

Perspectives of Supply Chain Integration

SCiP Networking Event
21st March 2017



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-
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Perspectives of Supply Chain Integration

- ▶ Evolution and strategic importance of SCI
Graham Stevens
- ▶ SCI in construction
Jan Godsell, WMG
- ▶ The role of analytics in SCI
Andy Birtwistle, Concentra



Graham Stevens

Evolution and Strategic Importance of SCI

Supply Chain Integration.....*what is it?*

Integration.....combination of two or more things so that they work together effectively.

Supply Chain Integration.....*what is it?*

- *SCI delivers performance is through synthesis.....the combination of elements together to form something new, something that has different and superior performance characteristics.*
- *SCI at its simplest is.....“ the combining of two or more diverse elements so that they work as a “single” entity and as a result work more effectively.*

1989....joined up thinking, seamless flow, embracing suppliers and customers, strategic, tactical and operational.

Contextual change

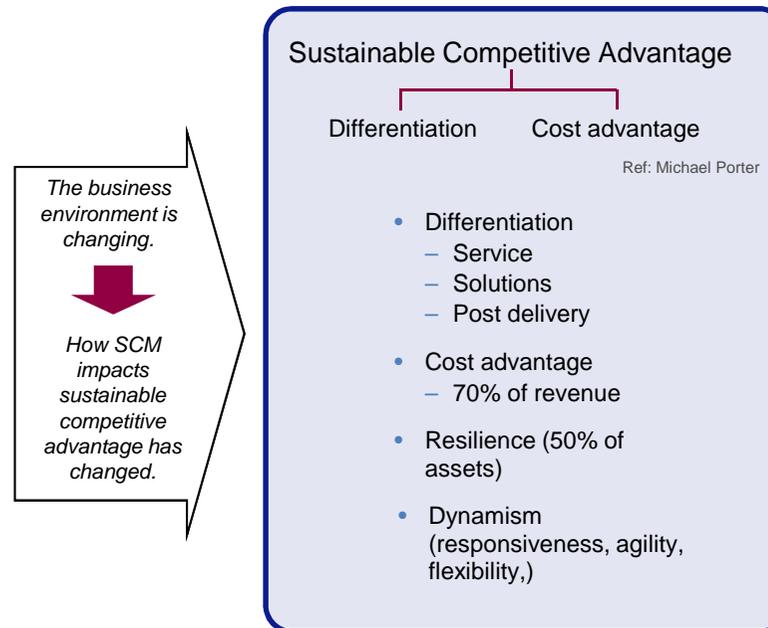


2015.... the alignment, linkage, co-ordination and combination of people, processes, information, knowledge, and strategies across the Supply Chain between all points of contact and influence to facilitate the efficient and effective flows of material, money, information, and knowledge in response to customer needs.

Integrating the supply chain refers as much to the need for strategic and operational integration within and across the business. The scope of SCI therefore includes governance, organization structure, systems, relationship management, business strategy, process design, and performance management. Whilst it may be enabled by systems and technology it is not just about technology.

An Integrated SC Needs to Support The Business Agenda

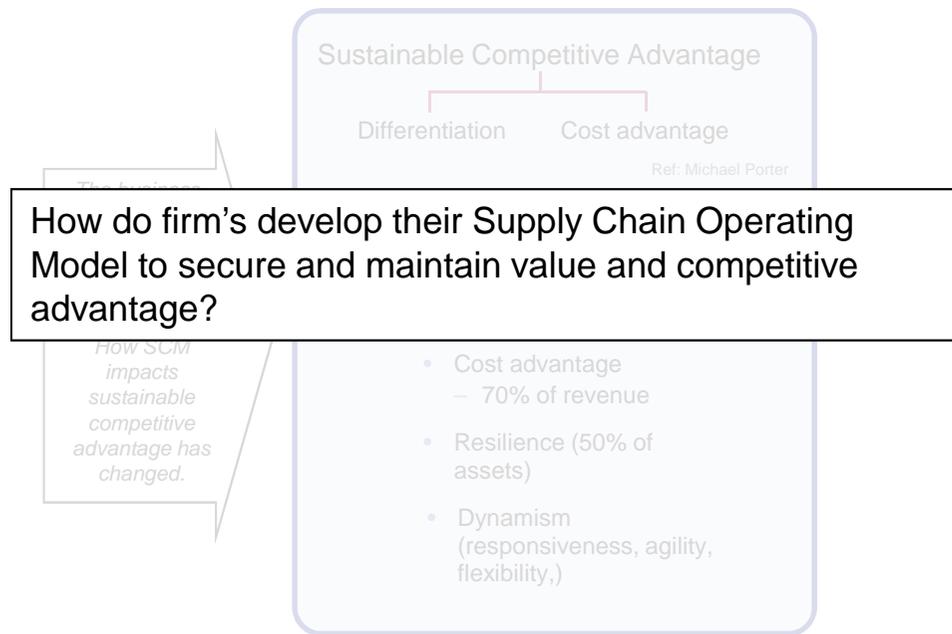
.....by addressing the Strategic Imperatives



The strategic role of the Integrated Supply Chain in addressing the business imperatives (differentiation, cost advantage, resilience and dynamism) is becoming more recognised. SCM has moved out of the warehouse and into the boardroom.

An Integrated SC Needs to Support The Business Agenda

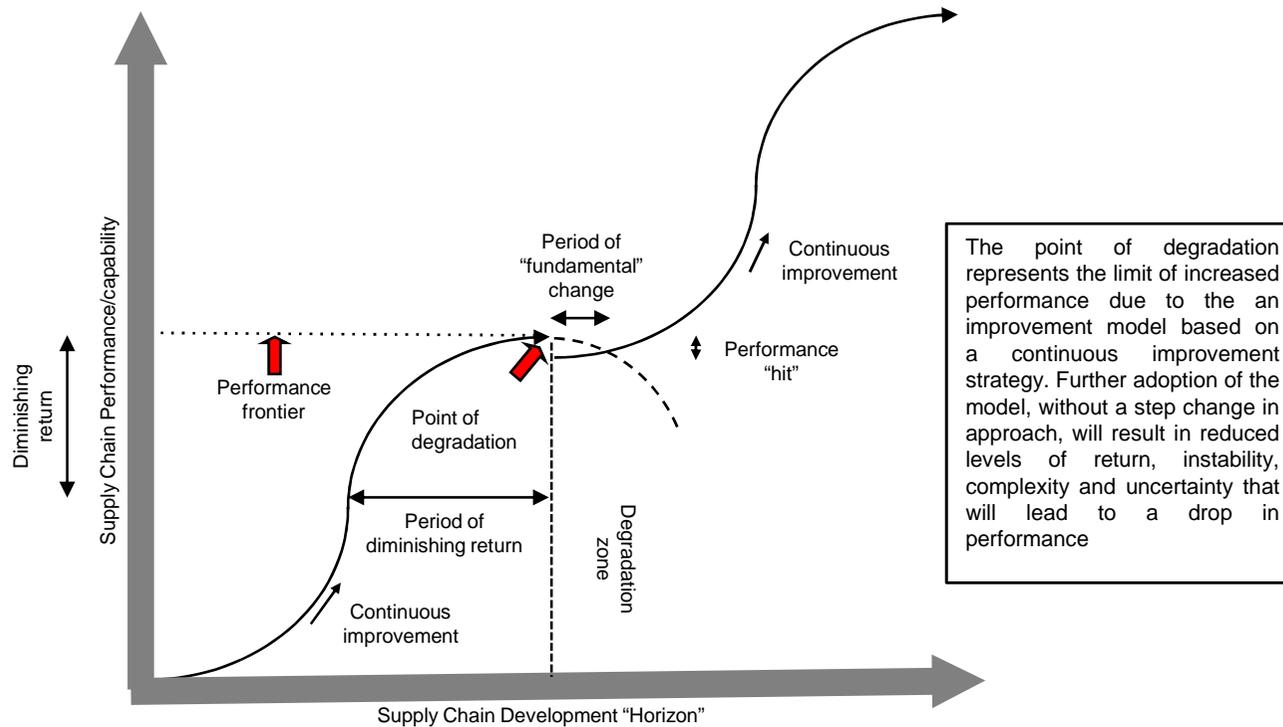
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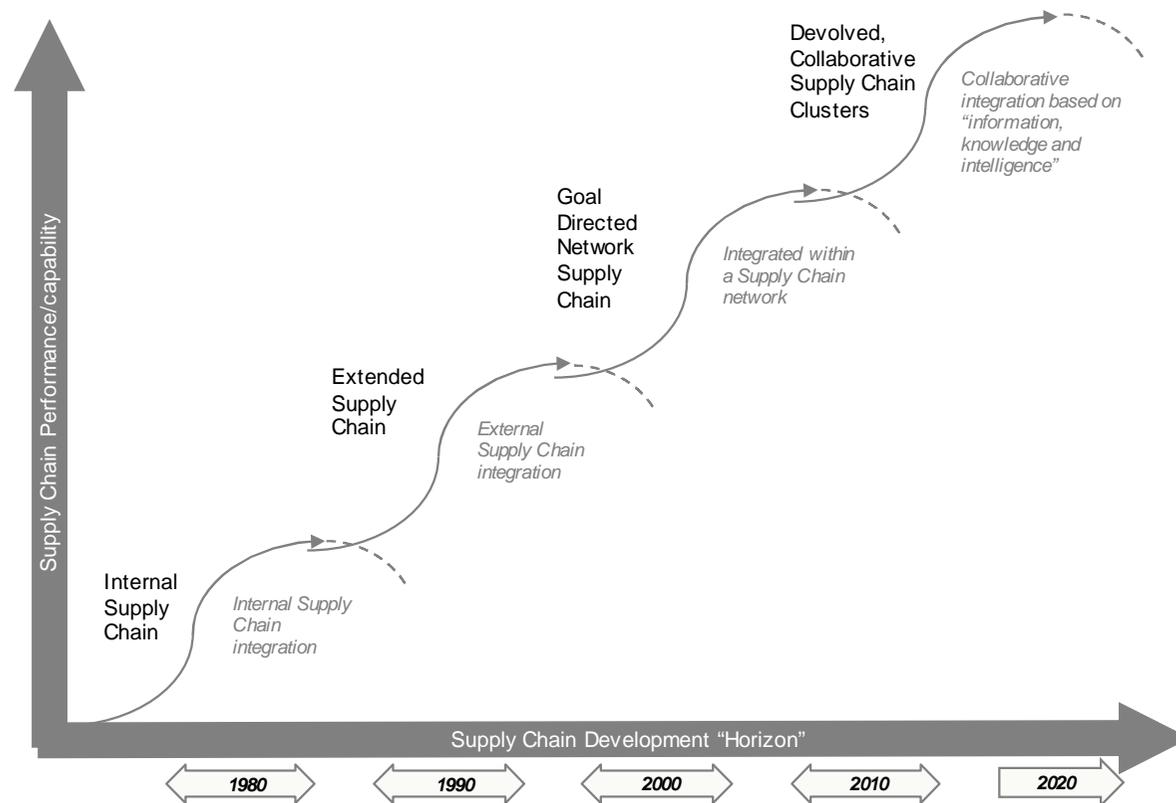
The strategic role of the Integrated Supply Chain in addressing the business imperatives (differentiation, cost advantage, resilience and dynamism) is becoming more recognised. SCM has moved out of the warehouse and into the boardroom.

Performance Frontiers within Supply Chain Development

.....Punctuated Supply Chain Equilibrium



Phases in Supply Chain Management development



Have Supply Chains Delivered to Their Promise?

SC2020.....MIT research project to identify and analyse factors that are critical to the success of future supply chains (based on 25 studies from both industry and academia) to identify clear links between SCM practices and operational and financial performance:

- SCM practices are linked to firm performance,
- Of the five supply chain practice areas examined (supply chain integration, complexity management, aligning strategy and supply chain, IT with process improvement, and operational innovation) supply chain integration and complexity management show the most evident link to firm performance,
- The strongest link is between Supply Chain Integration and financial and operational metrics,
- SC IT failed to live up to expectations.

What Does The Future Hold?

- Challenges presented by a global economy, political uncertainty, accelerating rates of change and the emergence of new and innovative competitors will undoubtedly persist,
- The pressure on the SC to deliver will increase,
- The need for resilience and dynamism will increase,
- The focus for the SC will continue to shift away from cost reduction to the overall business impact and shareholder value,
- The challenge for SCM is likely to be:
 - Manage increasing complexity and uncertainty,
 - Find a way aligning thinking and practice to to accelerate the effective, take up of innovative ideas and practices.
- The likely response will be a move to simplicity and localisation within an empowered network?

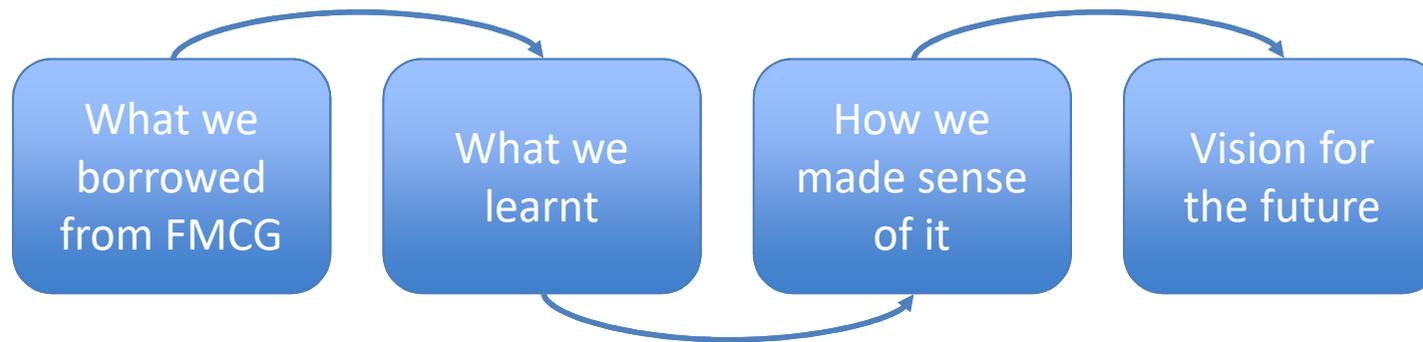
Supply Chain Integration in Construction

Jan Godsell

Professor of Operations and Supply Chain Strategy



The journey...





What we borrowed from FMCG



Went back to basics...



5 Lean Principles

1. Understand customer value
2. Develop value streams
3. Make it flow
4. At the pull of the customer
5. In pursuit of perfection





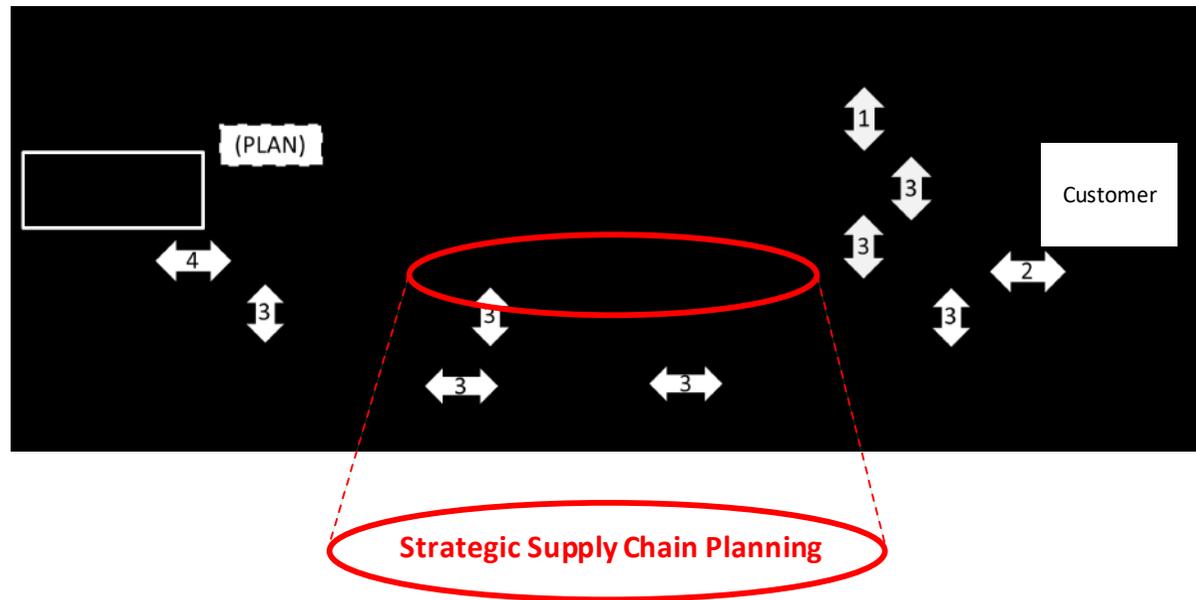
What we learnt

2 key design principles for consideration

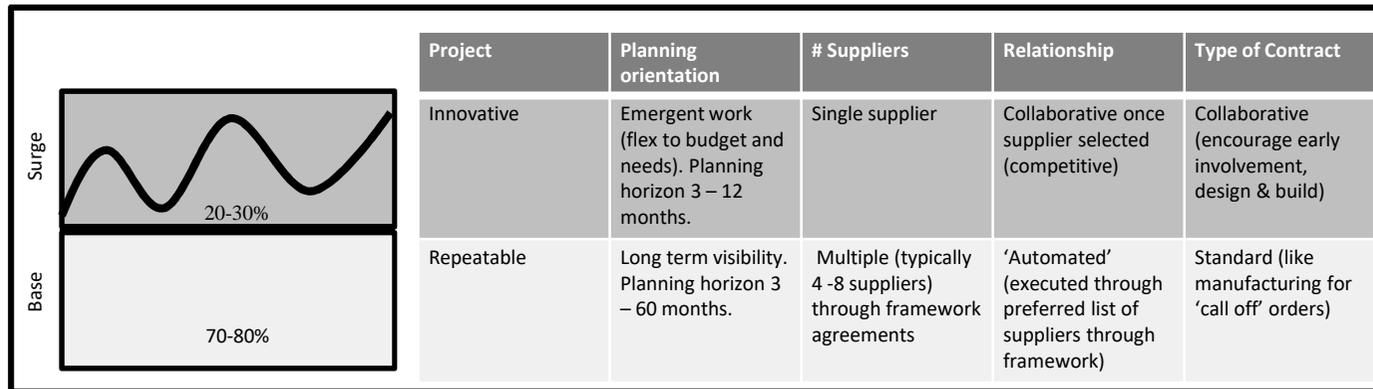
1. Value chain or 'end to end' value chain orientation
 - ▶ Starts with the customer
 - ▶ Minimum 3 echelons
2. 'Innovation through repeatability'
 - ▶ Demand profiling (base: surge)
 - ▶ Differentiated supply chain practices to support different demand profiles



Principle 1: End-to-end value chain perspective



Principle 2: Delivering innovation through repeatability



84% projects were predictable,
56% repeatable (49% wholly)...

Major Projects Projects	Non Repeatable	Partially Repeatable	Repeatable
Not Predictable	0 5(5%)	0 0(0%)	0 2(2%)
Predictable	3(3%) 39(35%)	3(3%) 9(8%)	4(4%) 45(41%)

Notes

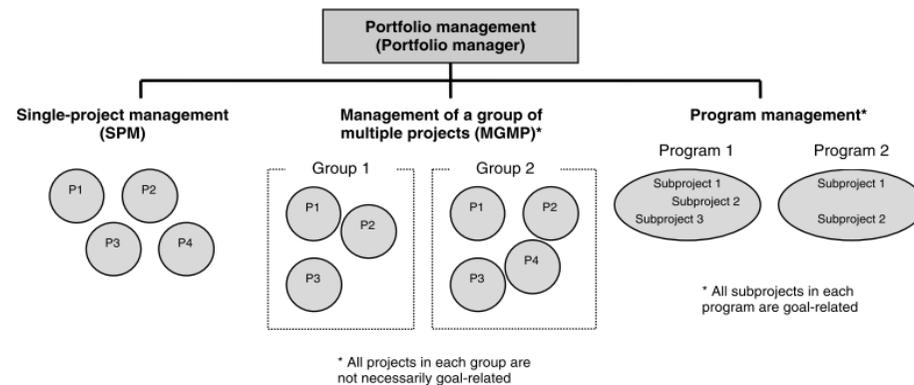
1. Major Project > £10,000,000 (lumpy demand) and Projects < £10,000,000 (non-lumpy demand)
2. Number of projects (total = 110) reported and percentage in parenthesis





How we made sense of it

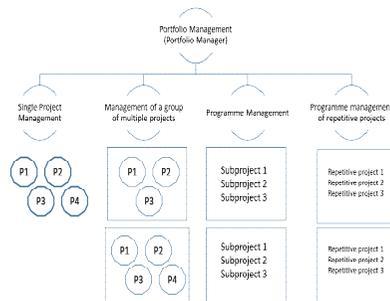
It needs to start at the portfolio management level...



(Patanakul and Milosevic, 2009)

P1: Strategic planning (i.e. the ability to recognize the different demand profiles of individual projects, and groups thereof) is a portfolio management capability.

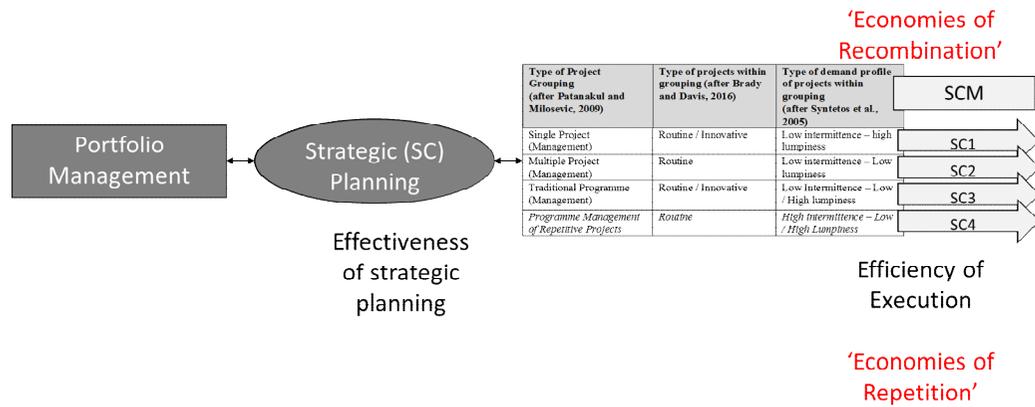
Identified new type of programme management



Type of Project Grouping (after Patanakul and Milosevic, 2009)	Type of projects within grouping (after Brady and Davis, 2016)	Type of demand profile of projects within grouping (after Syntetos et al., 2005)	Percentage of 110 projects in JV (not excluded 11% partially repeatable projects)
Single Project (Management)	Routine / Innovative	Low intermittence – high lumpiness	3%
Multiple Project (Management)	Routine	Low intermittence – Low lumpiness	35%
Traditional Programme (Management)	Routine / Innovative	Low Intermittence – Low / High lumpiness	NA – study was of a portfolio of projects
Programme Management of Repetitive Projects	Routine	High intermittence – Low / High Lumpiness	4% + 41% = 45%

P2: Projects that contribute to the strategic upgrade of a particular aspect of infrastructure, should be considered as a programme of inter-related repeatable projects, that will benefit in delivery from ‘economies of repetition’.

Improving effectiveness and efficiency



P3: The greater the effectiveness of the strategic planning portfolio management capability to identify different demand profiles of individual and groups of projects, the greater the efficiency of delivery.

P4: Economies of repetition developed through effective delivery of programmes of repeatable projects, can foster greater effectiveness in the delivery of innovative projects through economies of recombination.



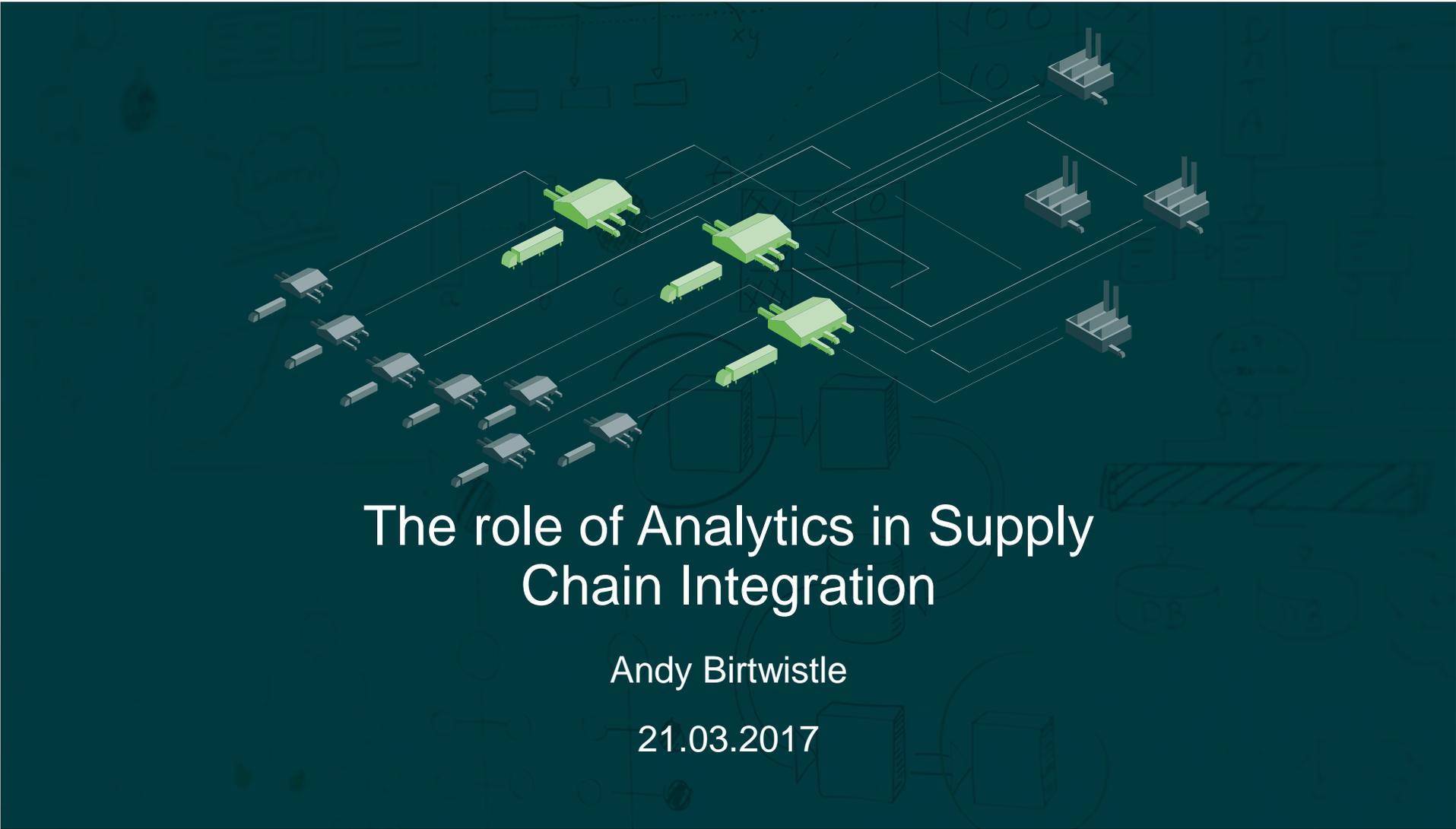
Vision for the future



5 key lessons

1. Broader applicability - Managing portfolio of infrastructure projects, not just construction
2. Starts with the ability to recognize different types of project profiles at the portfolio management level
3. Effectiveness in portfolio management will lead to effectiveness in delivery
4. End customers (e.g. HE, Utility Companies, Regulators) need to engage with their supply chain in a way that will enable the management of a programme of repetitive projects
5. Innovation through repeatability, only a small percentage of projects require 'innovation'



An abstract 3D graphic on a dark teal background. It features several interconnected components: a row of grey rectangular components on the left, a central cluster of green rectangular components, and a group of grey rectangular components on the right. White lines connect these components, suggesting a network or data flow. In the background, there are faint, light-colored sketches of a flowchart, a cylinder, and other geometric shapes.

The role of Analytics in Supply Chain Integration

Andy Birtwistle

21.03.2017

Concentra Analytics

About us

- Established in 2008, we are a data analytics business that transforms how organisations manage and use data to gain competitive advantage.
- We develop intelligent and intuitive solutions that reduce time to value and hone operations, everyday.
- Our client solutions and products have been recognised more than ten times for innovation and excellence in the last 7 years.
- Existing clients include Blue Chip brands across Consumer, Retail, Finance and Life sciences sectors
- We are organised around three areas:



CONCENTRA

SupplyVue

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What is Supply Chain Management?



Supply Chain Management (SCM)*
is the management of the flow of
goods and services

**Wikipedia*



Supply Chain management is
about driving improvement...

What is supply chain Integration?

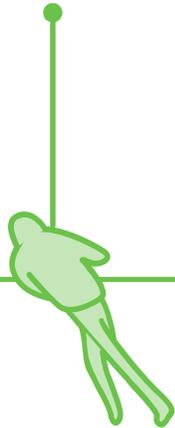
- Collaboration
- Alignment
- Synchronisation
- Integration

But improving what?

Reduce Costs

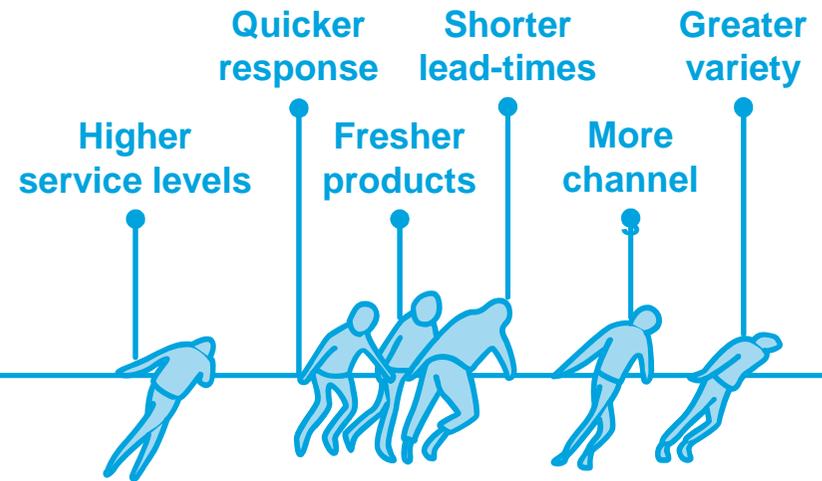


Lower inventory



<Simultaneously>

Increase Sales



But still, the number one measure is cost reduction

The cost reduction drive of the last two decades has caused supply chains to stretch around the world in the search for lower cost sources of supply

Key challenges:

- Poor information visibility.
- Multitude of organisations and systems
- Poor integration, alignment and synchronisation
- Data structures don't support process improvements
- Long lead-times, poor reliability, higher risk



Information visibility is now a key challenge, as are delivery reliability, product quality and responsiveness.



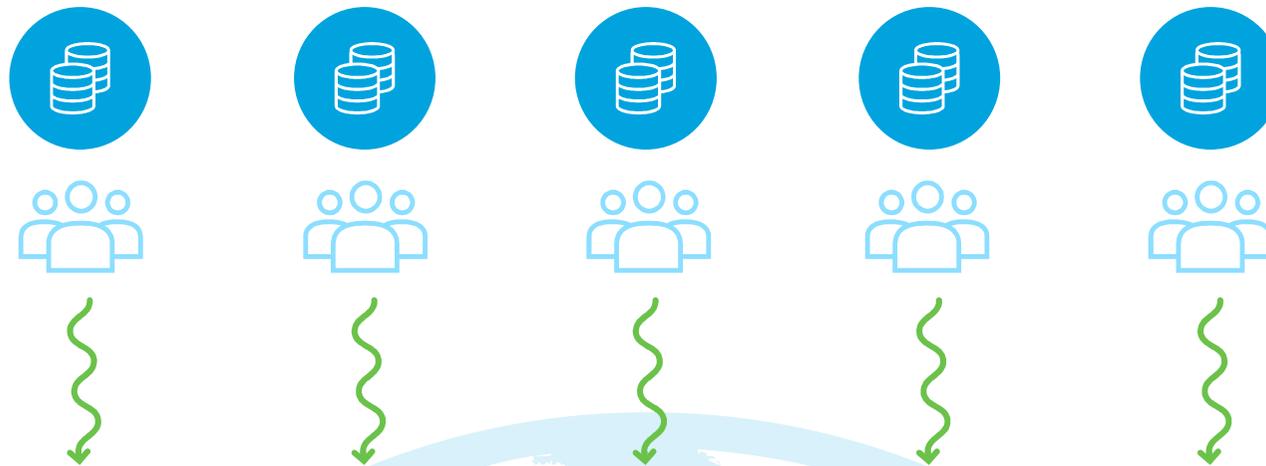
Organisations have also centralised during this period.

- Creating above factory planning centres
- Logistics control towers
- Global centres of excellence



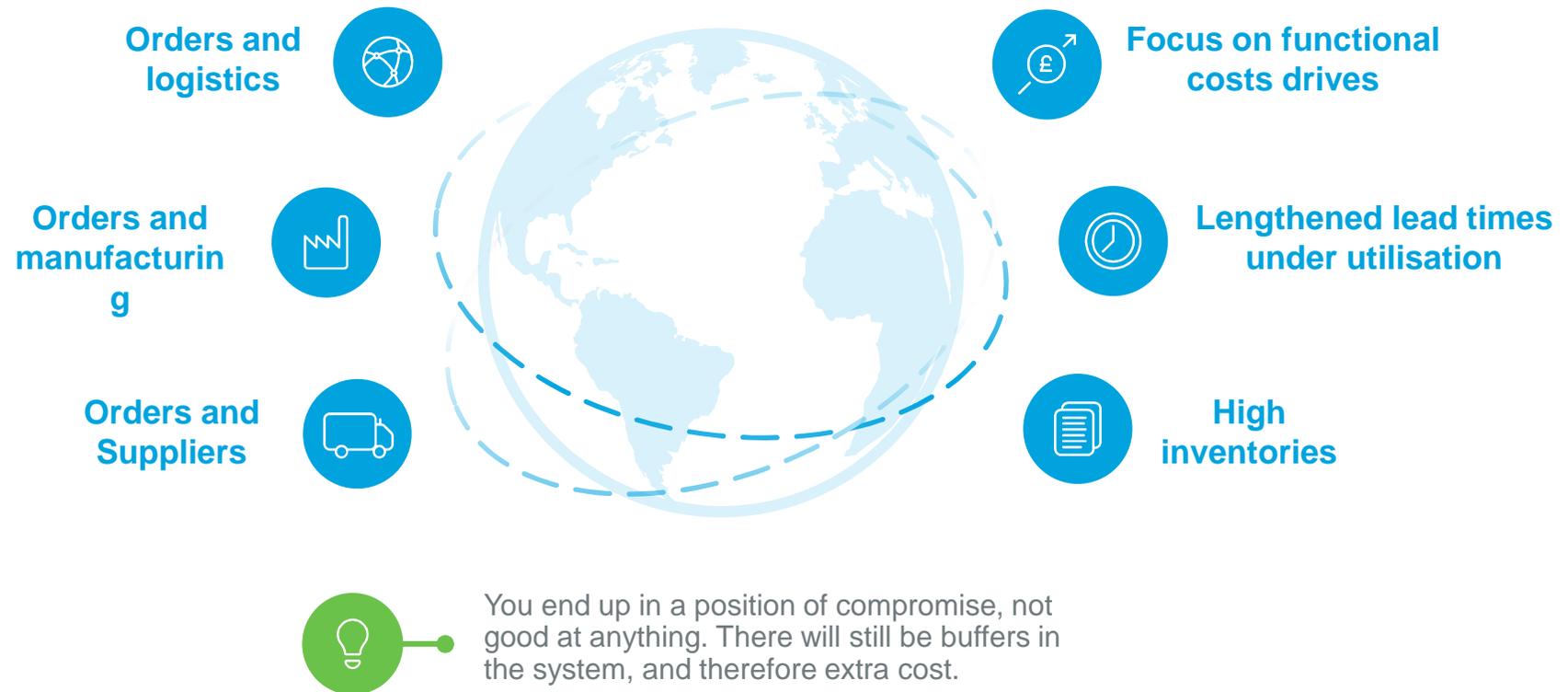
High spend on technology to support the above market structures

Therefore, surprisingly, businesses are still stuck in a functional world, failing to achieve true Supply Chain Integration

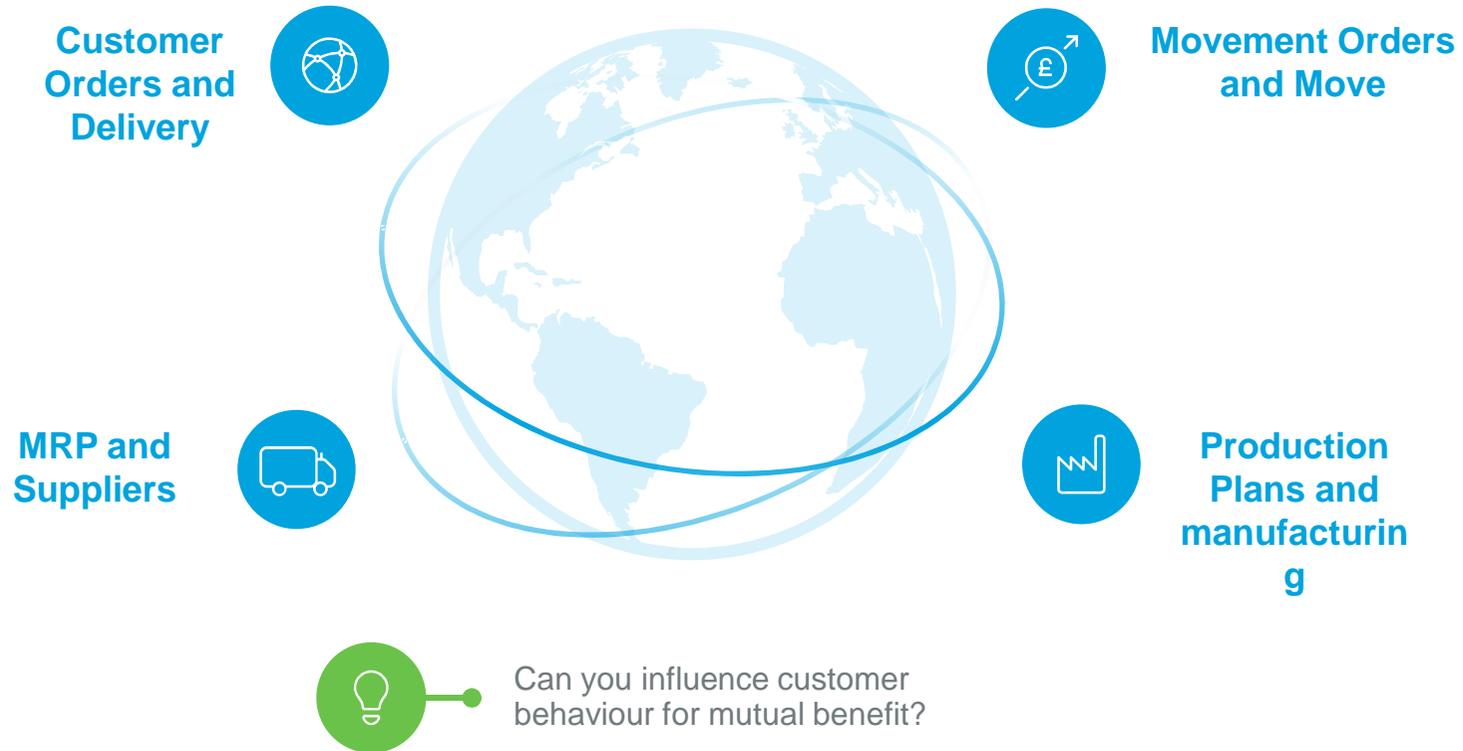


The focus has been on functional cost reduction and traditional Supply Chain technology has tended to solve the functional problem.

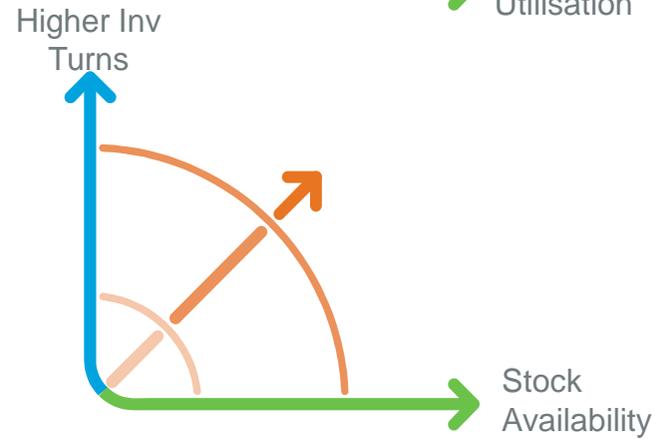
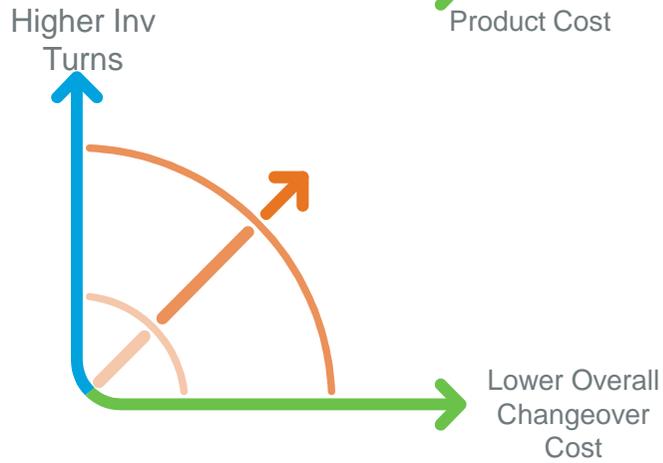
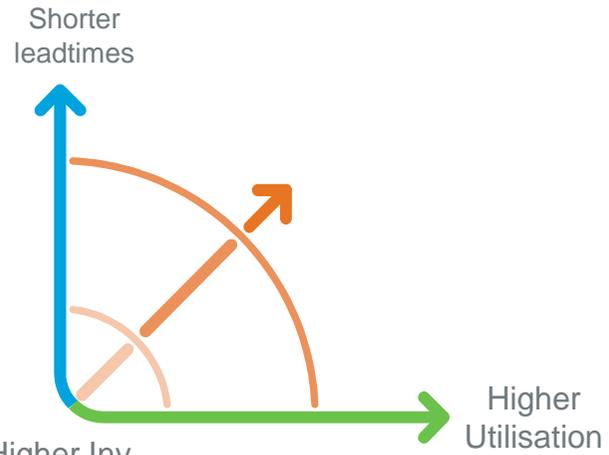
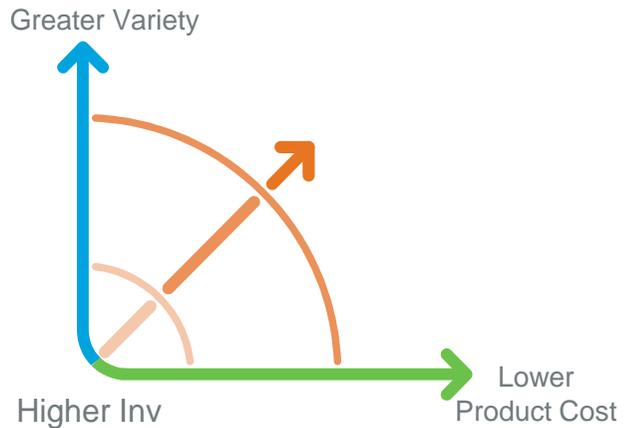
Functional world – Given the demand, how can we ‘Optimise’ Supply-side



Demand controlled world – Shape demand for mutual benefit



Demand controlled world



Customer Order Profile

SupplyVue^o

[Reveal](#)
[Diagnose](#)
[Model](#)
[Track](#)
Demo User1

Inventory Module > Reveal > **Customer segmentation**

- Business planning
- Forward forecast
- Target-actual-forecast
- Stock projection
- RCCP - work centre
- Customer segmentation
- Performance overview

Customer segmentation

Variation of Order Frequency
Variation of Order Amount

100%
100%

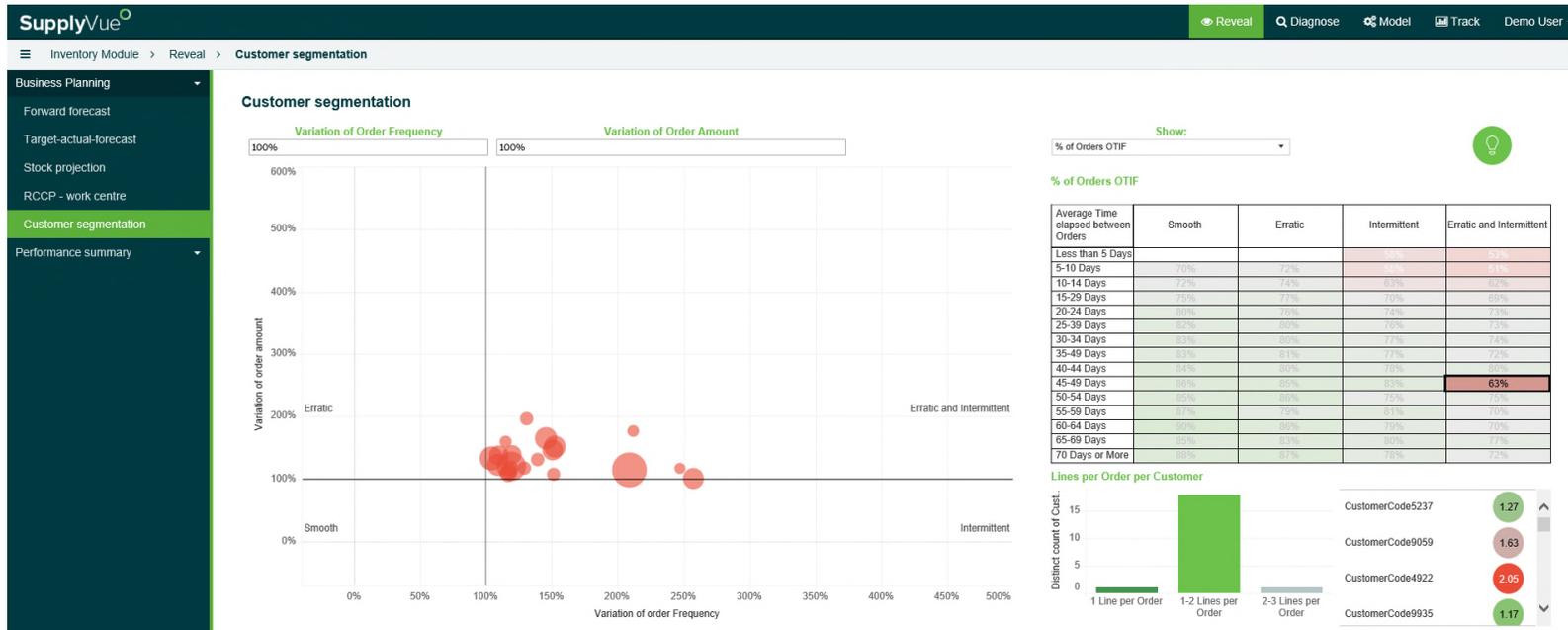
Delivered Quantity

Average Time elapsed between Orders	Smooth	Erratic	Intermittent	Erratic and Intermittent
Less than 5 Days	2,774	6,808	129,573	787,091
5-10 Days	25,055	18,865	48,778	90,970
10-14 Days	17,986	9,276	24,600	28,835
15-19 Days	14,531	3,879	14,839	9,940
20-24 Days	8,719	1,926	8,381	4,233
25-29 Days	5,200	1,517	5,480	2,437
30-34 Days	3,752	482	3,892	1,747
35-39 Days	3,090	217	2,872	717
40-44 Days	2,487	585	1,560	432
45-49 Days	1,450	435	1,289	1,273
50-54 Days	1,374	229	761	562
55-59 Days	1,196	171	774	188
60-64 Days	910	270	748	677
65-69 Days	5,998	919	5,426	1,111
70 Days or More				

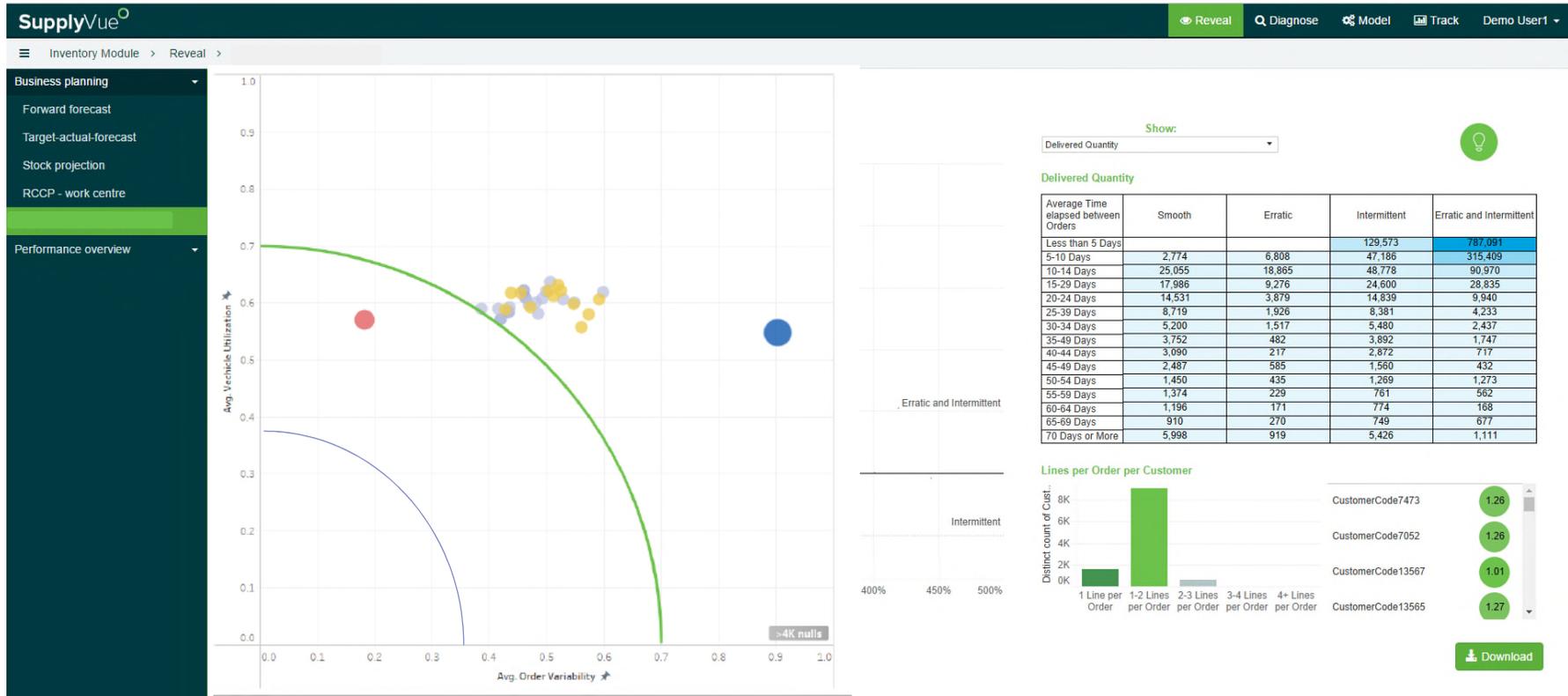
Lines per Order per Customer

Download

Customer Order Profile

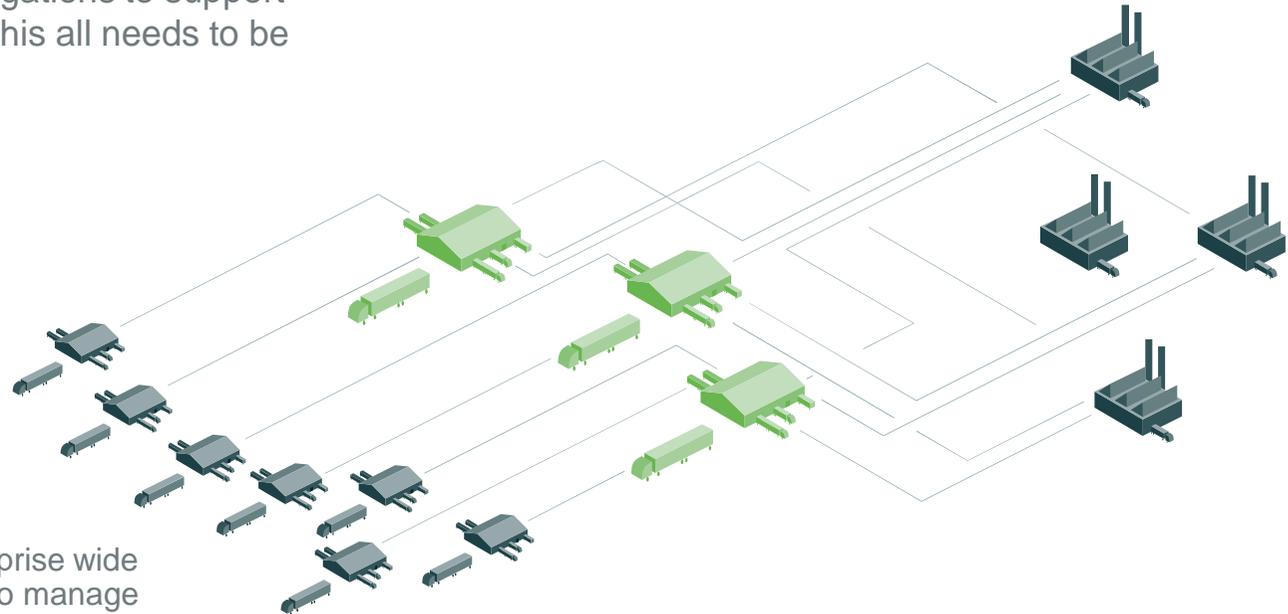


Vehicle Utilisation versus Customer Order Size Variability



There are a huge number of connections

- You also need the aggregations to support management meeting. This all needs to be based on the same data



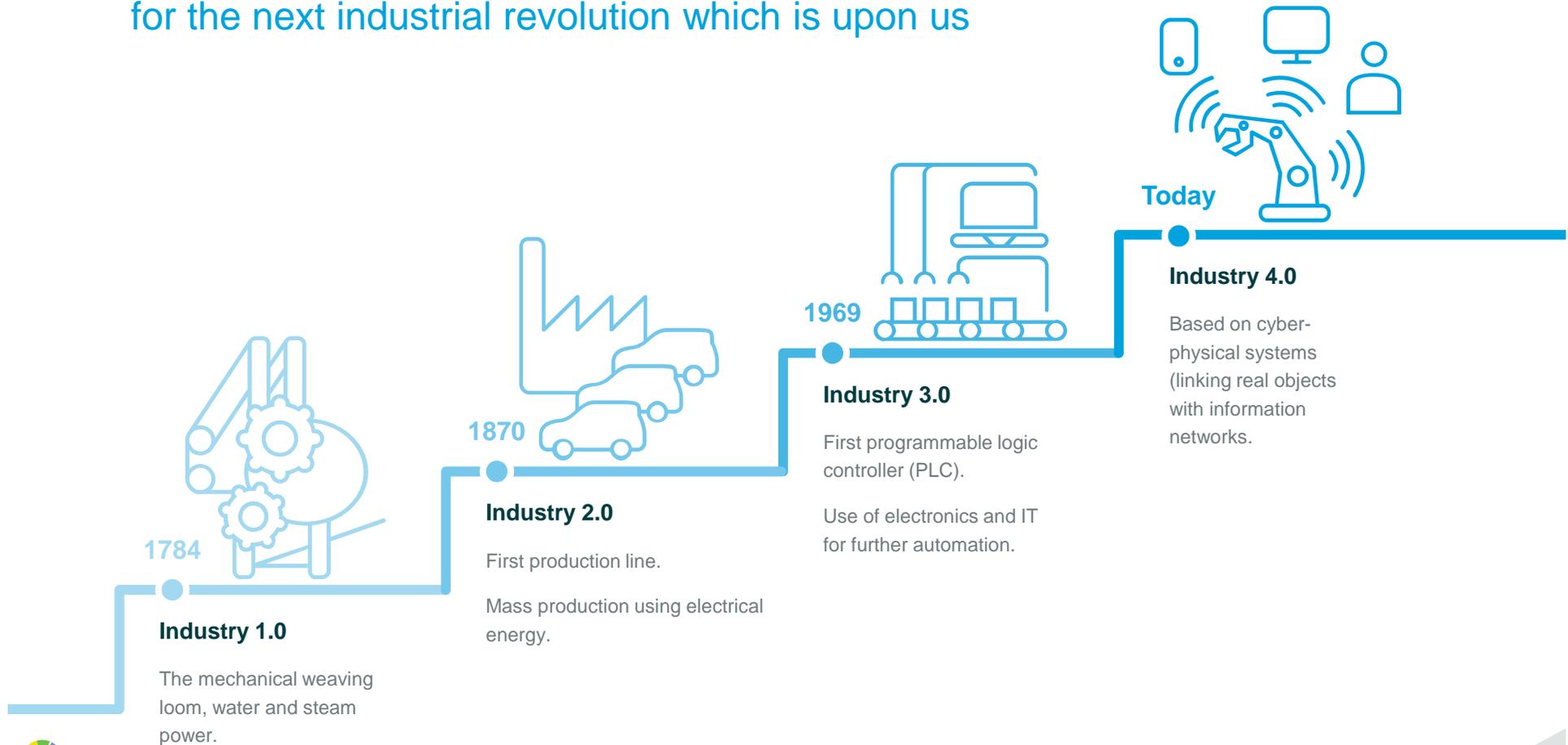
You need an enterprise wide analytics solution to manage this

Analytics can provide the platform for Supply Chain Integration

Delivering:

- The holistic visibility of performance
- Analysis and diagnostic capability to identify the root cause of issues or problems
- Analytics to calculate the 'Demand Shaping' parameters to ensure the customer's demand signal suits the supplier's operation
- Two dimensional tracking and monitoring to ensure real improvement is achieved and not just trading-off
- Supply Chain synchronisation through the use of the same rate of sale

Enterprise-wide analytics will also prepare the business for the next industrial revolution which is upon us





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Save the date

- ▶ 20th June 2017
- ▶ SCIP networking event: Harnessing the Potential of Industry 4.0: How ready are you?

Industry 4.0

- ▶ Complete our online assessment tool at www.warwick.ac.uk/wmgresearch/scip/networking/industry4survey
- ▶ You'll also receive personal feedback on your results from a member of the SCiP research team
- ▶ Attend our next SCiP networking event on 20th June 2017 to see how your business measures up!



MOOC

- ▶ Free online course
- ▶ Launching 16th May 2017
- ▶ Led by Professor Jan Godsell, WMG
- ▶ For more information visit www.warwick.ac.uk/wmgresearch/scip

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