

A large, abstract graphic consisting of several overlapping, flowing, blue and white curved lines that create a sense of motion and depth. The lines are smooth and have a slight gradient, giving them a three-dimensional appearance.

**Whitepaper**

**Accelerating the CSP to DSP  
transformation journey: next  
generation overlay platforms**

*May 2017*

John Abraham

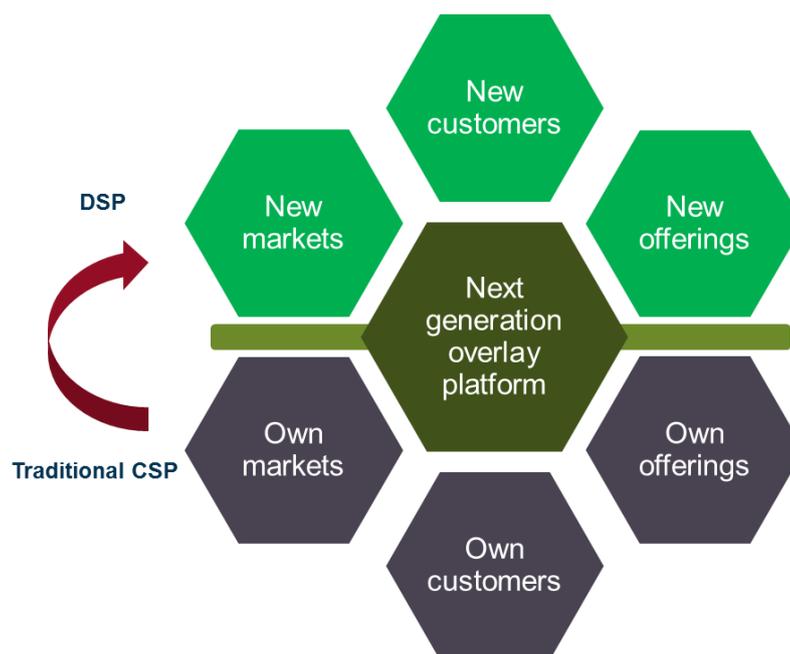
# 1. Executive summary

With voice and messaging revenues declining and mobile data consumption skyrocketing, CSPs need to make considerable investments in upgrading their infrastructure to support the rising demand for data services. In addition to this, while many CSPs have a plan in place to digitise their operations, most are weighed down by time constraints and the complexity in transforming systems. The combination of these investment pressures means that the strategy for modernising and transforming existing support systems needs to be considered carefully. Next generation overlay platforms offer CSPs a cost-effective way to transform complex, disparate legacy systems without waiting for a large-scale transformation of the IT landscape.

The growth of the digital economy in the past decade has upended traditional business models and strategies. The ubiquity of the internet and the penetration of smartphones have brought about a radical shift in how businesses develop and promote and how customers perceive and engage. These changes have mostly been driven by online digital companies who leverage the power of the internet to build a network of participants adding value through multi-dimensional interaction flows, thereby creating self-sustainable thriving ecosystems. The need to participate and enable new business models that leverage IoT, Big Data Analytics and business intelligence is fast becoming a major imperative for all CSPs.

The adoption of a platform layer over existing silos that can abstract and encapsulate information from multiple existing systems, and simultaneously leverage multi-tenant capabilities to rapidly introduce new third party service providers on a single platform, enables CSPs to rapidly support new digital services, offered by partners or directly, as well as address new markets with bundles of existing services and new digital services. As can be seen in figure 1, this approach helps CSPs swiftly shift towards becoming DSPs by leveraging the power of the platform to address new opportunities.

**Figure 1: A next generation overlay platform helps CSPs address opportunities beyond their current markets and customers by providing capability to support new markets and new customers [Source: Analysys Mason, 2016]**



Essential to the effective monetisation of emerging digital economy use cases are robust platforms that can offer extensive support for the design, development, deployment and management of third party services. For CSPs to be significant players in the wider digital economy and effectively monetise and leverage third party services in addition to their traditional services, such digital ecosystem management capabilities will need to be introduced into their existing IT landscapes.

## 2. Recommendations

1. **CSPs who are planning to modernise support systems should closely consider the next generation overlay approach to system transformation.** The presence of intricate legacy support systems can be a huge impediment when it comes to digitising CSP operations. Next generation overlay approach to system transformation offers a swift, cost-effective alternative to transforming such complex frameworks. This approach is complementary to other mainstream transformation approaches and allows the CSP to support new services and partners in the short term even as the wider transformation programme is underway. It offers a fast-track approach to introducing new services and bundles of services in a short space of time, without mass disruption of existing legacy.
2. **CSPs planning for a transition to a digital service provider (DSP) should be prepared to introduce external services and build an ecosystem of partners who can add value to the overall offerings.** The successful transitioning of a CSP into a DSP will depend on how well it can engage with third party partners in onboarding and enabling the third parties to offer their services in addition and in combination with its existing services. To do this, CSPs will need to overcome the challenges of bundling offerings over legacy siloed architecture that impede free flow of information between systems, and in addition, manage new services from third party providers without contributing to existing IT spaghetti. Deploying a light touch platform over legacy system silos will help abstract and encapsulate information from these systems which can be leveraged to enable rapid introduction of new third party services.
3. **CSPs should ensure future-proof, support architectures.** Agility, low latency and re-usability are crucial to ensuring that platforms deployed today can support future use cases without significant modification. When investing in new support platforms, CSPs should look beyond immediate business requirements and instead invest in a digital ecosystem management infrastructure that can support emerging, partner-led use cases as the platform of the future.

## 3. Next generation overlay systems offer CSPs a cost-effective alternative to system transformation

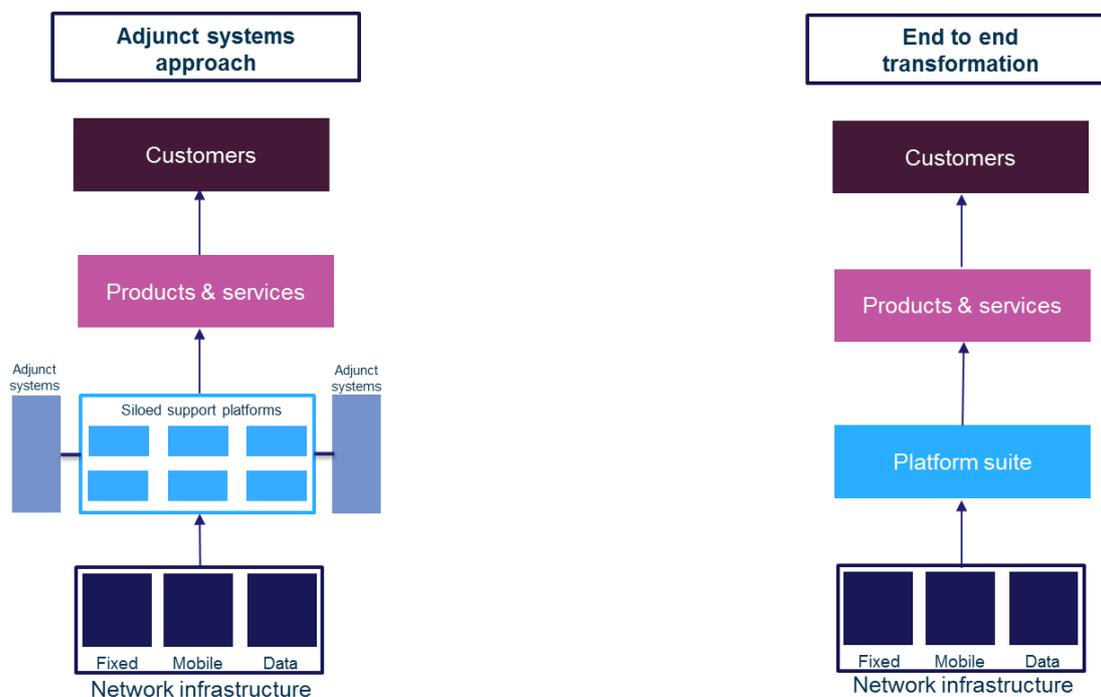
Most CSP support systems are a mix of old and new, often disparate silos developed over many years to satisfy different strategies and requirements. From a CSP's perspective, the biggest bottleneck that holds back timely introduction of new products and services is the complexity and chaos of existing systems. As CSPs set out to digitise operations, they are forced to design around existing legacy framework, which in most cases impedes them from fully realising the potential of next generation services.

In a recent Analysys Mason survey of over 15 CSPs in the EMEA region, over 50% said they preferred to deploy an adjunct system for digitising their operations while around 30% CSPs opted for end-to-end transformation and the others planned to either modify existing systems or do it internally. This reflects most CSPs' typical behaviour when it comes to transforming support systems.

Deploying an adjunct system to support a specific requirement is a popular method of system transformation. In this approach, CSPs usually pick a best-of breed solution and then integrate it with the legacy framework. The primary attractiveness of this approach is that it bypasses complex integration challenges by being set up as a silo with only essential interface points to the rest of the architecture. Moreover, it can usually be deployed within months and is relatively cost effective. The problem, however, is that in the long run, this approach does not help address a CSP's system complexity issue. It effectively adds one more silo to an already complex architecture, making the eventual consolidation of support platforms even more painful. In addition, many of these systems have been customised to meet specific CSP requirements, which means expanding the capabilities of the system at a later stage will involve expensive change requests.

The big bang, end-to-end transformation of all support systems is the other common approach. This involves replacing all disparate legacy systems with a modular, pre-integrated stack, usually from a single vendor, such that all interactions between the component systems are internalised. While this approach typically involves a massive investment in time, cost and resourcing, CSPs that adopt it view it as a one-stop mechanism to fix all their growth pains from a system perspective. However, there are several inherent challenges to such a widespread change. For one, because it is expensive, risky and complex, approvals and support from the highest levels of decision making are required, which can result in lengthy time delays. Even once the project is underway, planning and engineering for the new process and system framework can be challenging, as CSPs are typically organised by traditional silos and any attempts to shift the organisation to a new data-driven, open systems' culture will be met with resistance. But the biggest challenge in such large transformations is that overall integration can span multiple years, increasing the probability that the market environment or the CSP's businesses would have evolved, rendering some of the transformation irrelevant.

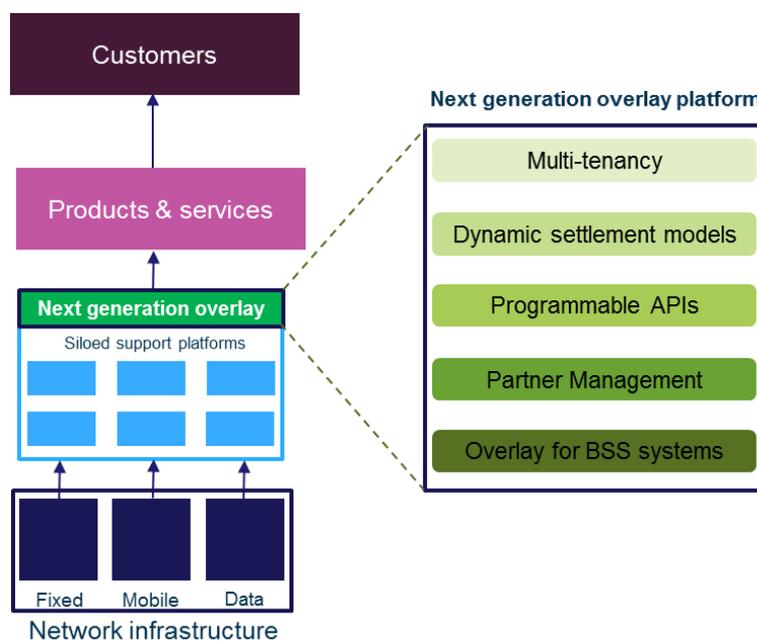
**Figure 2: High level view of the two most popular approaches to transformation [Source: Analysys Mason, 2016]**



The next generation overlay approach provides an alternative way for transforming CSP support systems. It is a low risk approach, comparable to deploying an adjunct system, while also providing the capability to create short

term gains through its agile, light touch architecture. But unlike a typical adjunct system deployment, the next generation overlay platform complements any ongoing end to end transformation programme and has the potential to become the building block for the CSP's next generation support system framework. As can be seen in figure 3, the next generation overlay platform at its most basic is a layer over disparate system silos, that can abstract relevant customer and service information into a single layer, helping with better customer understanding and creating the ability to offer service bundles from across a variety of existing systems. In addition, an overlay approach also provides multi-tenant partner management capabilities which support complex partner process flows, support for programmable APIs which allow third party applications to be seamlessly ported on to the CSP platform, and provision of complex billing and settlement models. Above all, the platform is multi-tenanted, which allows each partner or tenant on the platform to utilise the full capability of the platform while at the same time freely sharing information between themselves as much or as little as they choose. This allows the platform to quickly scale and potentially become a platform of platforms.

**Figure 3: Overview of the next generation overlay platform [Source: Analysys Mason, 2016]**



When it comes to digital transformations, because of the huge complexities involved, it can take an extended period for CSPs to decide on the strategy, select the vendor, finalise the architecture and start the deployment. This is where the next generation overlay platform excels. As can be seen from figure 4, the next generation overlay approach does not compete with other traditional transformation approaches, but is instead complementary. The cost and complexity of deploying a next generation overlay platform is comparable to that of an adjunct platform, which means for CSPs there are fewer challenges or risks for deploying these platforms. And because of its agile, light touch architecture, it can be repurposed to support the new architecture once the CSP has completed the overall transformation of the underlying legacy systems.

**Figure 4: How next generation overlay approach compares with traditional models of transforming legacy BSS systems [Source: Analysys Mason, 2016]**

	End to end transformation	OR	Adjunct		Next generation overlay	Key benefits of next generation overlay
Time	Can take multiple years for mid to large CSPs		From three to six months in most cases	+	From three to six months in most cases	<ul style="list-style-type: none"> <li>• Much improved systems agility</li> <li>• Shorter time to market for new offerings</li> <li>• Significantly higher return on investments</li> <li>• Ability to serve new markets</li> <li>• Enhanced customer personalisation</li> </ul>
Cost	Significant sunk investments upfront		Moderate investments required		Low cost	
Risk	High risk due to the large scale changes involved		Low risk		Low risk	
Complexity	The transition to new systems and processes can be very complex.		Moderately complex due to the legacy system integrations involved.		Moderately complex depending on type of legacy systems	

For most CSPs, the biggest benefit from deploying such a platform will be the business agility in rapidly bringing to market new products and services and launching innovative bundled offerings. Analysys Mason research shows that as consumers add more services to a bundle, their loyalty increases. For many CSPs, introducing bundled offerings from across multiple lines of business is technically very challenging due to the limitations of disparate legacy systems. The next generation overlay platform helps overcome this issue in a short timeframe by consolidating information from across services and functions which allow the CSP to bundle together different services without a largescale transformation of the underlying architecture.

There are other significant benefits to this approach, such as the ability to serve entirely new markets by aggregating services from multiple partners. CSPs could potentially even bundle these partner services alongside their own offerings. The new platform also allows deeper customer understanding driven by the ability to consolidate customer information from across multiple systems onto a single platform which drive improve customer experience through more personalised experiences and customised offerings. From a savings perspective, the next generation overlay platform can trigger the beginning of the end for CSPs' continuous investments into legacy platforms which cannot support new use cases. Over time, this can lead to significant cost savings for the CSP.

## 4. Changing business models drive the need for CSPs to shift from pipes to platforms

The explosive growth of the digital economy over the past decade has disrupted traditional business models and created radically new control flows. The emerging digitally enabled business model is characterised by multi-dimensional flows where a network of participants come together to create value in totality. While CSP-owned network infrastructures are key enablers of digital economy services, CSP services, even voice and messaging, have struggled to retain influence in the face of over-the-top (OTT) competition.

In the past, CSPs typically internalised all services. The focus was mainly on improving network infrastructure which would expand coverage, lead to greater number of users and therefore increase revenues. CSPs rarely engaged with third party vendors for content or services and when they did, it was usually on their own terms. CSPs could afford to function this way since they had a stranglehold over what its customers experienced through its networks. However, the penetration of mobile internet disrupted traditional service delivery models and lowered the barriers to entry, which triggered an avalanche of alternate services from OTT providers and jeopardised CSPs hegemony in services.

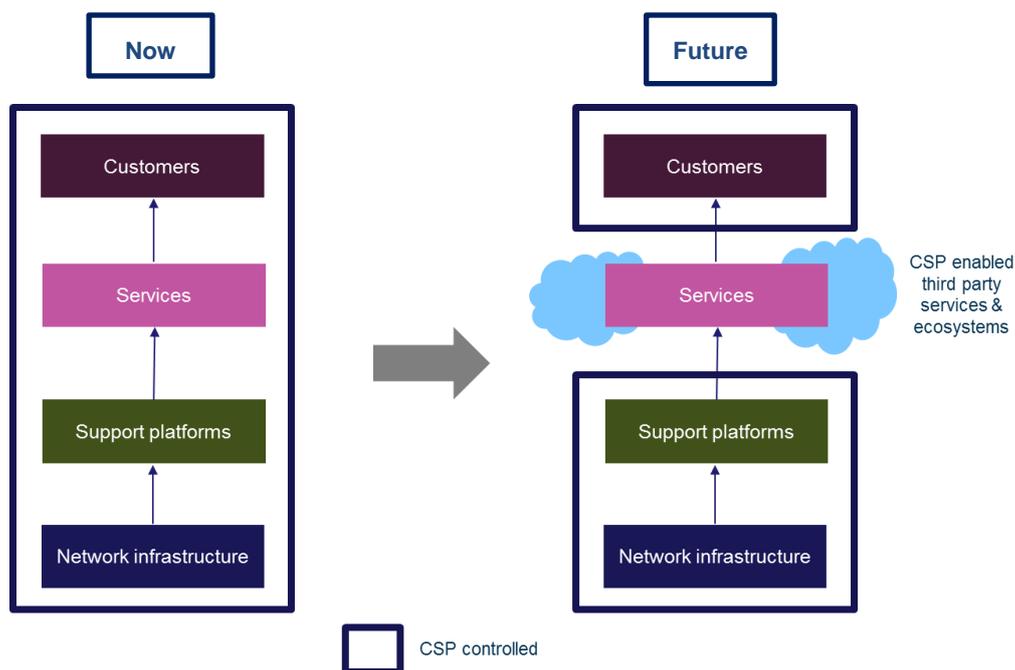
Unlike in the past when CSPs developed their own services and closely controlled what partner services were available to their customers, CSPs today have little control over the services their subscribers consume over a data pipe. The emphasis here has shifted to focusing on developing an ecosystem of third party services around existing CSP infrastructure. Within most CSPs however, the existing legacy support infrastructure can be a huge bottleneck when it comes to offering support for partner services and adopting new business models. The systems deployed in the past decades to support different types of services have left behind a spaghetti of archaic silos. Over time, these systems were extended through a series of expansions that has further cluttered the architecture. In such an environment, CSPs are forced to design around existing complex systems, which is expensive and can be severely limiting in fully realising the potential for next generation services.

**KEY BENEFITS**

- ❖ **Short time to market**
- ❖ **Business agility**
- ❖ **Customer understanding**
- ❖ **New customer acquisition**
- ❖ **Enhanced partner services**
- ❖ **Cost savings**

In the current environment, having the capability to both enable and provide digital services is of vital importance to a CSP, to evolve from simply being a provider of connectivity services to being a DSP, and developing an ecosystem of services built around CSP infrastructure. Critical to a CSP's aspirations of successfully transitioning into a DSP is how well it can externalise its services as seen in figure 5 and build a thriving partner ecosystem around it. This calls for a radical shift from how CSPs are organised today, beginning with putting in place a multi-dimensional, multi-tenant platform that can enable and support a variety of third party applications in addition to existing legacy services.

**Figure 5: Overview of how the DSP model differs from the traditional CSP model in that services are enabled and not controlled [Source: Analysys Mason, 2016]**



From the CSPs' perspective, externalising services would mean ceding control over the development of services while enhancing the overall value of the ecosystem by playing the role of an enabler. That is to say the CSPs would need to retain control over the governance of the platform while offering appropriate flexibility for partners to include their services seamlessly into the CSP ecosystem. In this scenario CSPs should also be capable of offering relevant insights on how consumers engage, consume and create to ensure that partners can personalise and tailor services to suit customer interests.

## 5. Use cases

This section addresses how a next generation overlay platform helps CSPs address opportunities beyond their current markets and customers by providing capability to support new markets and new customers. For CSPs who are planning to modernise support systems, the next generation overlay approach offers a swift, cost-effective alternative to transformation. The transitioning of a CSP into a DSP is accelerated by the light-touch deployment of a multi-dimensional, multi-tenant platform that can enable and support a variety of third party applications in addition to existing legacy services in the existing IT landscape. Analysys Mason looked at two CSPs who have successfully undergone business transformation following these principles.

### 5.1 eir Ireland undergoes rapid transformation from separate service silos to integrated bundles

eir is the largest CSP in Ireland with over 2 million fixed and mobile subscribers across its retail and wholesale businesses. eir historically divided its services into three business units: consumer, business and wholesale. Some of the BSS systems in use to support these business units were several decades old and could not support multi-play bundles or next-generation services. The three business units were unable to meet their own individual needs with the existing systems or even create a single consolidated bill for customers subscribing to multiple services.

eir initially embarked on a large-scale BSS transformation programme, but after two years of rising costs and no actual deliveries, decided to terminate the project. It then adopted a different approach to transforming its operations by focussing on delivering bundled offerings. As a result, eir prioritised deploying a platform that could produce a single bill for customers who had subscribed to more than one service. The new platform was also expected to support the separation of the wholesale and retail entities in line with new regulatory requirements in the Irish telecommunications market.

eir selected the Infonova R6 platform for its system transformation, favouring its ability to offer quick, inexpensive implementation with multi-tenancy capabilities. The new platform went live within 12 months, supporting PSTN, xDSL and broadband triple-play bundles and supported quad-play bundles within 18 months. The rapid deployment and launch was a big win for eir, helping the company overcome previous failures to transform its support systems. The new platform makes it easier to track customers at an account level and offer personalised offers, improving loyalty. It has also enabled eir to apply credit scoring techniques to fixed customers (previously it was available only for mobile consumers) and move quickly into new revenue opportunities such as offering support for xVNOs. In addition, there has also been a substantial improvement in customer experience and call centre efficiency through streamlined interfaces and data consistency. Overall the value from the transformation has exceeded eir's expectation.

### 5.2 BT revamps support systems to support its Compute portfolio

BT is a leading provider of managed network IT services, serving over 6500 large corporate customers. The BT Cloud Compute offering is available in 20 countries across five continents and is used by companies from across industry verticals.

BT wanted to incorporate an additional set of cloud offerings, such as, storage, various applications and other third party services to broaden its compute (VM's) global offering in a utility model so that customers can buy these services in bundles through a "shopping cart" in the appropriate language and currency. It was key that customers are provided access to these services globally, leveraging SSO (single sign on) to enable full use of the features and functions of the application's native UI.

This necessitated the consolidation of operations onto one platform to enable the customer management, authentication and usage-based billing of different cloud services provided by different underlying platforms. In addition, multi-tenancy was an important requirement to support BT objectives to enable various scenarios such as hybrid public / private and other cloud services operations by third party services leveraging BT's Compute portfolio. The platform was also required to integrate with BT strategic systems, (customer management and invoicing systems) multiple cloud management platforms (Citrix, Caringo, Appcara etc.) and service partners (AWS, Cisco, Equinix, HP, Microsoft and Salesforce) with the possibility to integrate to further cloud service technologies.

Integrated within CMS, Infonova R6 platform has enabled BT to improve the time to market to get new compute and cloud services, and reduced the usual implementation cost. The new platform allows BT to provide white-label facilities to third parties and enables these players to offer and monetize their services as bundles in combination with BT's services. This radically improves the range of services available to BT to re-sell and opens new revenue opportunities especially in ITO and BPO streams, some of which require BT to enable the customer to be a tenant. Further, BT is now also able to support complex settlement accounting and cost allocation with all its subsidiaries and partners across the globe.

## About the author



**John Abraham (Senior Analyst)** is part of the BSS practice in Analysys Mason's Telecoms Software Research team. He leads our Revenue Management programme and contributes to mobile money research for the Digital Economy Software Strategies programme. John has been part of the telecoms industry since 2006, and joined Analysys Mason in early 2012. He has worked on a range of telecoms operator projects in Africa, Europe, India and the Middle East. Before joining Analysys Mason, he worked for Subex, a provider of BSS offerings. John holds a bachelor's degree in computer science from Anna University (India) and an MBA from Bradford University School of Management (UK).

This white paper is an independent research report sponsored by BearingPoint.

---

Published by Analysys Mason Limited • Bush House • North West Wing • Aldwych • London • WC2B 4PJ • UK  
Tel: +44 (0)20 7395 9000 • Email: [research@analysysmason.com](mailto:research@analysysmason.com) • [www.analysysmason.com/research](http://www.analysysmason.com/research)

Registered in England No. 5177472

© Analysys Mason Limited 2016

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, mechanical, photocopying, recording or otherwise – without the prior written permission of the publisher.

Figures and projections contained in this report are based on publicly available information only and are produced by the Research Division of Analysys Mason Limited independently of any client-specific work within Analysys Mason Limited. The opinions expressed are those of the stated authors only.

Analysys Mason Limited recognises that many terms appearing in this report are proprietary; all such trademarks are acknowledged and every effort has been made to indicate them by the normal UK publishing practice of capitalisation. However, the presence of a term, in whatever form, does not affect its legal status as a trademark.

Analysys Mason Limited maintains that all reasonable care and skill have been used in the compilation of this publication. However, Analysys Mason Limited shall not be under any liability for loss or damage (including consequential loss) whatsoever or howsoever arising as a result of the use of this publication by the customer, his servants, agents or any third party.