



Aston Business School

Aston Centre for Servitization
Research and Practice

DELIVERING GROWTH

Exploring the Potential of Advanced Services
within the Road Transport Industry

EXECUTIVE SUMMARY

This report explores the adoption and implementation of advanced services in the UK's road transport industry. Primary data, which was collected through interviews and focus groups, and secondary data are analysed to give a picture of the current advanced services offerings in the industry, and the barriers and enablers for adoption.

The report finds that, while there are examples of good practice and innovative services being delivered, the extent of service provision within the industry is limited, and there are technological, organisational and contextual barriers that should be addressed. Recommendations which may help to address these barriers are made for manufacturers, operators and government:

Manufacturers must ensure advanced services are properly led and embedded and that staff members have the right skills to deliver them, and look to innovate with their pricing models.

Operators should conduct a thorough cost-benefit analysis to ensure they fully appreciate the long term benefits of advanced services.

Government should create financial incentives for manufacturers to innovate, and provide clearer data legislation.

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INTRODUCTION

For some time, the United Kingdom has been the leading market for the adoption of technology-enabled advanced services across a range of industries. In the road haulage sector it is known anecdotally that these services are being adopted by certain organisations in order to meet financial and operational challenges, and can generate significant benefits; but there is a lack of systematic study of this phenomenon in this key sector. While the well-known examples of a number of leading organisations demonstrate what can be achieved, it is evident that advanced services are not being adopted universally or uniformly, and that certain organisational, technological and contextual factors are preventing this from happening.

This report summarises preliminary findings of a detailed, longitudinal exercise conducted by research staff at the Aston Centre for Servitization Research and Practice. For this report, a series of semi-structured interviews was carried out with senior executives within vehicle manufacturers, component manufacturers, operators, fleet management companies and technology providers operating in the UK road haulage industry. Trends around the types of advanced services, barriers and enablers for their adoption were identified, and are presented here.

Primary data was collected through (a) a series of semi-structured interviews with senior executives within vehicle manufacturers, component manufacturers, operators, fleet management companies and technology providers operating in the UK road haulage industry and (b) several group discussion meetings to recognise the emerging best practices of the adoption of advanced services and to identify the key challenges. The secondary data has been collected through company reports and articles published by selected companies and publicly available on their websites, and government reports.

The report is intended to highlight the importance of advanced services for the future of the road haulage, and it concludes with some recommendations for those operating within the industry, and for the new government to take into account in setting its transport policy. We invite all of these parties to work with us to set the agenda for creating research, toolkits, models and guides on how the industry can overcome the challenges of implementing technology-enabled services, and reap the rewards they can deliver.

THE ROAD TRANSPORT INDUSTRY AND ITS CHALLENGES

Transport and logistics underpin all aspects of a successful economy, ensuring that products or services are available where and when they are needed, in good condition and at a competitive price. According to the UK government's latest figures, 68% of domestic freight goods are moved by road, compared with just 19% by water and 9% by rail (1).

Nevertheless, the road transport industry faces a number of challenges: the cost of fuel; congestion; emissions regulations and driver shortages to name a few (just 1% of employed drivers are under 25 (2). Operators' profit margins are just 3% (3) and leading manufacturers currently see an average 6% margin (4,5).

These operational and legislative factors combine to create difficult market conditions. However, this is only a part of the story; changing consumer shopping behaviours are turning the industry on its head. The leading players in retail and logistics now recognise that putting the customer's requirements at the heart of their operations is the only way to respond to the trend of online shopping (74% of adults bought goods or services online in the UK in 2014, compared with 53% in 2008 (6) and increased expectations around delivery, for example 'click and collect', faster delivery times and free delivery (7).

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It's clear that the industry has to change- radically- to cope with these conditions. In an industry with such tight margins, there is little to be gained from piecemeal changes to products or pricing. Demand chain management is crucial to the future of the industry.

It is against this backdrop that this report sets out to provide a snapshot of how advanced services, combined with technologies such as smart, connected products, are being adopted as a strategy for sustainable business growth by companies throughout the value chain in the UK's road transport industry.

WHAT ARE ADVANCED SERVICES?

The focus of the provider is on creating value for the customer or end user

Advanced services are provided by manufacturers and technology innovators who have an intimate understanding of the customers' key aims- and their difficulties in achieving these.

Providers offer a capability that helps the customer (or the customer's customer) to achieve these aims.

This capability is delivered by a package of a product and the services that go around the use of the product, and is provided and consumed as a single offering.

Delivering advanced services can be achieved either by a manufacturer operating alone, or by working in partnership with technology innovators, to develop the capacity and ability to provide services to customers

Services are focused on supporting the customer, rather than on the use of the product (see Figure 1).

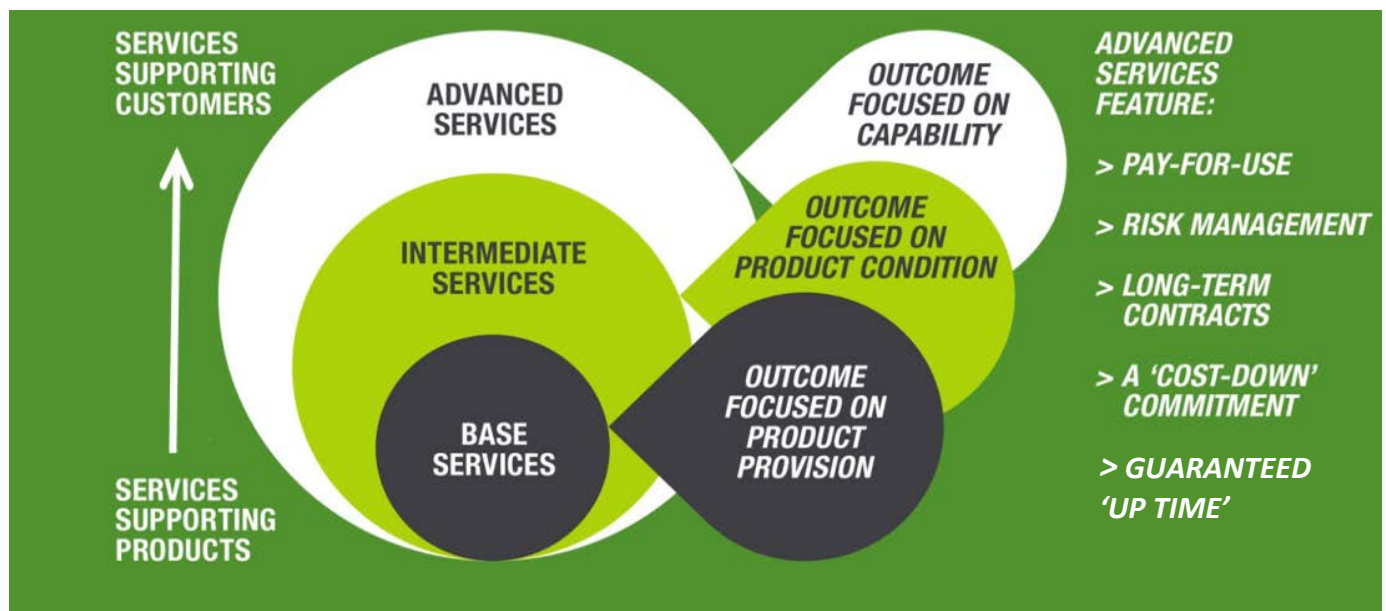


Figure 1: The characteristics of advanced services. Adapted from Made to Serve, Tim Baines and Howard Lightfoot, Wiley, 2013

COMMON FEATURES OF ADVANCED SERVICES

- ⇒ provided in long-term contracts
- ⇒ involve sharing of risk and reward between the customer and provider
- ⇒ often based on a pay-per-use model
- ⇒ give the customer a guarantee of a level of availability of the capability they are buying,
- ⇒ involve a commitment from the provider to help reduce the customer's operating costs

THE ROLE OF TECHNOLOGY

Most advanced services are enabled by technology, which has two main benefits. It enables the manufacturer to see how the product is being used by the customer, which reduces the risk of guaranteeing up time and having risk-share agreements, and makes pay-for-use models possible.

Secondly, it enables the manufacturer to identify and provide for service needs, advise the customer on optimising asset use, and work with the customer to create efficiencies in its operations.

THE TRANSFORMATION PROCESS

The business model and organisational transformation needed to deliver these services, moving on from product-sale transactions, and growing new revenue streams by offering services, is known as *servitization*.

EMERGENT ADVANCED SERVICES IN THE ROAD TRANSPORT INDUSTRY

Here we provide some good examples of advanced services emerging in order to help customers achieve their key business outcomes. However the research shows that the adoption of advanced services is still highly fragmented and inconsistent across the industry and **the pace of change is slow and incremental.**

VEHICLE CONDITION AND SAFETY

Technologies are used to provide real-time reporting about the condition and performance of the vehicle. This helps the service provider to see how the vehicle is being used by the customer, which mitigates the contractual risk, and gives opportunities for service and product improvement. KPIs include vehicle performance, fuel efficiency, breakdown incidents and maintenance data. The information can also be used to help fleet managers keep on top of costs and identify problem vehicles; this is done either by sharing the information with the customer, or by the manufacturer providing this function as a service.

In the interests of fuel efficiency and safety, manufacturers test tyre pressure and tread depth, with real-time reporting to alert the driver if either of these is outside of legal limits, and service operatives on hand to make repairs or replacements.

DRIVER RELATED SERVICES

Telematics provide visibility of how safely and efficiently the truck is being driven. They can report on incidents such as harsh braking, speeding and idling, and driving and rest periods and remaining driving time. This data is analysed to rank driver performance and identify and needs for improvement and training. Some operators use this data to manage their drivers' performance, offer bonuses for safe driving and provide training in-house. In other cases, manufacturers offer driver training and coaching for fleet managers in how to use analytics to improve efficiency and safety across all their driving staff.

ROUTE PLANNING AND DELIVERY SERVICES

Real-time reporting allows operators to see the journey progress of any vehicle at any time, and live traffic and incident reporting enables teams within operator businesses to plan and re-write routes to minimise disruption. Trend reports provided by the technology provider or manufacturer are used by customers to analyse trends on particular routes, turnaround times and waiting times on particular sites to provide an evidence base to help plan vehicle deployment. Data on deliveries made compared to schedule and actual routes driven compared to planned ones enable managers to analyse their company's performance levels and identify opportunities for improvement. Technologies that automate recording and processing of delivery and invoice processing help to speed up delivery and back-office processes and release staff time to more value-added activities such as route planning.

EVIDENCE OF IMPACT

The greatest efficiencies are achieved by maximising the uptime of vehicles, planning routes efficiently, and processing orders quickly and accurately. The use of available technologies and data by skilled route planning staff has been found to reduce mileage driven by up to 10%, and the use of POD technologies to process deliveries has generated a reduction of up to 80% in paperwork and management time, and a 10% reduction in returned orders (8). Uptime is maximised by reducing roadside failures thanks to greater visibility of the vehicle, its condition and how it's being used and operators can expect at least a 5-15% reduction in vehicle maintenance and service costs as a result (9).

GREATER EFFICIENCY

The ability to measure and analyse the performance of individual drivers, and obtain training where improvement is needed, has a significant impact on driving standards, and in turn the image of operators and the industry. Customers of a leading UK telematics provider see annual reductions in speeding incidents of up to 90%, and a reduction of up to 60% in the number of accidents (10). Improvements in fuel efficiency, in addition to providing cost savings, also help to demonstrate how the industry is committed to reducing its environmental impact. Evidence shows that operators are seeing a 5-15% reduction in carbon emissions as a result of optimised routes and better driving. (11)

SAFETY AND BETTER IMAGE

According to the Freight Transport Association, fuel represents on average of 30% of the cost of a vehicle (including vehicle standing costs, vehicle running costs and driver costs) (12). The average unit costs £49,000 per year in fuel (13). By enabling improvements in driving performance (fewer instances of harsh braking, correct use of cruise control, less speeding) and better, more informed route planning, technology is helping to deliver cost savings in terms of fuel usage. A 10% (£4-5000) saving on each unit's fuel consumption has been found to be highly achievable using some of the driver management and training tools available (14).

COST SAVINGS

THE BENEFITS OF ADVANCED SERVICES

The leading manufacturers and technology providers enable their customers (operators, fleet management companies, end users) to achieve their key strategic aims through the services they provide.

This focus on helping customers to achieve their own KPIs is how these manufacturers are differentiated from competitors, and delivers business growth and sustainability for both themselves and their customers.

For manufacturers and technology providers it generates long term contracts, closer relationships with customers, new business opportunities and revenue streams, and an enhanced image and market differentiation.

The customer is able to realise greater value from its operations, better understand and predict its costs and financial profile, and potentially have the opportunity to scale-up operations.

PREDICTABLE COSTS

LONG TERM CONTRACTS

NEW STREAMS OF REVENUE

NEW BUSINESS OPPORTUNITIES

GREATER VALUE FROM OPERATIONS

DIFFERENTIATION FROM COMPETITORS

BUSINESS GROWTH AND SUSTAINABILITY

ENABLERS AND INHIBITORS OF THE ADOPTION OF ADVANCED SERVICES

A *TOE* framework was used to analyse the factors that both enable and inhibit suppliers and potential customers in the road haulage industry in making decisions about whether, and how, to adopt technology-enabled services.

TOE (Technology, Organisation, Environment) is a framework that is used commonly to explain the decision making factors involved in organizational adoption of advanced information technology systems.

Technological factors are items such as features and characteristics of the technology, and the perceived and actual benefits and costs of the technology.

Organisational factors are aspects of the structure, culture, strategy, capability and capacity of the company- they are internal factors that can be controlled by the organisation.

Environmental factors are outside of the control of the company; they include legislation and policy, the structure and nature of the wider industry, and pressure from competitors and partners.

FACTORS INFLUENCING SUPPLIERS AND PROVIDERS OF SERVICES

Enablers	Inhibitors
Technological <ul style="list-style-type: none"> • Opportunities made possible by gathering the data: <ul style="list-style-type: none"> ○ product improvement ○ new services offerings ○ strategic positioning within the value network ○ mitigation of the risk of contracting through services due to increased visibility of the product 	Technological <ul style="list-style-type: none"> • Cost (both financial and opportunity costs) of developing new technologies
Organisational <ul style="list-style-type: none"> • Provides long-term relationships with customers • Creates opportunities to create and capture more value, for example through partnerships with other providers • Having a 'champion' within the company who works across departments at strategic level to lead the organisational transformation needed to design and deliver advanced services • A direct sales force within the service-providing manufacturer/ OEM which does not operate through dealerships 	Organisational <ul style="list-style-type: none"> • Lack of skilled people within the company to properly develop, sell and support service offerings • Resistance towards organisational change that would be required in order to develop and deliver advanced services • Lack of knowledge of how to define new services and value propositions • Lack of knowledge of how to develop technology-enabled services and how to transform a company to deliver these (servitization) • Ambiguity of strategic relationships within the value network (e.g. competitors, potential partners) • Lack of coordination among different operational functions (e.g. product development, aftersales, marketing etc within the company) • Lack of a 'home' within the company for advanced services offering; no single department or individual is responsible; no budget to fund the transformation
Environmental <ul style="list-style-type: none"> • Staying ahead of the game; the risk in not adopting advanced services is that if (or when) competitors do, they will attract your customers • Low margins on products across the industry; products are relatively standardised- thus there is an imperative to be distinctive in other ways • Financial incentives to develop new technologies (e.g. tax relief) • Customer demand (when at critical mass) 	Environmental <ul style="list-style-type: none"> • Lack of market demand is a potential risk • Regulations and legislation limit the scope and type of data capture possible

FACTORS AFFECTING CUSTOMERS OF SERVICES

Enablers	Inhibitors
Technological <ul style="list-style-type: none"> • Long term operational cost benefits delivered by the technology e.g. on fuel, tyres, maintenance • Critical mass will lead to a reduction in the cost of the technology 	Technological <ul style="list-style-type: none"> • High (or perceived high) costs of technology • Perception that technology is not sufficiently matured • Uncertainty about the ownership of data gathered through telematics and other technologies • Lack of integration among different platforms; users cannot get the full functionality they are looking for • Perceptions of a lack of data security
Organisational <ul style="list-style-type: none"> • A desire to improve productivity by reducing back office staff time spent collating and analysing performance data, and increase their capacity to focus on extracting value from the data • Flexibility in organisational roles to minimise employees' concern about reduced internal responsibility due to service adoption 	Organisational <ul style="list-style-type: none"> • Complex organisational structures, particularly of larger operators, slows and complicates decision making processes around adopting services • Mindsets and resistance to change and the introduction of technologies • Lack of a champion within the company who fully understands the opportunities of advanced services and the implications for the business and can drive the initiative across departmental silos • Perceived imbalance between the costs and benefits of receiving services • Lack of resources and skills within the organisation's staff to extract the full value from services • Lack of financial resource due to low margin industry
Environmental <ul style="list-style-type: none"> • Road safety regulations that require driver monitoring • Benefits to the environment including lower emissions, fuel consumption etc • Staying ahead of the game; the risk of not implementing services is a factor that drives companies to do this 	Environmental <ul style="list-style-type: none"> • Lack of regulations around data ownership and the perceived risk this creates

RECOMMENDATIONS

Analysis of the interviews with industry executives demonstrates that, while the benefits of advanced services are significant, a number of factors are limiting their adoption at present. It is recommended that the following factors are addressed in order to enable and accelerate progress:

FOR MANUFACTURERS

Ensure advanced services are properly led and embedded

The implementation of advanced services is a wide ranging, complex process that requires transformation and coordination of an entire organisation, with implications across design, sales and marketing, finance, contracting, staffing and more. In most companies, it does not fit neatly within the realm of one executive or department. Just as with any other organisational change, servitization needs a champion to lead the charge at the early stages, and inspire others to contribute to the transformation and generate buy-in across all departments.

Innovate with pricing models

Servitization provides an opportunity to 'be closer to the customer' which can also be facilitated by innovative pricing models. Instead of alternating between a fixed price or a use-based model, creative pricing models create signals that help to assure the prospective service user of the level of commitment, and create alignment of objectives between service provider and user.

A number of models could be considered, including: Gain-sharing models focus on the value and business improvement that are created for the service user; they encourage a true alignment of objectives but carry the disincentive that business improvement gains necessarily flatten out after a while which on their own could create a disincentive for the service provider. Incentive-based pricing models provide the service-provider with specific rewards when the service exceeds certain quality indicators; this model is more suitable in conjunction with traditional pricing.

Ensure staff members have the right skills

Selling services is a very different proposition to selling products, requiring different skills and different reward structures. A major inhibitor for manufacturers in developing services is that they don't feel there is yet the market demand from customers to warrant the investment. They may well need to invest in training their staff to be able to deliver these new types of role, and consider the incentive and reward structures that will generate the desired outcomes.

FOR OPERATORS

Do a full cost-benefit analysis

The cost of adopting technology-enabled services can seem prohibitive to operators, particularly in an industry with low margins and few extra resources to invest in strategic initiatives. Nevertheless, many of those operators that have fully evaluated the long-term cost and efficiency benefits against short-term outlay have realised that the benefits can far outweigh the costs, and make the investment worthwhile. Cost sharing models might also help to reduce the initial price of technologies.

FOR GOVERNMENT

Create financial incentives to innovate

This is an industry with low margins, suffering a lack of investment as a result. It is difficult for manufacturers to stimulate customer demand for new technologies which are expensive due to their new and innovative nature.

They might deliver significant efficiency savings and environmental benefits down the line, but the upfront cost can be seen as prohibitive. Without a market, investment by manufacturers in the development of these technologies is too great a risk.

Manufacturers and technology developers are calling for the government to provide financial incentives such as tax relief or a reduction on operators' licences to enable them to fund the development of technologies that enable efficiencies, and ultimately make them more affordable to customers.

Provide clearer data legislation

The gathering, use, ownership and exploitation of user data is a rapidly changing field, with great uncertainty on both sides of the relationship. More refined and responsive legislation would help to define relationships and reduce perceived risks, so removing a major barrier to customer demand.

While service providers rely on the use-data to refine their operations, the service users also want to access the use data in the format and level of detail that is of most value to them, and to utilize it in any way they like. Lock-in due to proprietary or incompatible data format is a legitimate concern for a company that wants to utilize the data. Government pressure to establish industry standards that assure a service-user unrestricted access to, and movement of, data would minimize these concerns.

NEXT STEPS AND ABOUT THE AUTHORS

It is in the interest of all parties involved that business sustainability and growth are delivered throughout the value chain

This report demonstrates that the implementation and adoption of advanced services are beginning to gain traction within the UK road transport industry. There are some examples of advanced services emerging in order to help customers achieve their strategic priorities.

However the research shows that there is a long way to go for this to be common practice across the industry.

ACCELERATING CHANGE

The Aston Centre for Servitization Research and Practice is developing a holistic approach to enable the road transport industry to capture the value that is not currently being recognised.

This is delivered through a formalised research and practice community, which will focus on:

- ⇒ identifying and analysing the best practices within and outside this industry
- ⇒ development of business performance measurement indexes specifically related to the adoption of advanced services,
- ⇒ exploration of the key parameters of organisational change and business model innovation required to move towards advanced services.

Through these objectives the community will promote knowledge sharing and collaborative learning to accelerate the pace of transformation.

Situated at the heart of the West Midlands region, the Aston Centre for Servitization Research and Practice is the world's first and only centre dedicated entirely to understanding and promoting servitization. It incorporates researchers, practitioners and industry leaders with a unique depth of knowledge and experience of the models, frameworks and practical requirements of this transformation process.

THE RESEARCH TEAM

Its aims are to:

- ⇒ undertake world-class, industry-based research
- ⇒ spread awareness of servitization throughout industry and develop the tools and techniques for its adoption
- ⇒ develop leaders and practitioners across the globe with the skills to drive and implement business model transformation

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