

# Review of the Australian Communications and Media Authority

## A submission to the Department of Communications Issues Paper

August 2015

Alcatel-Lucent welcomes the opportunity to respond to the Department of Communications Issues Paper, *'Review of the Australian Communications and Media Authority'*. As a leading player in the global communications sector, and contributor to the Australian market over many decades, Alcatel-Lucent is well placed to provide insight on market and technology trends, including industry structure and regulatory practice.

Communications, encompassing the broadcasting, telecommunications, radiocommunications and internet responsibilities of the Australian Communications and Media Authority (ACMA), is an increasingly dynamic and essential component of society and the broader economy.

As the Issues Paper points out, technology is becoming more capable, ubiquitous and connected. This trend is producing significant opportunity for productivity, innovation and growth in all sectors of the economy, and also raising new considerations about how to best ensure countries like Australia can take advantage.

Having a balanced, flexible and forward thinking regulatory environment and regulator will be key to unlocking these opportunities, and this review is a timely opportunity to consider how Australia may appropriately design the future objectives, functions, structure, governance of its communications regulator.

Most important will be how this review considers the emerging environment of co-dependent players and how a future regulator can enhance this environment for benefit of industry, consumers and the national economy.

## About Alcatel-Lucent

Alcatel-Lucent (Euronext Paris and NYSE: ALU) is the leading IP networking, ultra-broadband access and cloud technology specialist. We are dedicated to making global communications more innovative, sustainable and accessible for people, businesses and governments worldwide. Our mission is to invent and deliver trusted networks to help our customers unleash their value. Every success has its network.

Alcatel-Lucent plays a leading role and brings unique perspective in transforming public safety communications through the use of commercial broadband technologies. Our engagements include active participation in the 3GPP standardisation body to standardise features specific to support of public safety communications, working in the United States to transform the public safety spectrum band for commercial broadband technologies, and the operation of public safety wireless networks in countries such as Germany and Austria.

For more information, visit Alcatel-Lucent on: <http://www.alcatel-lucent.com>, read the latest posts on the Alcatel-Lucent blog <http://www.alcatel-lucent.com/blog> and follow the Company on Twitter: [http://twitter.com/Alcatel\\_Lucent](http://twitter.com/Alcatel_Lucent)

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# General Commentary

## Balance

At a global level the telecommunications sector faces a socio-economical paradox where national regulators and policy makers must balance competing agendas to ensure the best possible outcomes.

One side of the paradox is the dominant national legacy and history of telecommunications as a public monopolistic utility, and the inextricable importance of connectivity to today's world, where ensuring ubiquitous access at the lowest cost possible is increasingly an objective of national governments.

On the other hand, there is a globally accepted desire that fully or partially privatised former incumbents act as rational economic players in a competitive market with the natural objectives of commercial business, such as profitability and return on investment.

Regulation and public policy should always keep in mind both legacy public-good and emerging business objectives to achieve a subtle and effective equilibrium.

The credibility and effectiveness of a regulatory framework - and hence its ability to facilitate private investment and competition - varies globally according national political and social institutions. Political and social institutions not only impact the ability to restrain administrative action, but they also have an independent impact on the type of regulation that can be implemented, and hence on the appropriate balance between commitment and flexibility, monopoly and competition.

In order to create a dynamic and effective competitive landscape, it is important to strike a balance between consumer benefits, competition and the economical sustainability of the communications industry. A new equilibrium for value chain distribution is needed. It would require a three steps approach:

- Operators should be allowed to monetise the data flow through service differentiation which is key to foster innovation, new services and meet demand for different levels of quality. For instance, in addition to providing best effort delivery, operators should develop their capability of providing end-to-end Quality of Service (QoS), for example, by providing of Cloud and Content Distribution Networks (CDN).
- New business models should be based on a two-sided market approach driving commercial agreements while preserving openness and non-discrimination rules. It includes provide quality-assured IP interconnection, including cyber-security features, or trusted parties and business services across multiple networks
- New economic models should enable network operators to increase their revenues either through end-user subscription raise or differentiated data plans. Unlimited data plans have shown their limits when operators are required to heavily invest to maintain high end-user quality of experience.

As ICT is becoming a vital element to national growth and competitiveness, the work of a regulator should be aligned as much as possible with policy objectives set at government level. A strong statement of objective for a future Australian regulator may be a good starting point for such an outcome.

## **Evolving Environment**

One of the major challenges to designing an optimal future regulator is that the communications environment is constantly evolving, subject to continuous innovation and disruption.

Alcatel-Lucent is supportive of the view put forward in the Issues Paper that we should consider the sector through a horizontal layer approach. Taking this approach can provide a guide for the behaviour of a regulator in ensuring healthy and sustainable competition at each layer and avoiding gridlocks between any layers that become inter-dependant. Indeed, it may help to guide a statement of objective of a future regulator.

As outlined in the Issues Paper, telecommunications and ICT is becoming increasingly pervasive in sectors across society, including but far from limited to health, education and transport. As this trend continues to develop, cross-sector coordination will become an increasingly important consideration for policy and regulation. Indeed, many current regulatory and policy environments still work in 'silo' approach where decisions are made in isolation and separate communications networks and/or capabilities are built in parallel.

There is a strong opportunity currently available for telecommunications and ICT policy leaders to come together with their counterparts in other sectors to formulate common strategies. Government and the national interest may significantly benefit from work on converging ICT policy that aligns with other sectoral policy objectives in areas such as energy, health, education, in order to maximise impact. It is likely that this opportunity will become more pronounced and action more urgent as growth accelerates in the emerging environments of Machine-To-Machine (M2M) and Internet of Things (IoT).

In this regard, the ACMA should be enabled to establish more cross sector analysis and recommendations for policy engagements that ensure ongoing positive industry and consumer outcomes.

## **Embracing Co-Dependency for Growth of the National Digital Economy**

Australia has set a strong ambition to capture opportunities presented by the emerging digital economy. It is important to recognise that a range of factors will impact Australia's ability to realise this vision of a dynamic digital market. Certainly one requirement will be a future regulator that understands and can flexibly promote a complex service delivery environment encompassing retail and business consumers, today's retail and wholesale service providers, early phase digital content providers as well as the full range of future digital application services providers.

In this regard, Alcatel-Lucent has published a strategic white paper outlining the complex array of technology, process and systems components required to deliver digital services. The paper contends that by recognising the opportunities and several key principles, Australia can maximise its ability to grow and capitalise on the strategic and economic potential of the digital economy. Legacy practices won't suffice.

We have included this strategic white paper, *The Future of Digital Services Delivery*, as an offering to inform discussion around a future regulator in Australia. It is attached as an appendix to this submission and may form the basis for follow-up discussions if this is considered of use to the review.

## Appendix

Alcatel-Lucent strategic white paper, 2015

*The Future of Digital Services Delivery: Embracing co-dependency for growth of the national digital economy*

# The Future of Digital Services Delivery

## Embracing co-dependency for growth of the National Digital Economy

July 2015

Australia has set a strong ambition to capture opportunities presented by the emerging digital economy. While much discussion has focussed on the significant investment being made in broadband infrastructure, it is important to recognise that a range of other factors will also impact Australia's ability to realise this vision of a dynamic digital market. Not least will be the requirement for the highest levels of satisfaction across a complex service delivery environment encompassing retail and business consumers, today's retail and wholesale service providers, early phase digital content providers as well as the full range of future digital application services providers.

This challenge transcends access network architecture and technology considerations, while highlighting the complex array of technology, process and systems components required to deliver digital services in the global marketplace. Successfully addressing this challenge is fundamental to ensuring Australia develops an effective service delivery ecosystem to underpin its digital future.

This paper makes the case for industry to turn its attention to the operational market structure and processes that will support this future environment, together with the key multi-party relationships and interdependencies that will underpin the required high levels of user experience. It contends that by recognising the opportunities and several key principles, the Australian telecommunications services sector can maximise its ability to grow and capitalise on the strategic and economic potential of the digital economy.

## Executive summary

There is strong recognition of the significant contribution of digital services to economic performance, and ultra-broadband access as their key enabler. In Australia, the growth of e-commerce has consistently outpaced GPD growth over the last decade<sup>1,3</sup> while the pervasive reliance on connectivity and new digital tools in everyday personal and business activities reinforce their real and direct impact on economic performance.

Recent studies highlight the significant influence of telecommunications and digital services in the Australian economy. Infrastructure Australia<sup>2</sup> calculates the direct economic contribution of telecommunications services to total \$42 billion by 2031, an increase of 101% from 2011, driven by the growing range of available services. Deloitte Access Economics<sup>3</sup> estimates that the broader digital economy will grow to contribute as much as \$139 billion by 2020 (7.3% of GDP).

Australia's NBN is supported with this economic benefit in mind. The project envisages a national open-access wholesale platform that accelerates the availability of retail ultra-broadband services and stimulates competitive innovation in digital content, applications and services - all with positive impact to consumer participation, business productivity and government service delivery.

While provision of ultra-broadband access is considered a critical enabler for this vision, several visible trends demonstrate a broader set of challenges and opportunities that must be addressed as the telecommunications sector enters a critical period of transformation. These relate to: the proliferation of services from 'beyond the network', i.e. no longer bound to the capabilities of network-resident facilities; the business profile of emerging digital service providers - specialised, global in scale and unrestrained by existing service constructs; and virtualisation of traditionally-physical service infrastructure through the adoption of Network Functions Virtualisation (NFV) and Software Defined Networking (SDN) technologies, which are lowering barriers to entry for new entities.

In this emerging market environment, the traditional relationships between individual or business consumers and their telecommunications service providers will evolve and in some cases be supplanted by new relationships. Further, in a world enabled by a ubiquitous open-access platform, the customer, service provider and application delivery roles become multi-party and interdependent. This implies a complex, high-stakes environment in which multiple and co-dependent parties are all demanding, and must themselves contribute to, the delivery of an assured level of user experience.

Given its significance, we can expect this emerging digital market environment to challenge many existing regulatory, investment and economic models. As a result, proactively evolving the ecosystem to address known and emerging trends will be critical to success, and the broader growth of a national digital economy.

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1 Australian Bureau of Statistics, 2014, Catalogues: #8166 - Summary of IT Use and Innovation in Australian Business; #5206 - Australian National Accounts, National Income, Expenditure and Products.

2 Infrastructure Australia, 2015, *Australian Infrastructure Audit: Our Infrastructure Challenges*

3 Deloitte Access Economics, 2015, *The Connected Continent II, How digital technology is transforming the Australian economy*

While this is a daunting and complex challenge with no single solution, Alcatel-Lucent has identified several key aspects to inform a framework for addressing the emerging market, and stimulating Australia's digital delivery ecosystem. This paper suggests a set of enduring principles to guide effective progress in enhancing customer experience and responding to this co-dependent delivery environment:

- Transparency across multi-party actions
- Empowerment for great customer experience
- Automation enabling proactivity
- Measurement driving improvement
- Data accuracy for consistent understanding
- Flexible re-use for innovative service evolution

These principles, when applied to market-wide initiatives for service delivery, performance assurance and supporting systems, offer the potential to enhance innovation and sustainability across the digital services market.

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## A digital services future

Across the global Information and Communications Technology (ICT) industry, progression towards the year 2020 is characterised by significant and accelerating transitions. User behaviour, once dominated by email, web search and the beginnings of online commerce, is being both supplanted and enhanced by the pervasive digital technologies of cloud platforms, lower cost smart devices and ubiquitous social networks. At a macro level this transition is reinforced by governments and businesses that understand the critical economic reliance on effective telecommunications and digital services.

By 2020, digital services will be making recognisable and meaningful contribution to economic growth, and will strongly influence the evolution of today's telecommunications sector structure and role in the marketplace. Ubiquitous, open-access, ultra-broadband networks will be a substantial enabling advantage for Australia. However it is important for all stakeholders to understand the evolving environment that will underpin and further stimulate a dynamic digital services market.

### National Digital Economy Transformation

There is broad recognition of the increasing economic influence of telecommunications and the digital economy that it enables. This is reflected in the proliferation of digital services across industrial sectors and continued investment in telecommunications infrastructure to meet these needs.

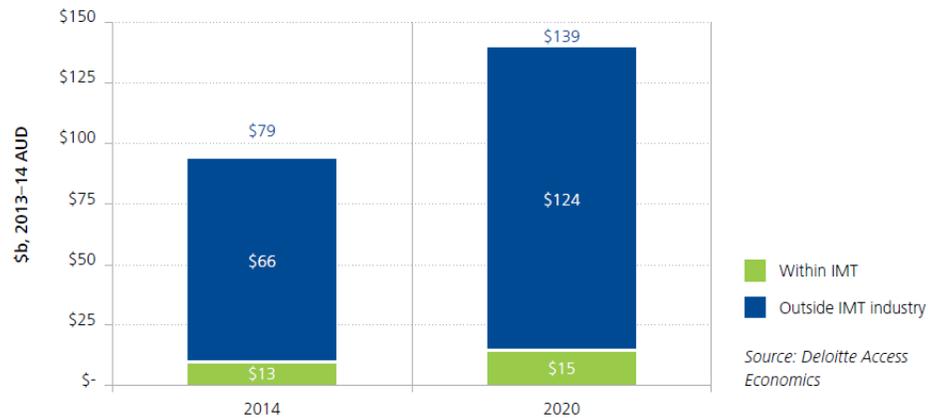
In its recent audit of national infrastructure requirements, Infrastructure Australia<sup>2</sup> predicts demand for telecommunications infrastructure to grow faster than GDP growth for at least the period until 2031. Significantly, the report notes that this growth will be driven by demand for new services that rely on high data volumes, addressing industry sectors as diverse as agriculture, tourism and financial services.

Deloitte Access Economics, in its recent report<sup>3</sup> 'The Connected Continent II', highlights the significant positive impact already made by digital services, technology and commerce in Australia's economy, estimating a contribution of \$79 billion (5.1%) to GDP in 2013-14. The growth of digital services has brought a fundamental impact to consumer participation, business productivity and government service delivery. The same study further projects the digital economy could represent \$139 billion by 2020 (7.3% of GDP), based on the growth of e-commerce which has consistently outpaced GDP growth over the last decade. These forecast contribution levels also reflect the growth of the information, media and technology industry segment directly [refer Figure 1].

A critical factor underpinning this digital services participation and market growth is increasing broadband penetration. Deloitte Access Economics suggests that a 10 percentage-point increase in broadband penetration rate most likely will result in a 0.9 to 1.5 percentage point increase in annual per capita growth. However, as Infrastructure Australia notes, considerable attention should be given to ensuring Australia maximises the potential of its connectivity investments.

Therefore it is crucial to consider the visible and emerging trends shaping the digital market and how best to establish the relationships that underpin its productive operation. Ensuring the affordability and effectiveness of broadband digital services delivery will continue to provide a substantial boost to growth across the associated digital economy.

**Figure 1. Economic contribution of national digital economy**



Source: Deloitte Access Economics<sup>3</sup>

## Competitive Digital Services Marketplace

The emerging digital economy will be characterised by massive scale development, distribution and consumption of digital services. In Australia, these services will be delivered substantially over the NBN network, as well as via mobile broadband.

Importantly though, this era will herald a new mode of service provision, a break from past arrangements that have been characterised by the close integration of telecommunications services with their delivery networks. In fact, in the past, most communications services have been defined by the capabilities of the networks themselves. The emerging digital services environment however, will be populated with a new cadre of providers unencumbered by legacy assets and supported by a ubiquitous communications network fabric, with negligible difference between fixed and mobile broadband access platforms.

The progress through these service phases has been studied by Chetan Sharma Consulting<sup>4</sup> who characterise the arrival of digital services as a 4<sup>th</sup> Wave of services evolution [refer Figure 2]. In coining, defining and exploring the 4th Wave, Chetan Sharma Consulting predicts that new network technology capabilities and user expectations for service consistency across platforms and devices will disrupt traditional telecommunications service provider models. Such disruption creates threats and opportunities to which many existing telecommunications players are already having to adapt.

The 4th Wave of digital services breaks dramatically with the historical telecommunications past, with certain trends helping define how this environment is being shaped. These include:

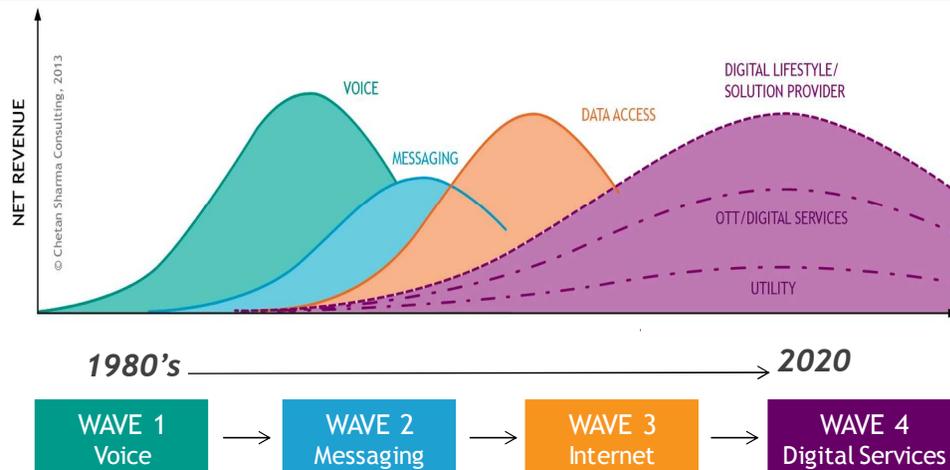
- Service growth will be derived increasingly from services offered from ‘beyond the network’, i.e. no longer bound to the capabilities of network-resident facilities.
- Providers of such services are increasingly specialised and global in business operation, expanding consumer choice.

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<sup>4</sup> Chetan Sharma, 2012, *Operator’s Dilemma (and opportunity): The 4th Wave*

- The adoption of virtualised services powered by technologies like NFV and SDN continues to render ownership of telecommunications networks or systems infrastructure less necessary for service providers to operate effectively. From both investment and competition policy viewpoints, the barriers to entry for service providers will be increasingly lower.

**Figure 2 Four Waves of Services<sup>4</sup>**



Source: Chetan Sharma Consulting

In short, these visible trends point to a future marketplace with a large number of specialised digital service providers working through a diversity of third-party network infrastructure and systems to reach their target markets. They highlight risks of declining relevance for traditional communications service providers, even as their networks remain a critical delivery platform. It also presents opportunities for existing players to arrange themselves in a way that enhances their function and value for the emerging environment, to create and compete in a dynamic digital services market.

### Device Focused and Pervasive Virtualisation

The growing dominance of digital services, less encumbered by physical network and system assets, reflects the impact of some key areas of technology innovation:

- Device intelligence - harnessing the processing power of end-point devices has accelerated the proliferation and utility of innovative digital services. It has enabled new levels of end-user productivity and strengthened the relationships between user and service provider.
- Service virtualisation - cloud-based service delivery has freed the service provider from the constraints of infrastructure ownership and enabled more consistent global experience.
- Massive endpoint proliferation -the emergence of the Internet of Things (IoT) also brings the requirement to respond to unparalleled quantities of data and services information drawn from many billions of sensors, probes, actuators, machines, applications, people. Thus the industry anticipates an explosion in the number of communicating devices,

capable of consuming and sourcing on demand, very large amounts of media-centric, geographically-shifting and time-sensitive workloads<sup>5</sup>.

These factors deliver a positive impact on the utility and price points of digital services and thus directly assist the acceleration of the digital services market. Yet they also place new demands on the delivery network to support these services, with dependencies, for example, on enhanced speed and latency performance, security and network-wide awareness of user service preferences to ensure a consistent user experience.

Innovation that addresses those demands is clearly visible in the complementary technologies of NFV and SDN. Although still in their early days for deployment, these new technologies are already widely viewed as essential components in reshaping the future of networking. A recent study by Arthur D. Little and Bell Labs Consulting<sup>6</sup> identifies their significant impacts to network operators in the form of new relationships with consumers; new classes of competitors; the rise of new collaborations; and profound changes to operations.

Programmability of network functions allowing on-demand connectivity and capacity, new performance levels underpinning service-specific Service Level Agreements (SLAs), responding with awareness of user capabilities and preferences - these are the characteristics increasingly required of the delivery networks supporting digital services and underpinning the digital economy.

## Digital services delivery ecosystem

Satisfying these new demands of digital services will be increasingly reliant on the operation of a broad service delivery ecosystem. Traditional communications service delivery could often be based on a single provider's alignment of its customer, network operation and equipment views. However digital services delivery requires the coordination of multiple service-component views, e.g.: customer, device, service operation, data centre, network operation, equipment. And significantly, these views in many cases will be distributed across multiple participating providers.

The ecosystem of digital services delivery, i.e. the set of providers, networks, systems, processes, stakeholders, is therefore quite complex and challenging. In developing the early concepts of business ecosystems, Moore<sup>7</sup> noted that firms operating in this environment must often co-evolve their capabilities, moving toward shared visions to align their investments and find mutually supportive roles. Extending the ecological metaphor, Moore suggests that companies need to be proactive in developing mutually beneficial ("symbiotic") relationships with customers, suppliers and even competitors.

In Australia, the broadband services market structure exerts a dominant influence on the pace of growth in the digital economy. This factor has been a driving force in the creation of Australia's NBN as a national, wholesale-only broadband platform to operate on an open access and non-discriminatory basis, in support of effective retail service competition. As

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5 TM Forum, 2015, *Internet of Things, How billions of touchpoints impact customers*, Quick Insights report

6 Arthur D. Little & Bell Labs Consulting, 2015, *Reshaping the future with NFV and SDN, The impact of new technologies on carriers and their networks*

7 J.F. Moore, 1993, *Predators and Prey - A new Ecology of Business*, Harvard Business Review, May/Jun.

such, this forms an ecosystem for service delivery and encompasses commercial and operational relationships spanning multiple market participants which each having the capacity to help or hinder an optimal operating environment.

## **Delivery Co-dependencies**

In the emerging ecosystem, the achievable end-to-end service delivery experience results from co-dependent actions by a range of actors encompassing wholesale network infrastructure operator, retail service providers, related content, digital service or application providers, end-user devices and end-users themselves. The traditional technology-driven operations that support subscribers consuming a service provider's own products is coming to an end, and the dawn of an open collaboration model is here<sup>8</sup>.

Contrasting with these service delivery co-dependencies however, are the commercial supplier-customer relationships which can typically remain segmented as one-to-one within the delivery chain. In this emerging ecosystem, even without a direct relationship with the end-user, a wholesale access provider is the delivery agent for most of the physical service touch-points experienced by the end-user. This extends across installation and activation, as well as support and assurance - all of which have a significant impact on an end-user's experience.

Given the significance of the structural change facing the telecommunications sector it is critical that industry improve the cohesion and effectiveness of these co-dependent relationships. By reducing complexity, increasing the speed of action and eliminating error, industry can substantially aid the growth of a dynamic and beneficial digital services market and national digital economy.

Australia stands at an important time of opportunity to consider how to develop the best possible co-dependent service delivery framework. NBN is now building project momentum and delivering improved access infrastructure options, however global factors such as the adoption of NFV and SDN services will also increase the pressure to preserve relevance and maximise opportunity. A rich new set of business models will be enabled, through the mix of on-demand access to connectivity, along with exposing core network functionalities to other collaborating entities. In this way, earlier open-access provisions mandated by market liberalisation regulations can evolve through a market-driven approach to enable this expanded digital services delivery ecosystem.

## **Legacy Practices Won't Suffice**

The commercial relationships as originally established for NBN are focussed on separation of wholesale and retail service provision with an emphasis on broadband access:

- Wholesale access infrastructure provider to Retail Service Provider (RSP) access seeker, providing the ability to reach NBN customer end-points for service delivery.
- RSP to end-user, providing that end-user's service relationship.

NBN's technical capability support for end-user relationships via multiple RSPs has reflected the view that the end-user experience was firmly in the jurisdiction of the relationship between RSP and end-user. But successful service delivery to end-users is clearly dependent

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<sup>8</sup> Alcatel-Lucent, 2015, *Evolving operations to capture the open collaboration opportunity*, Strategic White Paper

on the combined contribution of RSP and wholesale access network provider. Systems or process failure of either party, or in the coordination between them, directly impacts end-user experience.

Yet the range of digital content, applications and services and consequent end-user demand are rapidly increasing and driving a many-to-one service delivery ecosystem in which multiple entities hold a co-dependent responsibility for successful service implementation. Commercial SLAs, operational practices, supporting IT systems that were established on a model of independent service provider responsibilities can no longer be expected to effectively support the service co-dependencies resulting from a massive volume of digital services and end-users.

As evidenced by the proliferation of Net Promoter Score (NPS) metrics, customer-focussed rhetoric and corporate Key Performance Indicators (KPIs), service providers have already placed end-user experience at the heart of their market strategies. However, with the explosion of digital services and devices, in an increasingly complex and diverse service provider ecosystem, managing, maintaining and improving end-user experience is becoming ever more complex.

Framed in the context of the national digital economic opportunity, this situation amplifies the importance of ensuring transparent, informed and coordinated customer experience operations across the full ecosystem of co-dependent service delivery participants.

## Six guiding principles

The anticipated trends in the evolving market environment represent a challenging journey to be navigated over a relatively short period to a 2020 horizon. Technology, product capabilities, business relationships and service demands will all continue to evolve over the course of this journey, bringing the need for review and potentially ongoing adjustment.

To guide this process, Alcatel-Lucent suggests a set of enduring principles to help industry respond to challenges and ensure the required levels of enhanced user experience. These principles can be considered fundamental to delivering successful user experience and may be used to review current operational levels, capability gaps and identify additional future solution requirements. While beneficial for today's network, systems and process environment, they can also achieve enhanced effectiveness when taking advantage of the future deployment of NFV and SDN technologies.

### **Transparency across multi-party actions**

Service experience reflects the combined effectiveness of the multi-stakeholder delivery ecosystem. Actions taken by these stakeholders must be conducted with informed awareness of, and in collaboration with, the actions or dependencies required of others.

For service providers, transparency equates to visibility of network performance and issues, updates on problem resolution or activation status. Examples of this are service performance reporting, alerting/alarming and auto-ticketing. Meanwhile, transparency for the end-user means visibility of the performance and issue resolution with their individual service, or progress of installation/activation.

Transparency across the ecosystem is fundamental for the effectiveness of the combined relationships and to develop the trust required to support a dynamic digital services market.

### **Empowerment for great customer experience**

With an extended, multi-party service delivery chain, there will be personnel in various layers and designations all influencing the success or otherwise of the customer experience. While policies and technology systems will guide the way these parties interact, individual personnel will also require effective empowerment to make decisions and implement changes that eliminate conflicts and reduce the time and effort required at network hand-over points.

Empowerment also extends to the individual customer, through the adoption of self-help facilities for service activation, configuration and assurance. Providing customers with effective tools and choice mechanisms engenders the feeling of being in control of their service outcome which is one of the strongest contributors to a positive service experience.

### **Automation enabling proactivity**

A dynamic digital services market will generate vast quantities of data transactions, with extremely high levels of assurance and reliability required. The diversity of customer service choice and delivery options demands that not only should these associated volume processes, business transactions and service/network operations become automated but that they be harnessed to anticipate and avoid service errors or disruptions. With the availability of analytics insights, service providers can identify trends and proactively move to prevent issues arising as well as streamline operations.

Care must be taken however to identify a minimum set of table-stake automation capabilities as a threshold for industry effectiveness, avoiding the imposition of unnecessary cost barriers to market participation.

### **Measurement driving improvement**

Across the full dimensions of business performance, customer experience and technology effectiveness, disciplined measurement is a fundamental prerequisite for enabling improvement. This well-recognised principle from continuous improvement practice is not only relevant to individual service providers or similar entities, but should be pursued on a full market ecosystem basis. By analogy, this could be considered as extending to the new digital services environment, a principle currently underlying the reporting provisions of the Telecommunications Consumer Protection Code.

Providing a collective market framework to consistently measure relevant service implementation and performance metrics, while protecting competitive business sensitivities, could provide the foundation for recognising and improving performance for the digital economy.

### **Data accuracy for consistent understanding**

Access to a common repository and/or sources of credentialed data allows distributed customer and service delivery action to be confidently initiated. A central point of reference of this nature would eliminate the costly of duplicated, contradictory or misdirected service delivery efforts and would stimulate a diligent clean-up and verification of existing data sets. Technology solutions are emerging that can enable much of the necessary data to be auto-

sourced from the deployed network and infrastructure itself. This ensures the desired consistency and reduces the dependency on resource-intensive audit processes.

## Flexible re-use for innovative service evolution

The continuing evolution of a dynamic digital service marketplace will inevitably reveal unexpected roadblocks and challenges, as well as desirable opportunities for innovation in customer and market/product propositions. Maintaining flexibility to respond to these unplanned but inevitable events may be enhanced by investment to enable the configurable re-use of ecosystem platforms, processes and infrastructure components, rather than redesigning and re-deploying at each point of change.

At a technical level, new advances offer this prospect by decoupling the process or software application workflow logic defining how components are combined, from the component's behaviour implementation. Technologies such as orchestration and policy based mechanisms are key to the flexibility required for agile creation of new applications. While these are well established in e.g. SDN and NFV domains, they are being extended towards full ecosystem applicability by e.g. the TM Forum's ZOOM initiative<sup>9</sup>.

## An industry opportunity

The future of Australia's digital economy and also Australia's prominence in the era of digital services relies to a large extent on our capacity to develop a rich supply of service offerings and the willingness of Australian individual and business consumers to adopt them. The advanced digital services era will be hyper-chaotic and heavily influenced by a new breed of agile global competitors. Global research emphasises that the factors of ease of market entry, coupled with ease of service consumption will be fundamentally important to economic success.

This future environment brings challenge and opportunity for the entire market ecosystem and perhaps most pointedly for traditional telecommunications players. While critical to the ecosystem, and potentially well placed to benefit, these carrier network operators and service providers also face significant threat from innovative new providers active across the industrial spectrum.

As Arthur D. Little and Bell Labs Consulting<sup>6</sup> state in their recent paper: "there are many opportunities for the expansion of value in the telecom sector, especially for carriers that purposefully embrace this transformation. But carriers that fail to internalise these changes are likely to find themselves left behind with uncompetitive and potentially untenable business and operating models."

While telecommunications service providers are already acting to fuse their carrier networks with the cloud ecosystem by the adoption of NFV and SDN technologies, Alcatel-Lucent suggests they must move swiftly to purposefully embrace the broader market transformation. Indeed, we suggest that telecommunications service providers have a crucial part to play in the development of a dynamic service delivery ecosystem to facilitate that market. They must develop an intimate understanding of this emerging ecosystem and demonstrate strong

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<sup>9</sup> TM Forum 2014, *OSS/BSS Futures, Preparing the Future Mode of Operation*, Framework Exploratory Report IG1118

leadership to build market confidence and accelerate new services to market. Telecommunications providers should work closely with both suppliers and lead customers to understand their needs, and they should engage with competitors.

In this regard, traditional telecommunications players are well placed to adopt and evangelise a set of service delivery principles as articulated in this paper. This may extend to a defined set of cooperative industry operating customs, and indeed an industry code of practice. This would bring the dual effect of strengthening the telecommunications base while creating a predictable operating framework to accelerate new digital service providers into the market. Telecommunications service providers should embrace these principles as a way of optimising the service delivery ecosystem in anticipation of its expansion.

At a higher level, Alcatel-Lucent recommends a closer engagement between Australia's peak telecommunications, IT sector and broader business bodies, to ensure that while ever the benefits of an emerging digital economy are promoted, discussion extends to the co-dependent service delivery ecosystem that will underpin it. By adopting the principles described in this paper as a framework, these industries have the potential to ensure that new services are developed in informed anticipation of the delivery ecosystem and as such, this environment is well prepared, predictable and reliable.

Finally, while investing strongly in infrastructure, Government has an important role to play in promoting the development of a dynamic digital economy. Indeed, the Australian Government has recognised this role through the formation of the Digital Transformation Office (DTO) to drive smarter adoption of digital technologies for government. Given the role of government as a demand generator, Alcatel-Lucent suggests the DTO, and other State-based programs, may generate additional benefit through a greater understanding of the emerging digital service delivery ecosystem and potential advocacy or even institutionalisation of our principles with its suppliers.

Of course, as we enable the accelerating adoption of digital services, industry objectives should encompass not only responding to the interests of service consumers, but also ensuring the wellbeing of a dynamic service delivery sector and sustained health of Australia's digital economy. The principles offer a basis for a broad ecosystem to evolve the practices and co-dependent relationships required to achieve this goal. They are universal and apply to Australian originated services as well as imported and globally originated services. They maintain the autonomy of supply side participants but are designed to encourage collaboration around the quality of customer experience and the efficiency of industry processes.

With strong leadership and collaboration, these principles can be a winning formula to promote a vibrant digital economy as a key growth driver.

## Glossary

DTO	Digital Transformation Office
GDP	Gross Domestic Product
ICT	Information and Communications Technology
IMT	Information, Media and Technology
IOT	Internet of Things
KPI	Key Performance Indicator
MTM	Multi-Technology Mix
NBN	National Broadband Network
NFV	Network Functions Virtualisation
NPS	Net Promoter Score
OECD	Organisation for Economic Co-operation and Development
OTT	Over The Top
RSP	Retail Service Provider
SDN	Software-Defined Networks
SLA	Service Level Agreement
ZOOM	Zero-touch Orchestration Operation and Management