

**/IFP 2019**

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# Getting More From Your Technology to Master Cash Forecasting

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# Agenda

## Framing Forecasting

- Influences
- Challenges
- Approach

## Treasury Case Study: Hologic

## Technology Case Study: Tableau

## Forecasting Best Practices

# Forecasting Influences, Challenges and Approach

# 2019 Survey Results

Results of interviews of 30 Treasurers put Forecasting improvement as the top item on their to-do list for 2019.

Results of online survey of 400 Treasury users indicated Forecasting was #2 item they were focused on and #3 on list of knowing what their peers did.

OPPORTUNITIES	Rank 2019	Rank 2018	Rank 2017
Working capital management	1	-	-
Cash forecasting	2	3	4
Financial risk management, FX and IR	3	1	1
Bank relationship management	4	5	3
Treasury staffing levels and skill sets	5	8	8

BENCHMARKING	Rank 2019	Rank 2018	Rank 2017
Bank service fees	1	1	1
Bank relationship management	2	5	7
Cash forecasting	3	4	8
Best practices	4	2	3
Treasury staffing and skill Levels	5	6	4

# Why forecast

## HIGH LEVEL BLUEPRINT OF COMPANY'S FINANCIAL FUTURE

- **Ensure access to adequate capital – cash and credit**
  - » Short-term → Liquidity planning [Treasury]
  - » Long-term → Capital planning [FP&A]
- **Ensure effective working capital management: Is cash effectively deployed?**
- **Effectively manage risk: Where are we exposed in terms of changing interest rates?**
- **Design a capital structure that supports business plan**
- **Anticipate impact on earnings, profits, EPS**

# Why are there Barriers to Overcome?

**A majority of organizations indicate they are “less-than-satisfied” with their cash forecasting processes and forecast accuracy**

**Many organizations face the same kinds of forecasting challenges**

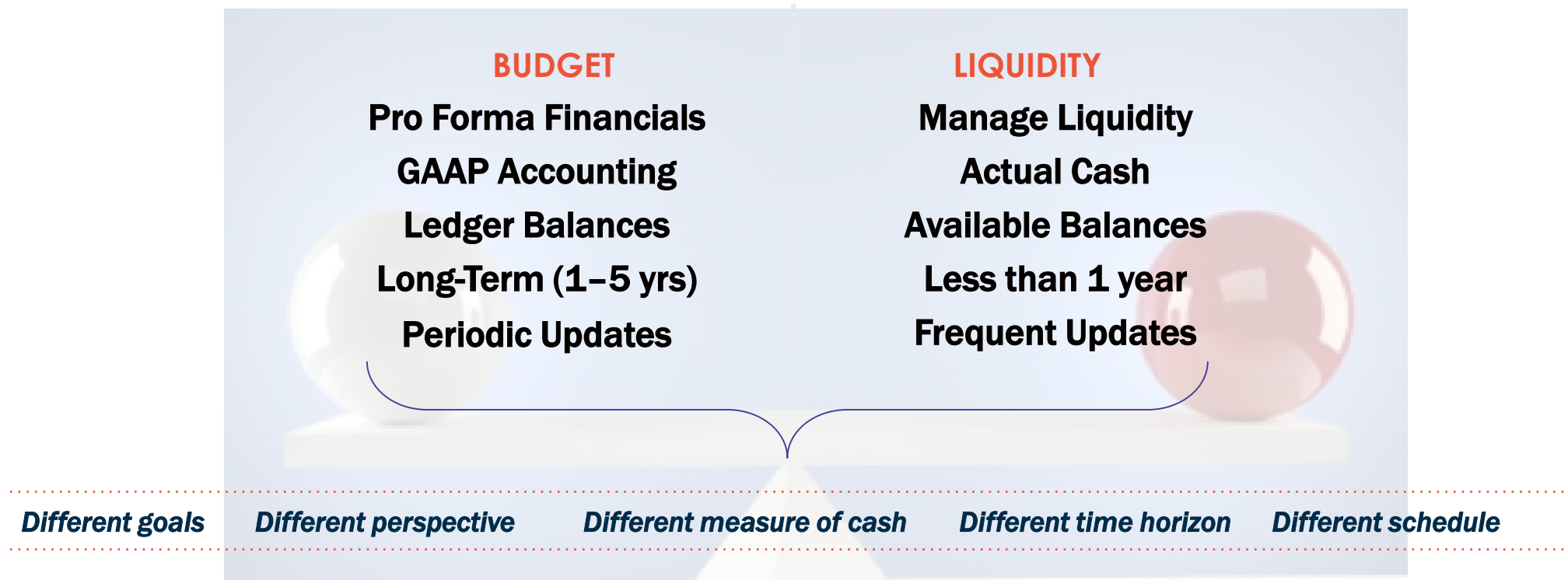
**Low interest environment led to benign neglect**

## Issues Treasury and Finance Users Note

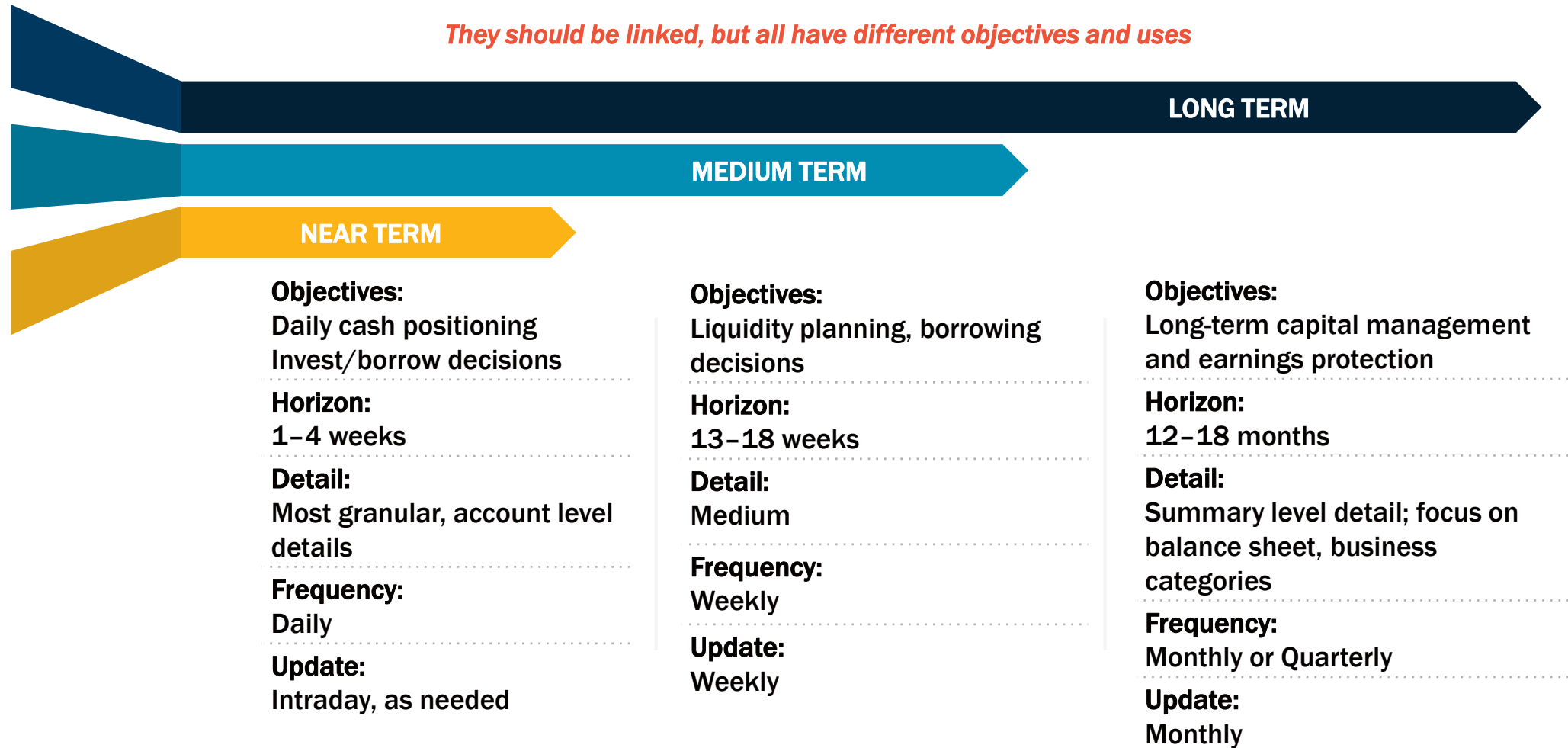
- |                                    |   |
|------------------------------------|---|
| • Insufficient resources           | • Ineffective forecast methodology, tools                   |
| • Poor information access/exchange | • Poor internal knowledge of cash flows                     |
| • GIGO (accurate data sources)     | • Low priority by senior management                         |
| • Organizational complexity        | • Inconsistency between short-term cash forecast and budget |

# Budget vs liquidity

**RECONCILING BUDGET CASH WITH LIQUIDITY CASH IS DIFFICULT – THERE ARE DIFFERENCES**



# Treasury can have multiple forecasts / time horizons



# Spreadsheet Limitations

SPREADSHEETS ARE EASY...WHEN YOUR FORECAST IS EASY

Become less effective when integrating data sources

Not truly multi-user

- Lack controls
- Lack audit trails

Difficult to compare versions

- e.g. variance analysis

*But most organizations forecast using spreadsheets*

Domestic Cash Forecast							
	7/14/14 Mon	7/15/14 Tue	7/16/14 Wed	7/17/14 Thu	7/18/14 Fri	7/21/14 Mon	7/22/14 Tue
Beginning Balance (MMF)	582.00	598.49	1037.44	1283.22	554.96	515.13	536.16
<b>Cash Activity</b>							
Expected Receivables	46.49	104.95	0.78	2.74	0.17	51.03	165.33
Expected Payables	(30.00)	(30.00)	(30.00)	(30.00)	(30.00)	(30.00)	(30.00)
Expected Payroll				(50.00)	(10.00)		
Netting Payments/Receipts				(651.00)			
Treasury Wires		(11.00)	(100.00)				
ICI Payments/Receipts							
<b>Borrowing Activity</b>							
CP Maturing		(125.00)	(125.00)				
CP Issuance		500.00	500.00				
Ending Balance	598.49	1037.44	1283.22	554.96	515.13	536.16	671.49
CP Outstanding	(250.00)	(625.00)	(1000.00)	(1000.00)	(1000.00)	(1000.00)	(1000.00)
All balances are in MM							

# Treasury Case Study: Hologic



## COMPANY PROFILE

- **Hologic is an innovative medical technology company primarily focused on improving women's health and well-being through early detection and treatment**
- **We are the leader in 3-D Mammography and Cervical Cancer screening**  
**The Company operates five core business units focused on breast health, diagnostic testing, GYN surgical, skeletal health and medical aesthetics**
- **\$3 billion revenue, \$12 billion market cap, global publicly-traded company headquartered in Marlborough, MA**



# Hologic Cash Flow Forecasting Strategy

## Why is Cash Flow Forecasting so important?

Treasury's #1 job is to provide the right amount of cash, in the right currency, in the right entity, at the right time, to support the business

### Goals

- To forecast future cash flow in order to support short-term and long-term business needs
- To ensure sufficient near-term liquidity is in place to meet operational and strategic cash needs
- To highlight a borrowing need in advance

### Solution

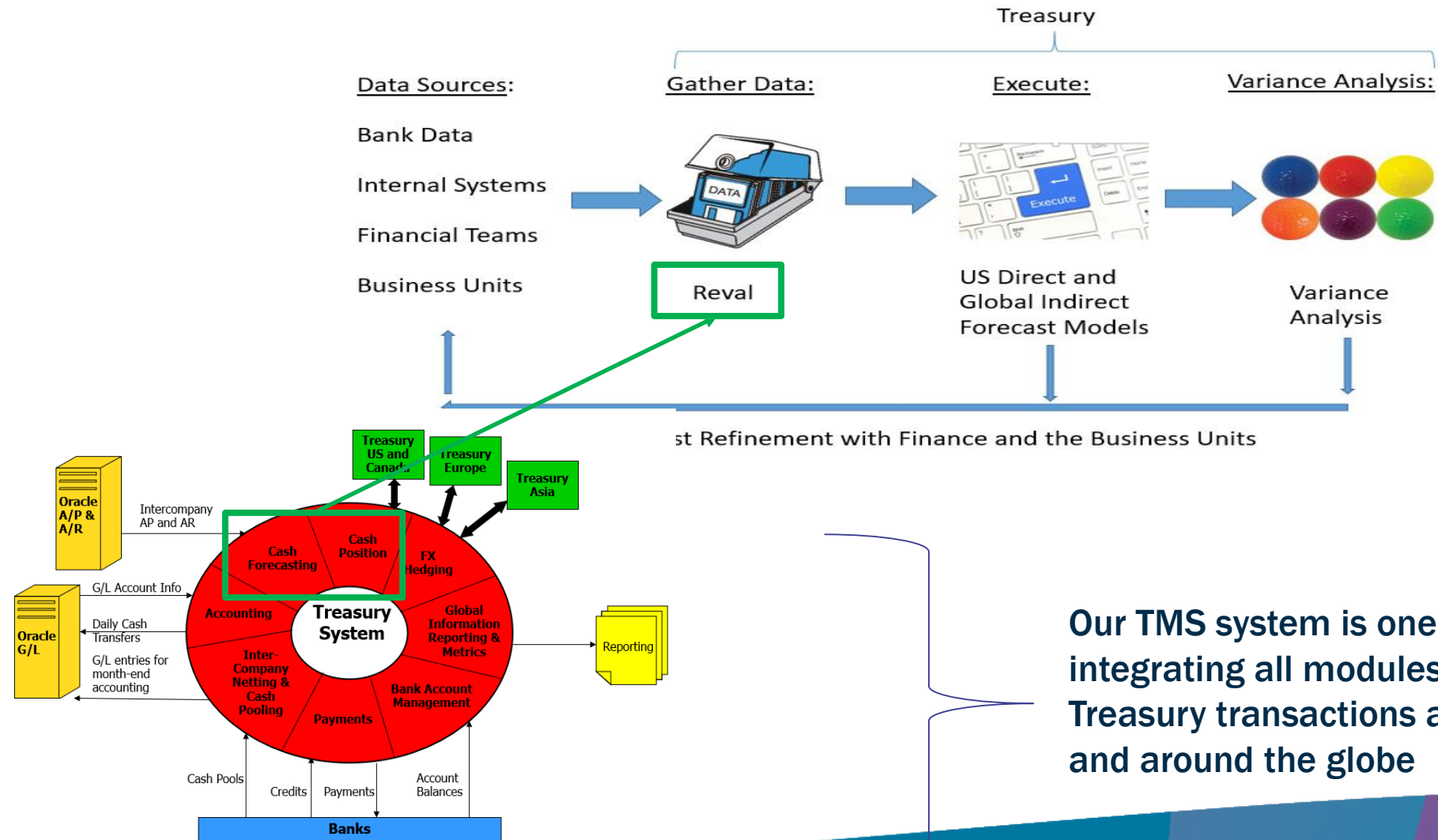
- Reval treasury management system
- Create multiple detailed cash forecasts to identify future cash needs
- Identify key variables, assumptions and stakeholders driving cash trends and variances
- Monitor and analyze how the business is performing
- Monitor accuracy of cash flow forecasting and make improvements

### Result

- Short-term daily direct US cash forecast allows us to avoid cash surprises and have funds readily available
- Weekly and monthly direct US cash forecast and long-term indirect global forecast help to identify liquidity risks and opportunities to the business
- Forecasting cycle and process helps to improve coordination between Treasury and other departments - eliminates surprises

# Forecasting Cycle

Hologic Treasury leads an engaging process with the Business to create our multiple cash forecasts



# US Short-Term Direct Cash Flow Forecast

We utilize Reval TMS – an automated SAS treasury system, for our Cash Flow forecasting process:

- Bank statements are automatically uploaded into Reval on a daily basis from our main operating bank
- Reconciliation occurs between the Reval bank activity and the bank statements
- Bank transactions are automatically categorized through Reval based on CTR's (cash transaction reason) allowing the transactions to flow into the correct cash flow buckets
- Export daily bank activity out of Reval and into Excel and use that export to update our weekly cash forecast template (pictured to the right)
- A daily email is sent out to the Treasury team indicating where we currently stand with cash and what we expect our end of the week balance will be

Provides a daily view of bank activity and US liquidity - Actuals and Forecast

Identifies where we currently stand with cash

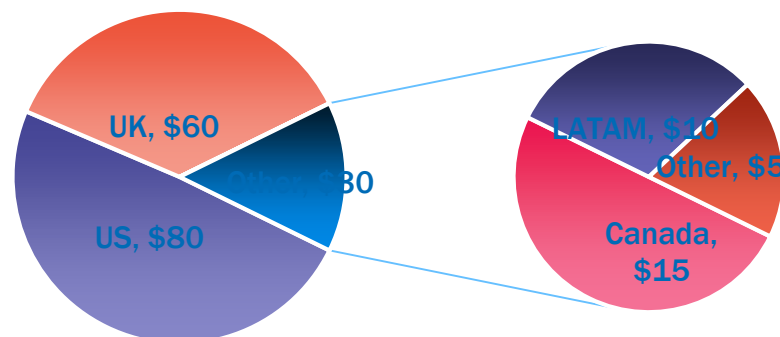
- Should we:
- Invest cash
- Pay down debt
- Borrow more

3/11/2019 - 3/15/2019 USD	ACTUAL	FORECAST	FORECAST	FORECAST	FORECAST
	Monday	Tuesday	Wednesday	Thursday	Friday
Opening Balances	78,000,000	87,000,000	98,000,000	85,000,000	82,000,000
Operating Cashflows					
Receipts	12,000,000	16,000,000	16,000,000	16,000,000	16,000,000
Total Receipts	12,000,000	16,000,000	16,000,000	16,000,000	16,000,000
Disbursements					
Total Vendor & Tax Payments	(3,000,000)	(2,000,000)	(17,000,000)	(1,000,000)	(25,000,000)
Total Payroll/Benefits	-	-	(12,000,000)	(18,000,000)	-
Total Interest Expense	-	-	-	-	-
Total Intercompany	-	(3,000,000)	-	-	-
Total Interest Income/Bank Fees	-	-	-	-	-
Sweeps/Funding	-	-	-	-	-
Total Hedges	-	-	-	-	-
Total Other	-	-	-	-	-
Total MMDA Investments	-	-	-	-	-
Total Operational Cashflows	9,000,000	11,000,000	(13,000,000)	(3,000,000)	(9,000,000)
Non Operational Cashflows					
Total Stock Options & RSU's	-	-	-	-	-
Total Debt Principal Payments	-	-	-	-	-
Total Stock Repurchase	-	-	-	-	-
Total Investments	-	-	-	-	-
Total Other	-	-	-	-	-
Total Non Operational Cashflows	-	-	-	-	-
Calculated Ending Balances	87,000,000	98,000,000	85,000,000	82,000,000	73,000,000
Cash Increase/(Decrease)	9,000,000	11,000,000	(13,000,000)	(3,000,000)	(9,000,000)

# US Short-Term Direct Cash Forecast – Continued

## Current Day Cash Balances Breakdown

Total Balance as of 03.11.19 =  
\$170M



- As part of a daily US cash email, we also describe cash by geography and investment account
- This data is from Reval, and the snapshot can be pulled at anytime
- Data is automatically updated 3 times a day for current day bank activity

## Investment Accounts

Bank/Counterparty	Current Rate	Account Balance as of 3/11/19
Bank 1	200 bps	\$0.0
Bank 2	225 bps	\$0.0
Bank 3	250 bps	\$50.0
Bank 4	250 bps	\$50.0
Bank 5	175 bps	\$0.0
<b>Total Investments</b>		<b>\$100.0</b>

# US Weekly/Monthly Direct Cash Flow Forecasting

Export prior week actuals out of Reval into Excel every Tuesday morning

Update weekly/monthly cash forecast template in Excel and adjust for known forecast developments

Load forecast back into Reval to ensure that the system is updated

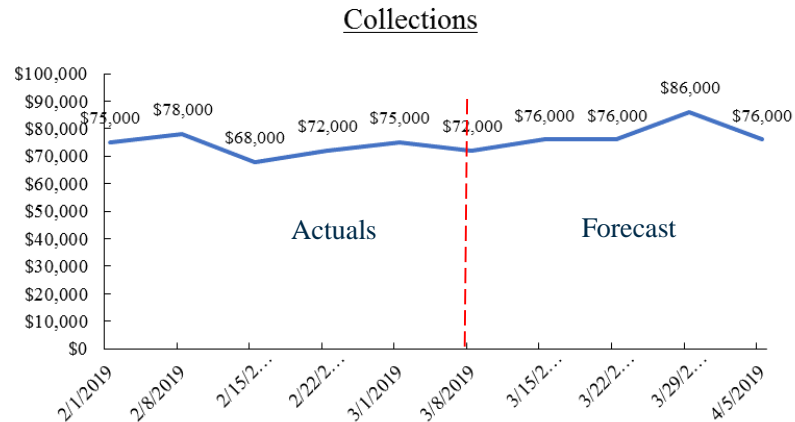
Early indicator of Free Cash Flow for CFO at quarter-end 2 weeks before we get the “official numbers” from Corporate Accounting

Perform trending analysis around major operating items (next page) to stress test the forecast

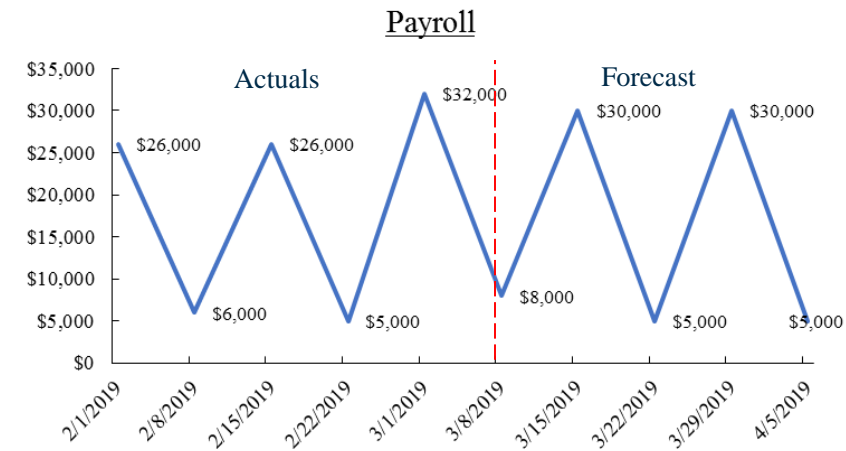
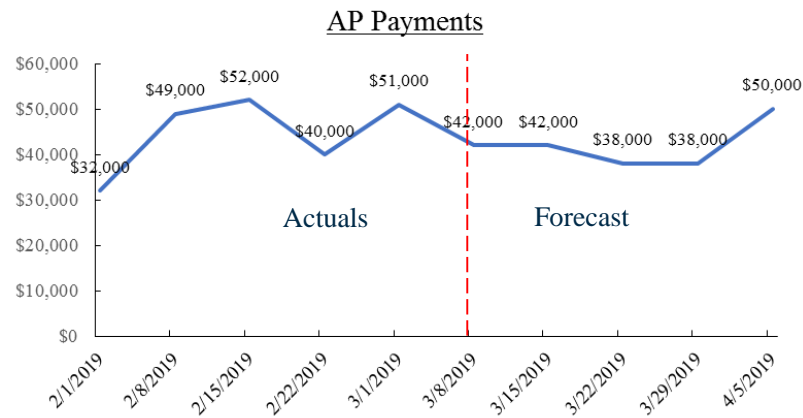
	ACTUAL Q2	ACTUAL Q2	FORECAST Q2	FORECAST Q2	FORECAST Q2
2/24/2019 - 3/30/2019 USD	CW 2/24/2019- 3/2/2019	CW 3/3/2019- 3/9/2019	3/10/2019- 3/16/2019	3/17/2019- 3/23/2019	CW 3/24/2019- 3/30/2019
Opening Balances	81,800,000	79,300,000	78,000,000	76,300,000	79,500,000
Operating Cashflows					
Total Receipts	75,000,000	72,000,000	76,000,000	76,000,000	86,000,000
Disbursements					
Total Vendor & Tax Payments	(51,000,000)	(42,000,000)	(42,000,000)	(38,000,000)	(38,000,000)
Total Payroll/Benefits	(32,000,000)	(8,000,000)	(30,000,000)	(5,000,000)	(30,000,000)
Total Interest Expense	-	-	(1,000,000)	200,000	-
Total Intercompany	(5,000,000)	2,500,000	(4,700,000)	-	-
Total Interest Income/Bank Fees	-	-	-	-	-
Sweeps/Funding	-	-	-	-	-
Total Hedges	-	-	-	-	300,000
Total Other	9,500,000	3,200,000	-	-	2,800,000
Total MMDA Investments	-	(30,000,000)	-	(30,000,000)	(20,000,000)
Total Operational Cashflows	(3,500,000)	(2,300,000)	(1,700,000)	3,200,000	1,100,000
Non Operational Cashflows					
Total Stock Options & RSU's	1,000,000	1,000,000	-	-	-
Total Debt Principal Payments	-	-	-	-	-
Total Stock Repurchase	-	-	-	-	-
Total Investments	-	-	-	-	-
Total Other	-	-	-	-	-
Total Non Operational Cashflows	1,000,000	1,000,000	-	-	-
Calculated Ending Balances	79,300,000	78,000,000	76,300,000	79,500,000	80,600,000

→ Approx.  
equals FCF  
on  
Financial  
Statement

# Trending Analysis Of Major Operating Items



- As part of our direct forecasting process, we evaluate trends in major operating line items
  - Collections
  - Payments
  - Payroll
- We create our forecast for these operating items to be consistent with historical actuals and also update the forecast for new business developments



# Long Term Cash Flow Forecasting

Indirect cash flow model used for long-term cash flow forecasting

Global cash flow forecast driven by current P&L and Balance Sheet forecast

Data is forecasted out 5 years for strategic planning

We periodically reconcile direct and indirect cash flow models to make sure all forecasts are aligned

FY15 - FY18 Actuals				
\$M	FY15A	FY16A	FY17A	FY18A
Non-GAAP Net Income	485	562	579	618
Adjustment to GAAP	(353)	(231)	176	(730)
<b>GAAP Net Income</b>	<b>132</b>	<b>331</b>	<b>756</b>	<b>(111)</b>
Depreciation & Amortization (GAAP)	82	82	90	102
Intangibles Amortization	410	383	360	379
Non-Cash Interest Exp	64	52	49	15
Stock Based Compensation	59	65	68	65
Deferred Tax	(149)	(156)	(357)	(477)
Change in Working Capital	99	56	(103)	(26)
Other	101	(16)	(854)	787
<b>Operating Cash Flow</b>	<b>797</b>	<b>798</b>	<b>8</b>	<b>733</b>
Capital Expenditures	(89)	(95)	(108)	(106)
<b>Free Cash Flow (FCF)</b>	<b>707</b>	<b>704</b>	<b>(99)</b>	<b>627</b>
<b>FCF Before One-Time Items<sup>1,2</sup></b>	<b>707</b>	<b>704</b>	<b>599</b>	<b>687</b>
Acquisitions/Net Proceeds	-	27	376	(82)
Share Repurchase	-	(250)	(200)	(276)
Debt Issuance/(Redemption)	(991)	(443)	(135)	(76)
Options/APIC	57	22	29	16
Other	(18)	(3)	21	(84)
<b>Investing and Financing Activities</b>	<b>(952)</b>	<b>(647)</b>	<b>92</b>	<b>(501)</b>
<b>Net Increase/(Decrease) Cash</b>	<b>(245)</b>	<b>57</b>	<b>(8)</b>	<b>126</b>
Cash at Beginning of Period	736	491	548	541
<b>Cash at End of Period</b>	<b>491</b>	<b>548</b>	<b>541</b>	<b>667</b>

Notes:

1.) Operating cash flows are adjusted for the impact of \$649.5 million of taxes paid related to the gain on the divestiture of our blood screening business and \$48.8 million of convertible notes tax recapture in FY'17

2.) Operating cash flows are adjusted for \$60 million of convertible notes tax recapture in FY'18

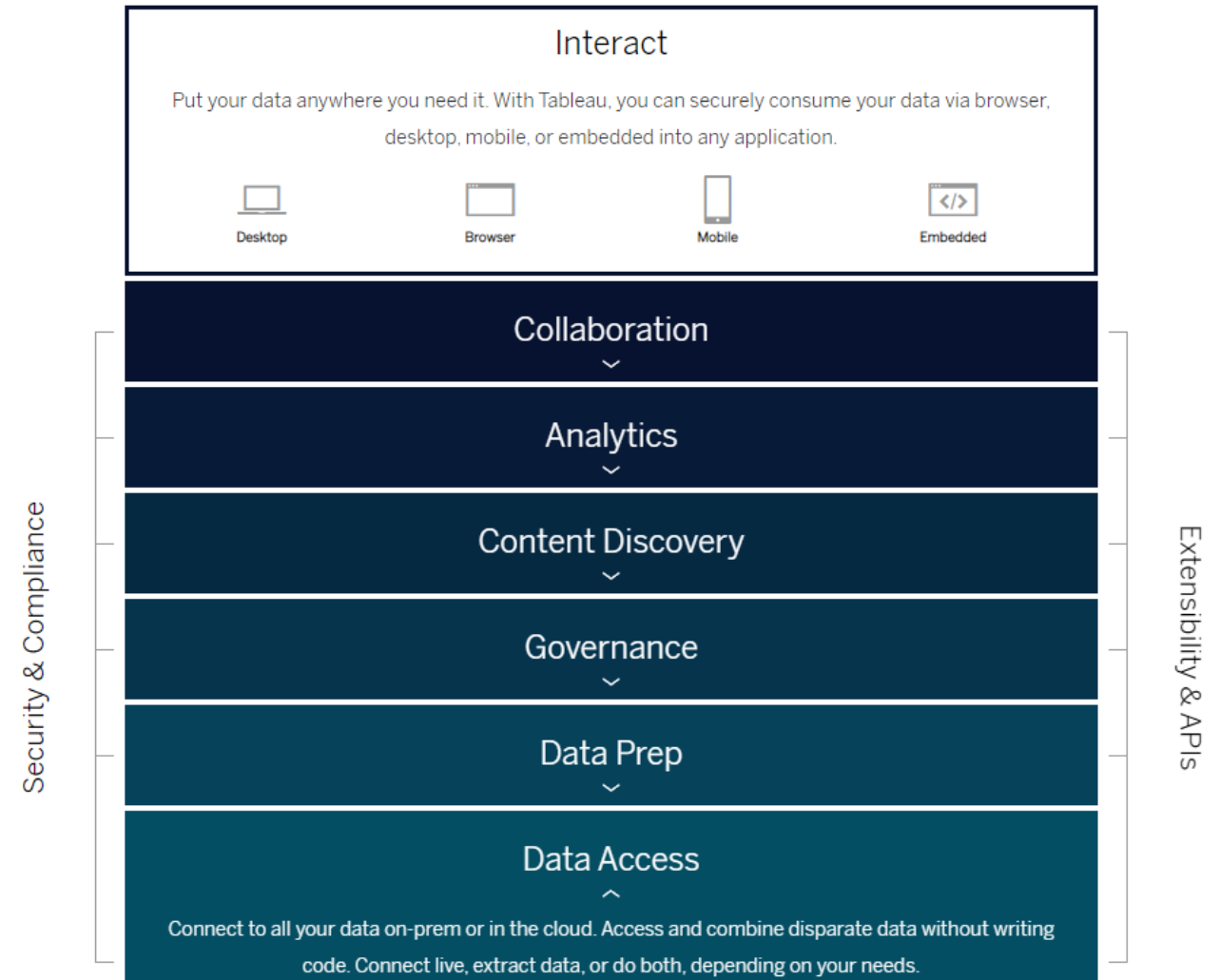
# Summary

- **Hologic Treasury combines input from the business, data from historical trends, systems (Reval), and detailed modeling to create multiple forecasting views**
- **The forecasting process is collaborative with many stakeholders**
- **Our treasury team has been able to provide accurate and timely views on cash to meet short-term and long-term operational and strategic cash needs for the business**

# Technology Case Study: Tableau

# Tableau Company Profile

**Tableau helps people see and understand data**



# Tableau Forecasting Approach

1. People
2. Process
3. Technology and
4. Data

# Data Sources used in Tableau's forecast

- **End of Day bank statements (BAI2 & CAMT.053.xml)**
- **Investment holdings and investment income forecast**
- **ERP (NetSuite) – open A/P and A/R invoices**
- **A/P invoice capture & workflow – open invoices that have not yet been received**
- **Merchant Services – settlement payments not yet credited to bank account**
- **Corporate credit cards – settlement payments not yet debited from bank account**
- **Pending payments – payments that have been generated from ERP and not yet debited from bank account**

# Feeding the Machine

- **Additional data sources that provide visibility, granularity, insight and automation including:**
  - Merchant services – develop daily data feeds from additional processors
  - Unsettled FX trades
  - Direct debits
- **Forecast environment changes**
  - Support current day statements
  - Migrate from legacy BAI\CAMT.053 to API based interfaces for bank statements
  - Create daily forecast snapshot for variance analysis
  - Use of Tableau's machine learning and statistical forecasting models

# Technology Tools in Use

- **Tableau Financial Master (internal data warehouse)**
  - Serves as the data warehouse for all of Tableau's financial data
  - Most data from source systems is replicated into Financial Master
  - Snowflake cloud database running on AWS
- **Tableau Prep**
  - Used to join\blend and snapshot our daily data
- **Tableau Desktop**
  - Used to design our dashboards\analytics
- **Tableau Server**
  - Dashboards are published for others in the organization to use

# Daily Forecast

## Currency Option

- ☒ USD Equivalent  
☐ Account/Base Currency

## .Calc Acct Code

(All)

AU01

CA01

CN01

CN02

DE01

FR01

GB01

HK01

IE01

IE02

IN01

JP01

KR01

NL01

SE01

SG01

US01

US09

US10

## .Master As Of Date

9/20/2019

## # Days Forward

10

## Daily Cash Flow Forecast: 9/20/2019-9/30/2019

.Subsidiary	.Calc Acct Code		9/20/2019	9/21/2019	9/22/2019	9/23/2019	9/24/2019	9/25/2019	9/26/2019	9/27/2019	9/28/2019	9/29/2019	9/30/2019
CA01	CA01-	-USD-Operating	Opening Balance	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236
		Bank Stmt TR	0	0	0	0	0	0	0	0	0	0	0
		Coupa AP	0	0	0	0	0	0	0	0	0	0	0
		NetSuite AP	0	0	0	0	0	0	0	0	0	0	0
		NetSuite AR	0	0	0	0	0	0	0	0	0	0	0
		Forecasted Flows	0	0	0	0	0	0	0	0	0	0	0
		Closing Balance	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236
CA01	CA01-	-CAD-Operating	Opening Balance	164,988	135,519	135,519	135,519	644,078	616,685	616,685	39,413	39,413	38,531
		Bank Stmt TR	-15,532	0	0	526,158	0	0	0	0	0	0	0
		Coupa AP	-1,158	0	0	-17,599	0	0	0	0	0	-882	-678
		NetSuite AP	-12,779	0	0	0	-27,392	0	0	0	0	0	0
		NetSuite AR	0	0	0	0	0	0	0	0	0	0	0
		Forecasted Flows	0	0	0	0	0	0	-577,273	0	0	0	0
		Closing Balance	135,519	135,519	135,519	644,078	616,685	616,685	39,413	39,413	39,413	38,531	37,852
CA01	CA01-	-CAD-Operating	Opening Balance	980,668	979,957	979,957	979,957	945,221	945,221	945,221	374,584	374,584	374,584
		Bank Stmt TR	-711	0	0	-34,737	0	0	-570,637	0	0	0	0
		Coupa AP	0	0	0	0	0	0	0	0	0	0	0
		NetSuite AP	0	0	0	0	0	0	0	0	0	0	0
		NetSuite AR	0	0	0	0	0	0	0	0	0	0	0

**Note:** dates with no data points get omitted if they are at the end of the range.

Eg. For CA01 the filter should pull in dates through to 9/30. But since dates beyond 9/26 do not have any data, only data up to that point is shown.

# Weekly Forecast

# Weeks Forward

7

## Weekly Cash Flow Forecast: 9/20/2019-11/8/2019

.Subsi..	.Calc Acct Code		9/16/2019	9/23/2019	9/30/2019	10/7/2019	10/14/2019	10/28/2019
CA01	CA01-	-USD-Operating	Opening Balance (Wk)	4,236	4,236	4,236	4,236	4,236
			Bank Stmt TR (Wk)	0	0	0	0	0
			Coupa AP (Wk)	0	0	0	0	0
			NetSuite AP (Wk)	0	0	0	0	0
			NetSuite AR (Wk)	0	0	0	0	0
			Forecasted Flows (W..	0	0	0	0	0
			Closing Balance (Wk)	4,236	4,236	4,236	4,236	4,236
CA01-		-CAD-Operating	Opening Balance (Wk)	164,988	135,519	38,531	-75,261	-82,240
			Bank Stmt TR (Wk)	-15,532	526,158	0	0	0
			Coupa AP (Wk)	-1,158	-18,481	-1,655	-6,884	0
			NetSuite AP (Wk)	-12,779	-27,392	-32,592	-94	0
			NetSuite AR (Wk)	0	0	0	0	0
			Forecasted Flows (W..	0	-577,273	-79,545	0	-577,273
			Closing Balance (Wk)	135,519	38,531	-75,261	-82,240	-659,513
CA01-		-CAD-Operating	Opening Balance (Wk)	980,668	979,957	374,584	374,584	374,584
			Bank Stmt TR (Wk)	-711	-605,373	0	0	0
			Coupa AP (Wk)	0	0	0	0	0
			NetSuite AP (Wk)	0	0	0	0	0
			NetSuite AR (Wk)	0	0	0	0	0

# Managing Forecasted Cash Flows

## Cash Flow Forecast Items

Cash Flow Forecast Date		Account Code	Cash Flow F..	Curr..	FX FCST R..	C..	Cash Flow ..	Ca..	Cash ..	Payment Ty..	Frequency	Notes	Amount	Amount US..
9/24/2019	2/3/2020	AU01-HSBC-60001-AUD-O..	10/1/2019	AUD	1.47	F	Null	AP	RENT	Wire	Monthly	October monthly rent for AU01	-219,210	-149,122
<div><div></div><div></div></div>			10/15/2019	AUD	1.47	F	Null	AP	REGU	Wire	Monthly	Monthly rent	-250,000	-170,068
Cash Flow Status Code <div><div></div><div></div></div>			10/28/2019	AUD	1.47	F	Null	PR	PTAX	Wire	Monthly	Payroll tax payment	-575,000	-391,156
<div><div>(All)</div><div>A</div><div>F</div></div>			10/30/2019	AUD	1.47	F	Null	PR	PAYR	File Upload	Monthly	Payroll forecast	-1,150,000	-782,313
			11/1/2019	AUD	1.47	F	Null	AP	RENT	Wire	Monthly	November monthly rent for AU01	-219,210	-149,122
			11/15/2019	AUD	1.47	F	Null	AP	REGU	Wire	Monthly	Monthly rent	-250,000	-170,068
			11/27/2019	AUD	1.47	F	Null	PR	PAYR	File Upload	Monthly	Payroll forecast	-1,150,000	-782,313
Account Code <div><div>(All)</div></div>									PTAX	Wire	Monthly	Payroll tax payment	-575,000	-391,156
Cash Flow Type Code <div><div></div><div></div></div>			12/2/2019	AUD	1.47	F	Null	AP	RENT	Wire	Monthly	December monthly rent for AU01	-219,210	-149,122
<div><div><input checked="" type="checkbox"/> (All)</div><div><input checked="" type="checkbox"/> Null</div><div><input checked="" type="checkbox"/> AP</div><div><input checked="" type="checkbox"/> PR</div></div>			12/13/2019	AUD	1.47	F	Null	AP	REGU	Wire	Monthly	Monthly rent	-250,000	-170,068
<div><div>Cancel</div><div>Apply</div></div>			12/26/2019	AUD	1.47	F	Null	PR	PTAX	Wire	Monthly	Payroll tax payment	-575,000	-391,156
			12/27/2019	AUD	1.47	F	Null	PR	PAYR	File Upload	Monthly	Payroll forecast	-1,150,000	-782,313
			1/2/2020	AUD	1.47	F	Null	AP	RENT	Wire	Monthly	Monthly rent for AU01	-219,210	-149,122
			1/27/2020	AUD	1.47	F	Null	PR	PTAX	Wire	Monthly	Payroll tax payment	-575,000	-391,156
			1/29/2020	AUD	1.47	F	Null	PR	PAYR	File Upload	Monthly	Payroll forecast	-1,150,000	-782,313
			2/3/2020	AUD	1.47	F	Null	AP	RENT	Wire	Monthly	Monthly rent for AU01	-219,210	-149,122
Cash Flow SubType Code		CA01-BAML-03208-CAD-O..	10/1/2019	CAD	1.32	F	Null	AP	RENT	Wire	Monthly	Monthly rent for CA01	-105,000	-79,545
<div><div><input checked="" type="checkbox"/> (All)</div><div><input checked="" type="checkbox"/> Null</div><div><input checked="" type="checkbox"/> BENE</div><div><input checked="" type="checkbox"/> PAYR</div><div><input checked="" type="checkbox"/> PTAX</div><div><input checked="" type="checkbox"/> REGU</div><div><input checked="" type="checkbox"/> RENT</div></div>			10/14/2019	CAD	1.32	F	Null	PR	PAYR	Direct Debit	Bi-Weekly	Payroll forecast	-762,000	-577,273
<div><div>Cancel</div><div>Apply</div></div>			10/29/2019	CAD	1.32	F	Null	PR	PAYR	Direct Debit	Bi-Weekly	Payroll forecast	-762,000	-577,273
			11/1/2019	CAD	1.32	F	Null	AP	RENT	Wire	Monthly	Monthly rent for CA01	-105,000	-79,545
			11/13/2019	CAD	1.32	F	Null	PR	PAYR	Direct Debit	Bi-Weekly	Payroll forecast	-762,000	-577,273
			11/27/2019	CAD	1.32	F	Null	PR	PAYR	Direct Debit	Bi-Weekly	Payroll forecast	-762,000	-577,273
			12/2/2019	CAD	1.32	F	Null	AP	RENT	Wire	Monthly	Monthly rent for CA01	-105,000	-79,545
			12/12/2019	CAD	1.32	F	Null	PR	PAYR	Direct Debit	Bi-Weekly	Payroll forecast	-762,000	-577,273
			12/27/2019	CAD	1.32	F	Null	PR	PAYR	Direct Debit	Bi-Weekly	Payroll forecast	-762,000	-577,273
			1/2/2020	CAD	1.32	F	Null	AP	RENT	Wire	Monthly	Monthly rent for CA01	-105,000	-79,545
			1/13/2020	CAD	1.32	F	Null	PR	PAYR	Direct Debit	Bi-Weekly	Payroll forecast	-762,000	-577,273
			1/29/2020	CAD	1.32	F	Null	PR	PAYR	Direct Debit	Bi-Weekly	Payroll forecast	-762,000	-577,273
			2/3/2020	CAD	1.32	F	Null	AP	RENT	Wire	Monthly	Monthly rent for CA01	-105,000	-79,545

# Forecasting best practices

# Five Steps to Begin



## 1. Identify the Purpose of the Forecast

*Who will use the forecast and what do they want?*



## 2. Design the Forecast

*What is the first row? What is the second row?*

*What are the time increments? Weekly? Monthly?*

*Time increments are the columns*



## 3. Identify Data Sources for Each Row

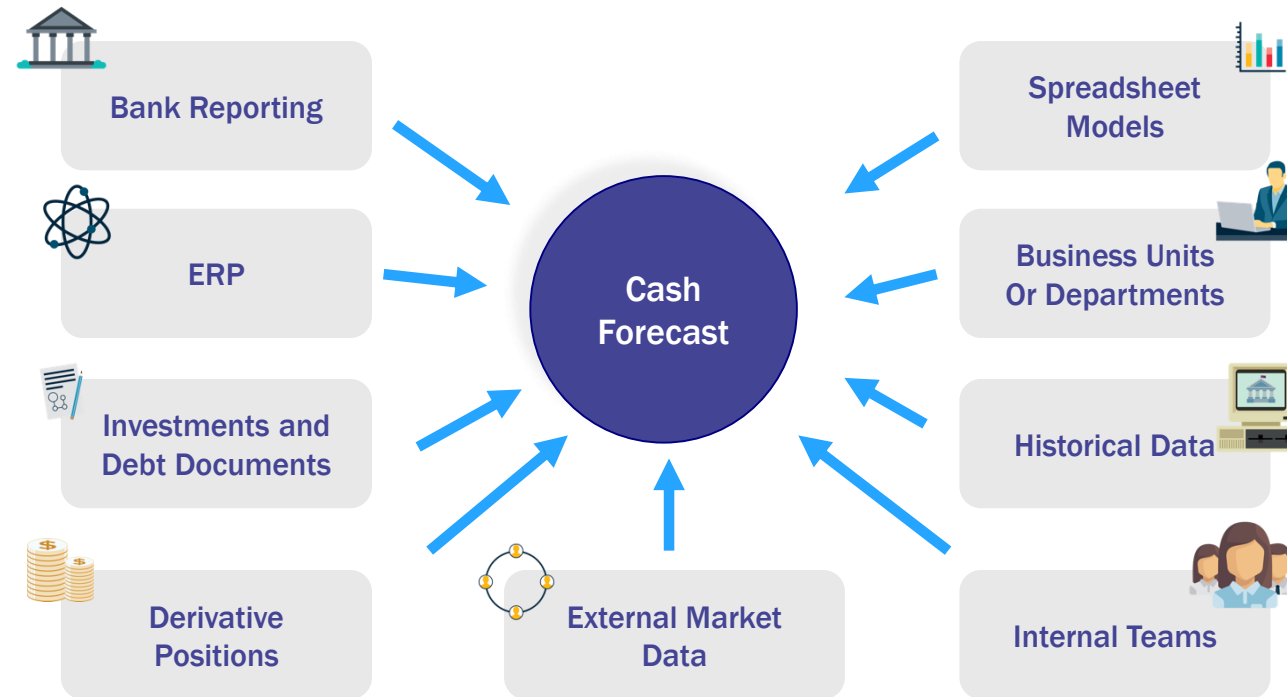


## 4. Establish Variance Analysis Process



## 5. Write Policy and Procedure

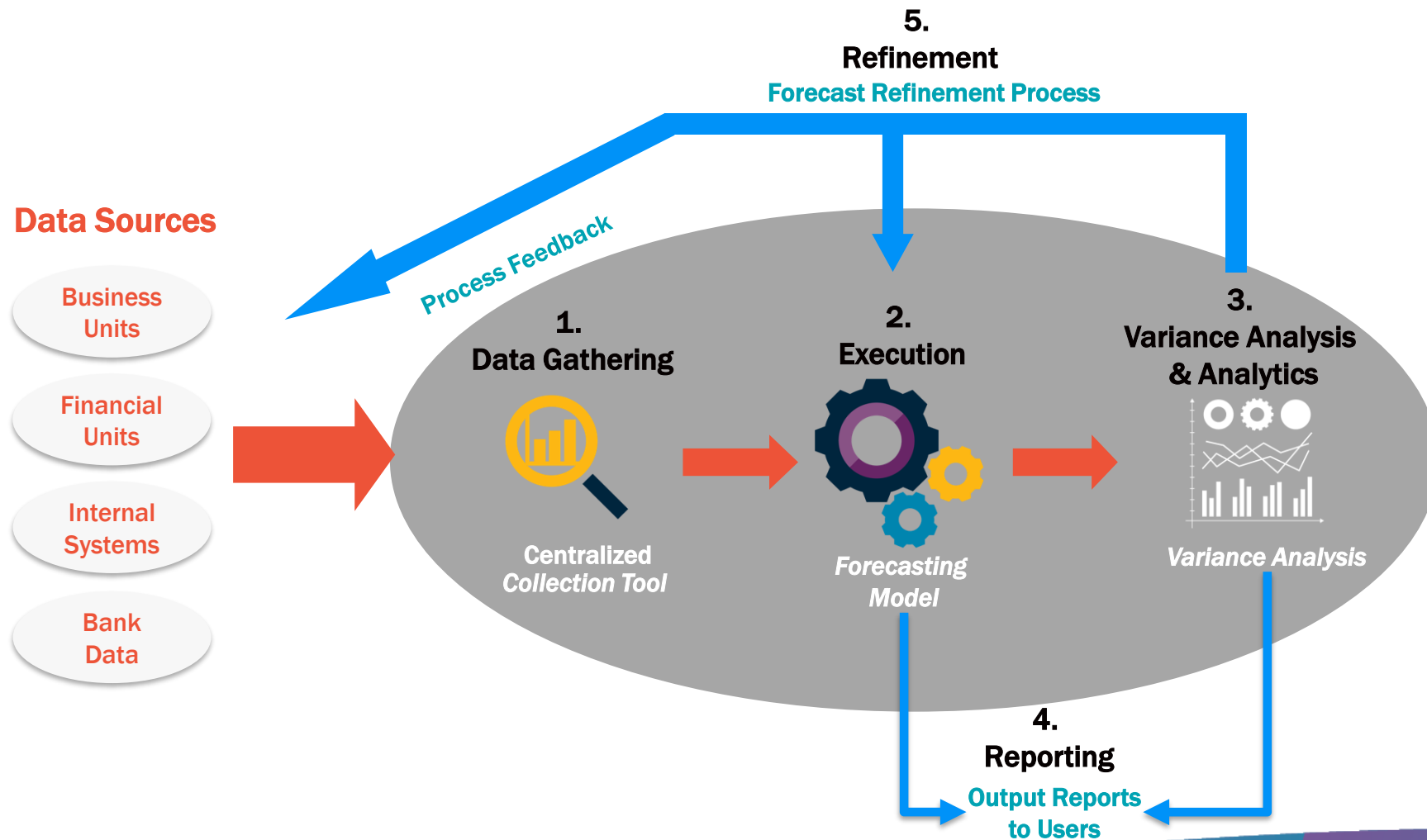
# Find the Right Data Sources



## Effective forecasting

Choosing the right sources and models for the different forecasting line items

# Liquidity Forecasting Cycle



# Variance Analysis: What was Different?



## 1. Perform variance analysis

*Forecast to Actual*  
*Forecast to Forecast*  
*Multiple frequencies*



## 2. Analyze forecast effectiveness

*By line item*  
*By time period*



## 3. Report back to data sources or review model



## 4. Update the forecast with improved data



## 5. Rinse and repeat



# Cash Forecasting – Conclusions

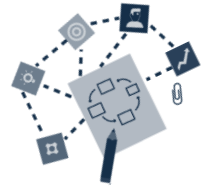
**Many reasons to forecast:** Meeting the objectives of management and shareholders is critical. Cash Forecasting is important if you are “cash rich”. Multinationals with significant foreign revenues must forecast better in order to hedge effectively.

**Measuring the forecast** is the most important part of forecasting. Without measuring forecast accuracy, it is impossible to know if you are good at forecasting.

**Creating the cash forecast.** Understand the objectives and benefits before rolling out cash flow forecast exercise. Flexibility to align your data, the accuracy of the inputs will determine the best methods to build your forecast effectively

**ROI of cash forecasting is very high.** Can be measured by investing longer with higher returns on cash, repaying debt, earning yield from early supplier payments, and the value of foreign cash protected through effective hedging

# Cash Forecasting Final Thoughts



1. Comprehensive mapping of all cash flows and strong understanding of cash flow volatility drivers



2. Strong communication with providers of information



3. Tools that support data gathering, modeling and consolidation



4. Dynamic trending and variance analysis tools



5. Accurate assessment of aggressiveness/conservativeness level

6. Multiple scenario analysis to accommodate different interest rate scenarios

# Q&A