

# Optimizing Acquisition

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ASI Government

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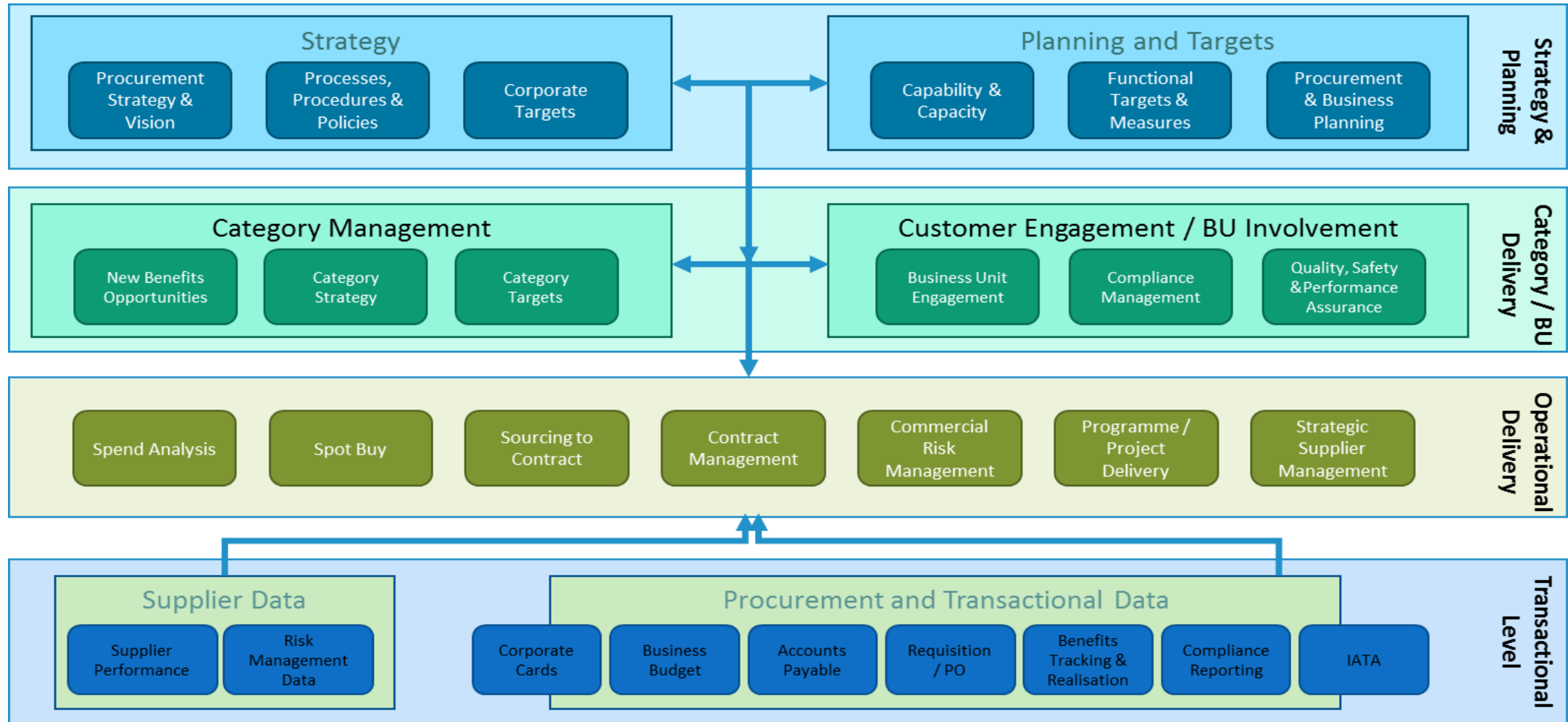
# Optimizing Acquisition as a Function

To create an efficient, effective and outcome focused Acquisition Function at an organizational or government-wide level requires a number of critical components:

- **Functional leadership** – across policy, processes, operations
- **Senior stakeholder alignment** – across functions and organizational boundaries
- **Functional strategy** – co-created and directly aligned to organization(s) mission, delivery and policy outcomes
- **Performance management framework** – enabling transparency, accountability and evidential alignment of functions, organizations and suppliers
- **eCommerce / technology** – appropriately deployed to include spend analytics, sourcing, contract management, SRM; it also can include marketplaces; single supplier registration; supply chain risk management; supplier and market analytics; shared services; and P-Cards
- **Capacity and capability** – within the function / organization and within the supply base

# Acquisition Functional Strategy, Planning & Operations

The public sector environment requires additional awareness of laws and regulations



## Regulatory / Legislative Alignment

The U.K. Government program to improve Acquisition included extensive changes and rationalization to broad areas of policy and regulation to support efficiency and improved outcomes, including:

- **Facilitating small and medium enterprise (SME) involvement** – reduction in lot sizes, limiting turnover limits, tracking and measurement of the use of SMEs directly and in the supply chain
- **Supplier selection** – simplify and reduce supplier pre-qualification process, simplify supplier registration, exclude suppliers for poor performance, reduce terms and conditions of contract
- **Electronic procurement** – all procurement documentation available online; simplified rules for dynamic marketplaces, electronic catalogs enabled, electronic communication mandated
- **Social & environmental aspects** – can be expressly used to determine contract awards, including aspects directly linked to any production process including relevant certification
- **Open Procedures** – reduced use of procedures that limit competition and elongate timescales for acquisitions

# UK Government Initiatives

The U.K. Government program to improve Acquisition also included a range of best-in-class initiatives that began in 2006 and continue today:

- **Government-wide spend analytics** – established central government COTS spend analytics tool that captures 98% of spend and provides detailed transactional transparency to category / organizational reporting and compliance reporting
- **Government-wide category strategies** – for common goods and services co-created with Departments and implemented with an integrated governance and resource model
- **Government-wide operating framework** – established to coordinate and integrate strategy, planning and operations across Departments
- **Procurement Shared Services** – the GSA equivalent implemented a procurement shared service model for common goods and services, which ensured compliance with agreements and true aggregation of buying at best prices

## UK Government Initiatives (2)

- **Supplier relationship management** – established across the major / critical suppliers to government as a whole, supported by industry leading specialists
- **eEnablement Strategy** – implementation of government-wide strategy to improve and standardize utilization of best of breed technology delivering efficiencies for government, acquisition and suppliers, including sourcing, contract management, single supplier sign-on, contracts finder and use of eAuctions
- **Cloudstore** – on-line marketplace targeted at SME's for As A Service offerings, with pre-negotiated prices, low barriers of entry to become a Cloudstore provider, this is now in its 9<sup>th</sup> iteration and is renewed every 6 months
- **Open Source Strategy** – supported by the acquisition community with acquisition guidance and supporting toolkit
- **'Lean' techniques** – best practice techniques from industry applied to procurement processes and operations to significantly reduce waste

# Appendix

## Bio and Company Background

# David Shields

David is Managing Director, Procurement Transformation & Category Management for ASI Government. He initiated and led the world's largest and most complex implementation of public sector category management as Managing Director of the United Kingdom's Government Procurement Service (GPS). GPS saved \$620 million for central government between 2011 and 2012 through reductions in the average prices paid on its contracts, and another \$2.8 billion by using demand management to reduce quantities purchased.

David initiated the deployment of Strategic Sourcing, managed the first government-wide procurement Shared Service Center and the multi-billion pound Government Procurement Card program. He managed the broader UK Government's procurement efficiency programs between 2005 and 2013, a comprehensive change program that included:

- Providing the procurement and commercial support for government-wide initiatives and policies, including implementation of the Government IT Strategy, demand management program, and support for small business
- An extensive investment in new eCommerce systems, a single portal for supplier registration, spend analysis, strategic sourcing and contract management tools
- Improving the capability and capacity of the Procurement function to support the broader efficiency program
- Implementing revised procurement processes and procedures using 'lean' manufacturing techniques
- Establishing a set of risk assessment and management processes and tools for critical suppliers

David also has managed and established procurement functions in the private sector on a national and global basis, working in manufacturing, IT services/resellers, financial services and the airline industry. He is a longtime Fellow of the Chartered Institute of Procurement & Supply Management, served on a various boards over the last 20 years and was a lecturer at the UK's Civil Service College.



# ASI Government

ASI is continually looking to add value for its federal government clients by providing a range of evolving expertise and capability. To support the government's recent move to procurement transformation based on category management, ASI:

- Established a new Procurement and Category Management Optimization practice managed by David Shields. David led the U.K. government's transformation of procurement and directly managed the implementation of category management, including establishing ecommerce tools, category management best practices and improving the capability and performance of the Government Procurement Service (the U.K.'s General Services Administration equivalent).
- Is creating a network of best-in-class partners to help federal clients take advantage of world-class solutions and expertise, in ecommerce solutions, spend analysis, software license management, supplier / market analysis, supply chain management and category management training.
- Delivers innovative acquisition, program management, strategy and organizational performance, and mission support solutions to a diverse spectrum of federal clients, including Intelligence Community, civilian, defense, and homeland security agencies.

ASI brings together powerful solutions, deep understanding of acquisition and federal government and an integrated approach, helping clients maximize outcomes at each phase of mission delivery.

# Appendix

## Category Management Policies & Legislation

# Category Management in OMB's April 12 Government Reform Memorandum

- Streamline mission-support functions. In areas such as IT, acquisition, financial management, human resources, and real estate, agencies should look for greater efficiency while maintaining or improving quality.

Agencies should consider leveraging:

- Intra- and inter-agency shared services/centers of expertise;
  - Lines of Business or shared IT infrastructure;
  - External service providers, including those providers on best-in-class contracts as part of the category management effort; and
  - Outsourcing to the private sector when the total cost would be lower or insourcing a function to government where a contract can be eliminated or scaled back.
- Leverage Existing Solutions for Common Requirements: Agencies should consider government-wide contracts for common goods and services to save money, avoid wasteful and redundant contracting actions, and free-up acquisition staff to accelerate procurements for high-priority mission work. To the maximum extent practicable, especially for the acquisition of common goods and services, agencies shall use existing contract solutions such as:
    - Federal Supply Schedules;
    - Government-wide acquisition contracts;
    - Multi-agency contracts; and
    - Any other procurement instruments intended for use by multiple agencies, including “Best in Class” (BIC).

In addition, agencies should control spending by better managing demand and consumption. For example, this can be done by consolidating information technology infrastructure requirements, purchasing standard configurations for common requirements, participating in volume buying events, and applying best commercial buying practices.

*Comprehensive Plan for Reforming the Federal Government and Reducing the Federal Civilian Workforce M-17-22*  
<https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2017/m-17-22.pdf>

# Category Management Policies and Legislation

- Chief Acquisition Officers Memorandum: [“Transforming the Marketplace: Simplifying Federal Procurement to Improve Performance, Drive Innovation and Increase Savings,”](#) Dec. 4, 2014
- [“Government-Wide Category Management Guidance Document,”](#) May 2015
- Category Management Policy 15-1: [“Improving the Acquisition and Management of Common Information Technology: Laptops and Desktops,”](#) Oct. 16, 2015
- Category Management Policy 16-1: [“Improving the Acquisition and Management of Common Information Technology: Software Licensing,”](#) June 2, 2016
  - 2014 Federal Information Technology Reform Act (FITARA) direction for software strategic sourcing and government-wide licensing agreements <https://www.congress.gov/113/plaws/publ291/PLAW-113publ291.pdf#page=160>
  - 2016 MEGABYTE Act direction on agency software licensing policies, inventories, management <https://www.congress.gov/bill/114th-congress/house-bill/4904/text>
- Category Management Policy 16-2: [“Providing Comprehensive Identity Protection Services, Identity Monitoring, and Data Breach Response,”](#) July 1, 2016
- Category Management Policy 16-3: [“Improving the Acquisition and Management of Common Information Technology: Mobile Devices and Services”](#) Aug. 4, 2016

# Appendix

## Category Management Basics

# Category Management Isn't

- Strategic sourcing
- A new idea
- Unproven
- About unit price reduction – although it can have TCO reduction targets
- About short-term targets
- About reducing competition
- About acquisition processes or procedures
- A threat, unless you choose to disengage/or ignore/or jeopardize delivery
- About supplier rationalization/reduction
- Aimed at particular suppliers whether large or multi-national
- Going away

# Fundamental Aspects of Category Management

“Category management is defined as: The practice of segmenting the main areas of organizational spend on bought-in goods and services into discrete groups of products and services according to the function of those goods or services and, most importantly, to *mirror how individual marketplaces are organized*. Using this category segmentation, organizations work cross-functionally on individual categories, examining the entire category spend, how the organization uses the products or services within the category, the marketplace and individual suppliers.

...seek out and implement breakthrough opportunities that will generate significant value for the organization. Value might take the form of leveraging dramatic reductions in purchase price but it could equally be about reducing the whole-life cost or total cost of ownership, mitigating price increases in a rising market, reducing supply chain risk, improving effectiveness and efficiency or securing increased collaboration and innovation from the supply chain...”

*O'Brien, Category Management in Purchasing, 3<sup>rd</sup> ed.*

# Fundamental Characteristics of Category Management

- Evidence-based decision-making
- Transparency
- Aligning incentives internally and externally
- Performance management internally and externally
- Committed expenditure and tracking compliance
- Efficiency
- Solutions that maximize and are aligned to markets/suppliers' capability and capacity
- Cross-functional
- Seeks breakthrough strategies
- Effective and ongoing communication internally and externally



# Fundamental Aspects of Category Management

- Understanding spend within an organization or across multiple organizations
- A category reflects how industry/markets are organized – it is outward facing
- Category management is an approach and set of processes for meeting strategic targets by more effectively managing entire categories of spend
- Requires detailed understand of markets and suppliers
- Organizational objectives linked to category strategies, linked to acquisitions, linked to contract management, linked to supplier management, linked to reducing the number of suppliers
- Requires an organizational approach to deliver objectives and targets
- It's a continuous process and focuses on Total Cost of Ownership
- It examines areas such as cost of the procurement function, processing efficiency, risk management, asset management/disposal, demand management, specification/service level standardization
- Unlocks value within the supply chain (network)

# Category Management Implications for Government

Beyond commercial and market considerations, Government Category Management Strategy must capture:

- Policy, Standards, Legislation and Regulation
- Governance and oversight
- Financial/budget management
- Risk Management
- Complexity, size and scale of the different Departments
- Differing levels of commercial/procurement maturity, capacity and capability within each Department
- Market/supplier impact
- Fulfilment requirements (i.e. Target Operating Model)
- Political environment

# Category Management Implications for Suppliers

- Greater structure and governance from the customer
- Greater transparency – financial, performance, supply chain/network, risk, operational effectiveness and efficiency, all over time
- Monthly measurement of areas, such as KPI's, supply chain risk, policy compliance, e.g., demand management
- Greater understanding of customer organization objectives and strategic intent
- Monthly performance management and reviews
- Continuous improvement plans
- Different acquisition processes and policies
- The need to align organizational behavior and culture to customer requirements (for those customers that are strategic and critical)
- Greater potential for long-term relationships despite regulations and the need to compete

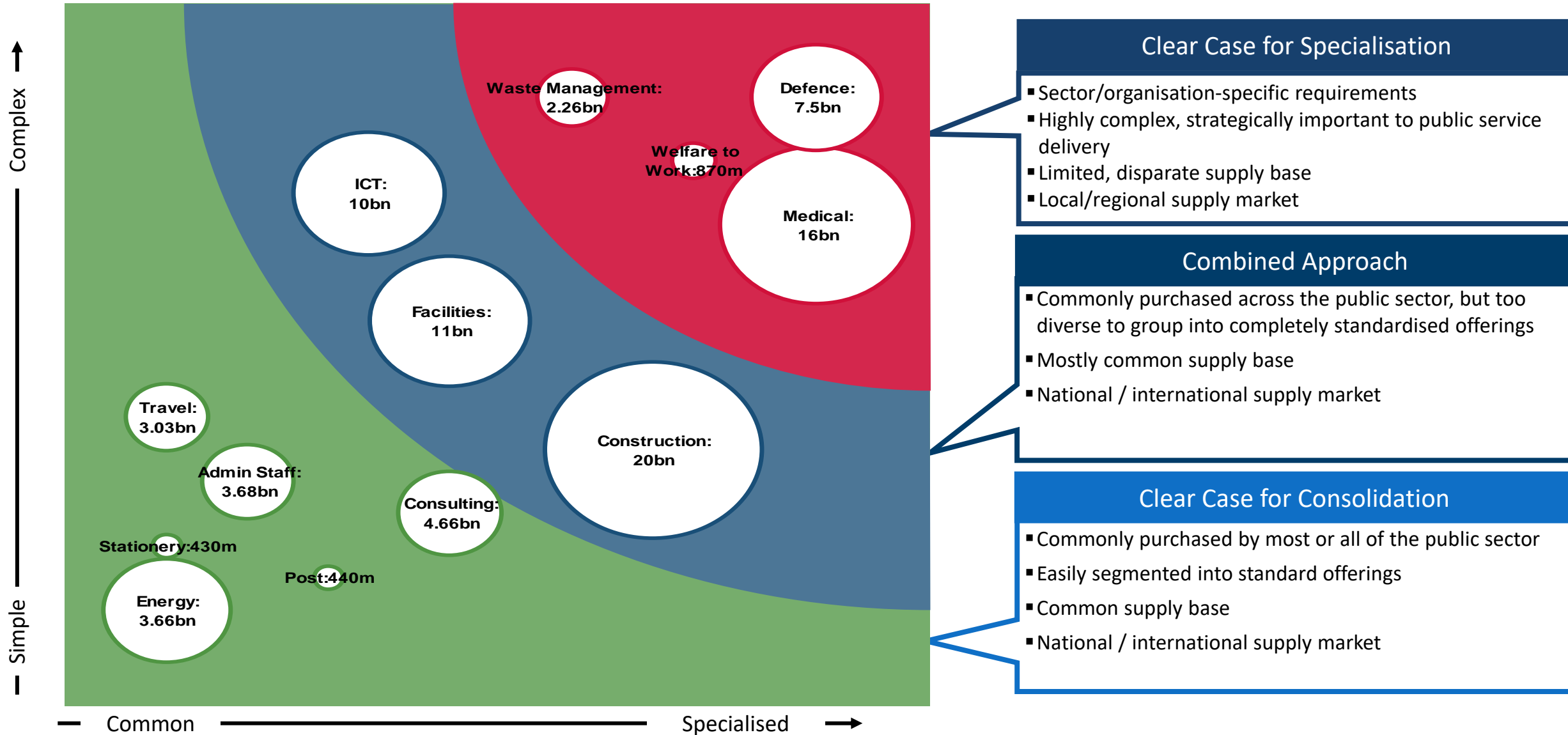
# How can public sector procurement work more effectively?

- A detailed, transparent understanding of procurement expenditure is a prerequisite for effectiveness. “What is not measured well, will not be managed well.”
- Spend understanding allows organizations to segment their spending and target resources to best effect, deploying the most appropriate strategies for different categories of goods and services
- For each organisation this will have a different implication:
  - Do ourselves? Focus resource on core and strategic activities; implement best practices
  - Do elsewhere? Cease internal activity, use an external party for procuring goods or services
  - Do differently? Collaborate with other organisations, standardize requirements
- Utilizing best-practice strategies has a direct impact in terms of cost effectiveness, but also provides for higher quality procurement in the broadest sense:
  - Clarity between objective outcomes and goods and services inputs
  - Requirements design and commissioning
  - Contract management and service delivery assurance
  - Supplier relationship and performance management
  - Market intelligence and risk management

# What happened when the U.K. Government introduced category management?

- Re-organization of the procurement function/landscape and specifically within major Departments
- Each department as well as the center had a category management strategy/approach
- Centrally driven targets and controls, billions saved
- Implementation of shared services
- Embedding concepts such as lean/Six Sigma
- Greater coordination across functions, e.g. HR, Finance, IT and Estates Management
- Government-wide spend analysis and eCommerce strategy/platforms
- Legislation, policy and guidance changes
- Category management training
- Establishment of Crown Commercial Service
- Policy delivered in part via procurement and category strategies, e.g., small business, cloud, digitization, sustainability, living wage, etc.
- Continued development of the procurement function Government-wide, new leadership recently established

# Macro view: government-wide expenditure



# A Strategy for Procurement

## ONE, CONSISTENT APPROACH ...

**Vision:** Single strategy to formalise and bind the procurement function together, a framework for delivering local requirements effectively.

**Governance:** Strong leadership embeds cross-cutting objectives of best value and cost focus; empowers the community to arbitrate on consolidation or specialisation for categories; governs the buying landscape; sets standards for value measurement and data exchange

**Performance Management:** consistent competency framework, learning and development pathways

**Resourcing:** Skills and experience are identified centrally and lending/borrowing is promoted

**Knowledge Management:** best practice guidance, case studies, toolkits, methodologies for public sector procurement and project work collated, curated and shared

**Infrastructure:** common e-infrastructure managed centrally and made available to all; facilitates data exchange, consistent reporting; eAuctions; catalogues

**Commercial Intelligence:** Supplier and market research conducted and shared, financial and supply chain risk frameworks and intervention

**Pan-Government Management:** Suppliers to multiple arms of government are managed from a pan-sector standpoint in addition to local activity

## ... WITH FLEXIBLE, RESPONSIVE, DELIVERY FOR DIFFERING REQUIREMENTS

### COMMON REQUIREMENTS

**Operations:** Procurements are aligned to category strategies and optimised to fit national supply markets, or regionally for non-national markets

**Management:** Public sector organisations use 'catalogue' buying for simple goods and direct liaison for more complex needs

**Strategy:** Category method is applied, with expert teams formed to develop sourcing strategies and influence market offerings.

**Reuse:** Lead organisations take best advantage of central resources and infrastructure and best practice

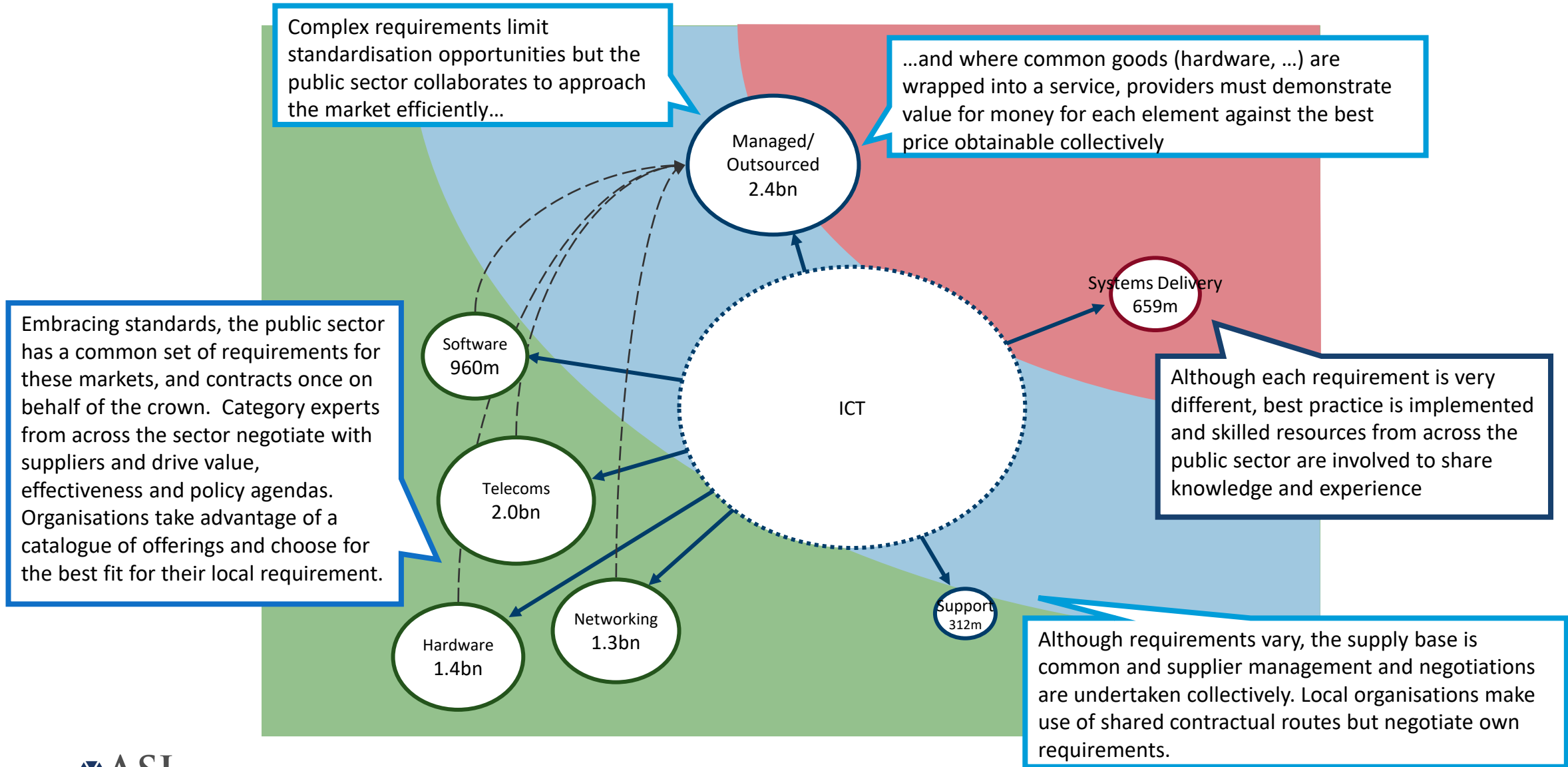
### SPECIALISED REQUIREMENTS

**Operations:** Procurements are run on behalf of the sector by a lead organisation

**Assurance:** Simplified reporting for all activities ensures a clear view across all projects, providing decision support to assure or curtail as required

**Reuse:** Organisations take best advantage of central resources and infrastructure, resource identification and best practice

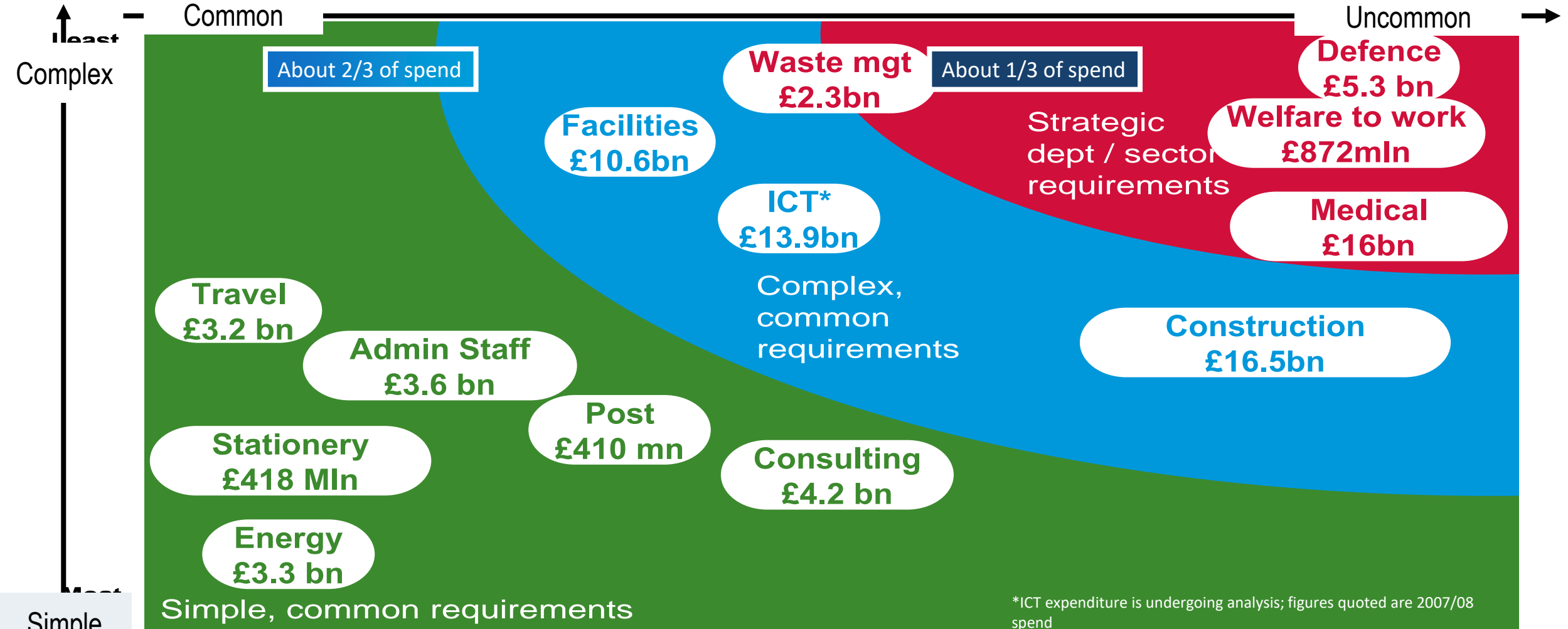
# What does this look like for a real example?





# Procurement expenditure analysis

Goods and services differ in commonality and complexity of purchase

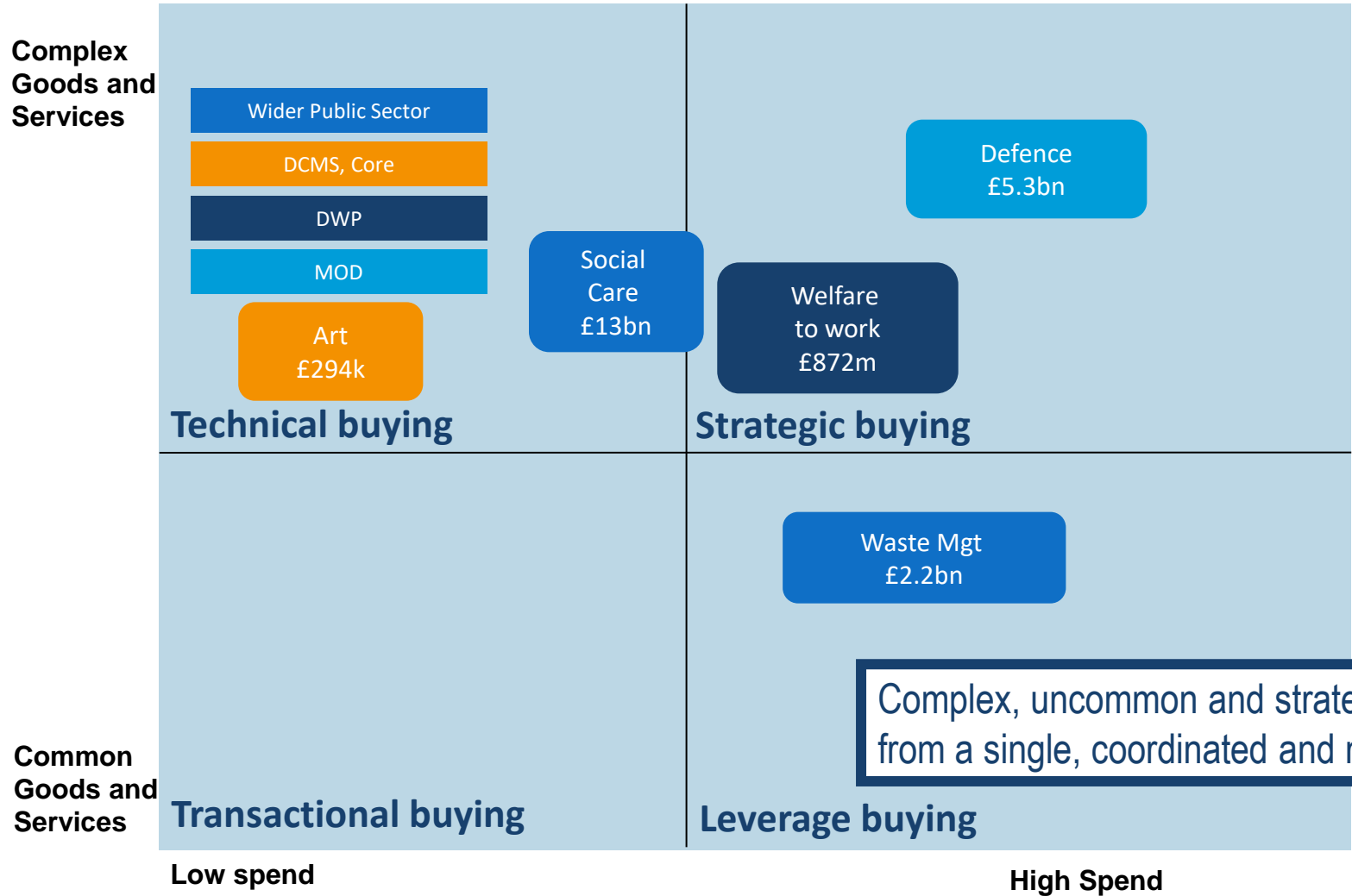


Around two thirds of known procurement expenditure is for common goods and services

\*ICT expenditure is undergoing analysis; figures quoted are 2007/08 spend

# Procurement expenditure analysis

## Strategic department- or sector-specific goods and services

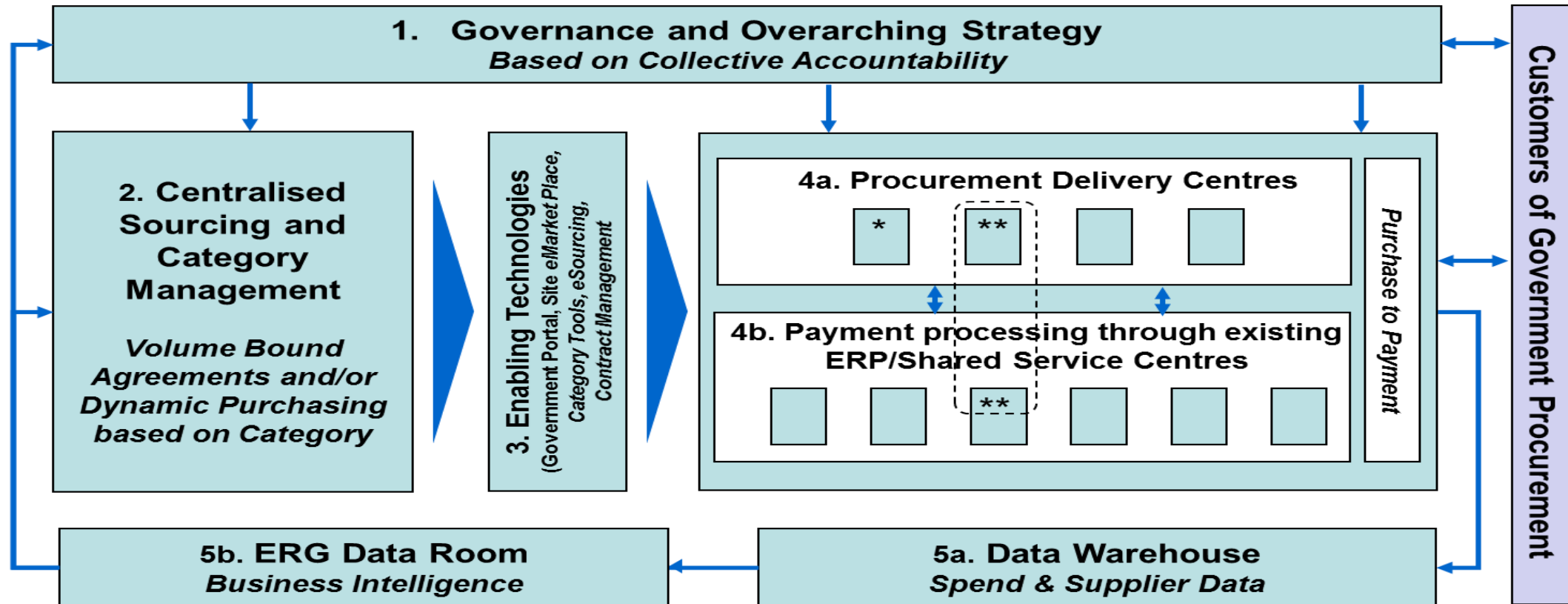


Some expenditure is unique to organisations within a single sector.  
Relatively little expenditure is unique to a single organisation.

Complex, uncommon and strategic expenditure still benefits from a single, coordinated and managed approach and from shared best practices

# Target-State Operating Model

## UK Government Example (1): Overarching Government Target Operating Model

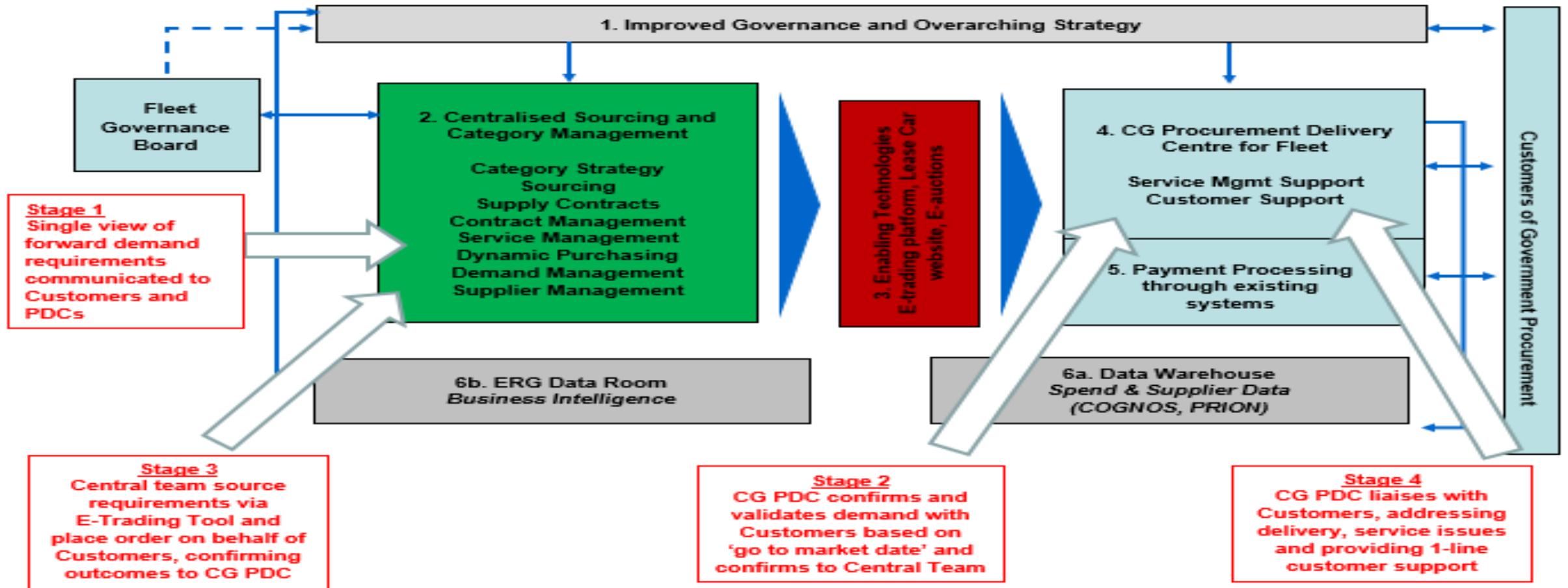


\* i.e. Home Office and HMRC standalone Procurement Delivery Centres with electronic handoff to Payables  
 \*\* i.e. MoJ, DWP integrated P2P Centres

# Target State Operating Model

UK Government Example (2):

## Fleet Category – Target State Operating Model



# Appendix

## Logistics Efficiency and Costs

There are many challenges faced by supply chain executives and provides a broad spectrum of supply chain analytics offerings to address them

SUPPLY CHAIN ANALYTICS

DEMAND & INVENTORY MANAGEMENT



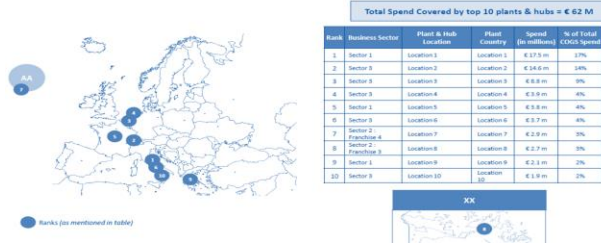
- ▶ Cost-to-serve Analytics
- ▶ Demand Planning
- ▶ Inventory Reporting
- ▶ Product Mix Optimization
- ▶ SKU Rationalization
- ▶ Replenishment Strategy
- ▶ Markdown Management

TRANSPORT & LOGISTICS ANALYTICS



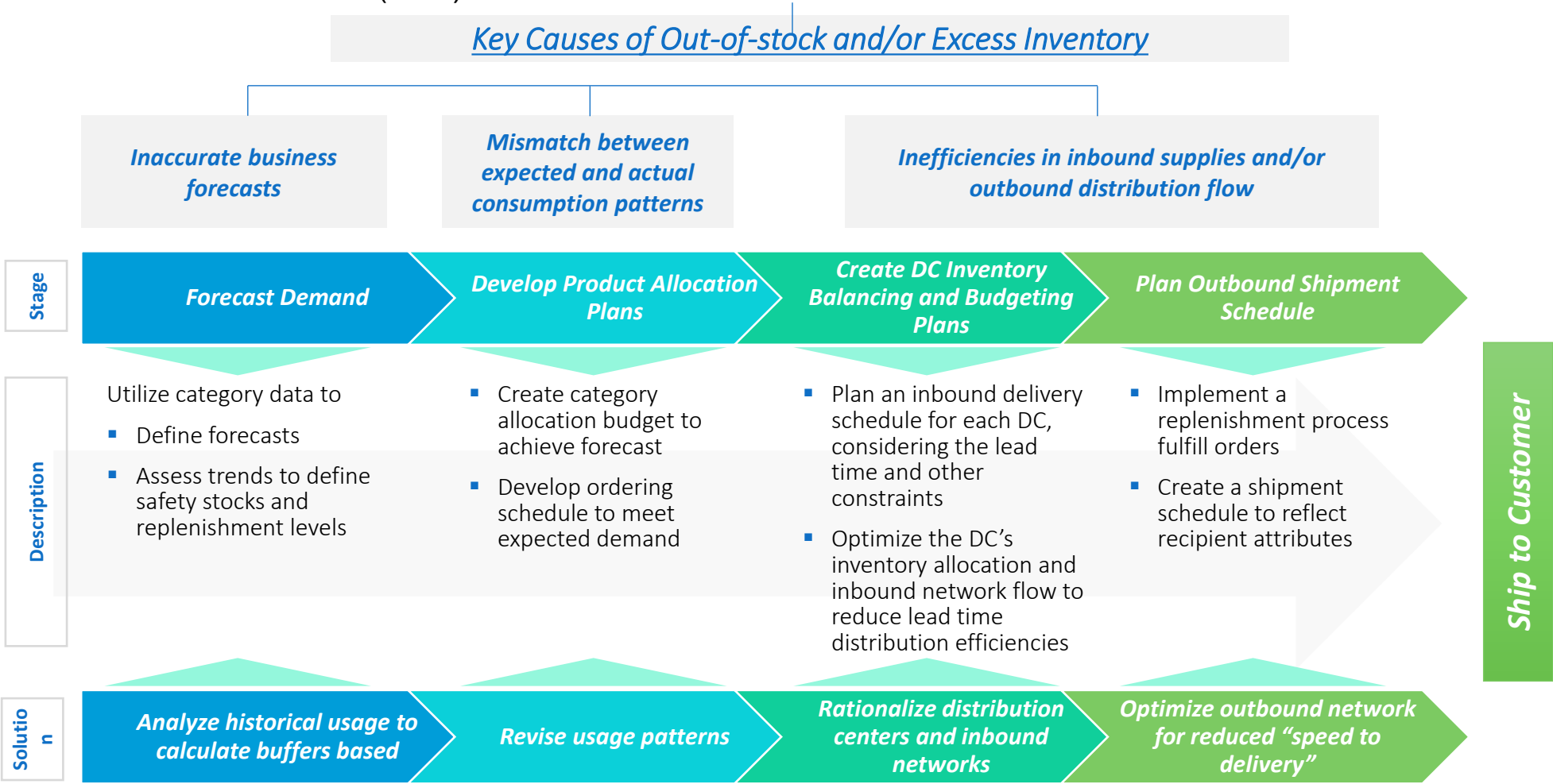
- ▶ Logistics Cost Analysis
- ▶ Network Visibility Reports
- ▶ Network Design and Distribution Analysis
- ▶ Carrier and Shipment Consolidation
- ▶ Route Optimization

PERFORMANCE MEASUREMENT & REPORTING

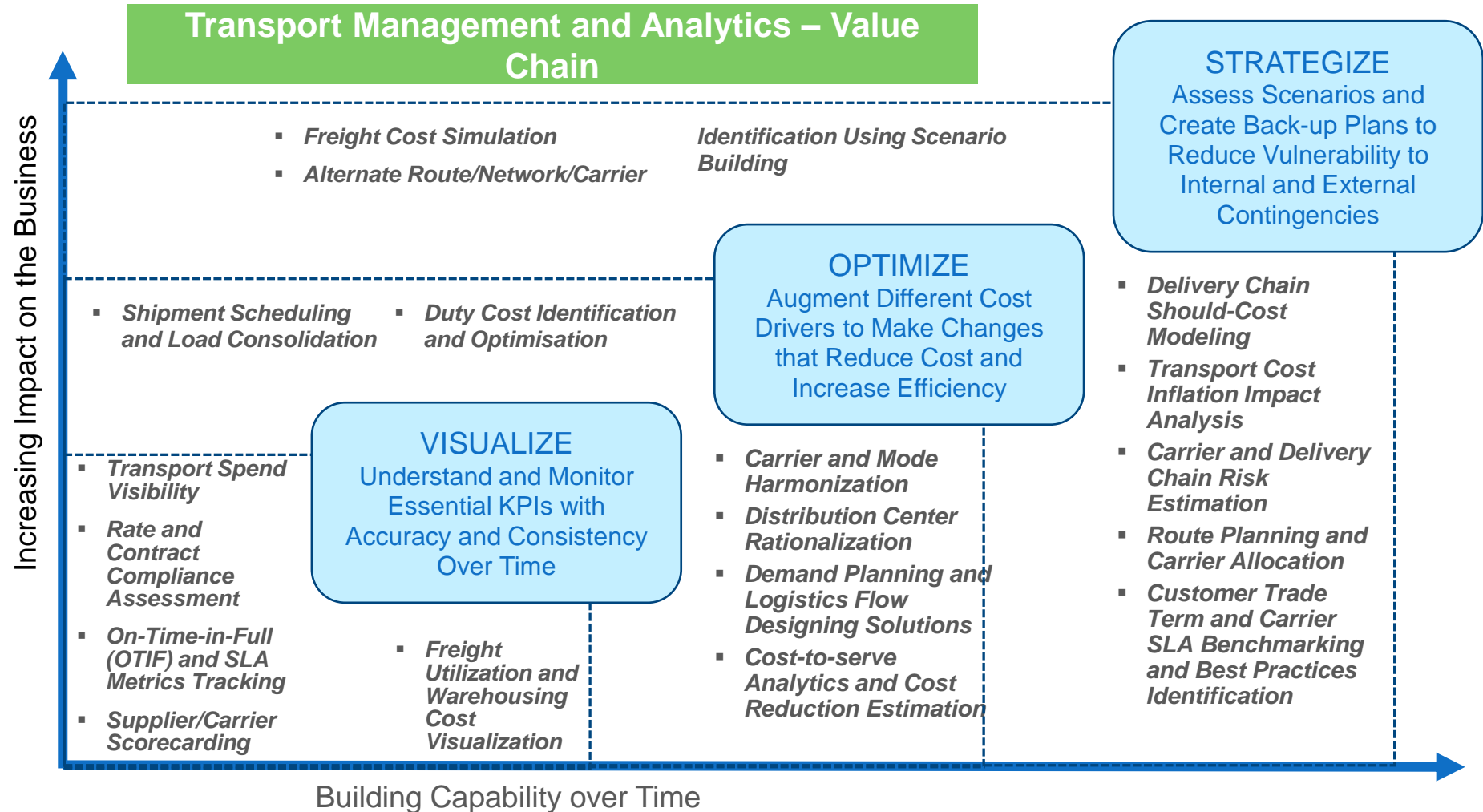


- ▶ Inventory Flow Reporting
- ▶ Supplier Compliance Reports
- ▶ Regulatory Reporting
- ▶ Other KPI Tracking
  - ▶ IBF/OBF
  - ▶ OTIF, etc.

Out-of-stock and excess inventory events can be avoided by identifying key stages leading to demand-supply imbalance in distribution centers (DCs)

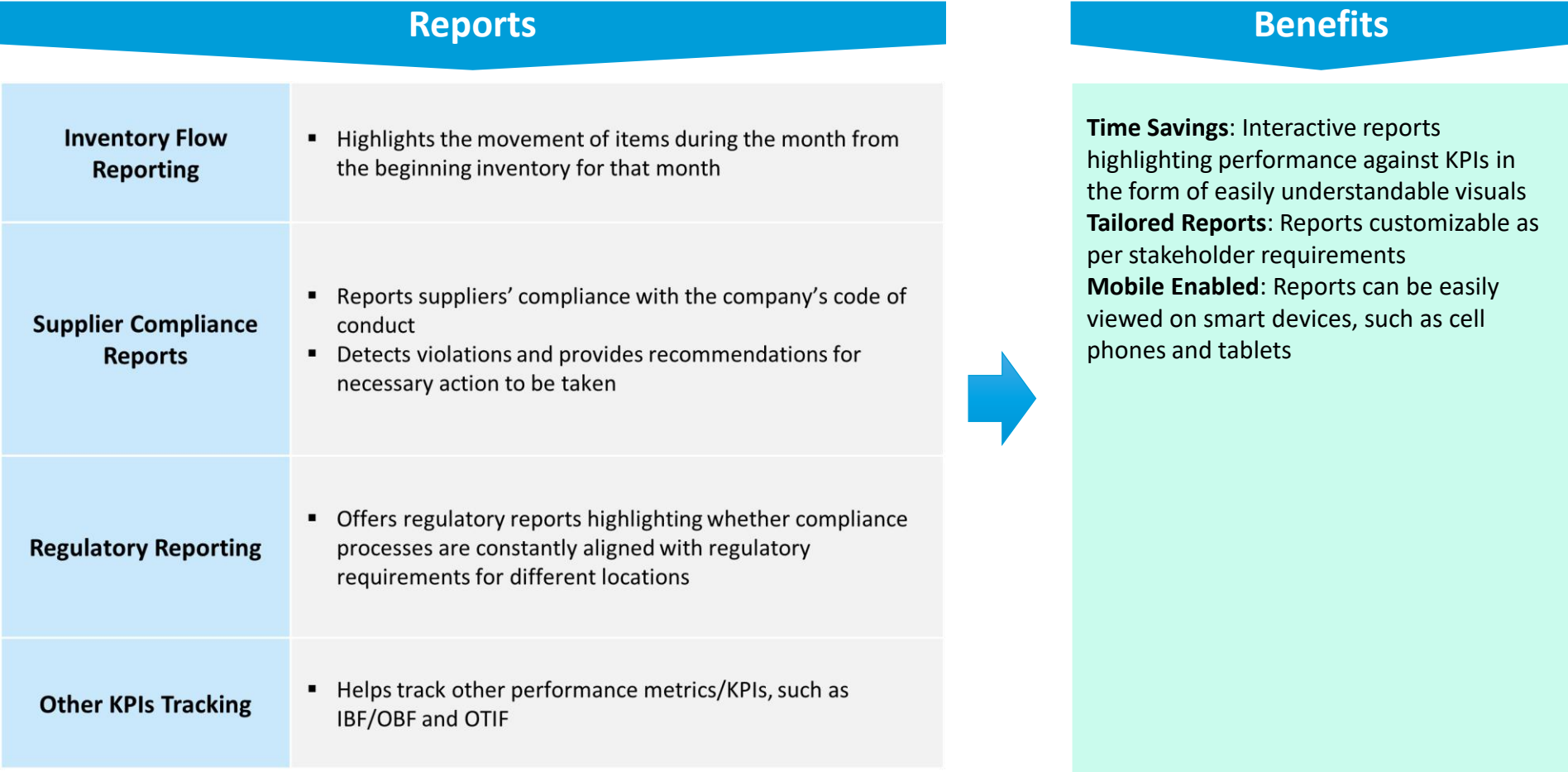


Visualize, optimize and strengthen the delivery chain by deploying transport & logistics analytics capability





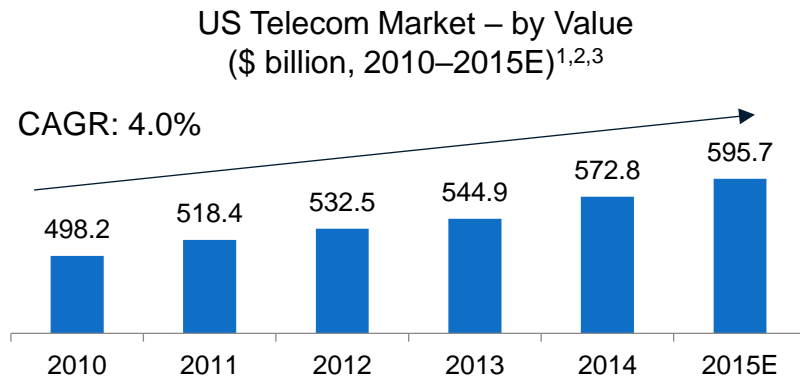
Performance measurement and reporting help keep tabs on various parts of the supply chain to ensure smooth operations



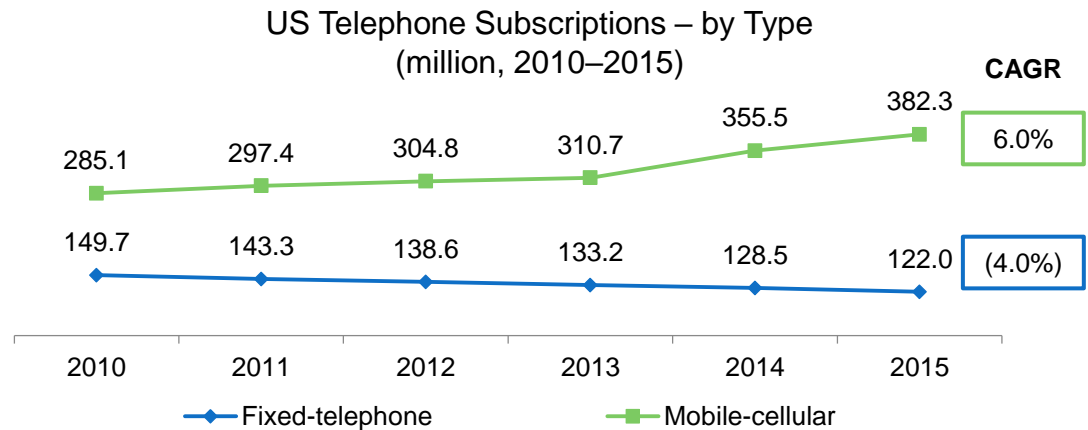
# Appendix

## Market and Supplier Research

# Market Overview: Size and Growth (1/3)



Source: '2014 Service Annual Survey', US Census Bureau (January 2016)

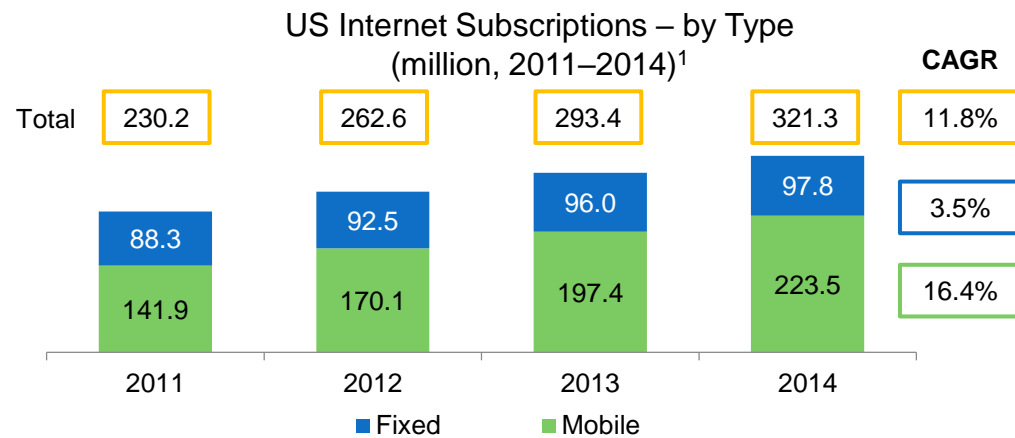


Source: International Telecommunication Union (ITU) Statistics

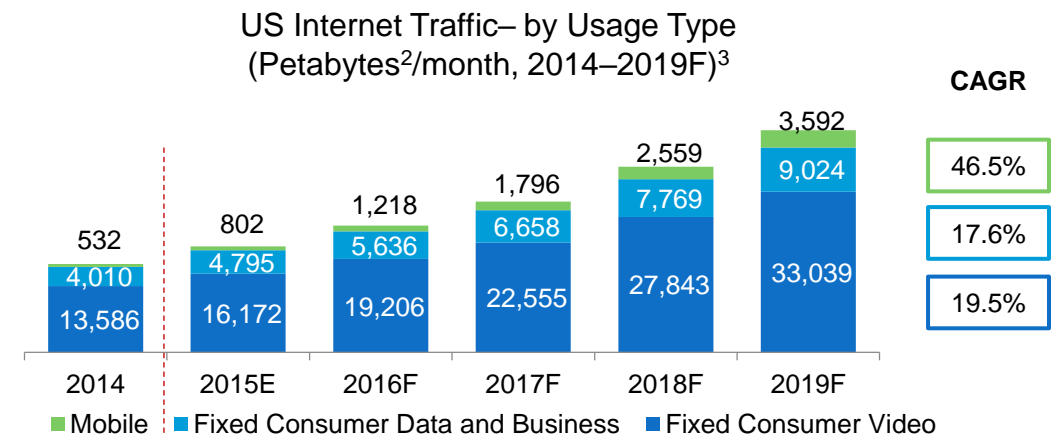
- US telecom operator revenues increased over 2010–2015 driven by growth in the cellular (mobile phone) segment primarily fueled by higher demand for data services
- Mobile data revenue was boosted by rising adoption of data-driven devices, such as smartphones and tablets, declining prices of internet services, and growing internet traffic
  - Smartphone users in the US grew at a 25.6% CAGR between 2010 and 2015 to 197.4 million; further, IP traffic in the US grew at ~28% CAGR during 2010–2015
- Market growth was also driven by rise in mobile subscriptions; subscribers increasingly adopted more than one consumer electronic device requiring wireless connectivity and fueling demand for new mobile subscriptions
  - US wireless penetration<sup>4</sup> grew from 94.2% in 2010 to 115.7% in 2015, i.e., more than one device per user

Note: 1) Represents revenues of wired, wireless and satellite telecom providers, and telecommunication resellers  
 2) Value for 2015 has been estimated at a 4% CAGR recorded for the previous five years  
 3) Breakdown of the industry revenue by key services is provided in the appendix  
 4) Calculated as number of active units divided by the total US and territorial population (Puerto Rico, Guam and the USVI)

# Market Overview: Size and Growth (2/3)



Source: 'Internet Access Services: Status as of December 31, 2014', Federal Communications Commission (March 2016)

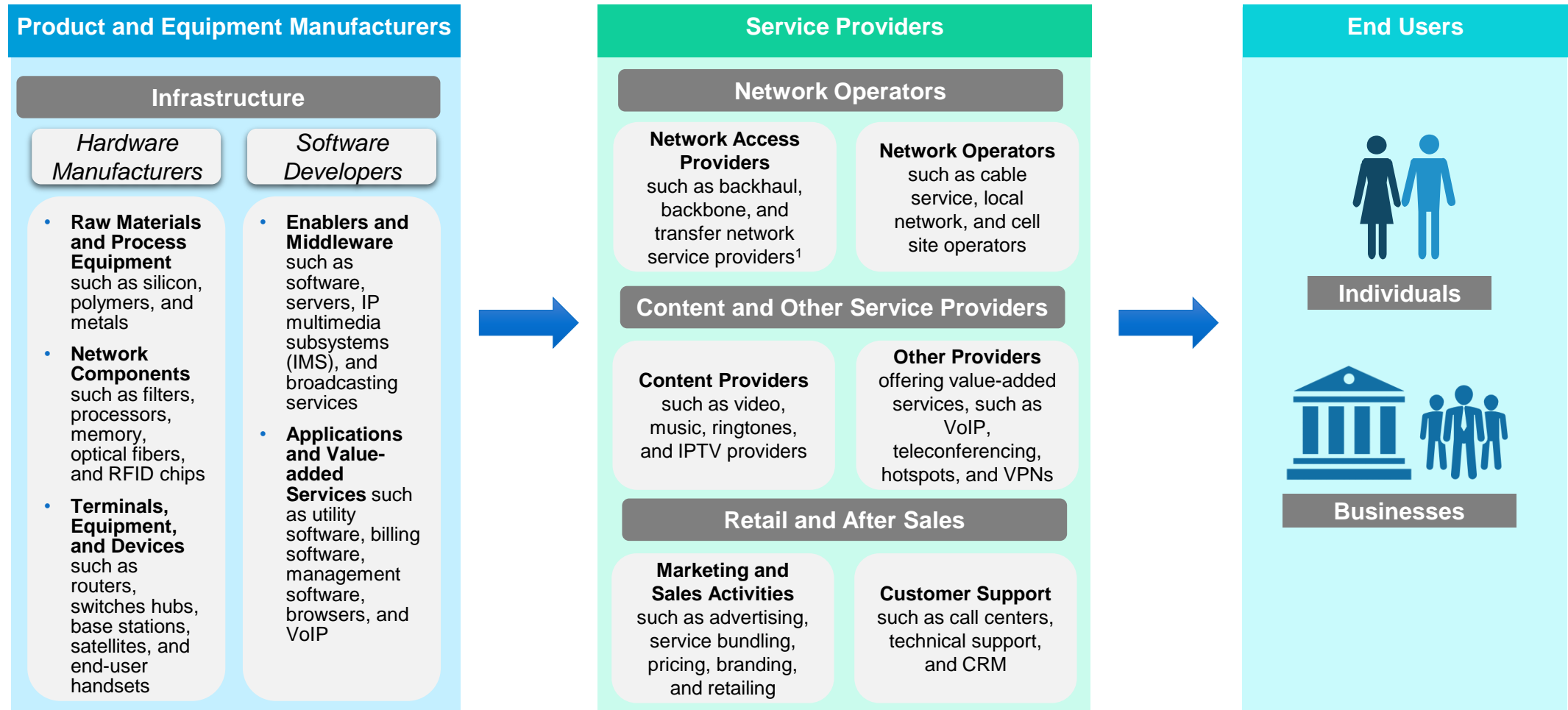


Source: US IP Traffic Statistics', US Telecom Association (2014)

- During 2011–2014, mobile internet subscriptions grew faster than fixed broadband due to rising penetration of wireless devices (such as smartphones and tablets) and increased 4G/LTE services coverage
  - In 2015, the number of active smart phones and tablets in the US grew ~9.6% Y-o-Y (to 228 million) and 7% Y-o-Y (to 41 million), respectively; smartphones and tablets accounted for 73% wireless network devices in 2015 (compared with 70% in 2014)
  - Between 2010 and 2015, wireless service providers invested aggressively in network upgrade, resulting in >96% (as of June 2015) of the US population having access to 4G/LTE services; the overall industry capital expenditure grew at a 5.1% CAGR to ~\$32 billion in 2015
- Growth in fixed broadband was primarily driven by cable operators' increasing coverage, provision of higher speeds, and multiservice bundles; cable operators added 3.3 million new subscribers between April 2015 and March 2016, boosting fixed broadband household penetration to ~80%
  - US was the second-largest fixed broadband subscriber base globally, with >100 million subscribers in 2015, after China

Note: 1) Values recorded in the month of December for each corresponding year  
 2) Petabyte is used to measure data sizes; it refers to the fifth power of 1000 byte  
 3) Mobile and business include video; consumer data includes all consumer non-video

# Value Chain Analysis



Note: 1) "Backhaul, backbone, and transfer network service providers" refers to companies providing network infrastructure to telecom operators and not directly to customers

# Market Structure: Supplier Landscape (1/3)

Players in the US telecom market can be categorized into the following types on the basis of services offered:



Integrated

Providing telecom services through both wireless and fixed media; usually large market leaders with presence across the US



Wireless

Offering mobile voice and data services; larger players (such as T-Mobile) have network infrastructure across the US while smaller players (such as Cricket Wireless) have own infrastructure in selected states and lease services from larger players in others



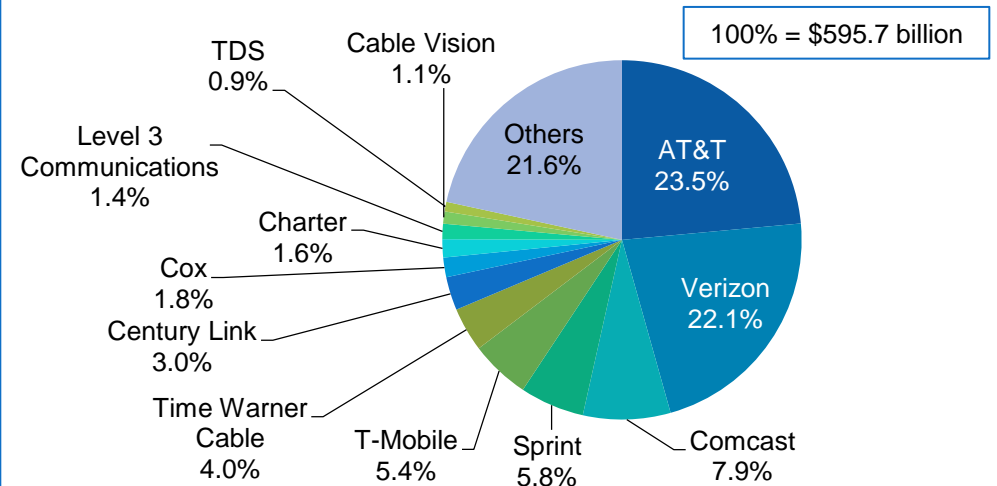
Fixed Line

Focusing on fixed line media—such as DSL, cable, optical fiber, and other (legacy) systems—to offer voice and broadband internet services nationally and locally



- Note:
- 1) Market share is indicative and represents integrated, wireless, and fixed line providers
  - 2) Share of companies may not add up to 100% as the numbers have been rounded off
  - 3) For AT&T, US revenues have been considered, while for all others, the total revenue has been taken as a proxy, as a majority of business is concentrated in the US; for Comcast and Cox, revenues have been considered for telecom-related business segments, i.e., Comcast Cable Communications and Cox Communications, respectively
  - 4) TDS represents combined revenues of US Cellular (84% owned subsidiary) and TDS Telecom (offering wireline and cable services)

US Telecom Providers Market Share – by Revenue (2015E)<sup>1,2,3,4</sup>



Source: Company Annual Reports and Filings

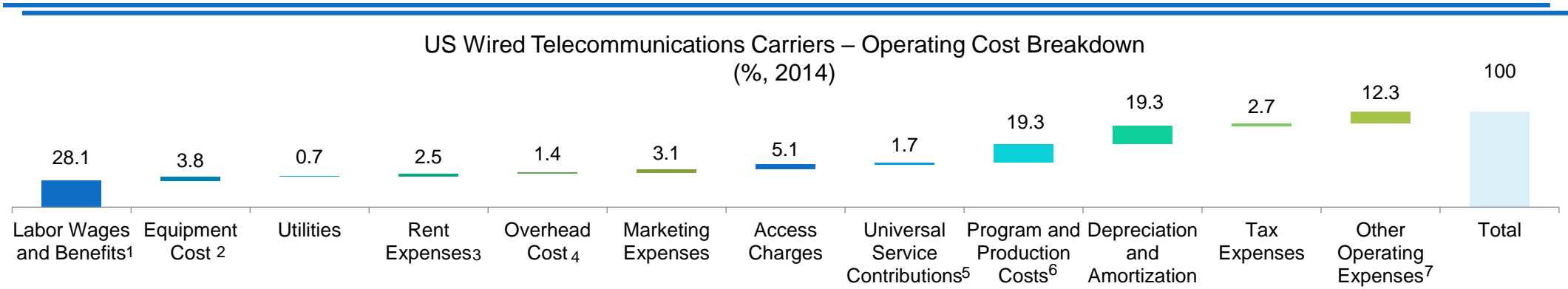
- The market is consolidated, with the top 10 players accounting for about three-fourths share
- The US telecom market is characterized by high rivalry due to limited product and service differentiation, and presence of several large diversified, and small and mid-sized players

# Supplier Mapping (2/2)

S. No.	Company Name	Headquarters	Coverage within US	Services						Total Revenue (\$ billion, 2015)
				Mobile Voice	Mobile Data	Fixed Voice	Fixed Data			
							Cable	Fiber	Others <sup>1</sup>	
1	AT&T	Dallas, Texas	National <sup>2</sup>	✓	✓	✓	✗	✓	✓	140.2
2	Verizon	New York City, New York	National	✓	✓	✓	✗	✓	✓	131.6
3	Comcast	Philadelphia, Pennsylvania	Local <sup>3</sup>	✗	✗	✓	✓	✓	✗	46.9
4	Sprint	Overland Park, Kansas	National	✓	✓	✓	✗	✗	✓	34.5
5	T Mobile	Bellevue, Washington	National	✓	✓	✗	✗	✗	✗	32.1
6	Time Warner Cable	New York City, New York	Local	✗	✗	✓	✓	✗	✗	23.7
7	Century Link	Monroe, Louisiana	Local	✗	✗	✓	✗	✓	✓	17.9
8	Cox	Atlanta, Georgia	Local	✗	✗	✓	✓	✓	✗	10.5
9	Charter	Stamford, Connecticut	Local	✗	✗	✓	✓	✗	✗	9.8
10	Level 3 Communications	Broomfield, Colorado	Local	✗	✗	✓	✗	✓	✓	8.2
11	Cablevision	Bethpage, New York	Local	✗	✗	✓	✓	✗	✗	6.5
12	US Cellular	Chicago, Illinois	Local	✓	✓	✗	✗	✗	✗	3.9

Note: 1) Others represents DSL, copper line, and other legacy broadband technologies  
 2) National service providers own infrastructure and provide services across all US states  
 3) Local service providers own infrastructure and offer services in multiple regions (e.g. Northeast, Midwest) in the US with presence in >10 states

# Cost Structure (1/2)



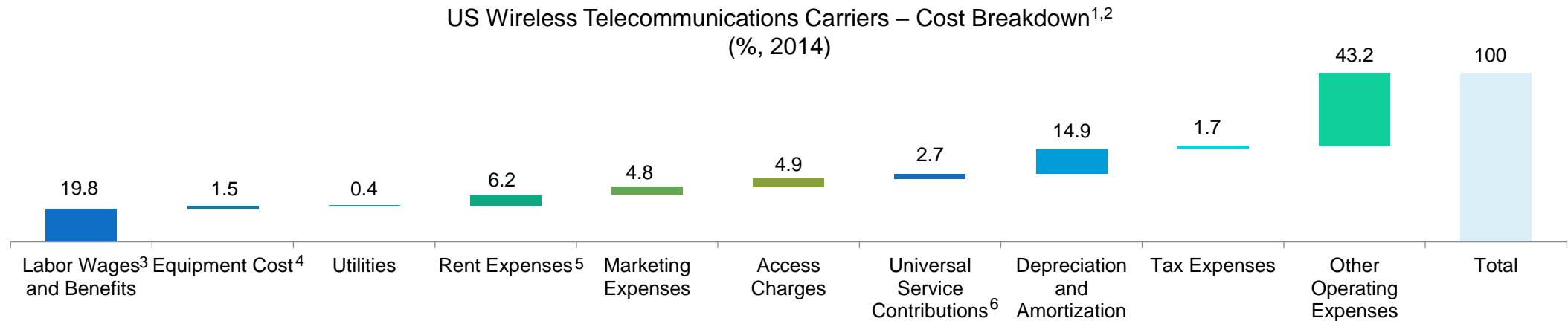
Source: Annual Services Report<sup>1</sup>, US Census Bureau (January 2016)

- Share of labor wages and benefits—largest cost component—remained relatively stable over 2010–2014 at 27–29% of the total operating cost
  - Wired telecom providers maintain a large workforce for repair, installation, and maintenance activities; technical workers and engineers form a significant part of the total workforce
- During 2015–2020, the share of labor costs is expected to decline as operators adopt fiber cables and cloud-based/digital solutions requiring lesser labor intervention
  - Leading telecom operators are upgrading networks to fiber-optic lines, requiring lesser maintenance than legacy systems (copper lines)
  - By 2020, AT&T estimates the company’s workforce requirements to reduce by up to 30% as it transitions to cloud-based systems
- As per an IBIS World report, average profit margin in the wired telecommunications segment increased over 2011–2016 due to industry consolidation and low fixed costs (characteristic to the segment); average profit margin is expected to be ~12.1% in 2016

Note: 1) Labor wages and benefits include gross annual pay and employer’s cost for fringe benefits such as insurance and pension  
 2) Equipment cost comprises recurring expenditure on equipment, parts, materials, supplies, and software  
 3) Rent expenses includes lease and rental payments for machinery, equipment, other tangible items, land, buildings, structures, store spaces, and offices  
 4) Overhead cost includes repair and maintenance costs to machinery, equipment, building, structures, and offices  
 5) In accordance with the Telecom Act of 1996, all telecom service providers are required to contribute a share of their interstate end-user revenue toward the creation of a Universal Service Fund, which is utilized to provide advanced telecom services to schools, healthcare institutions, and libraries  
 6) Program and production costs represents costs incurred in media content generation and dissemination including license fees  
 7) Other operating expenses includes data processing and other purchased computer services, purchased communication services, water, sewer, refuse removal, and other utility payments, purchased professional and technical services, and other miscellaneous costs



# Cost Structure (2/2)

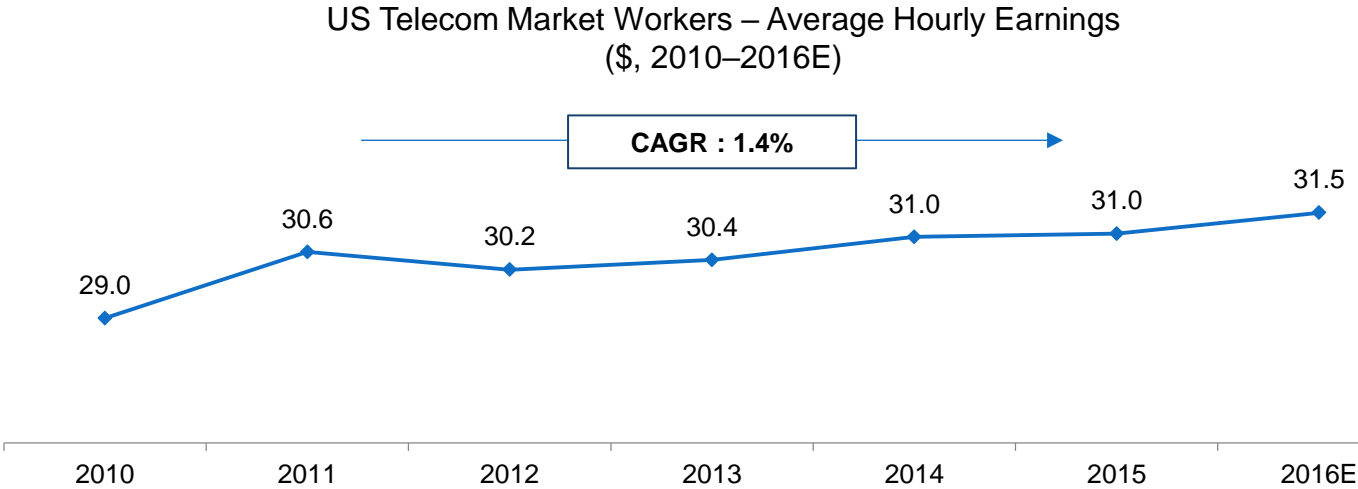


Source: Annual Services Report, US Census Bureau (January 2016)

- Labor wages and “other operating expenses” account for a majority share in the total cost within wireless telecom service providers
  - “Other operating expenses” represents costs incurred for data processing, computer services, communication services, professional and technical services, utility payments (water, sewer, refuse removal, etc.), and other miscellaneous expenses
- As per IBIS World, in 2016, wireless telecom carriers had an average profit margin of 25.3% (higher than wired telecom providers) due to limited equipment installations, leading to reduced infrastructure and network costs, coupled with rise in the total number of subscriptions

Note: 1) Overhead cost (repair and maintenance costs to machinery, equipment, building, structures, and offices) is not included due to nonavailability of data as reported by the US Census Bureau  
 2) Shares of cost heads may not add up to 100% as the numbers have been rounded off  
 3) “Labor Wages and Benefits” includes gross annual pay and employer’s cost for fringe benefits such as insurance and pension  
 4) Equipment cost comprises recurring expenditures on equipment, parts, materials, supplies, and software  
 5) Rent expenses includes lease and rental payments for machinery, equipment, other tangible items, land, buildings, structures, store spaces, and offices  
 6) Universal service contributions: In accordance with the Telecom Act of 1996, all telecom service providers are required to contribute a share of their interstate end-user revenue toward the creation of a Universal Service Fund, which is utilized to provide advanced telecom services to schools, healthcare institutions, and libraries

# Cost Driver Analysis: Wages

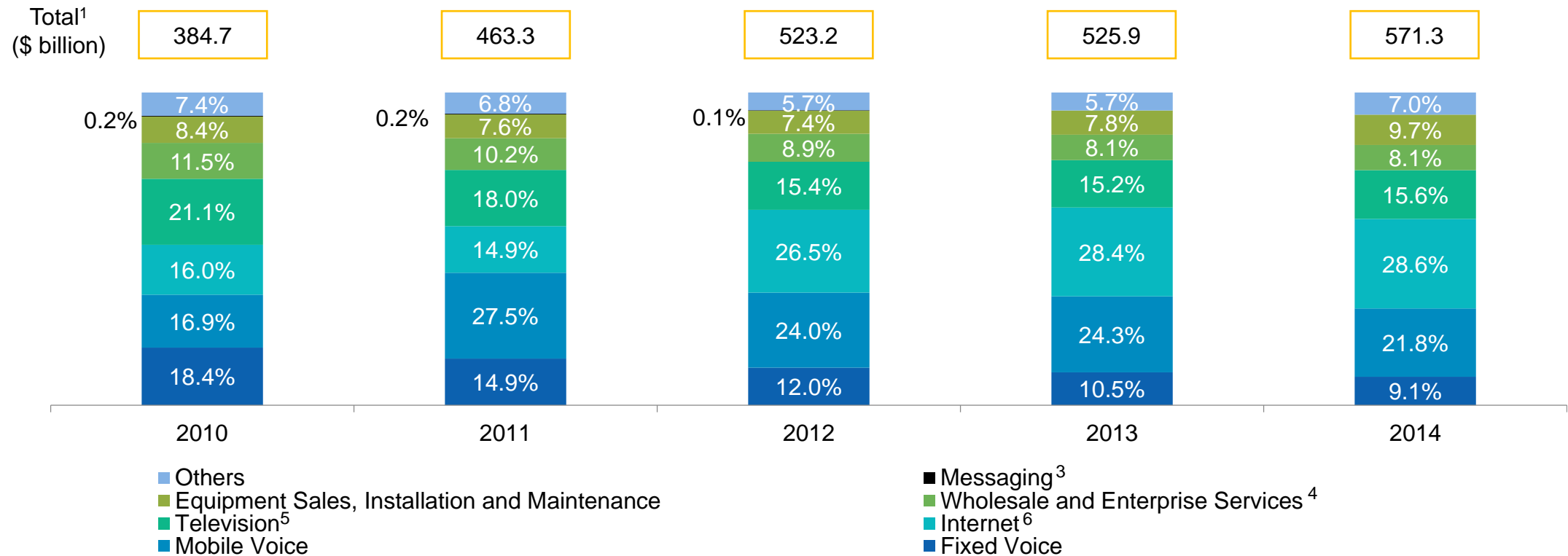


Source: Bureau of Labor Statistics

- Average hourly earnings in the US telecom market remained largely stable over 2010–2016E
- During 2016–2021, average labor wages are expected to rise slightly due to increased use of digital technology and automation, thereby driving the demand for skilled labor with higher hourly wages, such as programmers and engineers
- Labor requirements in the wired segment are likely to decline on account of decreasing use of legacy fixed-line telephones and adoption of fiber cable technologies
  - Employment of telecom technicians (equipment installers and repairers) is expected to decline at a 4% CAGR over 2014–2024 due to increased demand for wireless and mobile services, limiting installation requirements

# Appendix: Size and Growth

US Telecom Market Revenue Share – by Services  
(2010–2014)<sup>1</sup>



Source: '2014 Service Annual Survey', US Census Bureau (January 2016)

- Note:
- 1) Share of services may not add up to 100% as the numbers have been rounded off
  - 2) Total values do not reflect total industry revenues for the given year due to unavailability of revenues for certain segments
  - 3) Revenue for messaging segment not available for 2013 and 2014
  - 4) Wholesale and enterprise services refer to bulk services such as carrier services, private network services, and website hosting services
  - 5) Television includes programming packages, pay-per-view, and advertising and program content
  - 6) Internet includes fixed and wireless broadband services, and internet telephony

# Appendix

## Building World-Class Government Management

# Appendix

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