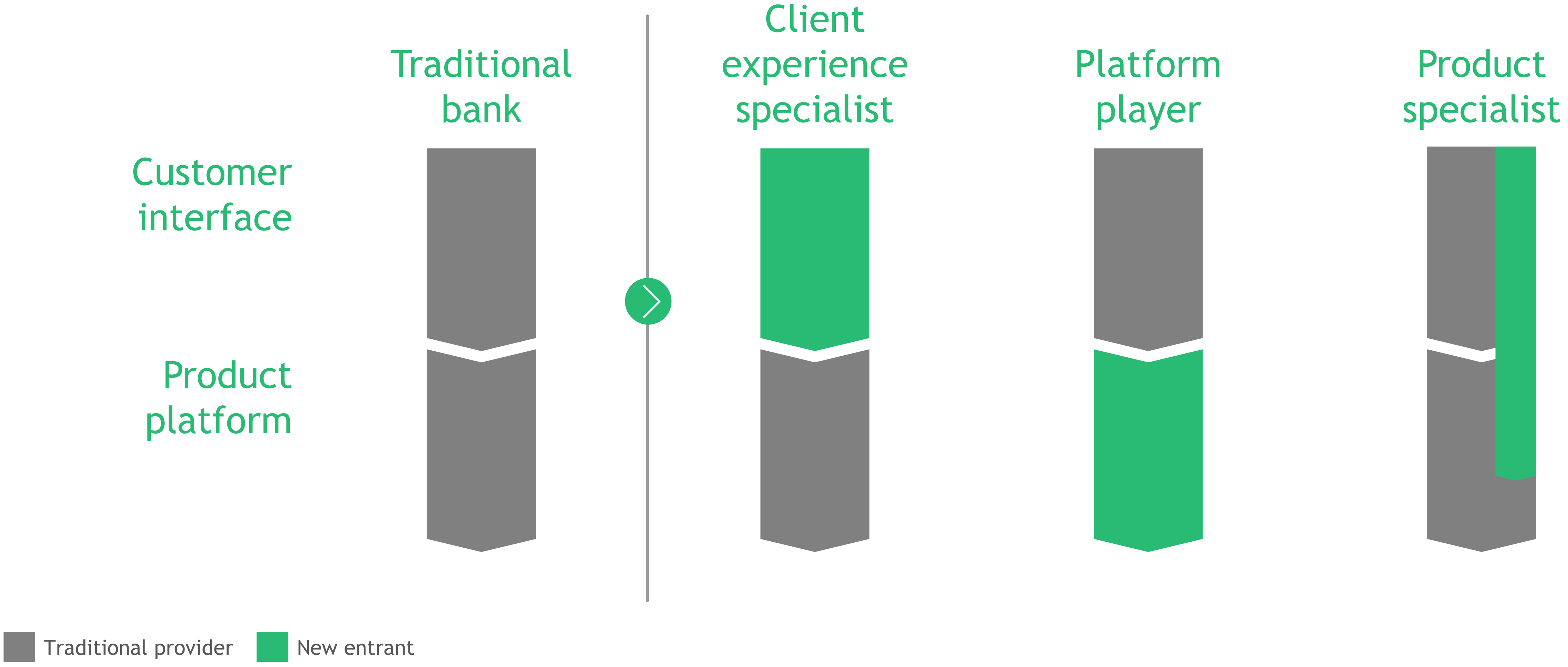


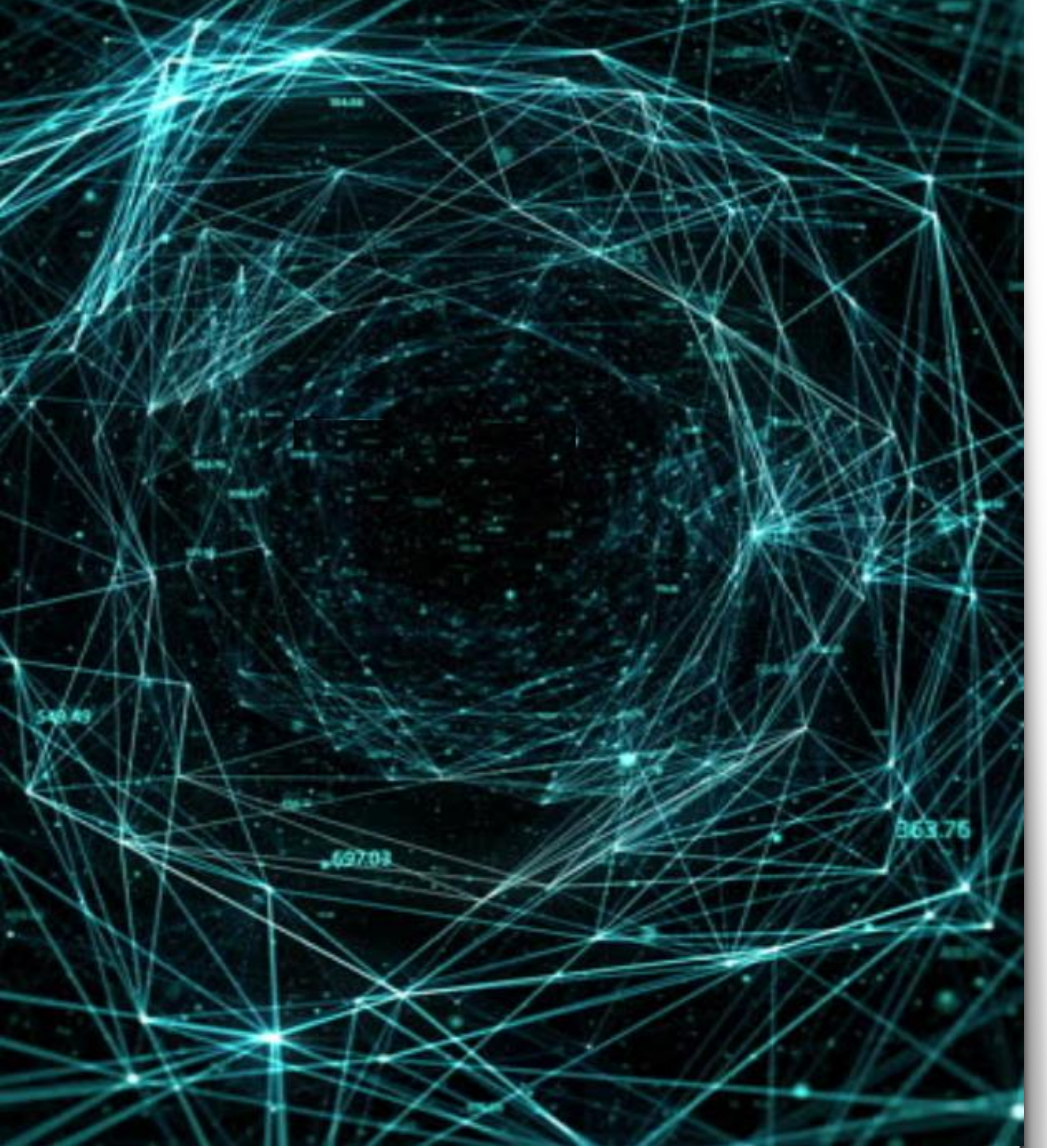
Charles Darwin

“ *Without speculation there is no good and original observation*

Hypothesis 1: all banking core functions are predestined to be digitized

Hypothesis 2: the functional essence of banking will not change, but the way future players operate will change





Hypothesis 3: The bank of the future will operate like a tech company

When will this change occur?

We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten. Don’t let yourself be lulled into inaction.

Bill Gates, 1995

Some traditional banks already share this vision

ING

We want to be a tech company with a banking license

Ralph Hamers

Goldman Sachs

Goldman Sachs is a tech company with engineers representing >25% of its employees

Lloyd Blankfein

BBVA

At the end of the day, we won't be a bank any more, but a digital house

Francisco Rodriguez

"Tech banks" will operate differently from today

Tech banks are very lean and cost efficient through full automation of standard processes adapting a fully agile way of working

Tech banks create value for themselves and clients through smart automation

Tech banks are run on a single cloud & service based software along the whole value chain

Tech banks operate 24/7 and payments occur instantaneously

Tech banks use real time data along the whole value chain, big data and AI play a dominant role

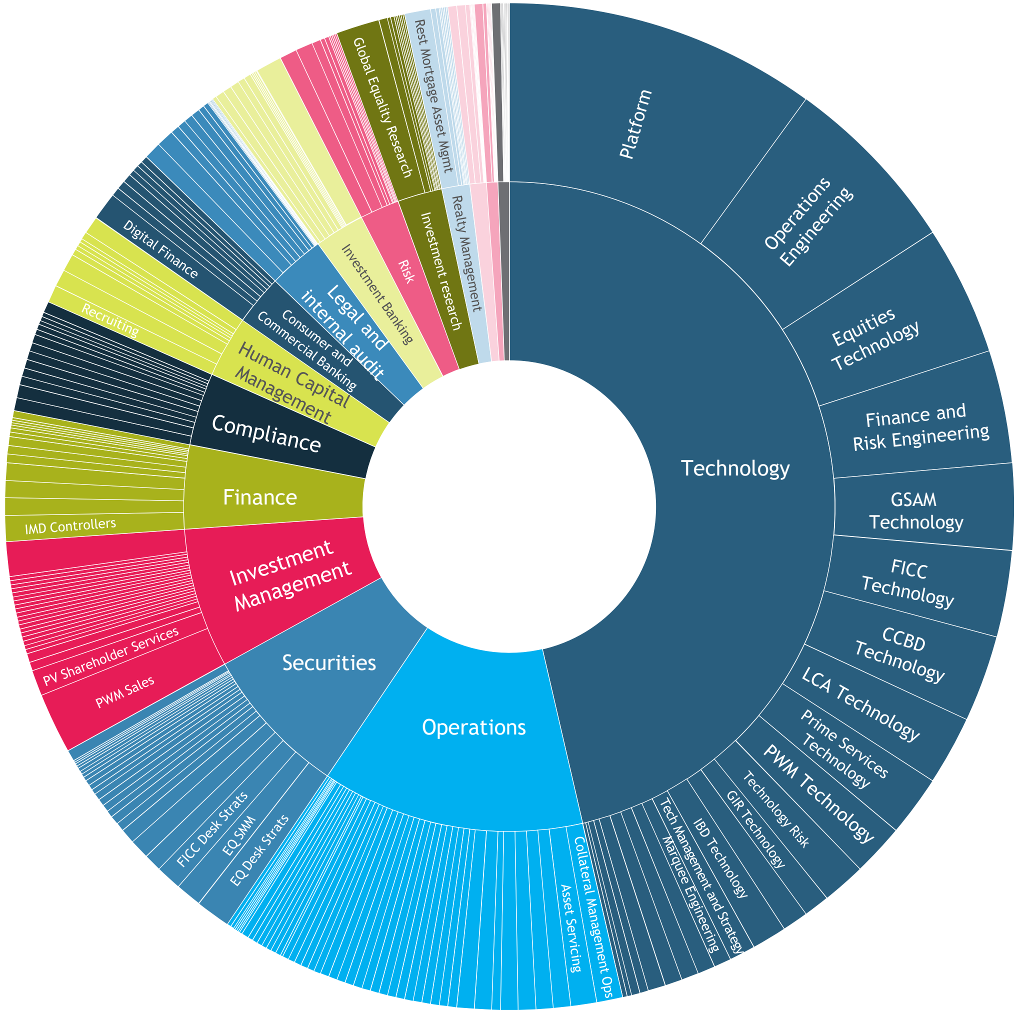
Tech banks still have an intermediation role but balance sheet usage is less important

"Tech Banks" need to attract a different type of talent

Let us make a little poll:

What is the percentage of
tech job offerings at Goldman Sachs
(vs. total job offerings)?

A	10-20%	☐
B	20-30%	☐
C	>50%	X



In the long-run, change towards a "tech bank" with massive implications for Treasury/ALM

- Mandate will move from balance sheet optimization to intermediation management
- Real time trade execution and reporting processes will be automated
- Funding execution will mainly take place via platforms
- Steering will be operated by a small and highly skilled team
- Team composition and talent requirement will change drastically

Let us step back and look for faster horses …

Doing things leaner and smarter can already have a significant impact

Survey participant comments

“ *All digital enhancements will create greater effectiveness, accuracy and timeliness. We do not see them as cost saving initiatives.*

“ *Automation will drive efficiencies, but we are mostly looking for deeper insights and better decisions.*

Efficiency gains

~20%

Expected over the next 3-5 years[1]

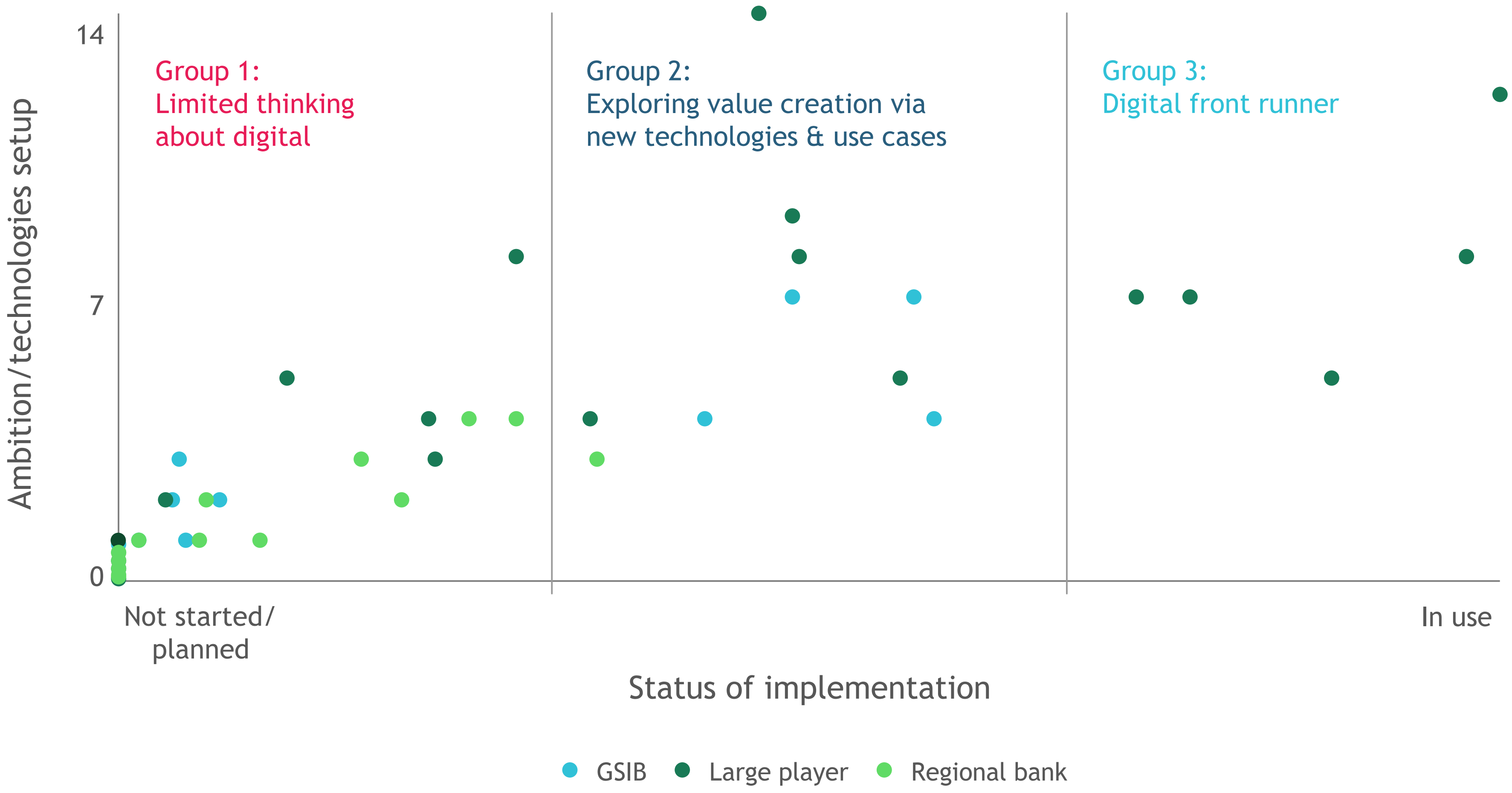
Effectiveness gains

5-10x

Expected to outweigh efficiency by 5-10x[2]

1. BCG Treasury survey 2018 2. BCG view
Source: BCG Treasury Survey 2018, BCG analysis

Not many digital front runners yet — three groups of bank Treasuries observed in the market



Source: BCG Treasury Benchmark Survey 2018

Treasurers can leverage four groups of technologies to enable digital transformation

Collect
- Business Process Management Tools
- Optical Character Recognition
- Natural Language Processing
- Voice Recognition
- Image Recognition

Act
- Robotic Process Automation

Analyze
- Data Mining
- Rule-based expert system
- Case based reasoning

Machine learning
- Supervised learning
- Unsupervised learning
- Deep learning
- Reinforcement learning
- Recommender system

Store
- Blockchain/DLT

	Maturity	Impact
Data Capture	High	Low
Robotic Process Automation (RPA)	High	Low
Big Data & Machine Learning / AI	Medium	High
Blockchain	Low	Too early to assess

Legend: Low Medium High

Source: BCG

Overview of Digital Treasury use cases – let us explore cash flow forecasting in more detail

Illustrative client examples

Short-term liquidity

1 Cash flow forecasting

2 Collateral optimization

3 Liquidity buffer decision support

Funding

4 Business forecasting for funding planning

5 Advanced investor analytics

6 Funding decision support

Interest rate

7 IR cash flow forecasting

8 IRRBB hedging decision support

ALM

9 Tokenization of the balance sheet

10 FTP tool for large transactions

11 Enhanced ALM modelling

Process

12 Manual process automation

13 Smart workflow tools

14 Digital Treasury dashboard

Typical cash flow forecasting approaches...

Static/backwards-looking approach typically used for cash flow forecasting

Traditionally, banks estimate future cash in- and outflows based on:

- Contractual outflows
- Maximum daily outflows in the past
- Limited behavioral adjustments based on seasonal observations

... leading to a range of inefficiencies

Large cash reserve needed to protect against outflows

High volatility of LCR and short-term liquidity risk KPIs

Operational inefficiencies due to limited insights video

If you have any questions, let us discuss!

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