

Scenarios Made Simple

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- Participants will have the opportunity to download their CPE certificate immediately following the webinar if above requirements are met.
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- We are unable to grant CPE credit in cases where technical difficulties preclude eligibility. CPE Program Sponsorship guidelines prohibit us from issuing credit to those not verified by the technology to have satisfied the minimum requirements listed above.

Today's Agenda

- Agile scenario modeling
- What great looks like
- Common obstacles
- Scenarios made simple
- Getting started

National Airline Post 9/11 Crisis

- 80 million passengers a year
- 3000 flights per day to 60 destinations

SITUATION

- Determine how long cash balances of \$1 billion would last – immediately
- Develop capital spending plans and 15 month rolling forecasts in 1 day
- Create business cockpits for executives and other functional areas to track key metrics



RESULTS

- Ability to forecast within 98% of outcome, providing top-bottom and bottom-top analysis
- Analysis provided comfort level (no employees laid off; no need for government funding)
- Finance moved to spending 10% accumulating data and 90% analyzing (75%/25% before)

What is agile scenario modeling?

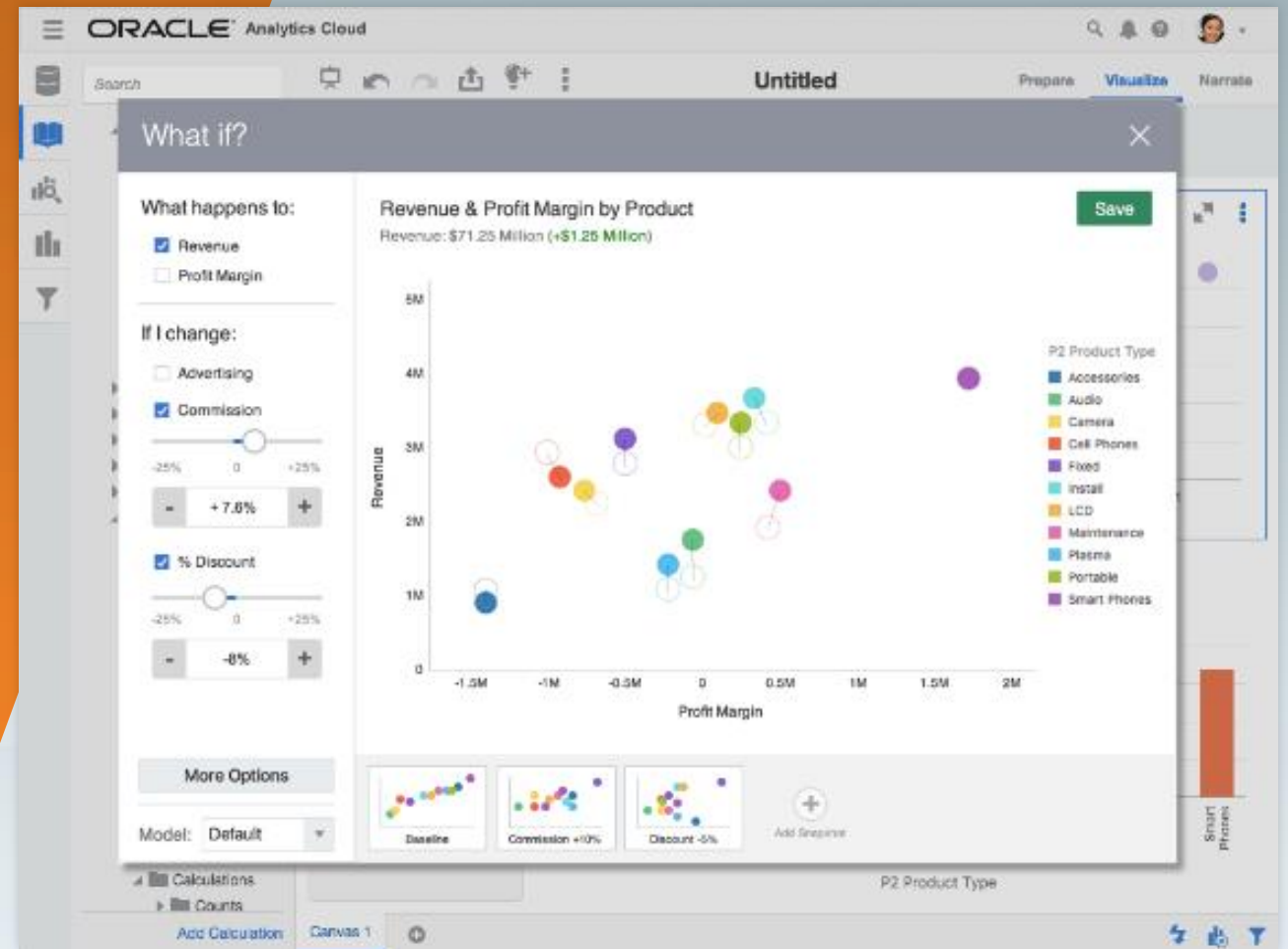
Scenario planning is as much art as science, and prone to a variety of traps *(both in process and content)*

Paul J.H. Schoemaker



What Makes Scenario Modeling Agile

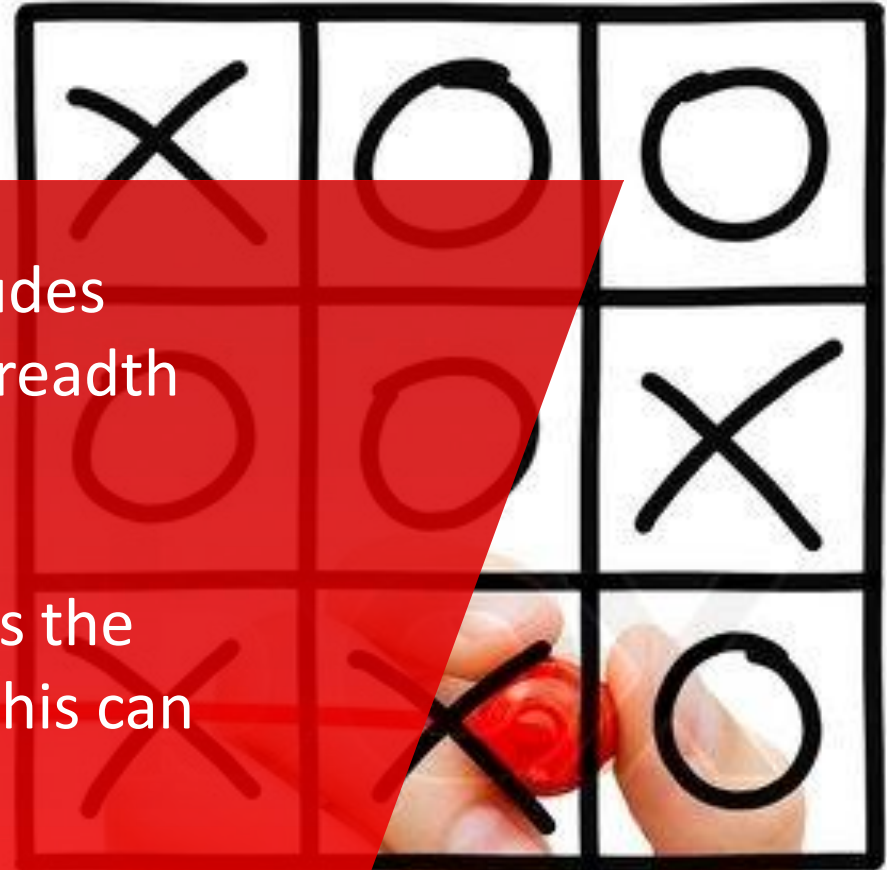
- Time to produce, time to adjust
- Financial integrity of scenario
- Carefully selected drivers
- Stakeholder alignment
- Clear feedback loop
- Easy to grasp



THiNK

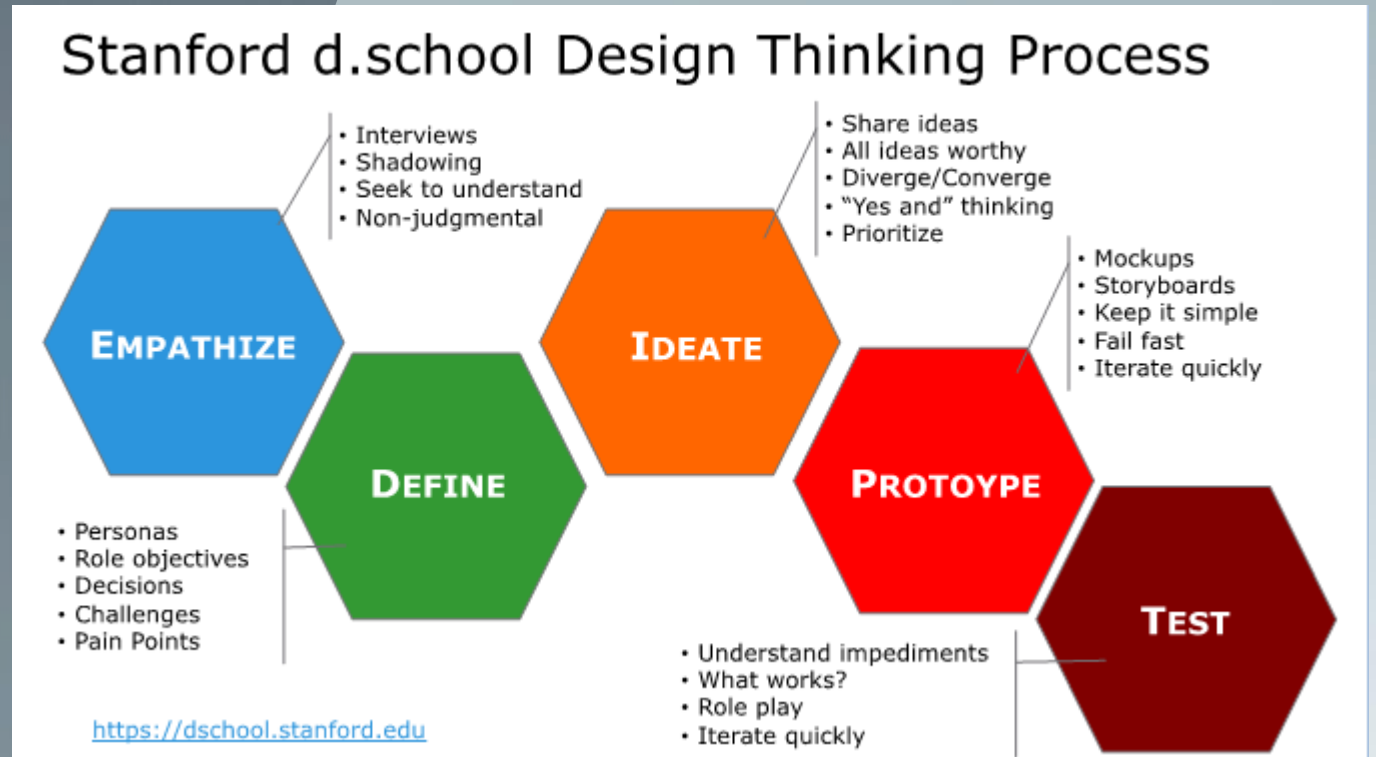
Unlike analytical thinking, **design thinking** includes "building up" ideas, with few, or no, limits on breadth during a "brainstorming" phase.

The phrase "thinking outside the box" describes the brainstorming phase and is encouraged, since this can aid in the discovery of hidden elements and ambiguities in the situation and discovering potentially **faulty assumptions**.



A Process for Problem Solving

Design thinking processes has been shown to produce more innovative solutions than more traditional perspectives of non-group based stakeholder consultation.

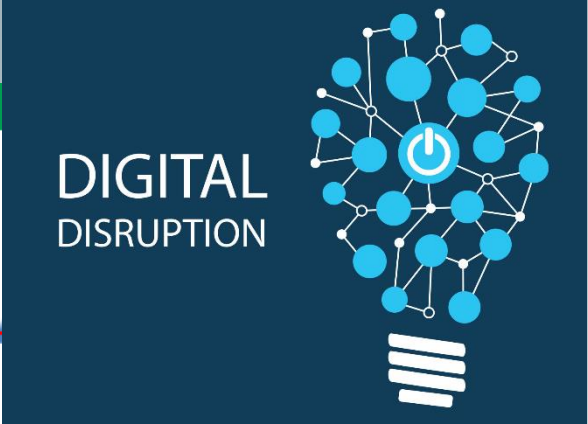
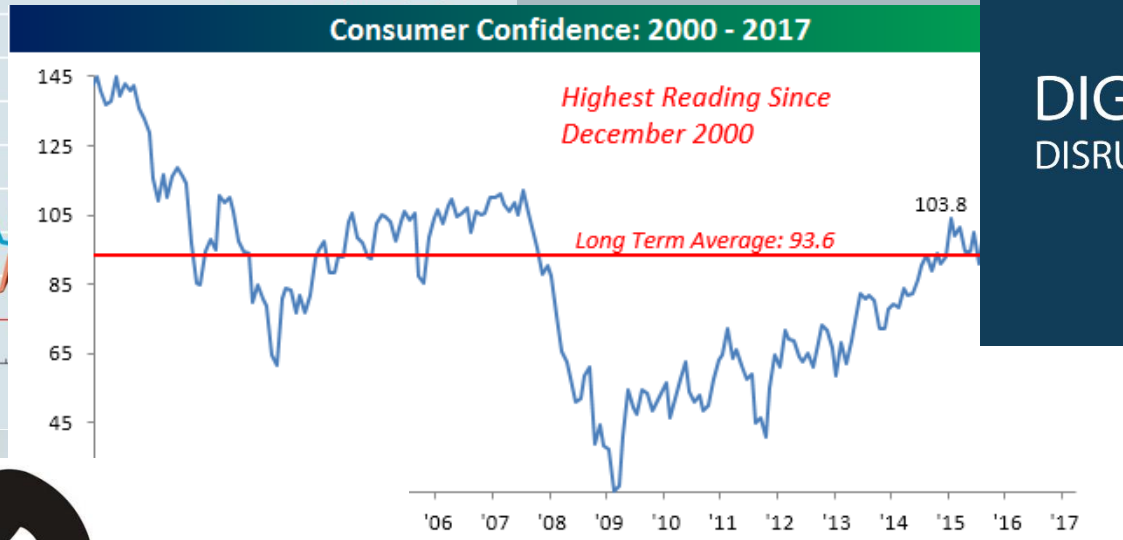
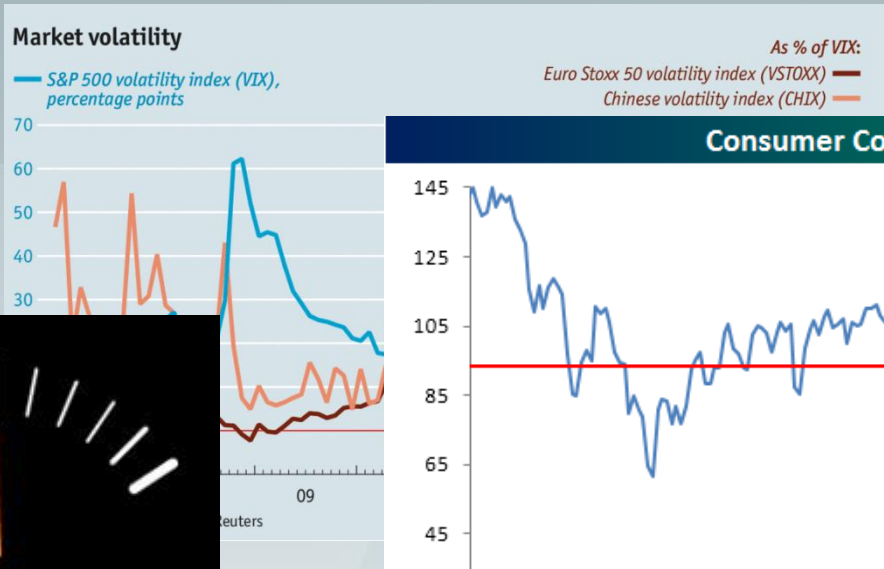


Many Parallels to Design Thinking

1. Decide on the key questions
2. Set the time and scope of the analysis
3. Identify major stakeholders
4. Map basic trends and driving forces
5. Find key uncertainties
6. Check for the possibility to group the linked forces
7. Identify extreme possible outcomes of the driving forces
8. Define a range of scenarios
9. Name and narrate each scenario
10. Assess the scenarios on relevancy and stability
11. Identify research additional data needs.
12. Develop quantitative methods for measuring consequences
13. Converge towards decision by retracing steps

Why is agile scenario modeling needed?

The Many Reasons to Master Scenario Modeling

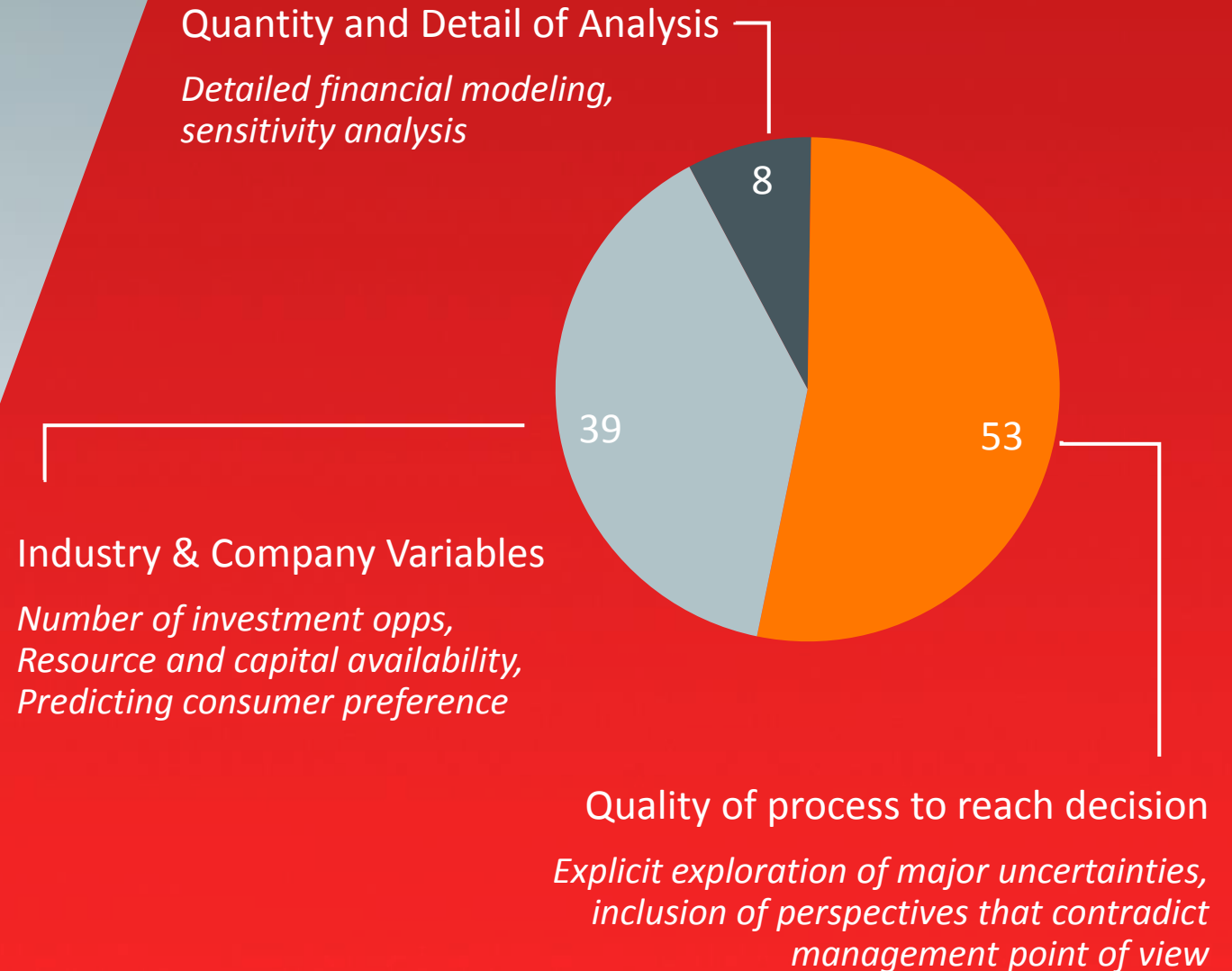


[challenging the value of detailed budgeting]

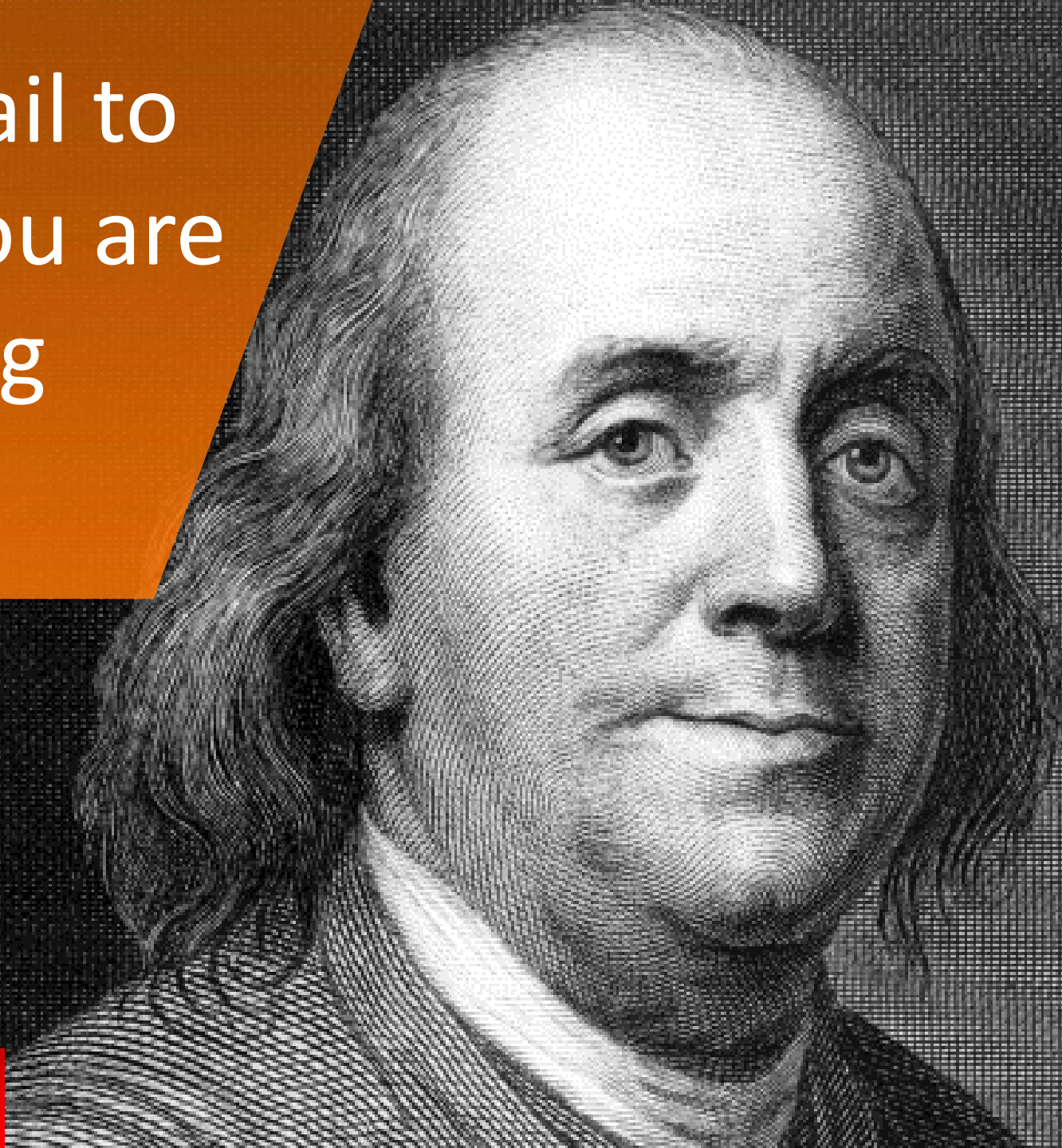


Participation and Scenarios Beat Detailed Analysis

Share of Performance Explained by Given Element



If you fail to
plan, you are
planning
to fail.



High Variability of Scenarios

- Strategic, Operational, Tactical
- Episodic or Periodic
- Tolerance for error / accuracy
- Level of detail
- Scale and scope
- Stakeholders

Some Common Examples

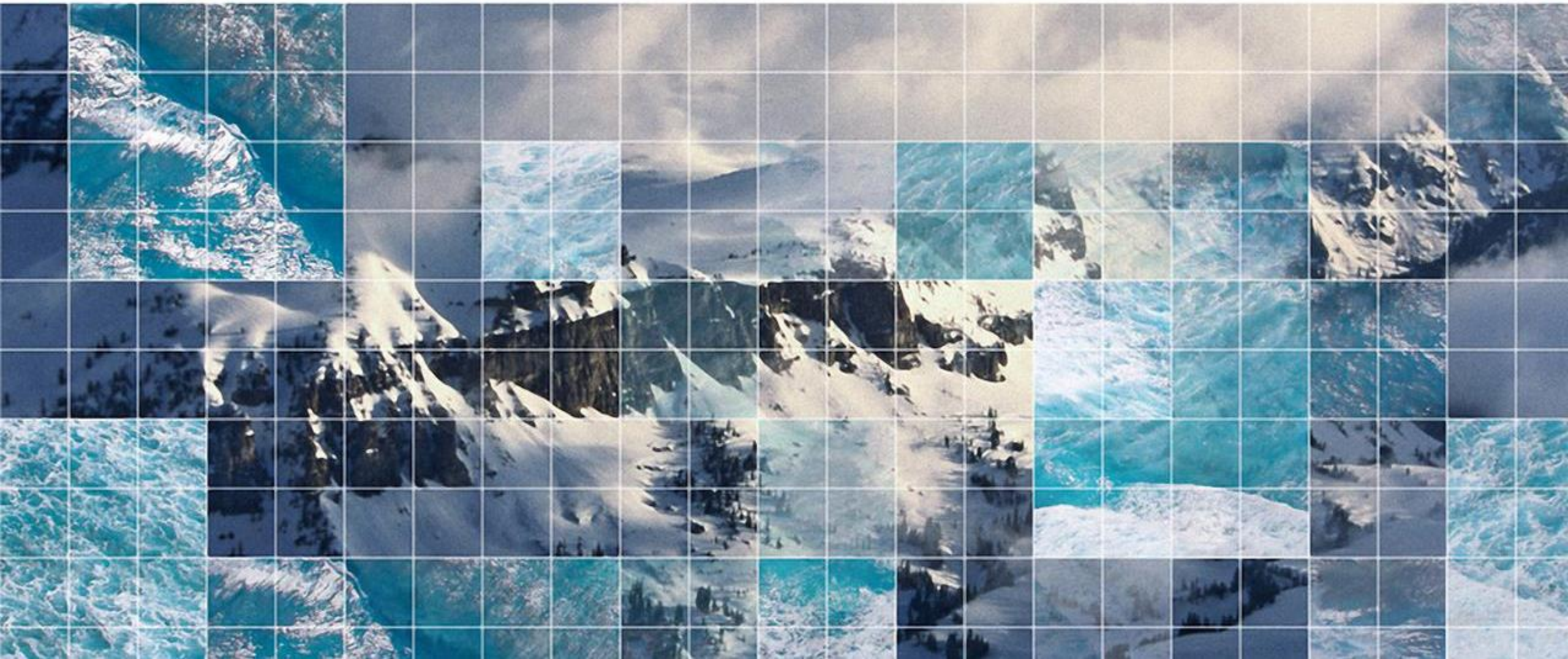
- Cashflow / FX Modeling
- Supplier Substitution
- Sales & Operations Planning
- Customer Lifetime Value
- Growth & Expansion Planning
- Sales Capacity Modeling
- Subscription Revenues
- LRP / Econometric
- Promotional Response Modeling
- Push/Pull CapEx

What does great look like?



NEW LENS SCENARIOS

A SHIFT IN PERSPECTIVE FOR
A WORLD IN TRANSITION



Exploring alternative futures

- Energy system was complicated
 - Energy transition and digital: major disruptors
 - Past does not predict the future
 - Forecasts are inappropriate
-
- Radically uncertain future
 - Complex future: needs agility
 - Scenario thinking
 - Decision-making
 - Scenarios are a distinctive Shell capability

From complicated to complex

The Present



The Path



The Future



Scenarios are neither forecasts nor plans

- Scenarios are not forecasts; neither are they our business plan
- Shell considers multiple, bespoke scenarios relevant to decisions
- Scenarios usage ranges from evaluation of individual opportunities, to portfolio choices, to overarching strategy development

Multiple forces may push towards or pull away from the envisaged futures



Scenarios stretch our perspectives

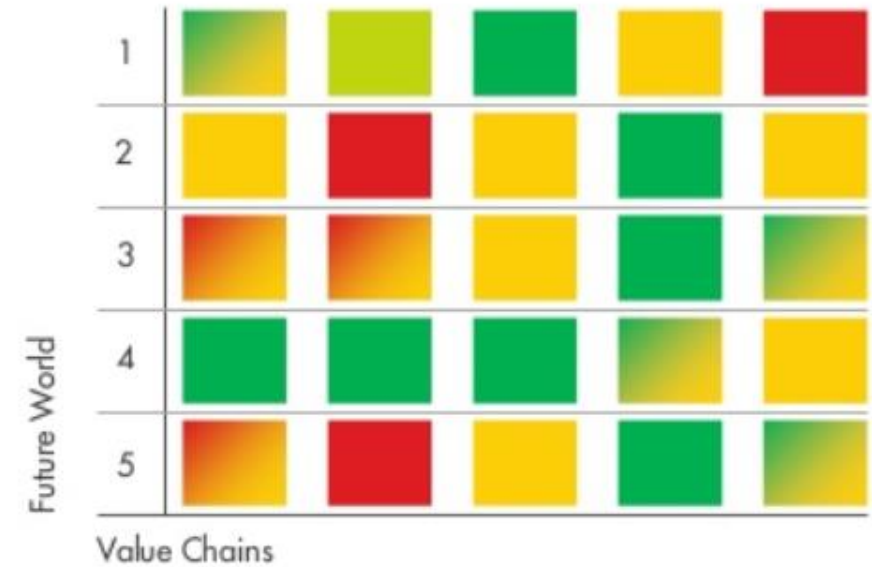
Using scenarios

Recognising a range of uncertain outcomes

Future worlds



Value chain assessment*



- Explore potential future worlds
- Understand potential value chain impacts

- Consider a range of plausible futures
 - Explore social, political + economic factors
 - Determine context for business environment
- Model the Future World's energy systems

- Consider existing and new energy value chains
 - Elements within the value chain
- Assess investment attractiveness over time
- Consider the Future Worlds

*This is an example diagram of graphic representations that are considered by the Board. Not based on Shell's actual portfolio.



Secret to Shell's Success in Scenario Analysis

1. Decide drivers for change/assumptions
2. Bring drivers together into a viable framework
3. Produce 7–9 initial mini-scenarios
4. Reduce to 2–3 scenarios
5. Draft the scenarios
6. Identify the issues arising

What are common obstacles?

Most Common Challenges



ANALYTIC SKILLS

DATA SILOS



Source: McKinsey Global Institute

Every Business is Multi-dimensional

- Products
- Customers
- Geographies
- Suppliers
- Markets
- Channels
- Organization
- Legal Entities
- Measures

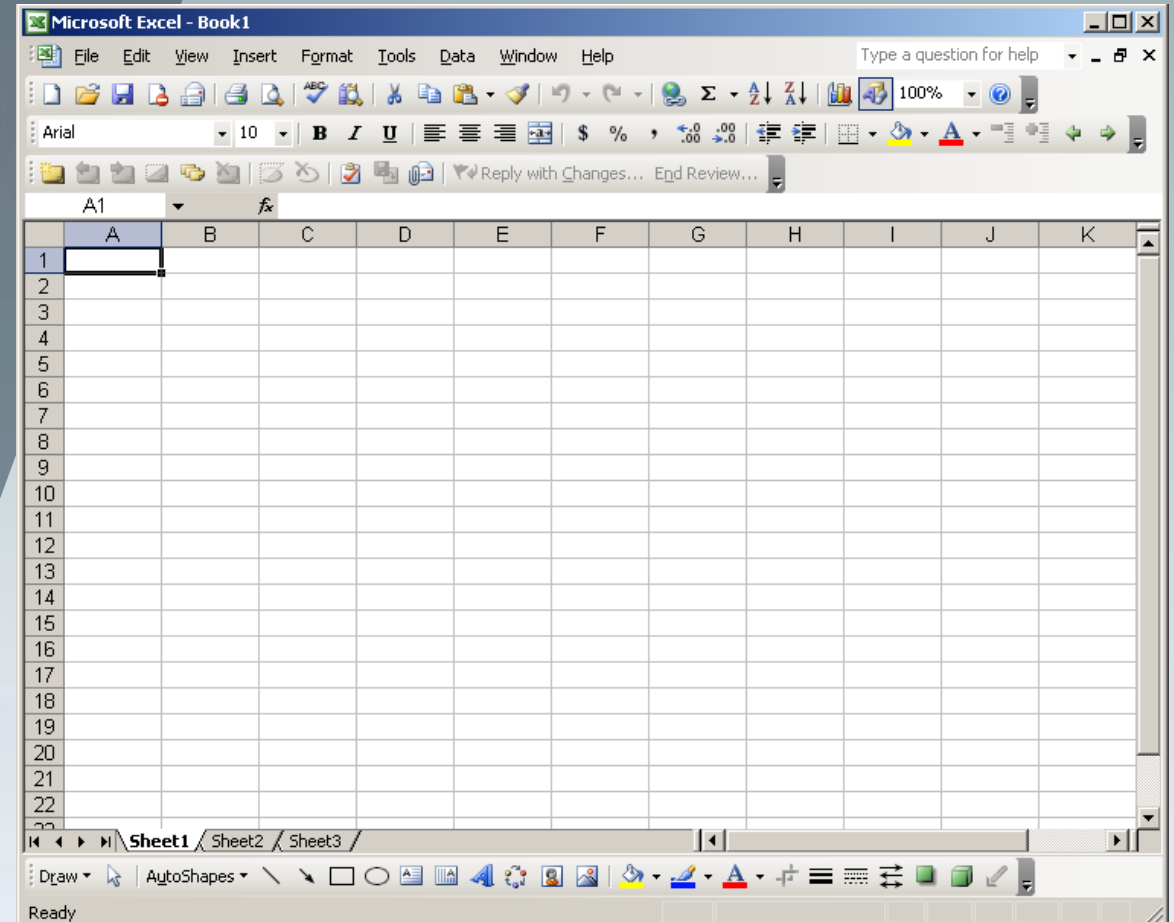
	A	B	C	D	E
1			Market		
2			Product		
3	Actual				Actual
4	Jan				Qtr1
5	31,538		Sales		95,820
6	<u>14,180</u>		<u>COGS</u>		<u>42,877</u>
7	17,378		Margin		52,943
8					
9	5,223		Marketing		15,839
10	4,056		Payroll		12,168
11	<u>75</u>		<u>Misc</u>		<u>233</u>
12	<u>9,354</u>		<u>Total Expenses</u>		<u>28,240</u>
13					
14	<u>8,024</u>		<u>Profit</u>		<u>24,703</u>
15					

Diagram illustrating a multi-dimensional data table with dimensions: Market, Product, Time, Scenario, and Measures. Arrows point from these labels to specific cells in the table.

Yet Most Models Are Done in Excel

Excel is a great tool, but...

- Disconnected
- Data Security Risks
- Error-prone
- Doesn't scale
- No controls / audit trails
- Multiple calculations



With Excel, Formula Maintenance Becomes Full-time Job

And we haven't even talked about hierarchies yet...

	A	B	C	D	E
1			Market		
2			Product		
	A	B	C	D	E
1			South		
2			Product		
	A	B	C	D	E
1			Central		
2			Product		
	A	B	C	D	E
1			West		
2			Product		
	A	B	C	D	E
1			East		
2			Product		
3			Actual		Actual
4			Jan		Qtr1
5			6,780	Sales	20,621
6			3,007	COGS	9,080
7			3,773	Margin	11,541
8					
9			1,161	Marketing	3,521
10			865	Payroll	2,595
11			15	Misc	45
12			2,041	Total Expenses	6,161
13					
14			1,732	Profit	5,380

Market(s)

Product

	A	B	C		A	B	C		A	B	C		A	B	C
1			East	1			West	1			South	1			Central
2			Colas	2			Colas	2			Colas	2			Colas
	A	B	C		A	B	C		A	B	C		A	B	C
1			East	1			West	1			South	1			Central
2			Root Beer	2			Root Beer	2			Root Beer	2			Root Beer
	A	B	C		A	B	C		A	B	C		A	B	C
1			East	1			West	1			South	1			Central
2			Cream Soda	2			Cream Soda	2			Cream Soda	2			Cream Soda
	A	B	C		A	B	C		A	B	C		A	B	C
1			East	1			West	1			South	1			Central
2			Fruit Soda	2			Fruit Soda	2			Fruit Soda	2			Fruit Soda
	A	B	C		A	B	C		A	B	C		A	B	C
1			East	1			West	1			South	1			Central
2			Diet Drinks	2			Diet Drinks	2			Diet Drinks	2			Diet Drinks



How can we make scenarios simple?

Scenarios Made Simple – IDAHO Style

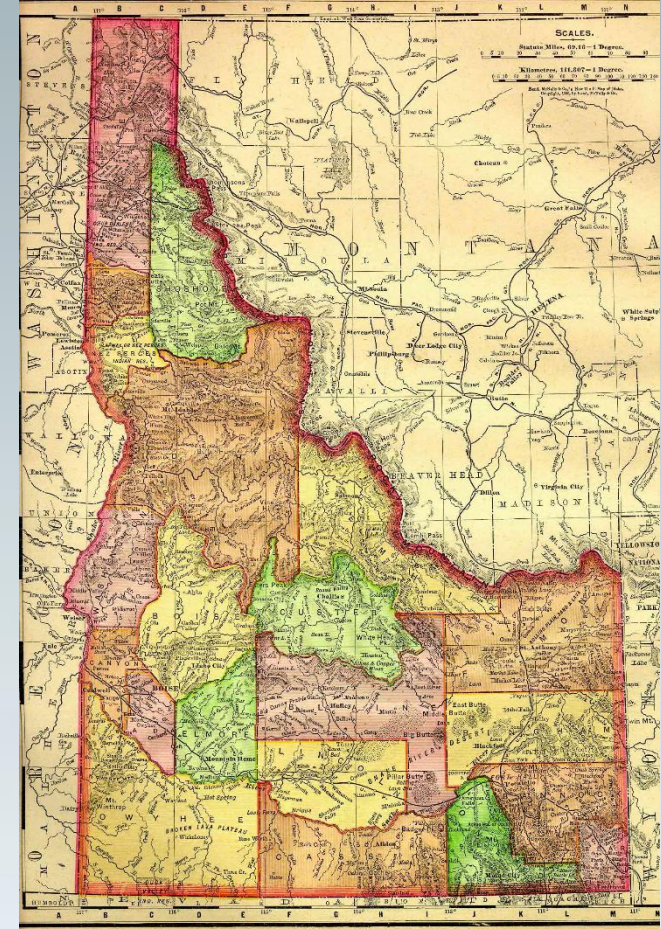
Inputs – internal and external

Dimensions – shape of the analysis

Assumptions – key drivers

Horizon – time considerations

Outputs – purpose





Inputs to the Scenario

- Internal stakeholders
- Management perspective
- Customers / Suppliers
- Internal data
- External data

Recognize Many Inputs Have Bias

Pattern Recognition

- Confirmation bias
- Management by example
- Champion bias
- False analogies

Action-Oriented

- Excessive optimism
- Overconfidence
- Competitor neglect

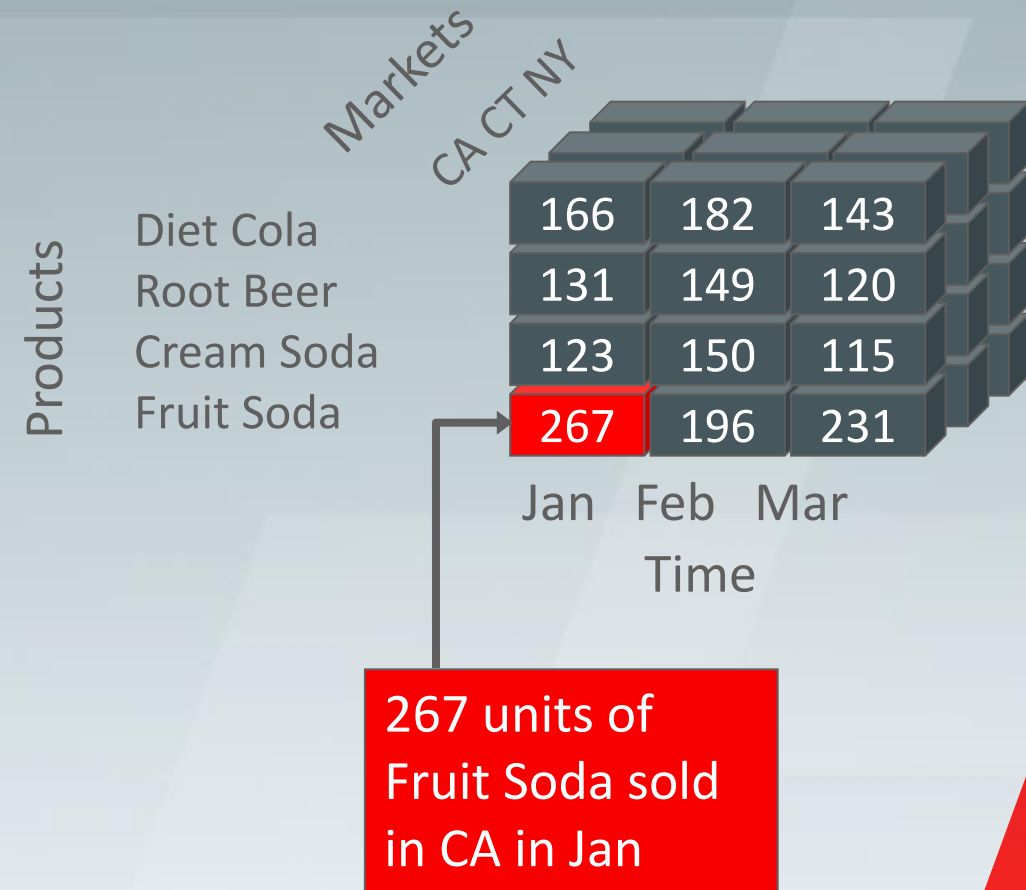
Interest

- Misaligned individual incentives
- Inappropriate attachments
- False perceptions of corp. goals

Stability

- Anchoring
- Loss aversion
- Sunk-cost fallacy
- Status quo

Dimensions of the Model



- Critical business perspectives
- One or many hierarchies
- Attributes for further segmentation
- Measure dimension has financial intelligence

Dimensional Design is Key to Success

Operating Expenses - FY14 Plan
Department Name: Sales East

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Advertising													
Public Relations													
Utilities													
Rent Expense													
Office Supplies													
Postage													
Equipment Expense													
Total Office Expenses	0	0	0						0	0	0	0	0
Accounting and Tax Services													
Secretarial Services													
Legal Services													
Technical Services													
Total Facility Services Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0
Airfare													

Periods
Years
Accounts
Departments
Scenario / **Version**



Assumptions and Allocations

- Test multiple hypotheses on sensitivity of key business drivers
- Centralize rules for spreading data across dimensions
- Select 3-5 drivers for model
- Document in detail rationale

Horizon

- Time to produce scenario
- Time horizon reasonable for projections
- Consider grain of external data
- Factor in seasonality of consumer demand

Objectives

- Passes the SMART test
- Confirmed with stakeholders
- Clear feedback loop

Applying IDAHO Model to Some Real World Examples

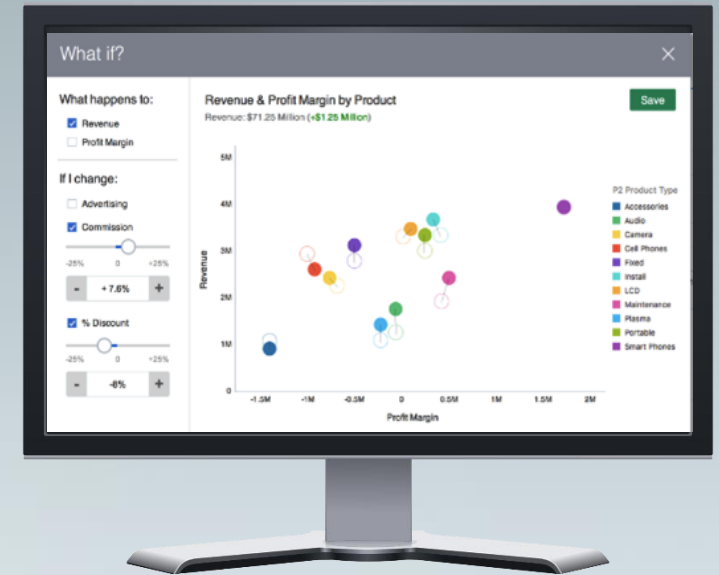
Use Case	Inputs	Dimensions	Assumptions	Horizon	Outcome
Sales Capacity Modeling	Sales interviews, Pipeline metrics, Marketing insights	Region, Channel, Time, Product	Headcount, Quota, Time to Productivity	Weekly or Monthly for Next 12 months	Predictable Revenue Model
Trade Promotion Model	Ship/Scan data, Marketing assessment	Product, Channel, Promotion Type, Region, Time	Volume, Channel, Marketing pool, Customer Spend	Seasonal	Optimize Spend and Maximize Lift
Product Profitability Modeling	Product manager inputs, manufacturing feedback	Region, Products, Location, Fiscal Year	Revenue, Materials Costs, Average Discounts	Rolling 4 Quarters	Profitability by Segment

How does an analytics cloud platform help?

Meet Essbase Cloud Service

3D Modeling Built for Better Business

- Multi-dimensional by design
- Built for business
- Extreme productivity
- Sandbox for scenarios
- Governed calculations
- Fast and Secure



Product Profitability Modeling



Sales Capacity Modeling



Freight Shipping Modeling



Trade Promotion Modeling

From Excel to Essbase in 60 Seconds

Do Everything in the Cloud

- One click provisioning, no IT
- Zero learning curve
- New design and migration tools

Do It All in Excel

- Excel as primary modeling tool
- Dozens of prebuilt templates
- Export cubes to Excel format

The screenshot displays the Oracle Analytics Cloud - Essbase (Beta) interface. On the left, a spreadsheet shows the following data:

	A	B	C	D	E
1	Application Name	Sample			
2	Database Name	Basic			
3	Version	1.0			
4					
5	Dimension Definitions				
6					
7		Dimension Type	Storage Type	Outline Order	Base Dimension
8	Year	Time	Dense	1	
9	Measures	Accounts	Dense	2	
10	Product	Regular	Sparse	3	

On the right, the Smart View window shows the Essbase Cloud Cube Designer interface with the following Alias Tables:

- Default
- Long Names
- ChineseNames
- JapaneseNames
- RussianNames

The main window displays the Outline for 'Sample_Dynamic.Basic -- Outline'. The Outline table is as follows:

Name	CO	Data storage type	Formula	Descrip
Year	+ (Add)	Dynamic Calc		
Measures	+ (Add)	Label Only		
Profit	+ (Add)	Dynamic Calc		
Inventory	~ (Ignore)	Label Only		
Opening Inventory	+ (Add)	Store Data	IF(NOT @ISMBR("Jan")) *Openin...	
Additions	~ (Ignore)	Store Data		
Ending Inventory	~ (Ignore)	Store Data		
Ratios	~ (Ignore)	Label Only		
Product	+ (Add)	Dynamic Calc		
100	+ (Add)	Dynamic Calc		
200	+ (Add)	Dynamic Calc		
200-10	+ (Add)	Store Data		
200-20	+ (Add)	Store Data		
200-30	+ (Add)	Store Data		
200-40	+ (Add)	Store Data		
300	+ (Add)	Dynamic Calc		

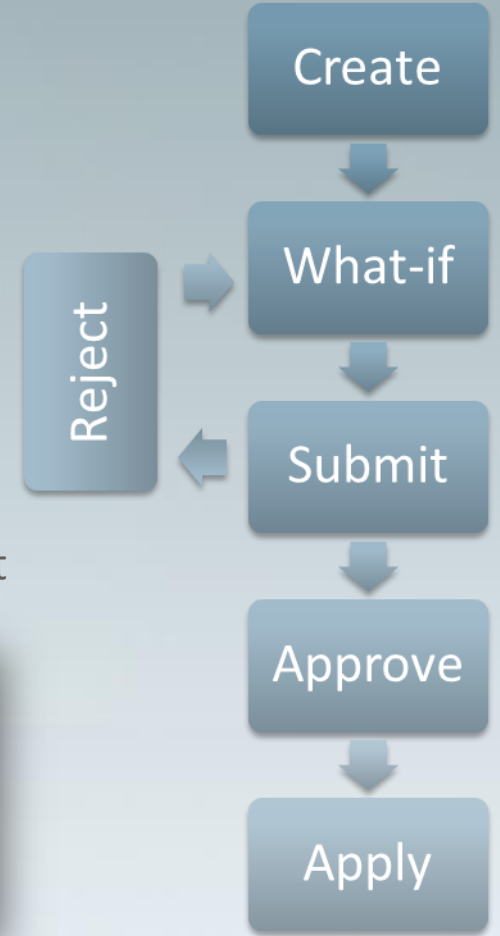
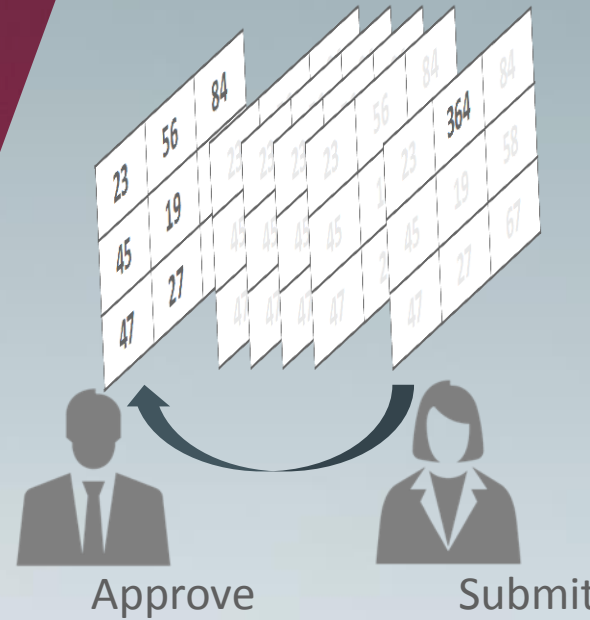
The right-hand pane shows the 'Opening Inventory' description with 20 Properties. The 'General' section includes:

- Active alias name
- Consolidation: + (Add)
- Currency conversion: None
- Currency conversion category
- Data storage type: Store Data
- Description
- Dimension name: Measures
- Expense: false
- Format string
- Formula: IF(NOT @ISMBR("Jan")) *Opening Invent...

Sandboxing and Scenario Management

Create Unlimited Sandboxes

- Create private copy of data for what-if and sensitivity analysis
- Refresh base data and merge into Sandbox
- Only delta entries are saved in the sandboxes
- Define approval flows for sandbox submission back to baseline



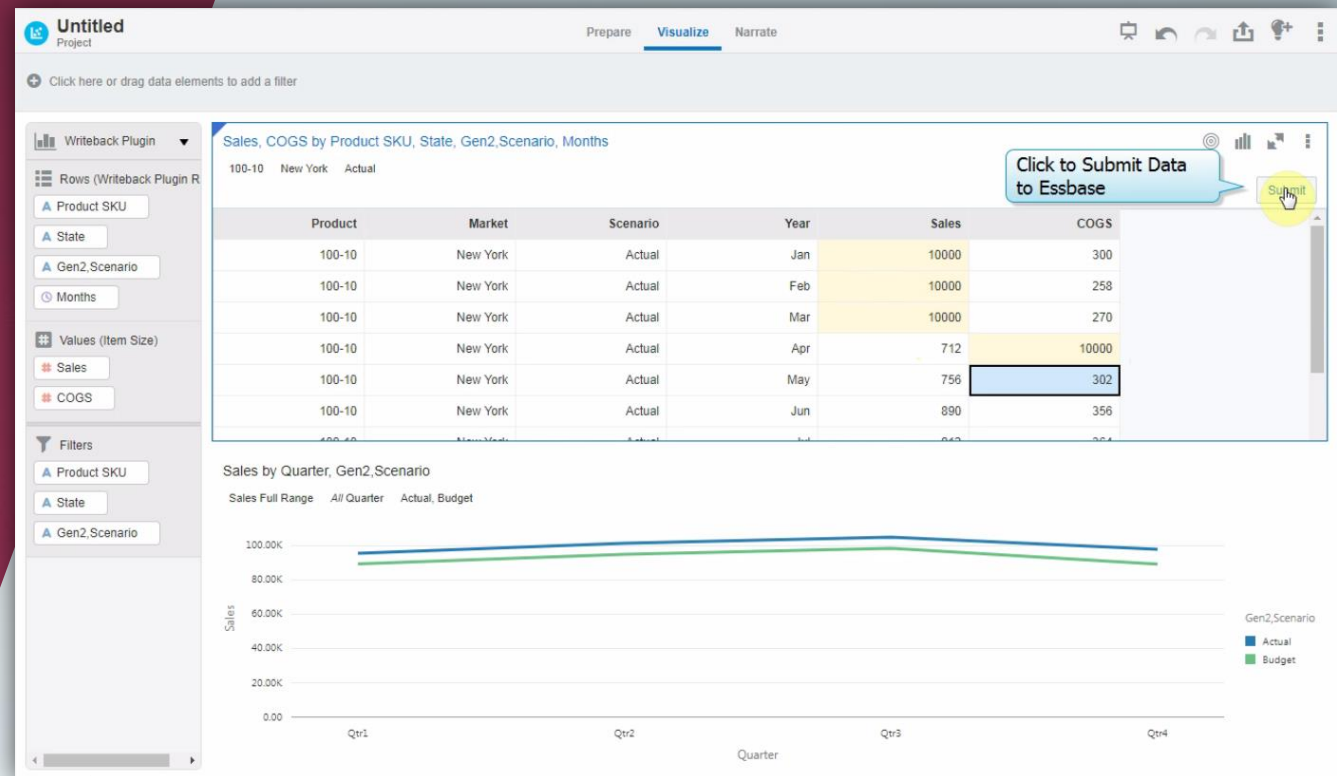
A screenshot of the Oracle Essbase Cloud Service interface. The page title is 'ORACLE Essbase Cloud Service'. Below the title are navigation icons for Applications, Jobs, Files, Scenarios, and Console. The main content area is titled 'Jobs' and contains a table with columns: ID, Application, Database, User, Type, Script, and Date. The table lists four job entries.

ID	Application	Database	User	Type	Script	Date
1000	Sample	Basic	Kumar	Data Load	data.rul	01/01/20
1001	Demo	Basic	Victor	Dim Build	product.rul	01/01/20
1002	DBX	Basic	Suresh	Dim Build	product.rul	01/01/20
1003	Sample	Basic	Dgti	Dim Build	product.rul	01/01/20

Write Back from Data Visualization

Enable What-If and Collaboration

- Visual what-If analysis
- Sandbox for any data source
- No need to leave the visualization environment and go to Excel



Agile Allocations for Rapid Simulations

SpendPlanning_queryCPR.xlsx - Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW SMART VIEW ESSBASE CUBE DESIGNER DV DESKTOP

Zoom In Keep Only Member Selection Preserve Format Smart Slice
 Zoom Out Remove Only Query Change Alias Cascade Refresh POV View Comments Drill-through
 Pivot Member Information Data Perspective Insert Attributes Visualize Linked Objects Submit Data Adjust

Analysis Data

F13

	A	B	C	D	E	F	G	H
1		JAN--17	N/S	Consolidated Supplies				
2		Projected Addressable Spend	Projected Addressable Spend%	Addressable Spend% Override	Adjusted Projected Addressable Spend	Adjusted Projected Addressable Spend%		
3	IT and Equipment	477,124	84%					
4	Marketing							
5	Building	79,982	14%					
6	Office Supplies	6,392	1%					
7	Maintenance	7,824	1%					
8	Legal							
9	Transportation							
10	Product	571,321	100%					
11	IT and Equipment_OR			70%				
12	Marketing_OR			5%				
13	Building_OR			10%				
14	Office Supplies_OR			2%				
15	Maintenance_OR			5%				
16	Legal_OR			5%				
17	Transportation_OR			3%				
18	Category Addressable Spend Allocations			100%				
19								
20								

Smart View

Private Connections

http://oacdxid.bounceme.net:9000/essbz

- EssbaseCluster
 - Demo
 - Education
 - Electric
 - Federal
 - SpendPlanning
 - Spend - EssbaseCluster_SpendPlanning
 - Tracking
 - Vision
 - Vision2
 - VisionDV
 - VisionScratch
 - Simple

Ad hoc analysis

Set Active Connection for this

Create new Smart Slice

New Smart Query Sheet

More >>

Adjust Projected Spend FY Spend%

READY 100%

Launch Multi-dimensional Allocation Rule

The screenshot displays the Microsoft Excel interface with the 'Calculation Scripts' dialog box open. The dialog shows a list of calculation scripts for the 'Spend' cube, with 'adjprojspnd' selected. The 'Smart View' pane is also visible, showing a tree view of the EssbaseCluster and a URL for the connection. The data table shows columns for 'Consolidated Supplies', 'Addressable Spend% Override', 'Adjusted Projected Spend', and 'Adjusted Projected Spend%'.

	D	E	F	G	H
	Consolidated Supplies				
	Addressable Spend% Override	Adjusted Projected Spend	Adjusted Projected Spend%		
4%					
4%					
1%					
1%					
0%					
	70%				
	5%				
	10%				
	2%				
	5%				
	5%				
	3%				
	100%				

Adjusted Spend Redistributed with New Assumptions

SpendPlanning_queryCPR.xlsx - Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW SMART VIEW ESSBASE CUBE DESIGNER DV DESKTOP

Zoom In Keep Only Member Selection Preserve Format Smart Slice
 Zoom Out Remove Only Query Change Alias Cascade
 Pivot Member Information Data Perspective Insert Attributes
 Refresh POV View Comments Drill-through
 Calculate Linked Objects Submit Data
 Visualize Adjust

Analysis Data

F13

	A	B	C	D	E	F	G	H
1		JAN--17	N/S	Consolidated Supplies				
		Projected	Projected		Adjusted	Adjusted		
		Addressable	Addressable	Addressable Spend%	Projected	Projected		
		Spend	Spend%	Override	Spend	Spend%		
2								
3	IT and Equipment	477,124	84%		399,925	70%		
4	Marketing				28,566	5%		
5	Building	79,982	14%		57,132	10%		
6	Office Supplies	6,392	1%		11,426	2%		
7	Maintenance	7,824	1%		28,566	5%		
8	Legal				28,566	5%		
9	Transportation				17,140	3%		
10	Product	571,321	100%		571,321	100%		
11	IT and Equipment_OR			70%				
12	Marketing_OR			5%				
13	Building_OR			10%				
14	Office Supplies_OR			2%				
15	Maintenance_OR			5%				
16	Legal_OR			5%				
17	Transportation_OR			3%				
18	Category Addressable Spend Allocations			100%				
19								
20								

Smart View

Private Connections

http://baodvd.bounceme.net:9000/essbi

- EsbaseCluster
 - Demo
 - Education
 - Electric
 - Federal
 - SpendPlanning
 - Spend - EsbaseCluster_SpendPlanning
 - Tracking
 - Vision
 - Vision2
 - VisionDV
 - VisionScratch
 - Simple

Ad hoc analysis

Set Active Connection for this

Create new Smart Slice

New Smart Query Sheet

More >>

Adjust Projected Spend FY Spend%

READY

One Click Refresh from Visualization

The screenshot displays the Oracle Data Visualization interface for a project named 'Spend Planning CPR'. The interface includes a navigation pane on the left with a tree view of the project structure, a main visualization area with two donut charts and two tables, and a context menu on the right. The context menu is open over the right chart, showing options like 'Project Properties', 'Canvas Properties', 'Synchronize Visualizations', 'Export...', 'Refresh Data', 'Refresh Data Sources', 'Reset Colors', 'Clear Canvas', 'Create New Project', 'Revert to Saved', and 'Debug'. The 'Refresh Data' option is highlighted. The background shows an Excel spreadsheet with a table of spend data.

Projected Addressable Spend by Gen2,Product

Gen2,Product	Percentage
IT and Equipment	83.5%
Building	14.0%
Office Supplies	1.37%
Maintenance	1.12%
Total	571K

Prior to Adjustment Addressable Spend by Gen2,Product

Gen2,Product	Percentage
IT and Equipment	83.5%
Building	14.0%
Office Supplies	1.37%
Maintenance	1.12%
Total	571K

Projected Addressable Spend by Gen2,Product

Gen2,Product	Projected Addressable Spend
IT and Equipment	477,123.62
Building	79,981.89
Office Supplies	6,391.54
Maintenance	7,823.74
Grand Total	571,320.78

Adjusted Projected Addressable Spend by Gen2,Product

Gen2,Product	Adjusted Projected Addressable Spend
IT and Equipment	477,123.62
Building	79,981.89
Office Supplies	6,391.54
Maintenance	7,823.74
Grand Total	571,320.78

Easily See Before and After Spend Distribution

SpendPlanning_queryCPR.xlsx - Excel

Oracle Analytics Cloud - Spend Planning CPR

oacdx.d.bounceme.net:9704/va/project.jsp?pageid=visualAnalyzer&reportmode=full&reportpath=%2Fusers%2Fcloud.user%2Fessbase%20Cloud%20Services%2FSpend%20Planning%20CF

ORACLE Data Visualization

Spend Planning CPR Project

Prepare Visualize Narrate

Search

SpendPlanning Spend

- Spend#1
- Calendar
- Purchase organization
- Product
- Supplier
- My Calculations
- Value Labels

Project Address Spen

IT and Equipment 477

Marketing

Building 79

Office Supplies 6

Maintenance 7

Legal

Transportation

Product 571

IT and Equipment_OR

Marketing_OR

Building_OR

Office Supplies_OR

Maintenance_OR

Legal_OR

Transportation_OR

Category Addressable Spend Allocations

Adjust Projected Spend FY Spend%

READY

Projected Addressable Spend by Gen2.Product

Gen2.Product

- IT and Equipment
- Marketing
- Building
- Office Supplies
- Maintenance

Prior to Adjustment Addressable Spend by Gen2.Product

Gen2.Product

- IT and Equipment
- Marketing
- Building
- Office Supplies
- Maintenance
- Legal
- Transportation

Projected Addressable Spend by Gen2.Product

Gen2.Product	Projected Addressable Spend
IT and Equipment	477,123.62
Building	79,981.89
Office Supplies	6,391.54
Maintenance	7,823.74
Grand Total	571,320.78

Adjusted Projected Addressable Spend by Gen2.Product

Gen2.Product	Adjusted Projected Addressable Spend
IT and Equipment	398,924.55
Marketing	28,566.04
Building	57,132.08
Office Supplies	11,426.42
Maintenance	28,566.04

Add Calculation Historical Spend by Year Quarterly Addressable Spend by Year Adjusted Charts

What should I do to get started?

Action Plan for Agile Scenario Modeling

1. Prioritize modeling efforts
2. Take design thinking course
3. Embrace IDAHO approach
4. Think cloud first for agility
5. Benchmark process efficacy

