



*Driving Performance in the  
Oil & Gas Supply Chain*

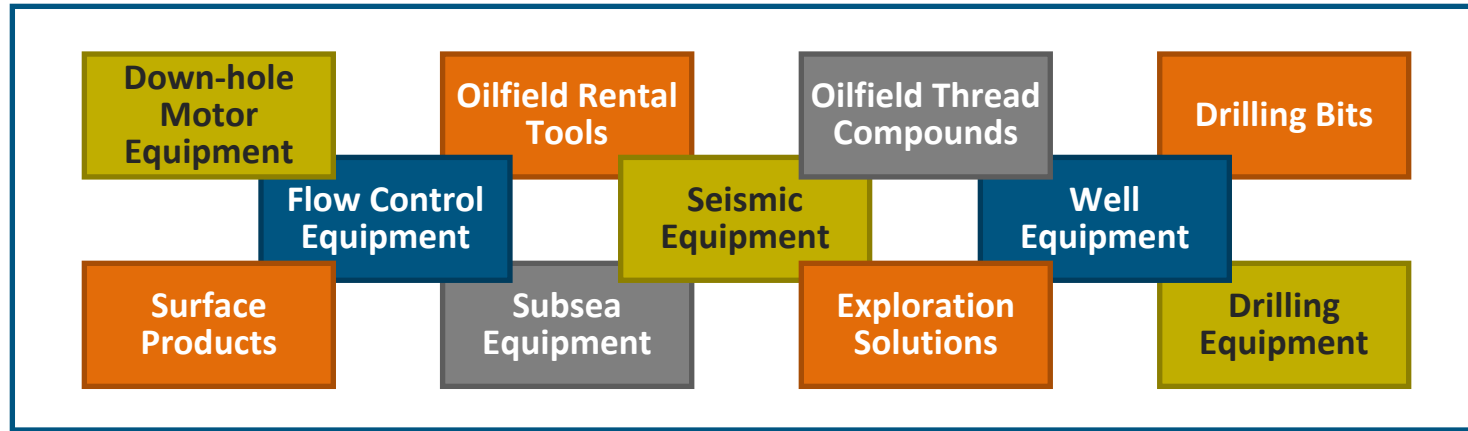
Joseph Francis, Supply Chain Council  
Marc Waco, PwC



*SCC launched a unique study to understand the supply chain performance of O&G Infrastructure companies*

**Survey participants:** Reached out to over **380** O&G Infrastructure companies, **25** signed up, and **13** submitted their response

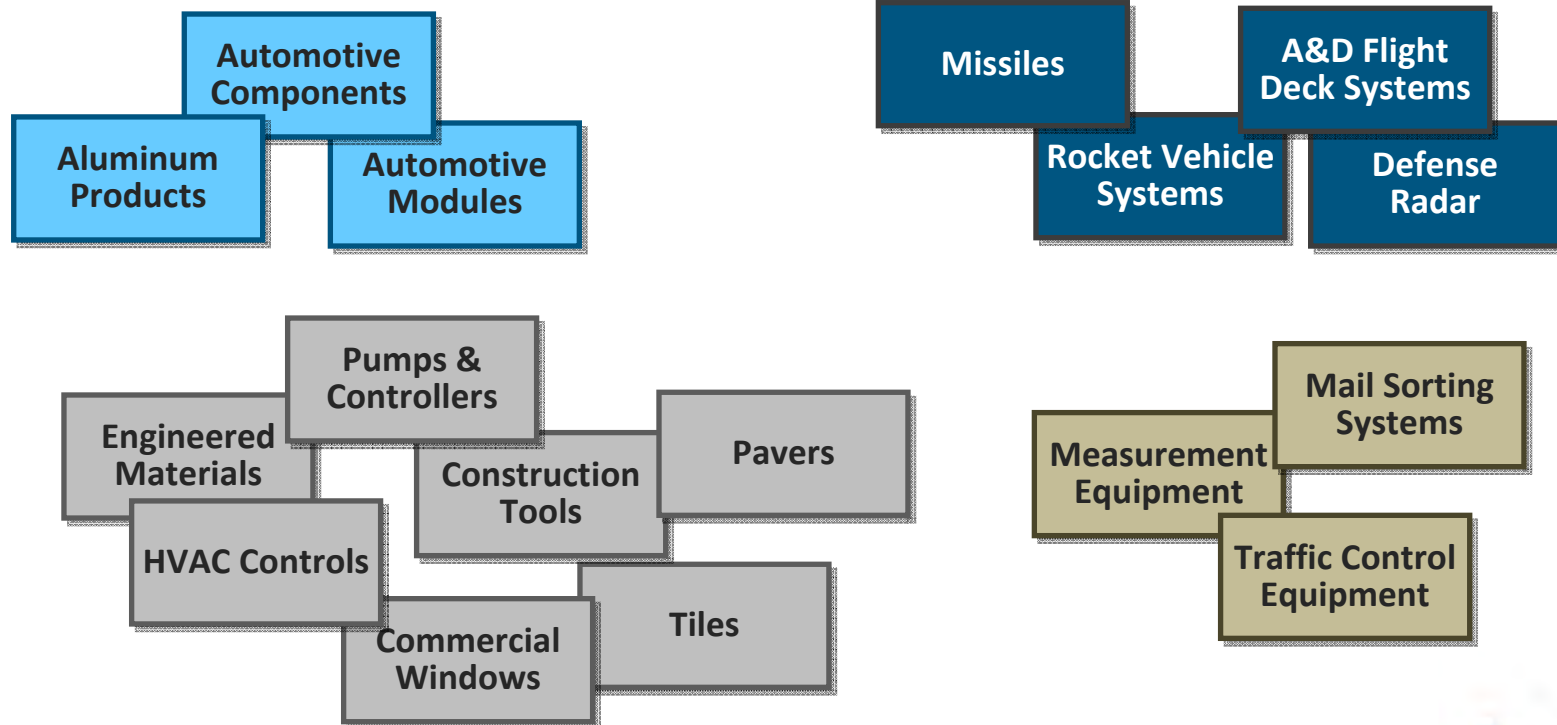
### 13 participants who provide equipment to the Oil & Gas Industry



*For context, we compared the performance of O&G Infrastructure companies to a subset of Industrials*

We looked for a subset of companies making complex, engineered equipment

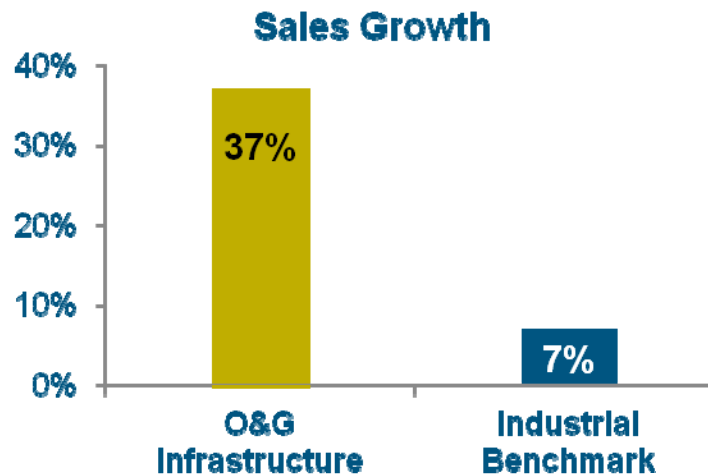
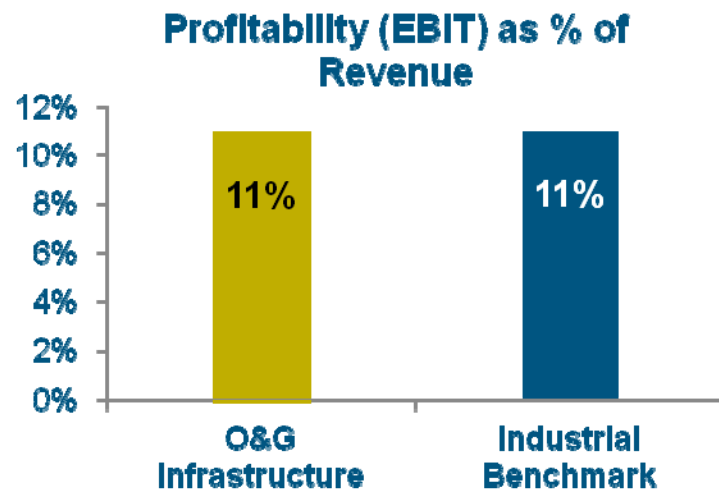
### 23 companies in a number of markets



# *It's a healthy market for Oil & Gas Infrastructure companies...*

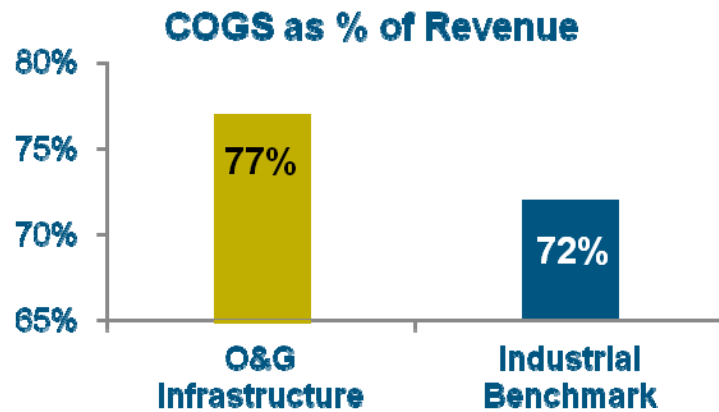
Infrastructure companies are just as **profitable** as the Industrial benchmark companies...

...but **growing** much faster!



*However, it's likely that improving supply chain and operations performance will lower COGS and increase profitability*

Infrastructure companies are spending more on Cost of Goods Sold



## *What are O&G Infrastructure priorities?*

- Industry-wide, companies have distilled their focus areas for supply chain on five key attributes
- The priority of these features, in performance relation to competition, establishes strategic priorities
- O&G have special emphasis on a few key areas

<b>Reliability</b>	On time? Complete? Undamaged?
<b>Responsiveness</b>	From Customer Request to final acceptance
<b>Flexibility</b>	How long to scale up? How expensive to scale down?
<b>Cost</b>	Cost of Processes? Cost of Goods Sold?
<b>Assets</b>	Working Capital? Return on Investments?

# *Your customers are emphasizing supply chain and operations performance as a requirement*

O&G Infrastructure customers prioritize quality, on-time delivery, and order fulfillment lead time as the most critical performance metrics

## **Ranking of metrics that O&G Infrastructure companies feel customers focus on:**

1. Quality

2. On-Time Delivery

3. Order Fulfillment Lead Time

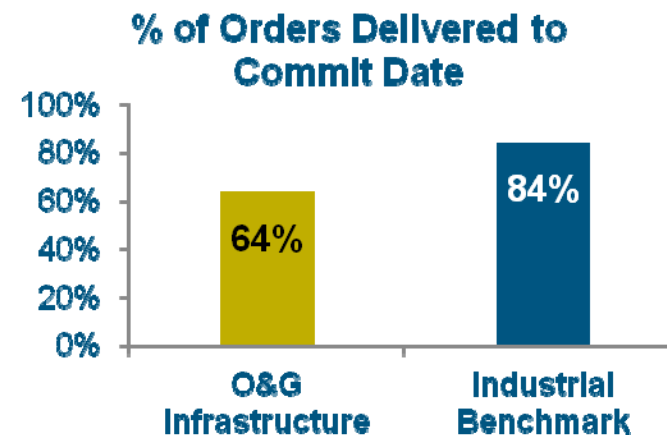
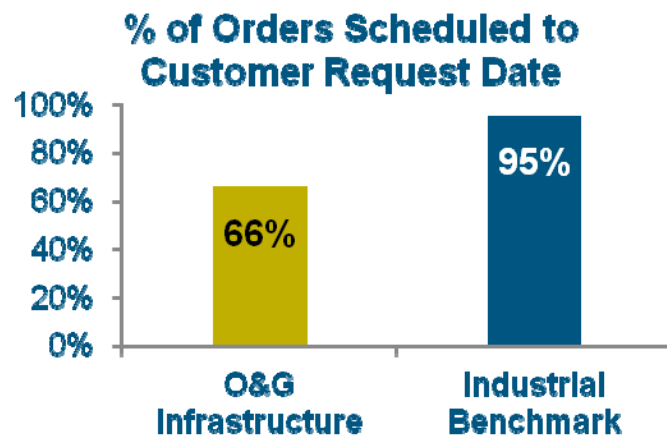
4. Capacity

5. Total Delivered Price



# *Delivery Performance should be a top improvement priority*

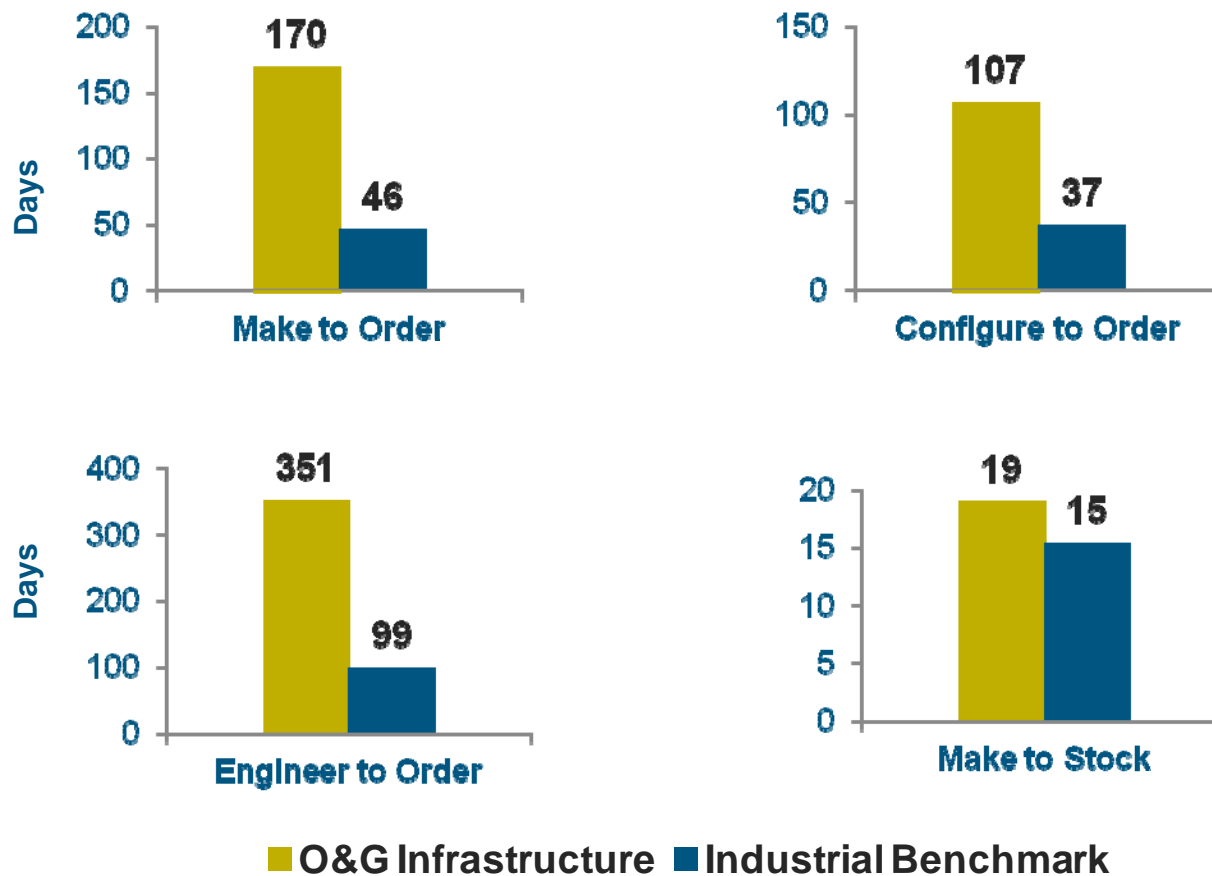
On-time delivery performance is a top customer priority





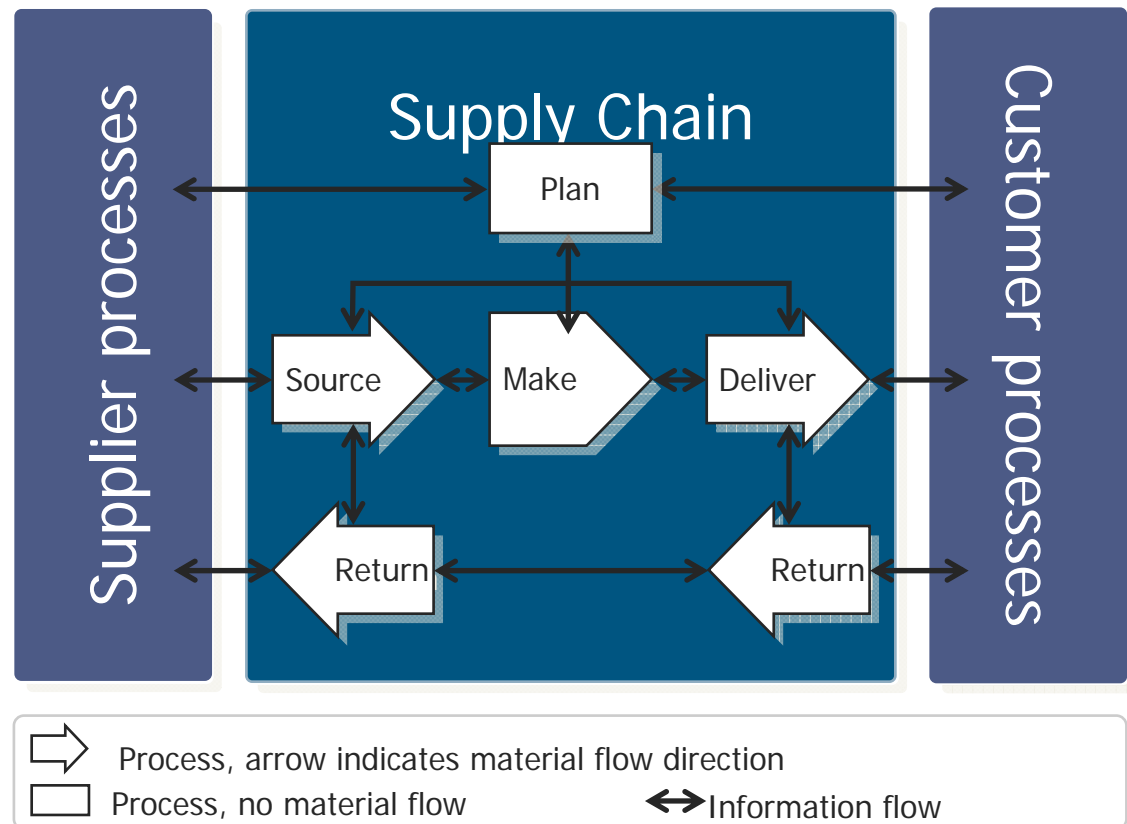
*Lead time reduction is also a priority, though it often requires rethinking operational structure and practices*

Faster Order Fulfillment Lead Time is considered a major advantage – an opportunity to differentiate and take market share



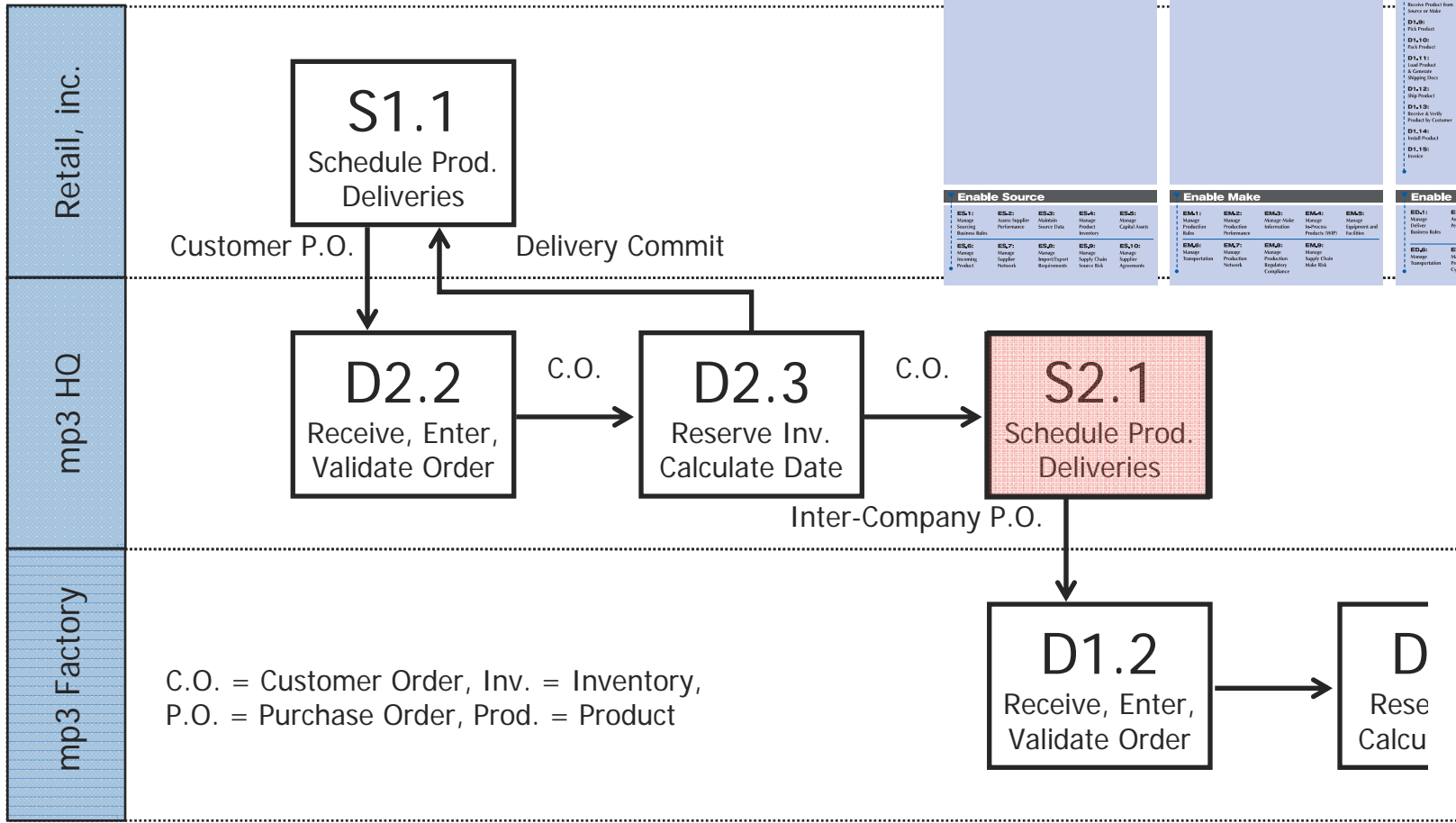
# How Do You Eat an Elephant? The SCOR® System

- SCOR is a supply chain process reference model containing over 200 process elements, 550 metrics, and 150 best practices including risk and environmental management
- Organized around the five primary management processes of Plan, Source, Make, Deliver and Return
- Developed by the industry for use as an industry open standard - Any interested organization can use as well as participate in its continual development



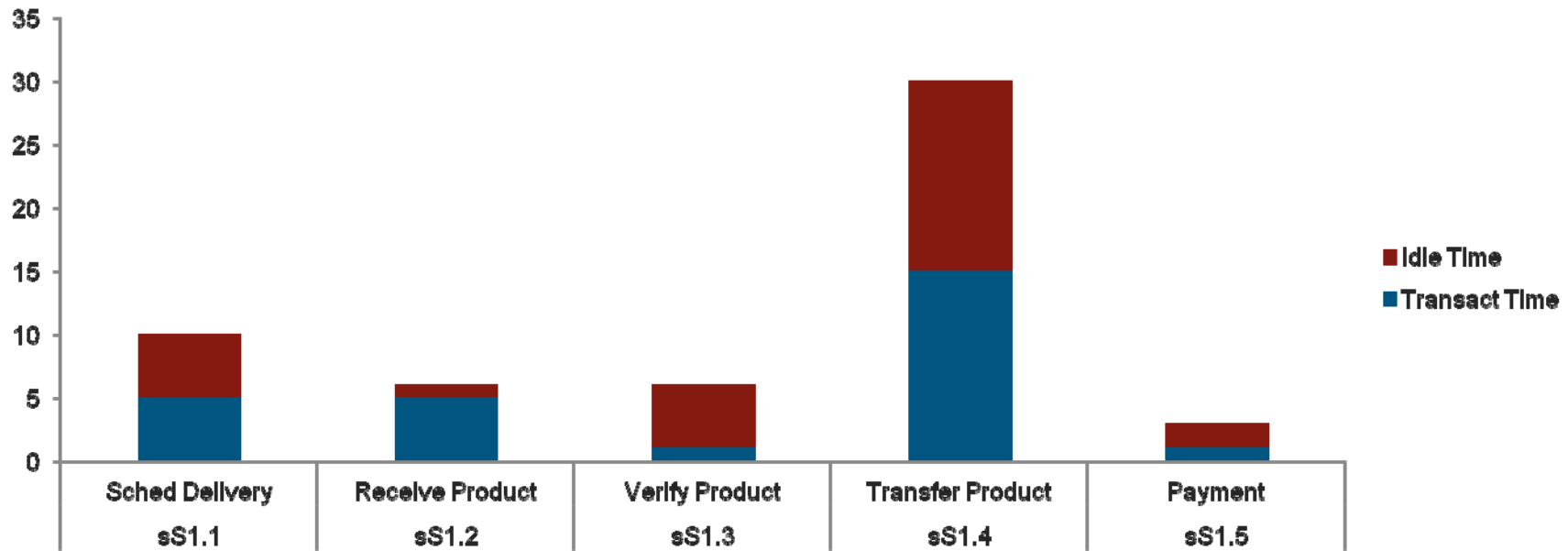
# Where are the Problems?

SOURCE			MAKE			DELIVER			
S1 Source Stocked Product	S2 Source Make-to-Order Product	S3 Source Engineer-to-Order Product	M1 Make-to-Stock	M2 Make-to-Order	M3 Engineer-to-Order	D1 Deliver Stocked Product	D2 Deliver Make-to-Order Product	D3 Deliver Engineer-to-Order Product	D4 Deliver Retail Product
S1.1: Schedule Product Deliveries S1.2: Receive Product S1.3: Verify Product S1.4: Transfer Product S1.5: Authorize Supplier Payment	S2.1: Schedule Product Deliveries S2.2: Receive Product S2.3: Verify Product S2.4: Transfer Product S2.5: Authorize Supplier Payment	S3.1: Identify Source of Supply S3.2: Select Final Supplier(s) and Negotiate S3.3: Schedule Product Deliveries S3.4: Receive Product S3.5: Verify Product S3.6: Transfer Product S3.7: Authorize Supplier Payment	M1.1: Schedule Production Activities M1.2: Issue Product M1.3: Produce and Test M1.4: Package M1.5: Stage Product M1.6: Release Product to Dealer M1.7: Waste Disposal	M2.1: Schedule Production Activities M2.2: Issue Product M2.3: Produce and Test M2.4: Package M2.5: Stage Product M2.6: Release Product to Dealer M2.7: Waste Disposal	M3.1: Product Engineering Activities M3.2: Schedule Production Activities M3.3: Issue Product M3.4: Produce and Test M3.5: Package M3.6: Stage Product M3.7: Release Product to Dealer M3.8: Waste Disposal	D1.1: Process Order & Quote D1.2: Receive, Enter & Validate Order D1.3: Review Inventory & Determine Delivery Date D1.4: Create/Update Order D1.5: Book Shipments D1.6: Select Carrier & Rate Agreement D1.7: Release Product from Source or Make D1.8: Receive Product from Source or Make D1.9: Pick Product D1.10: Pack Product D1.11: Load Product & Generate Shipping Docs D1.12: Ship Product D1.13: Verify Product D1.14: Receive & Verify Product for Customer D1.15: Invoice	D2.1: Create Shipping & Quote D2.2: Receive, Confirm, Issue Available Order D2.3: Review Inventory & Determine Delivery Date D2.4: Create/Update Order D2.5: Book Shipments D2.6: Select Carrier & Rate Agreement D2.7: Release Product from Source or Make D2.8: Receive Product from Source or Make D2.9: Pick Product D2.10: Pack Product D2.11: Load Product & Generate Shipping Docs D2.12: Ship Product D2.13: Verify Product D2.14: Receive & Verify Product for Customer D2.15: Invoice	D3.1: Create & Respond to RFQ/RFI D3.2: Negotiate & Receive Contract D3.3: Enter Order, Confirm Resources & Launch Program D3.4: Create/Update Order D3.5: Book Shipments D3.6: Select Carrier & Rate Agreement D3.7: Release Product from Source or Make D3.8: Receive Product from Source or Make D3.9: Pick Product D3.10: Pack Product D3.11: Load Product & Generate Shipping Docs D3.12: Ship Product D3.13: Verify Product D3.14: Receive & Verify Product for Customer D3.15: Invoice	D4.1: Generate Booking Schedule D4.2: Receive Product at the Store D4.3: Pick Product from Backroom D4.4: Verify Item D4.5: Complete Installation D4.6: Check-out D4.7: Deliver and/or Install
ES1.1: Manage Supplier Performance ES1.2: Manage Supplier Product Requirements ES1.3: Manage Supplier Requirements	ES2.1: Manage Supplier Performance ES2.2: Manage Supplier Product Requirements ES2.3: Manage Supplier Requirements	ES3.1: Manage Supplier Performance ES3.2: Manage Supplier Product Requirements ES3.3: Manage Supplier Requirements ES3.4: Manage Supplier Chain Source Risk ES3.5: Manage Supplier Agreements	EM1.1: Manage Production Information EM1.2: Manage Production Information EM1.3: Manage Production Information EM1.4: Manage Production Information EM1.5: Manage Production Information EM1.6: Manage Production Information EM1.7: Manage Production Information EM1.8: Manage Production Information	EM2.1: Manage Production Information EM2.2: Manage Production Information EM2.3: Manage Production Information EM2.4: Manage Production Information EM2.5: Manage Production Information EM2.6: Manage Production Information EM2.7: Manage Production Information EM2.8: Manage Production Information	EM3.1: Manage Production Information EM3.2: Manage Production Information EM3.3: Manage Production Information EM3.4: Manage Production Information EM3.5: Manage Production Information EM3.6: Manage Production Information EM3.7: Manage Production Information EM3.8: Manage Production Information	ED1.1: Manage Delivery Performance ED1.2: Manage Delivery Performance ED1.3: Manage Delivery Performance ED1.4: Manage Delivery Performance ED1.5: Manage Delivery Performance ED1.6: Manage Delivery Performance ED1.7: Manage Delivery Performance ED1.8: Manage Delivery Performance	ED2.1: Manage Delivery Performance ED2.2: Manage Delivery Performance ED2.3: Manage Delivery Performance ED2.4: Manage Delivery Performance ED2.5: Manage Delivery Performance ED2.6: Manage Delivery Performance ED2.7: Manage Delivery Performance ED2.8: Manage Delivery Performance	ED3.1: Manage Delivery Performance ED3.2: Manage Delivery Performance ED3.3: Manage Delivery Performance ED3.4: Manage Delivery Performance ED3.5: Manage Delivery Performance ED3.6: Manage Delivery Performance ED3.7: Manage Delivery Performance ED3.8: Manage Delivery Performance	ED4.1: Manage Delivery Performance ED4.2: Manage Delivery Performance ED4.3: Manage Delivery Performance ED4.4: Manage Delivery Performance ED4.5: Manage Delivery Performance ED4.6: Manage Delivery Performance ED4.7: Manage Delivery Performance ED4.8: Manage Delivery Performance



# Lean, Six-Sigma, Constraints

## All Techniques combined



		Transact Time	Idle Time	Transact per Hour	FTE	Rework/Day	PCE	Yield	Waste
sS1.1	Sched Delivery	5	5	3	0.5	5	50.00%	79.17%	20.83%
sS1.2	Receive Product	5	1	5	0.5	3	83.33%	92.50%	7.50%
sS1.3	Verify Product	1	5	5	0.5	1	16.67%	97.50%	2.50%
sS1.4	Transfer Product	15	15	2	1	1	50.00%	93.75%	6.25%
sS1.5	Payment	1	2	5	0.25	1	33.33%	97.50%	2.50%

# *Forecasting is one of the biggest challenges among the O&G Infrastructure companies*

Demand visibility is poor, which leads to below average forecast accuracy



**There is value in better forecasting...**  
**Within the Industrial population, the top 50% in forecast accuracy saw a 62% improvement in on-time delivery performance\***

## *Summary...*

- O&G Infrastructure companies are poised to capitalize on rapid growth and strong profitability
- Customers are demanding better reliability and responsiveness from your supply chains
- Rather than scaling up the old ways... there's an opportunity to leverage best practices from other industries – forecasting and sales & operations planning are likely first steps

## *About Supply Chain Council*

- SCC is an independent, **not-for-profit, trade** association
- **Membership** open to all **companies** and **organizations**
- Founded in 1996
- **Regional** representation (chapters) **worldwide**: North America, Europe, Japan, Southern Africa, Latin America, Australia/New Zealand, Southeast Asia, Greater China, and Middle East
- **Focus on research, application and advancement and advancing state-of-the-art** supply chain management systems and practices
- **Developer** and **endorser** of the Supply Chain Operations Reference (SCOR®) as a cross-industry standard for supply chain management
- Offers **Training, Certification**, Benchmarking, Research, Team Development, Coaching, and Cross-standard Integration focused on the SCOR® framework
- Approaching 1000 Association Members within global chapters

