APICS St Louis Chapter

Supply Chain in Financial Management

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UMSL | Business

EXPERIENCE

ACADEMIC INSTRUCTION **University of Missouri – St. Louis 2015 –**

Based in the Center for Transportation Studies; Department of Supply Chain and Analytics; College of Business Administration; University of Missouri – St. Louis.

Current undergraduate teaching instruction includes:

a. Introduction to Transportation, A Global Supply Chain Perspective
b. Traffic and Transportation Management
c. Transportation Safety, Security and Emergency Management, A Global Supply Chain Risk Management Perspective

Research and Grant Awards

2018 State of Missouri, Department of Elementary and Secondary Education (DESE)
Career Pathways in Logistics and Transportation for Non-traditional Students

CONSUMER PRODUCT SERVICES / PRODUCT REMANUFACTURING CENTERS 2006 - 2015
Private company specializing in Sustainability from Total Returns Management Solutions for Market Leading Consumer Goods Manufacturers including Quality Engineering, Re-Manufacturing, Reverse and Forward Logistics Management, Business Development, Warranty Replacement and Secondary Market Sales
Vice President Logistics & Supply Chain - Reporting to the President

ALFRED KARCHER, INC. • **Atlanta, GA** 2004 – 2006
US sales and distribution subsidiary of Alfred Kärcher GMBH Germany, a private manufacturing company with turnover of €1.7B.
Director, Logistics - Reporting to the Chief Executive
Responsible for customer service, distribution, inventory management, transportation, returns management, service center management, trade compliance, led conversion to SAP, Sales and Operations Planning (S&OP)

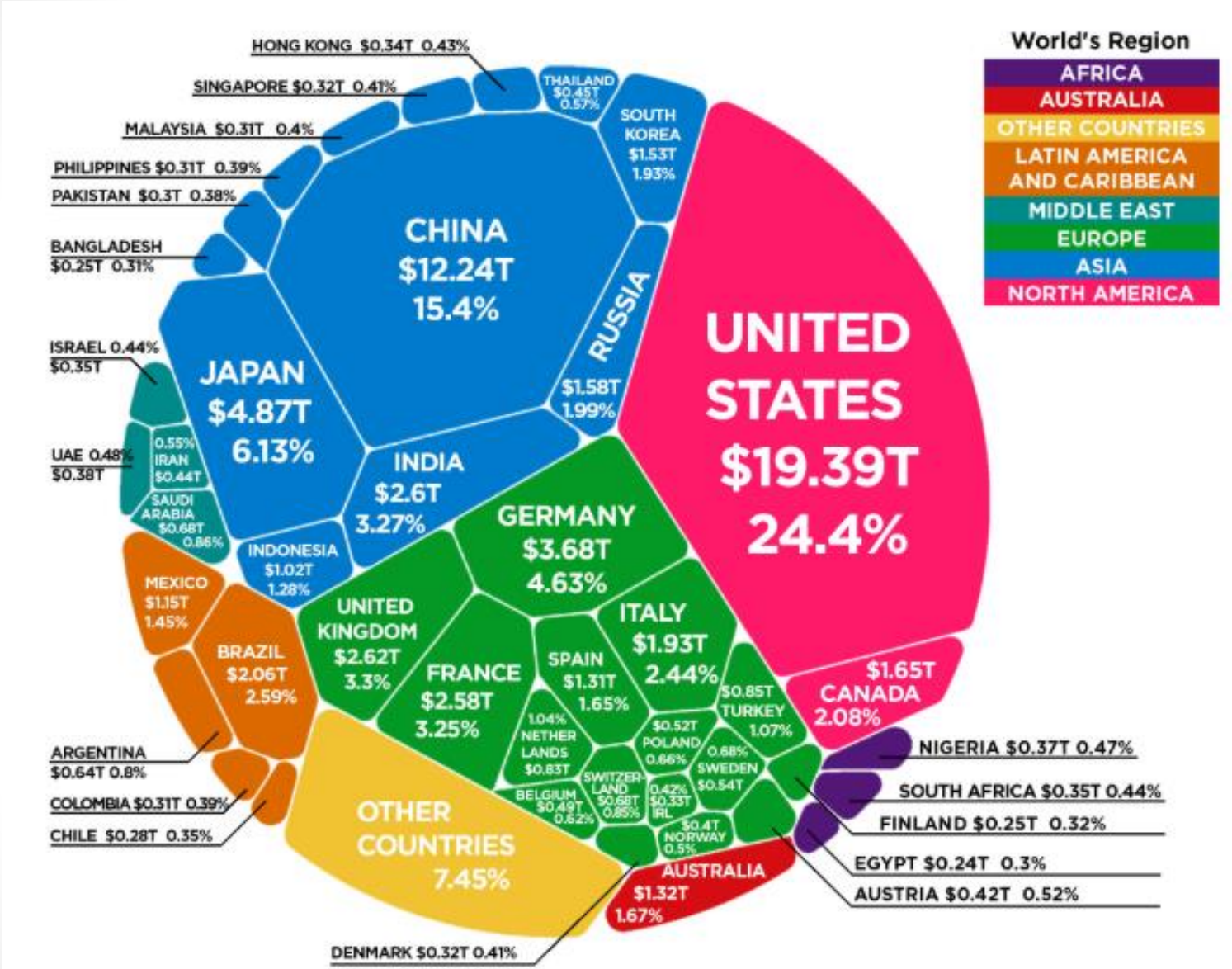
EMERSON • **St. Louis, MO** 1998-2003
$17 billion Corporation with 70 divisions organized into 8 business groups serving global industrial markets.
Director, Corporate Logistics (2001-2003) **Reporting to Vice President Procurement and Materials**
Director, Logistics Emerson Process Management (1998-2001) **Reporting to Group VP for Administration and Finance**
Responsibility to define and demonstrate the scope, importance and opportunity for a global logistics strategy. Facilitated global sourcing, low cost country manufacturing, cost leveraging, trade compliance and demand flow/lean manufacturing. Staff of seven based in Asia, Europe and North America. Subject Matter Expert to all Divisions. Scope of spend $2Billion.

SHERWOOD-DAVIS & GECK • **St. Louis, MO** 1980-1998
$1.4 billion global manufacturer of medical devices. . Unit of American Home Products, now Pfizer. Company divested to Tyco Industries, now Covidien, 1998.
Vice President, Distribution (1980-1998) **Reporting to President**
Managed U.S. customer service, export/import activities, five distribution centers, transportation, forecasting, inventory management, coordinated with 11 manufacturing plants, $65 million in finished goods inventory. Managed $50 million budget and 225 personnel.

Todays Agenda

- Introductions
- Supply Chain, Logistics and Transportation Overview
- Interlocking Supply Chain Concept
- Understanding Financial Statements
- Understanding Corporate Financial Indicators
- Costing and Valuation Tools
- Digital Transformation - Supply Chain 4.0
- Sales and Operations Planning (SOP)
- The New CFO
- Supply Chain Risk
- Takeaways, Tomorrow’s Skillsets and Summary

The world's $80 trillion economy - in one chart

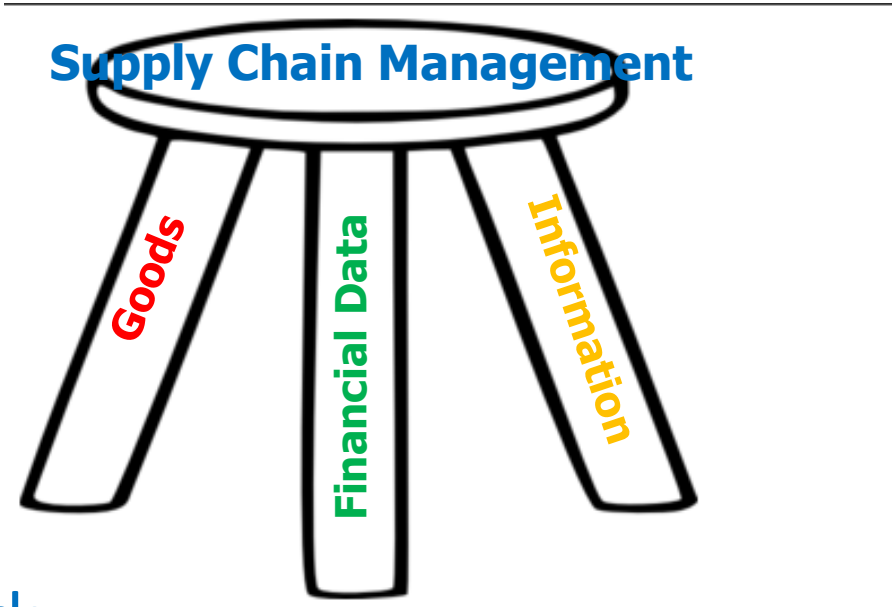


Article and Sources:
https://howmuch.net/articles/the-world-economy-2017
http://databank.worldbank.org/data/download/GDP.pdf

howmuch.net

SCM Evolution

- Concept evolved in three phases
  - 1960s: physical distribution
  - 1980s: business logistics
  - 1990s: supply chain management
  - 2020s: supply network or integrated business planning?



Dimensions of SCM Data Sets

Volume: quantities of data available to harness for improved decision making as well as the unprecedented rate of increase

Variety: different types of data, data sources (databases, sensors, satellites, EDI, web based, social media) and data types – structured, semi-structured, unstructured

Veracity: reliability associated with types of data, e.g. weather Supply chain data can be uncertain

Velocity: speed in which data is created, e.g. real time. Velocity impacts lag time, that is when data is available and actionable

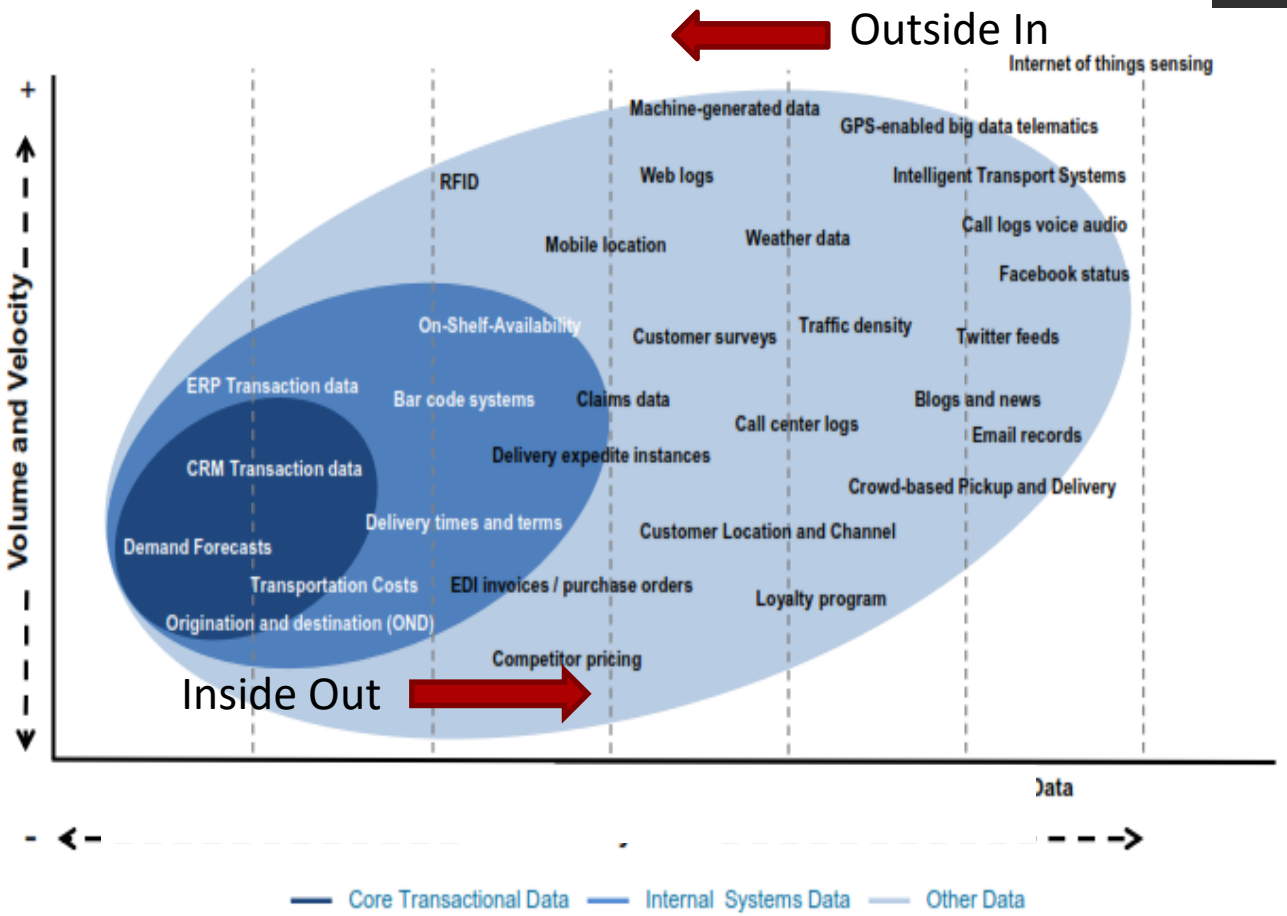


Figure 1. SCM Data Volume and Velocity vs. Variety

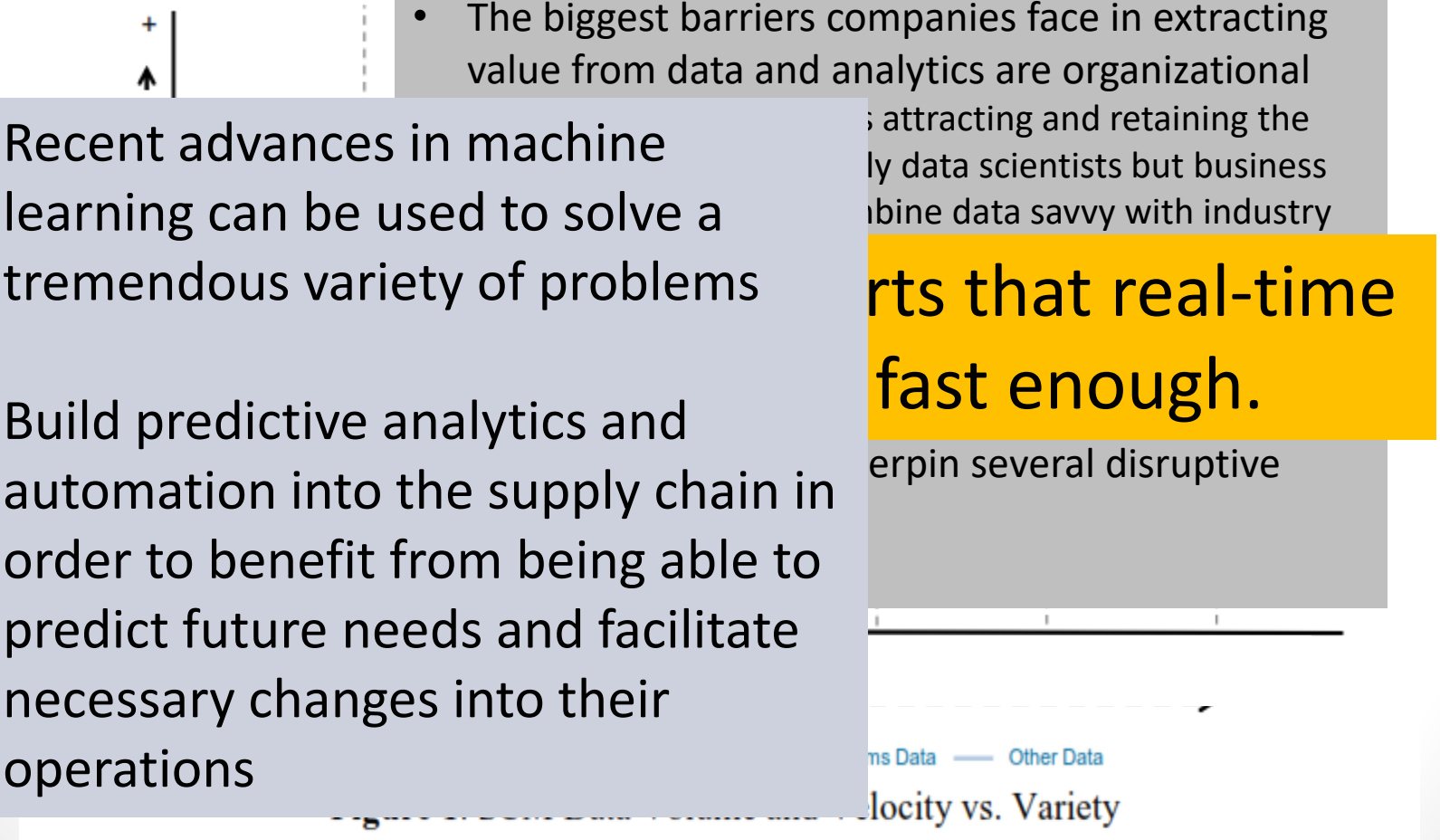
Dimensions of SCM Data Sets

- Most companies are capturing only a fraction of the potential value from data and analytics
- The biggest barriers companies face in extracting value from data and analytics are organizational
  s attracting and retaining the
  ly data scientists but business
  bine data savvy with industry

rts that real-time
fast enough.

erpin several disruptive

- Recent advances in machine learning can be used to solve a tremendous variety of problems
- Build predictive analytics and automation into the supply chain in order to benefit from being able to predict future needs and facilitate necessary changes into their operations



Supply Chain Management

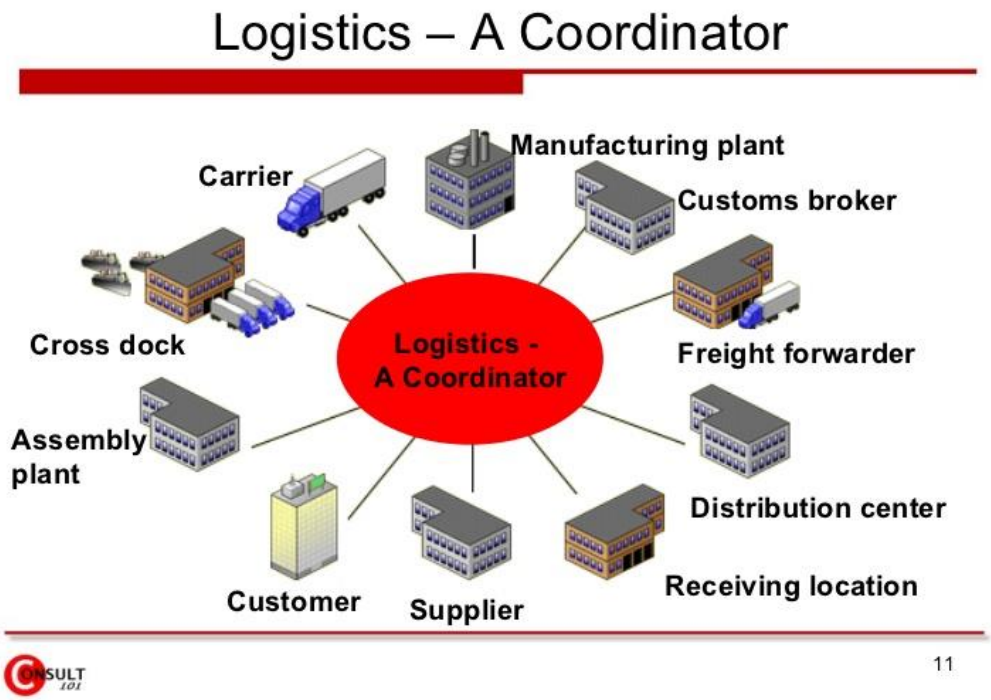
- Supply Chain Management **encompasses** the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. including coordination and collaboration with channel partners,

- supply chain management integrates supply and demand management within and across companies.

CSCMP
Educating and Connecting the World's Supply Chain Professionals.

Logistics Management

- "Logistics management is that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements."



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Activities in the Logistical Channel

- Customer Service
- Facility Location Decisions
- Inventory Management
- Order Management
- Procurement
- Transportation Management
- International Logistics
- Materials Handling
- Packaging
- Reverse Logistics
- Distribution Center/ Warehousing Management

- To varying degrees, the logistics function also includes sourcing, production planning, scheduling, and assembly.
- It is involved in all levels of planning and execution - strategic, operational, and tactical

US business logistics costs

$ billion

	2017	YoY 17/16	5-yr CAGR
Transportation costs			
Full truckload	289.4	6.4%	4.8%
Less-than-truckload	62.4	6.6%	-2.1%
Private or dedicated	289.6	9.5%	6.8%
Motor carriers	641.4	7.8%	4.8%
Parcel	99.0	7.0%	7.9%
Carload	59.0	7.3%	-0.5%
Intermodal	21.4	10.7%	2.6%
Rail	80.5	8.2%	0.3%
Air freight (includes domestic, import, export, cargo, and express)	67.2	3.1%	1.5%
Water (includes domestic, import, and export)	41.0	1.1%	-0.4%
Pipeline	36.4	5.8%	5.8%
Subtotal	**965.5**	**7.0%**	**4.2%**
Inventory carrying costs			
Storage	148.0	4.2%	3.1%
Financial cost (WACC x total business inventory)	151.6	5.0%	-1.0%
Other (obsolescence, shrinkage, insurance, handling, others)	128.4	4.6%	0.9%
Subtotal	**428.0**	**4.6%**	**0.9%**
Other costs			
Carriers' support activities	50.5	3.9%	4.8%
Shippers' administrative costs	50.7	6.0%	4.9%
Subtotal	**101.2**	**4.9%**	**4.9%**
Total US business logistics costs	**1,494.7**	**6.2%**	**3.2%**

Notes: YoY is year-on-year. WACC is weighted average cost of capital.
Sources: CSCMP's 29th Annual State of Logistics Report; A.T. Kearney analysis

Steep Grade Ahead

Transportation is a Supply Chain Driver

- Transportation Management is at the Heart of Supply Chain Execution

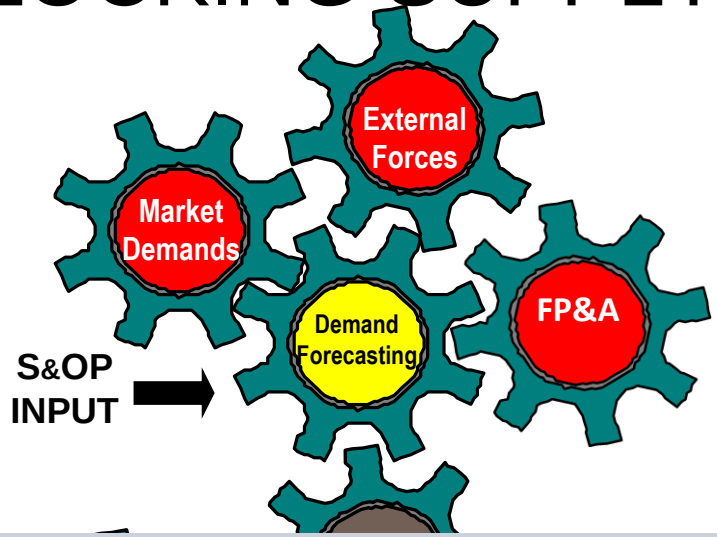
- Critical Interaction Impacting Core Supply Chain Functions

Transportation is a Function of Demand and Supply

- Direct Impact on Servicing Customers, Improving Service Levels, Shorten Lead Times and Avoid Delivery Delays

- Transportation also serves as a major economic activity itself
    - Households, businesses, and the government directly consume transportation goods (e.g., vehicles and motor fuel) and services (e.g., public transit and commercial airline transportation)

INTERLOCKING SUPPLY CHAIN CONCEPT

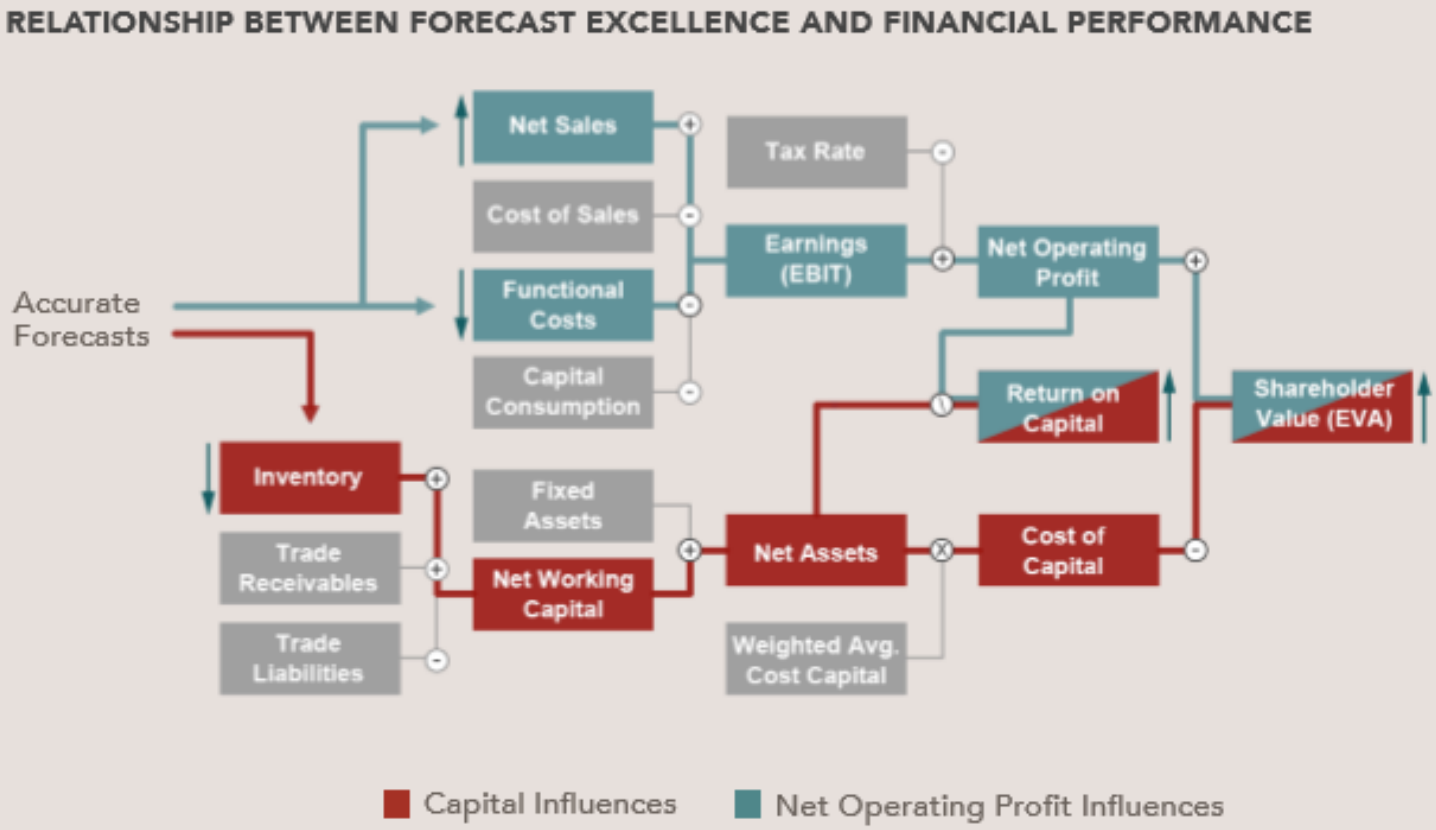


Supply chain managers have a responsibility to be internal business resources. Their direct access to a wide range of practical market intelligence ... creates the perfect opportunity to be internal company advisers.

<u>Virtually all supply chain events have financial implications</u>

Everything that happens within supply chain winds up on the income statement, balance sheet or cash flow statement

Understanding Financial Statements



The focus on technical supply chain metrics often clouds the relationship between forecast accuracy and financial performance. A better understanding across departments of how forecast excellence relates to shareholder value can facilitate discussions on why accuracy matters and help increase the profile of supply chain within senior leadership.

Income Statement

Income Statement Component	Supply Chain Issues that Affect Financial Performance
Revenues	• Lead time • Time to market for new products • Response time to customer requests • On-time delivery • Product quality • Product returns • Stock outs • Fill rates
Product Costs	• Transportation costs • Network distance • Procurement costs • Inventory costs – raw materials, work in progress, finished goods • Storage costs • Packaging costs • Waste • Stock outs • Forecast accuracy • Number of suppliers • Product remediation costs
Sales, General, and Administrative Costs	• Warranty costs • Selling costs • Transaction accuracy (invoices, shipping documents, export documentation) • Exchange rate control

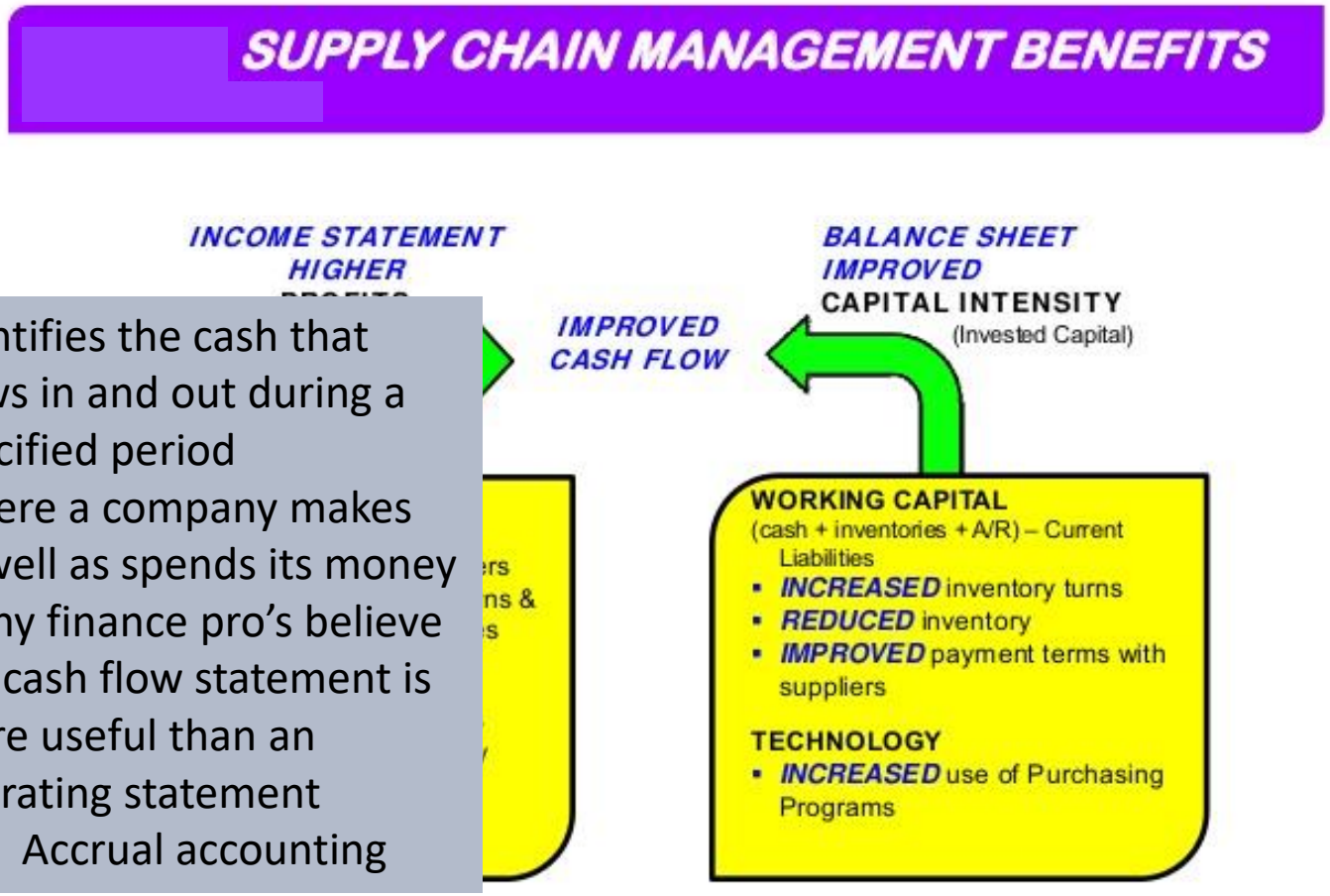
- The net income figure is arguably the most focused-upon performance metric in the business community
- Firms may also focus on components of net income
  - Gross Margin
  - Earnings Before Interest and Taxes (EBIT) or
  - Earnings Before Earnings and Taxes Minus Depreciation and Amortization (EBITDA)
- Supply chain decisions and performance have direct impacts on income through each of the three primary components of the income statement

Balance Sheet

Working Capital Component	Supply Chain Issues that Affect Financial Performance
Inventory Days	• Holding costs – financing, warehousing, tracking, moving, insurance • Obsolescence • Theft • Forecasting accuracy • Sourcing time • Delivery time
Accounts Receivable Days	• Bad debt • Follow-up calls to receive payments • Unable to ship due to non-payment • Exchange rate changes • Correct invoicing terms • Proof of receipt
Accounts Payable Days	• Discounts not taken • Late payments; subsequent orders delayed • Correct invoicing terms • Payment penalties

- A key component of organizational success (or failure) is the control of working capital
  - Working capital is defined as current assets less current liabilities
  - The primary components of current assets are cash (and cash-like investments), accounts receivables, and inventories
  - the primary component of current liabilities for most firms is accounts payables
- Not only do supply chain decisions have a direct impact on working capital, but working capital flows and balances have a direct impact on the financial viability and performance of a firm
- One useful supply chain performance measure to evaluate working capital performance is the cash conversion cycle (C2C), calculated *as Inventory Days plus Accounts Receivable Days minus Accounts Payable Days.*

Understanding Financial Statements



- Identifies the cash that flows in and out during a specified period
- Where a company makes as well as spends its money
- Many finance pro's believe the cash flow statement is more useful than an operating statement
  - Accrual accounting

Cash flow and the supply chain are like twin souls -- tightly linked, and destined to sink or swim together

Understanding Corporate Performance Indicators

Return on Assets:
Net Income/Total Assets

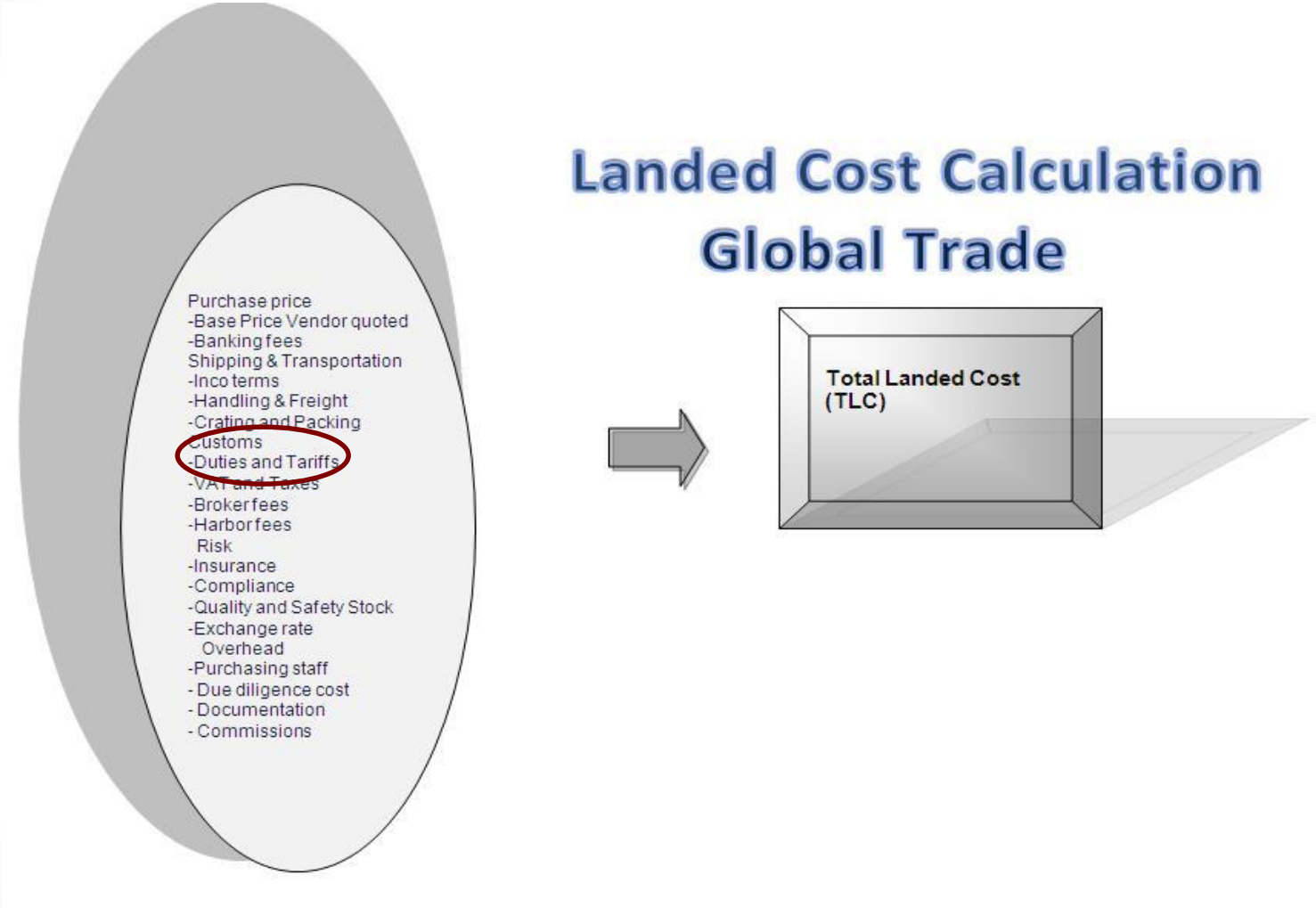
Return on Investment:
(Gain from investment – cost of investment)/cost of investment

Return on Invested Capital:
(Net Income – Dividends)/Total Capital

Costing Tools

- **Activity Based Costing**
  - Activity-based costing (ABC) is an accounting method that identifies and assigns costs to overhead activities and then assigns those costs to products
- **Economic Value Added (EVA)**
  - Economic value added (EVA) is a measure of a company's financial performance based on the residual wealth calculated by deducting its cost of capital from its operating profit, adjusted for taxes on a cash basis.
- **Value Chain Analysis**
  - Value chain analysis is the process of looking at the activities that go into changing the inputs for a product or service into an output that is valued by the customer.
- **Customer Profitability Analysis**
  - **Customer profitability** (CP) is the profit the firm makes from serving a customer or customer group over a specified period of time, specifically the difference between the revenues earned from and the costs associated with the customer relationship in a specified period.
  - According to Philip Kotler,"a profitable customer is a person, household or a company that overtime, yields an ***ongoing*** revenue stream that exceeds by an acceptable amount the company's cost stream of attracting, selling and servicing the customer."

Landed Cost Calculation



- Landed cost is the total price of a product once it arrives at your or the customer's door
- It includes the original price of the product, transportation costs and hidden costs, such as applicable duties, taxes, insurance, currency conversion, surcharges and fees

Get Creative to Avoid Tariffs

- Take advantage of Free Trade Agreements
- Use Foreign Trade Zones for Substantial Transformation or Tariff Shift
- Bonded Warehouses (Vendor Malls)
- Request exclusions to Sec 232 & 301 Tariffs
- Verify commodity classification at 8-10 digit level or “Tariff engineering”
- File for Duty Drawback on re-exported goods

Harmonized Tariff Schedule of the United States

Heading/ Subheading	Stat. Suf-fix	Article Description	Unit of Quantity	Rates of Duty 1 General	Rates of Duty 1 Special	Rates of Duty 2
8509		Electromechanical domestic appliances, with self- contained electric motor, other than vacuum cleaners of heading 8508; parts thereof:				
8509.40.00		Food grinders, processors and mixers; fruit or vegetable juice extractors		4.2% 1/	Free (A, AU, BH, CA, CL, CO, D, E, IL, JO, MA, MX, OM, P, PA, PE, SG) 2.1% (KR)	40%
	15	Blenders	No.			
	25	Other food mixers	No.			
	30	Juice extractors	No.			
	40	Food grinders and processors	No.			
8509.80		Other appliances:				
8509.80.10	00	Floor polishers	No.	Free		35%
8509.80.20	00	Kitchen waste disposers (disposals)	No.	Free		40%
8509.80.50		Other:		4.2% 2/	Free (A, AU, BH, CA, CL, CO, D, E, IL, JO, KR, MA, MX, OM, P, PA, PE, SG)	40%
	40	Can openers (including combination units)	No.			
	45	Electric toothbrushes	No.			
		Humidifiers:				
	50	Evaporative	No.			
		Other:				
	70	Ultrasonic	No.			
	80	Other	No.			
	95	Other	No.			

China's Tariff Escalation by HTS, (First Tranche)

附件

对美加征关税商品清单二

序号	税则号列	商品名称[注]
1	23012010	饲料用鱼粉
2	26180010	冶炼钢铁产生的锰渣
3	26190000	冶炼钢铁产生的熔渣、浮渣、氧化皮及其他废料
4	26209990	含其他金属及化合物的矿灰及残渣
5	27011100	未制成型的无烟煤，不论是否粉化
6	27011210	未制成型的炼焦烟煤，不论是否粉化
7	27011290	未制成型的其他烟煤，不论是否粉化
8	27011900	未制成型的其他煤，不论是否粉化
9	27012000	煤砖、煤球及类似用煤制固体燃料
10	27021000	褐煤
11	27022000	制成型的褐煤
12	27030000	泥煤(包括肥料用泥煤) 不论是否成型
13	27040010	煤制焦炭及半焦炭不论是否成型
14	27040090	甑炭
15	27050000	煤气、水煤气、炉煤气及类似气体，石油气及其他烃类气除外
16	27060000	从煤、褐煤、或泥煤蒸馏所得的焦油及矿物焦油，不论是否脱水或部分蒸馏，包括再造焦油
17	27071000	粗苯
18	27072000	粗甲苯

Principles of Transfer Pricing

- In taxation and accounting, **transfer pricing** refers to the rules and methods for pricing transactions within and between enterprises under common ownership or control.
- Tax authorities in many countries can adjust intragroup transfer prices that differ[illegible]ted enterprises dealing at[illegible]
  - Elimina[illegible]tions to distort taxable[illegible]
- Countries[illegible]y the *OECD Transfer P[illegible]nd Tax Administr[illegible]*
  - Over s[illegible]rules
  - Based[illegible]
    - The[illegible]act that the par[illegible]l footing
  - Comm[illegible]olled prices, cost-plus, resale price or markup, and profitability based methods.

As it applies to Supply Chain, moving goods between countries is more complicated:
1. Goods have to be shipped, held in customs, have tariffs paid, and undergo any other number of costs and delays.
2. Of these, clearing customs often presents the biggest hurdle
3.Many countries tax items as they leave or arrive in the country
4.Making sure that these taxes are being paid correctly can be complicated

THE PLAYERS --CFO

- Traditionally, the CFO stance has been arms-length monitoring and reporting on the supply chain, rather than a collaborative business relationship with the supply chain executive
  - **Holistic Supply Chain Finance** – Vehicle of Profitability
    - Not A Pure Cost Play, SC is Intrinsically Tied to P&L, Balance Sheet and Cash Flow Statement
      - Well Beyond Shipping and Warehouse Costs
    - Analytics Drive Collaboration – Right Data, Right Mindset

The CFO needs to set the tone at the top for the people managing supply chain

Profitability)

- Customer Size does not necessarily predict profitability
- Location
- Market Penetration
- Hidden Risks

Why the CFO & the Supply Chain Officer Need Each Other More Than Ever

- CFOs drive better business performance through strategic partnerships with the chief supply chain officer
  - when cost reduction leapt to the top of the corporate agenda, supply chains were one of the first places that CFOs turned to for
  - th the
  - market
- CF ons – no ent pe performance.

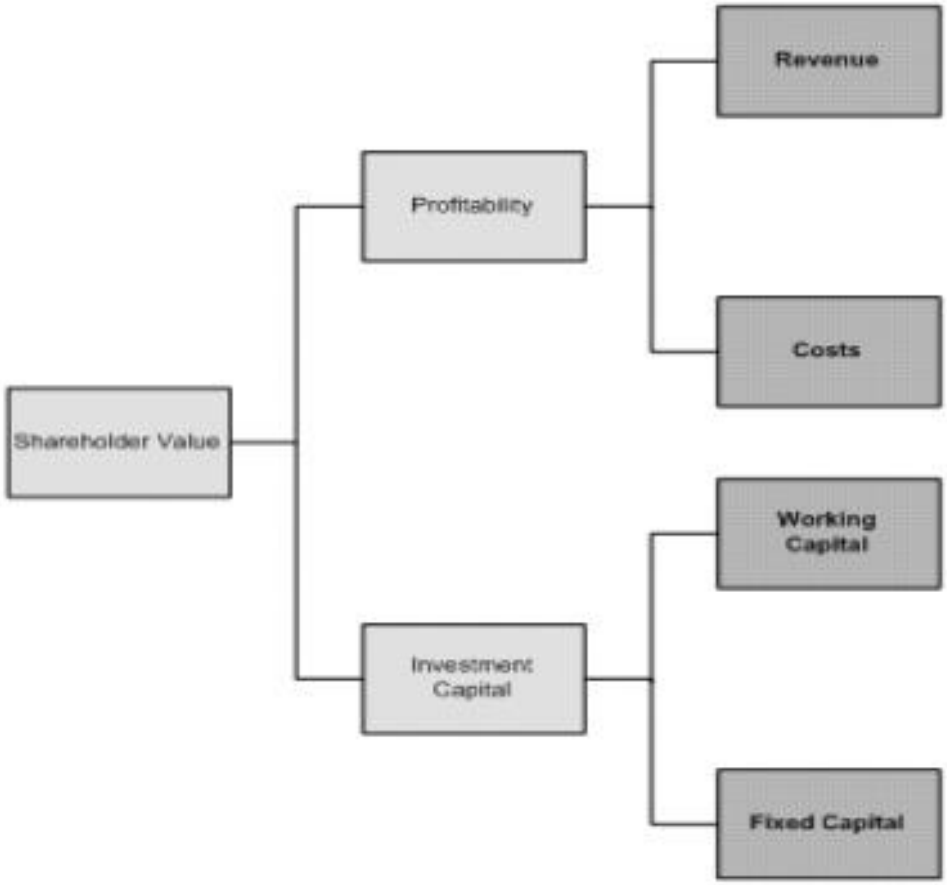
CFOs and supply chain leaders are creating alignment between strategy, finance, tax and operations, unlocking hidden value within the organization and strengthening financial performance.

CFO Signals –

What are Top Financial Executives Thinking

Source: *CFO Signals*™ What North America's top finance executives are thinking—and doing Second quarter 2018. Full report.

Risks -Managing Shareholder Value



IMPACT OF SUPPLY CHAIN PERFORMANCE

Superior customer service may result in higher sales, gross margins and market share

Increase revenue by managing risks associated with customer service and retention

Lower cost of goods sold may be achieved through lower transportation, warehousing, material handling and distribution costs

Reduce costs by managing risks associated with supplier relationships, supply chain processes as well as macro environment and industry dynamics

Working capital may be reduced through lower raw materials and finished goods inventory and shorter 'cash-to-cash' cycles

Reduce working capital by managing risks associated with supply chain inefficiencies, systems integration and collaboration

Fixed capital assets may be reduced through less physical assets, such as vehicles, warehouses and material handling equipment

Reduce fixed capital requirements by exploiting opportunities and managing risks associated with supply chain strategies

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- Uncertainty is rampant
- Weather related disruptions have increased in severity and time-to-recover
- Increased emphasis senior leaders are placing on supply chain risk management initiatives, but also the evolving spectrum of risks and uncertainty associated with the modern supply chain process
- External auditors are evaluating risk management strategies and readiness as part of annual reviews

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Supply Chain and Finance Alignment

- **Alignment around top business risks**
  - The monitoring program of the future is focused on cyber risks to the business
  - Board Level Involvement and Escalation
    - Internal Audit Point
    - Supplier Relationship Management
      - Procurement
      - Transportation
      - Risk Mapping

Accurate Costing Information Lacking in Supply Chain….Institute of Management Accountants, Feb 2018

- "From the supply chain perspective, an effective managerial costing system has clear value," said IMA Vice President of Research and Policy Raef

One clear strategy is for supply chain managers to strengthen their relationship with accounting and finance to foster greater information flow between the two departments as well as greater IT infrastructure.
Most importantly is demand from top-level management, including the CFO and CSCO, for updated costing practices

- Root Causes
  - **An overreliance on external financial reporting systems**
  - **Using outdated costing models**
  - **Accounting and finance's resistance to change**

Institute of Management Accountants, Feb 2018

Takeaways

- Supply chain management integrates supply and demand management within and across companies
- The ‘Holy Grail’ of supply chain management is to, as efficiently as possible, exactly match supply to real demand wherever it occurs
- Supply chain managers have a responsibility to be internal business resources
- Virtually all supply chain events have financial implications
- The CFO needs to set the tone at the top for the people managing supply chain
- The history of supply chain management, has always been about information—getting more of it, managing it better and building new capabilities with it
- CFOs drive better business performance through strategic partnerships with supply chain leaders
- Real Time Data is Not Fast Enough

Key Skillsets for Running Tomorrow's Digital Supply Chain

- Supply Chain & Logistics Engineering
- Project Management
- Python
- Tableau
- Oral and Written Communication
- Problem Solving
- Relationship Skills

Dean's Panel: Talent Partnering with Business Schools

- University of Iowa
- Auburn University
- Mississippi State University
- University of Tennessee
- The Ohio State University

Conclusions

- ✓ To build an effective model between supply chain decisions and organizational performance, the supply chain organization in a firm must understand :
  - how SC actions and decisions link to the financial components of the firm
  - analyze the influence that its various actions and components have on outcomes that influence financial performance.

- ✓ This linkage model will help to ensure that the supply chain organization is making and implementing decisions that are valued by the top management of the firm

QUESTIONS

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