Research Document

5G OPPORTUNITY SURVEY & THE IMPACT ON DIGITAL BSS

telecoms.com INTELLIGENCE

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Introduction

Telecoms.com Intelligence ran a survey on the opportunities and challenges that 5G will present to service providers. This was conducted in April 2019 and 420 telecoms professionals were surveyed.

Openet worked with telecoms.com Intelligence on the section of the survey on 5G opportunities. This paper contains the survey results, looks at results of recent 5G launches and also discusses the impact on BSS (business support systems).

5G Survey Summary - More Offers, More Revenue and New Services

With 5G there's a certain degree 'if you build it they will come' and by and large this has always been the way with mobile networks. Going back to 2G, no-one in the industry anticipated the success of texting. Originally designed as a communications tool for engineers building cellular networks, SMS spawned a new way of communicating and some would say, a new language. Same with 3G and 4G. Who in the mobile telecoms industry predicted the success and the impact on mobile usage from companies like Uber, Netflix or Spotify?

With 5G it's a bigger game for the mobile operators. Looking at the results of this survey, when asked what services would provide the biggest returns for 5G operators, MIoT (massive IoT) got 28% of the vote and services based on Ultra-Reliable Low-Latency Communication (URLLC) / Industrial IoT / Industry 4.0 picked up 31%. This is interesting as most mobile operators haven't exactly been strong in selling IoT services, or indeed selling industrial applications. These areas represent new revenue sources for mobile operators, and 69% of the survey believe that these will the main 5G revenue earners for mobile service providers.

As for revenues, 71% say that 5G will boost APRU. 40% think there will be an ARPU jump of under 10%, 31% predict an ARPU rise of more than 10%, while 24% of the survey see no change in APRU from current 4G levels and 5% believe that ARPU will decline.

With regards to the number of 5G offers that service providers will need to launch to drive this increased revenue, 61% say that there will be at least double the number of 5G offers when compared to the number of current 4G offers. 21% say that number of offers will double, 29% feel that the increase will be between 2x and 5x, and 11% feel that there will more than 5x the number of 5G offers. 34% felt there would be no change and 5% predicted the number of offers would decrease.

Korean advert for the Samsung 5G S10

"***If the consumer offers*** *we're seeing offered in* ***Korea*** *are an indication of the* ***potential of 5G****, then we're in for* ***an exciting time...***"

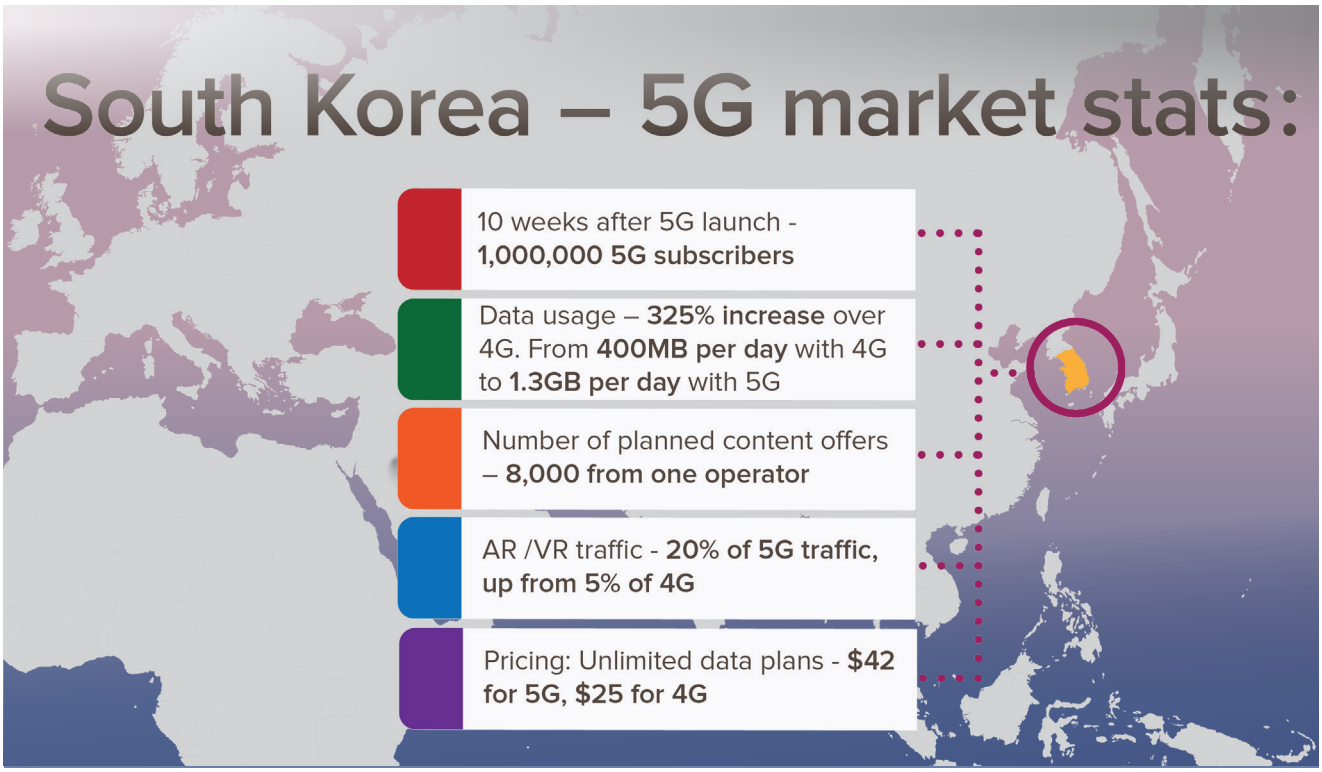
Market Impact of 5G – South Korean Example

Looking at 5G launches at the time of writing (June 2019), South Korea and North America are ahead of the game. The Korean launch in April 2019 was highly visible and there was also 5G handset available (Samsung 5G S10) that helped with uptake. At 5G World (12th June 2019), SK Telecom announced there were 1,000,000 5G customers in South Korea and that the take up has been faster than 4G.

If the consumer offers we're seeing offered in Korea are an indication of the potential of 5G, then we're in for an exciting time. SK Telecom said that they "aim to take customer experience to the next level by offering around 8,000 different content offers in diverse areas including game, ultra-high definition (UHD), AR and VR". That's a lot of content offers.

Part of these services includes offering ultra-widescreen broadcasting (12K UHD) over 5G, as well as live broadcasting of sports games that are delivered 15 seconds earlier than other services. It also offers '5GX social VR,' a service that enables multiple users to watch baseball games together in a virtual reality environment.

These 5G services are having a significant impact on data usage. According to Korean operator LG Uplus, 5G usage is averaging 1.3GB per day, up from 400MB with 4G. New services featuring AR and VR functions are proving popular and already account for 20% of 5G traffic, compared with 5% for 4G.



The new opportunities enabled by 5G go beyond consumer applications. Within a month of launch, SK Telecom announced a number of deals to use its 5G network for applications across smart cities, autonomous vehicles and connected hospitals. This shows the potential in the smart buildings / cities that 5G can deliver. In many cases the operators will be providing the 5G connectivity with the applications delivered by partners.

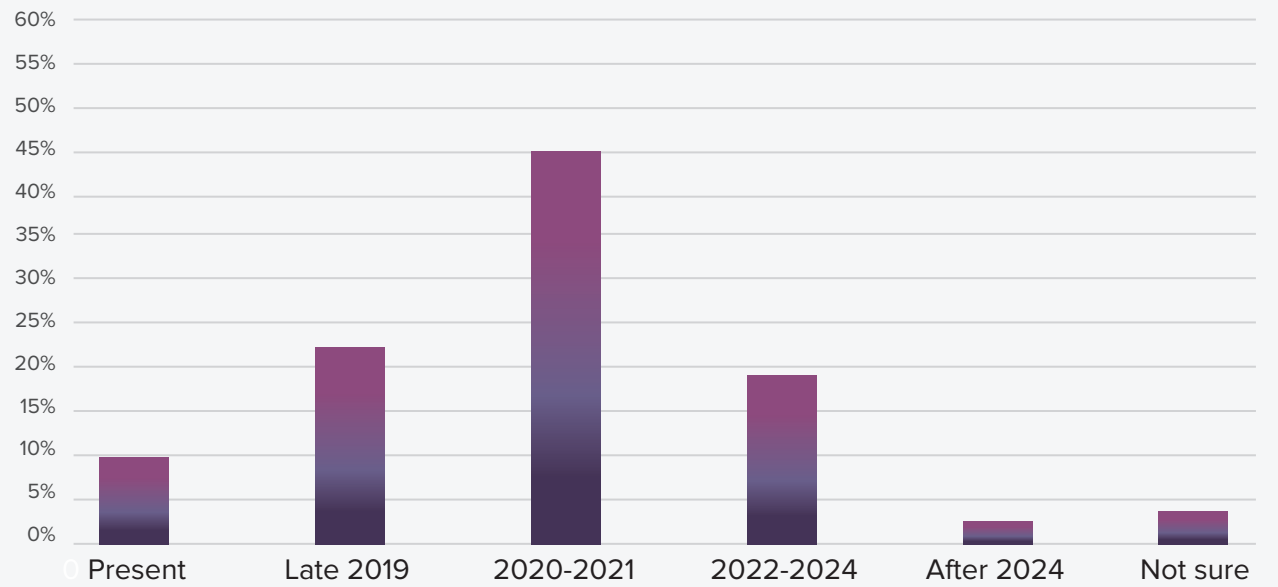
From the Korean example we can see that 5G means more consumer and enterprise services, a lot more data consumed than 4G and a high adoption rate.

5G Survey Results

5G – Roll out dates

The vast majority of respondents (75%) expect to see 5G services in their country before end of 2021. At the time of writing (June 2019), that's just 30 months away. There's been some billing system implementations take longer than this. If operators haven't started planning to upgrade their BSS (business support systems) to cater for 5G then they could be running out of time.

When do you expect 5G commercial service to launch in your market?



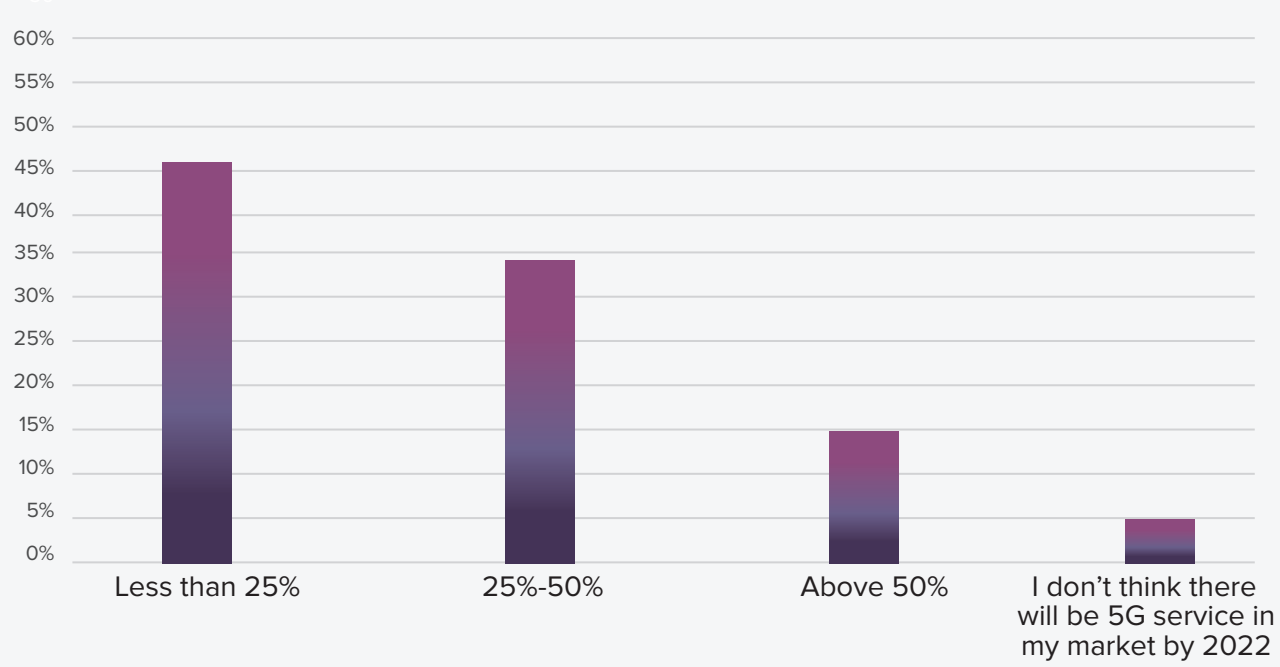
Results

Answer choices	Responses	
There is already commercial 5G service in our market	10%	42
By the end of 2019	20.48%	86
2020 - 2021	44.52%	187
2022 - 2024	18.81%	79
I don't see 5G commercial service being launched here in the next 5 years	2.62%	11
Not sure	3.57%	15
	Answered	420

Adoption of 5G

With all new services, there is a transition period as customers migrate from older systems and upgrade their devices. In three years' time, in 2022 it is anticipated by 46% that less than 25% of their customer base will be using 5G services. However, a healthy 34% expect between 25-50% of their customer base using 5G, and 5% expect this figure to go above 50%.

How many mobile consumers do you expect to use 5G in your market by 2022?



Results

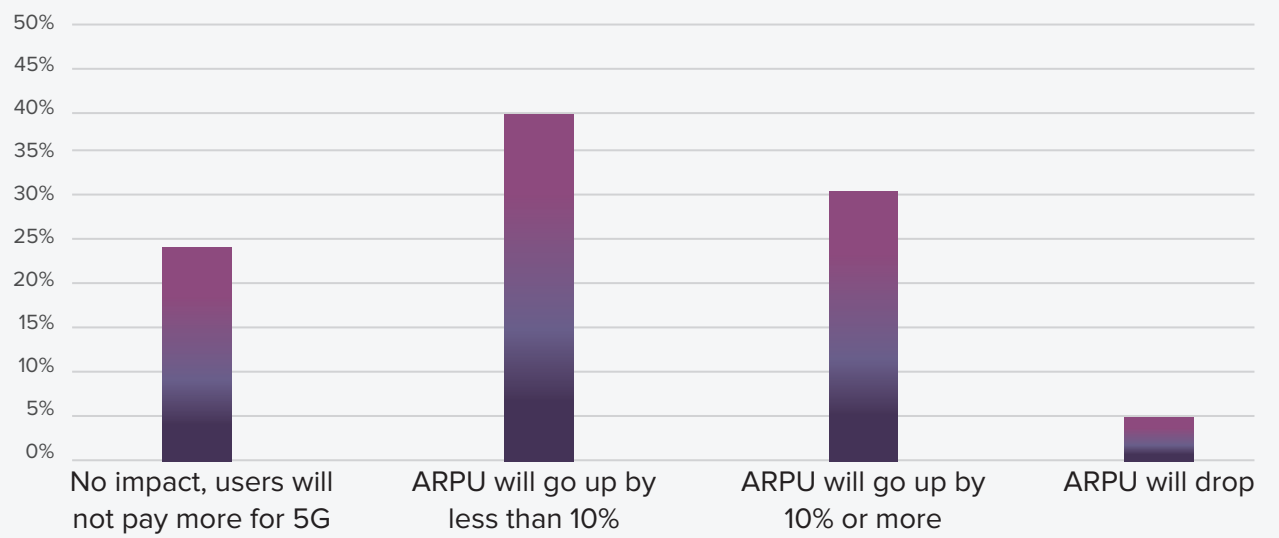
Answer choices	Responses	
Less than 25%	45.95%	193
25% - 50%	33.57%	141
Above 50%	15.24%	64
I don't think there will be 5G service in my market by 2022	5.24%	22
	Answered	420

"*5G* will *accelerate the opportunities* for operators to increase revenues by *selling partners' products and services...*"

ARPU Impact and the Number of 5G Offers

The majority of respondents, 71%, think that 5G will increase ARPU. 40% feel that the ARPU increase will be less than 10%, while 31% forecast ARPUs going up by more than 10%.

What impact do you see 5G having on ARPU (average revenue per user)?



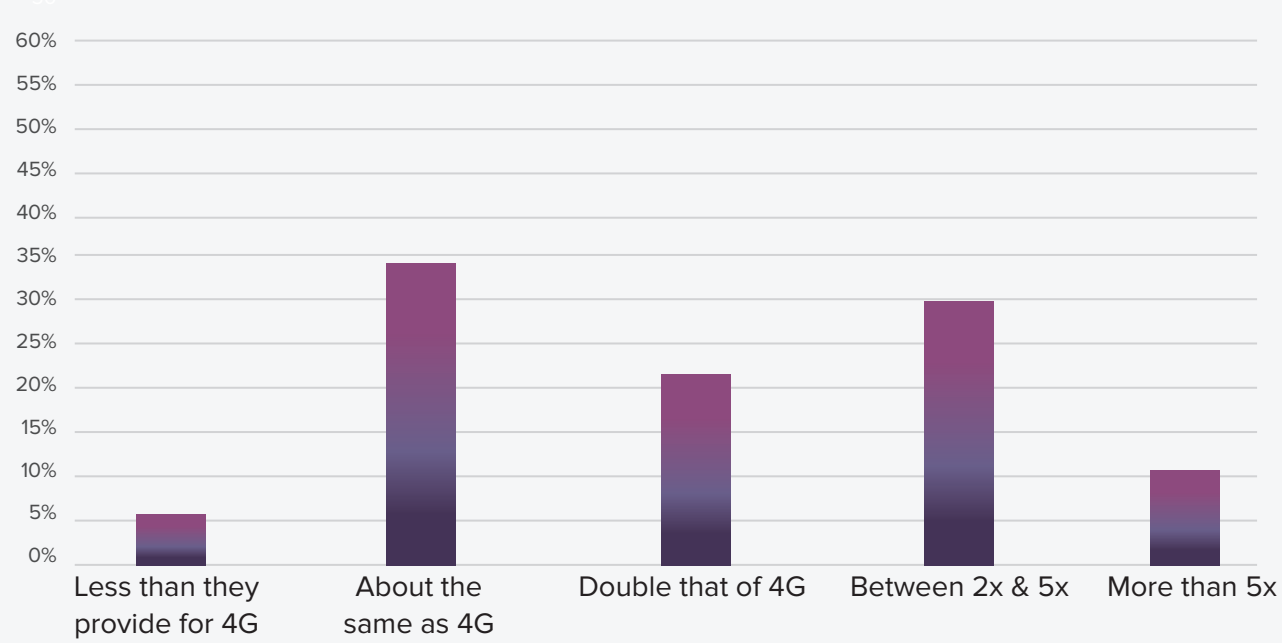
Results

Answer choices	Responses	
No impact, users will not pay more for 5G	24.05%	101
ARPU will go up by less than 10%	39.76%	167
ARPU will go up by 10% or more	31.19%	131
ARPU will drop	5%	21
	Answered	420

5G will accelerate the opportunities for operators to increase revenues by selling partners' products and services. It will also mean a wider range of partner offers which must have a much faster time to market. This expanded offer portfolio will provide the ability to experiment with new business models and will mean a fluid and dynamic value chain. For one market, the operator may be leading the offer, but in another, the operator may be the connectivity provider with a partner taking the lead. Selling mobile connectivity with a premium based on speed can often be short lived. What people will pay for with 5G is the ability to enable services that are dependent on 5G speeds and low latency (e.g. UHD videos, AR / VR). It can be viewed that it's these types of services that will result in the increase in APRUs and not just 5G connectivity on its own.

This will have a significant impact on Digital BSS, as service providers must be able to set up, roll out, monetise and manage a significant number of services. As we can see from the survey, most people feel that service providers will need to provide a greater number of 5G offers.

Compared with 4G how many offers do you think mobile operators will need to provide for 5G?



Results

Answer choices	Responses	
Less than they provide for 4G	5.71%	24
About the same as 4g	33.57%	141
Double that of 4G	20.71%	87
Between 2x & 5x	29.29%	123
More than 5x	10.71%	45
	Answered	420

When compared with the number of 4G offers, 21% expect to see double the number of 5G offers, 29% expect anywhere between 2x and 5x the number offers and 11% expect to see the number of offers increase by more than 5x.

This is a significant jump and will impact how operators build offers in their BSS. The old days of relying on a vendor to build offers will be a dim and distant memory. Operators will need to be able to self-configure their systems, build offers themselves with zero assistance from the system vendors.

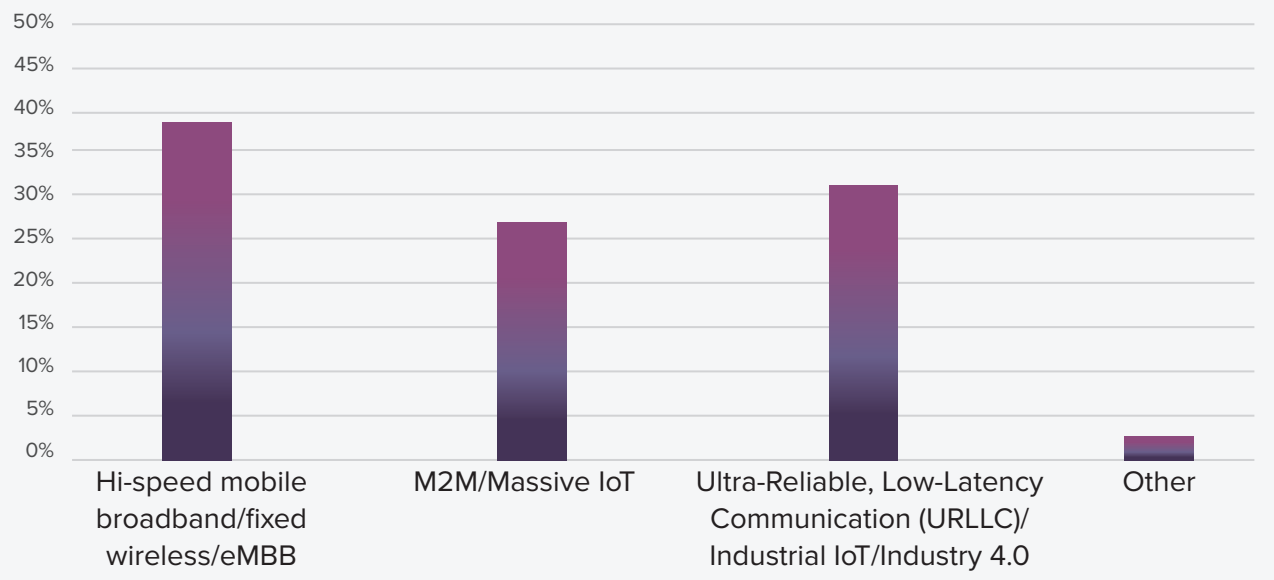
*"**5G** is coming shortly after many operators have embarked on **digital transformation journeys** to reinvent themselves..."*

Where's the Revenue Going to Come From?

Looking at the the services where operators expect to generate most 5G revenues it can be seen that there are new BSS, management and monetisation challenges for operators. Hi-speed mobile broadband, FWA and enhanced mobile broadband should be relatively straight forward to manage and monetise. However, 27% see M2M / Massive IoT being the biggest 5G revenue earner and 31% see Ultra-reliable low-latency comms (urLLC) / Industrial IOT / Industry 4.0 being the main revenue earner. This move into enterprise industrial applications and MIoT is new for most operators.

The commercial models are unknown and there will be a lot of testing of new models to see what works best. From a BSS perspective this means having the agility to enable a lot of trial and error, and support the fail fast / learn fast model quickly and cost effectively.

Which 5G services do you expect to produce the highest business returns for mobile operators?



Results

Answer choices	Responses	
Hi-speed mobile broadband/fixed wireless/ eMBB	38.10%	160
M2M/Massive Iot	27.38%	115
Ultra-Reliable, Low Latency Communication (URLLC)/Industrial IoT/Industry 4.0	31.43%	132
Other	3.10%	13
	Answered	420

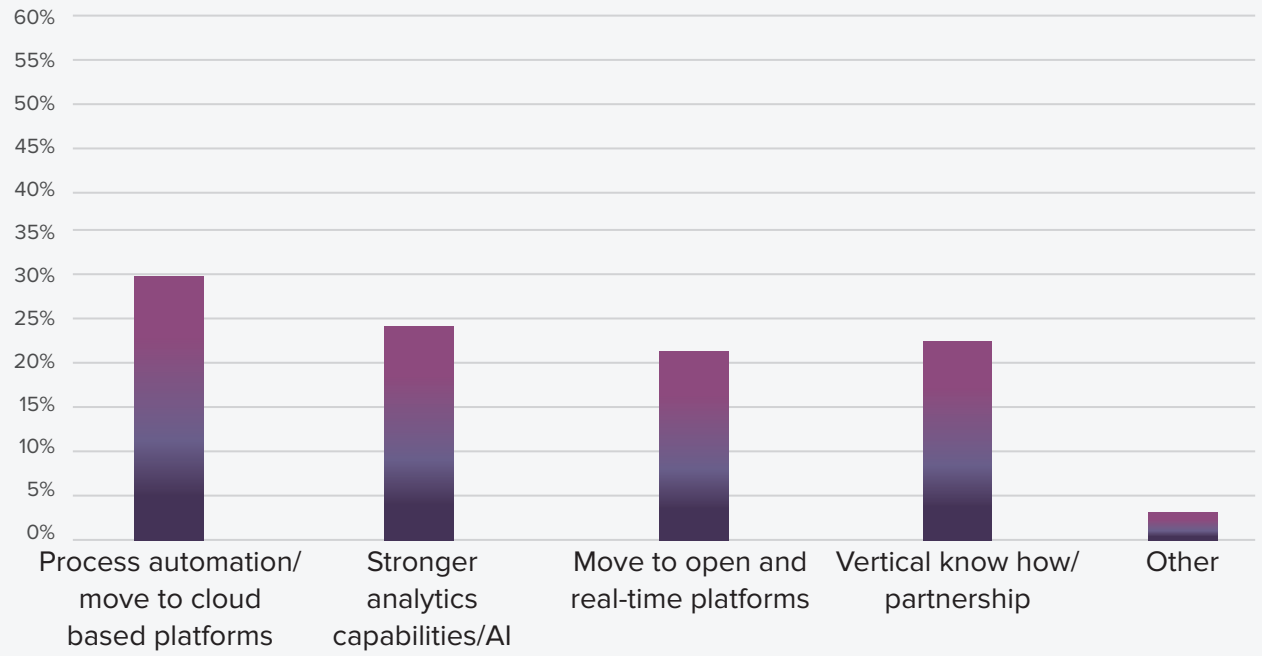
Main Elements of Digital Transformation Needed for 5G

5G is coming shortly after many operators have embarked on digital transformation journeys to re-invent themselves. This involves upgrading their systems and processes to support the new opportunities enabled by digital and 5G markets. It's a move from managing and monetising telecom services to managing and monetising anything that can be consumed on a device and delivered / managed over a mobile network.

But upgrading BSS to cater for 5G isn't just adding a patch or a small upgrade. The question about key digital transformations was interesting. It shows that all options listed (automation /cloud based platforms, open/ real-time systems, vertical expertise / partnerships and analytics / AI) are all critical.

This says that it's not just a case of tweaking an existing legacy system – it's a re-invention of BSS.

What key digital transformation should operators undertake to capture 5G opportunities?



Results

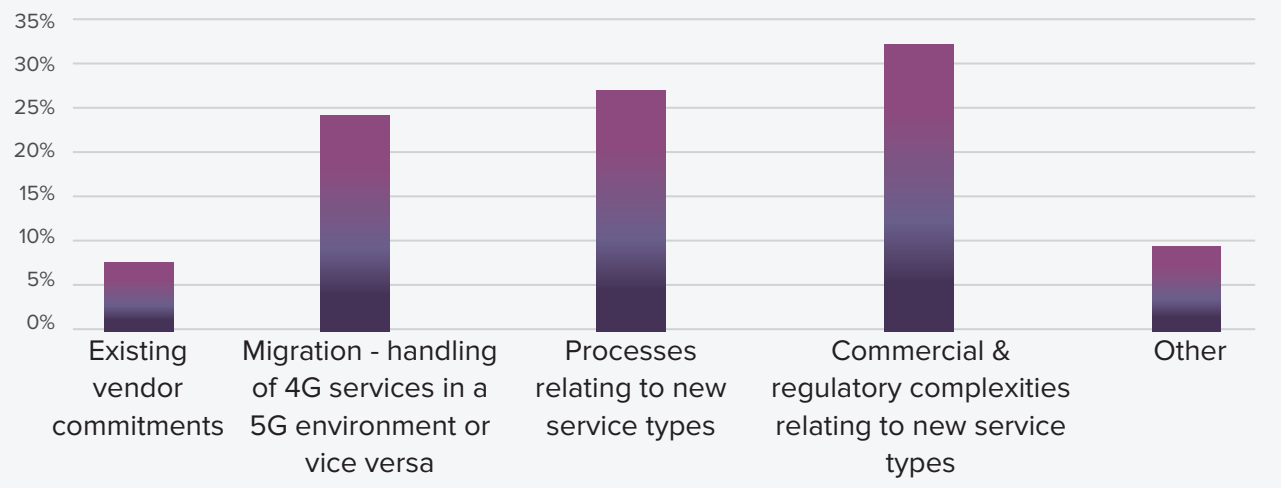
Answer choices	Responses	
Process automation/move to cloud-based platforms	29.52%	124
Stronger analytics capabilities/AI	24.05%	101
Move to open and real-time platforms	21.43%	90
Vertical know how/partnership	22.14%	93
Other	2.86%	12
	Answered	420

"The commercial challenges will have significant impact on BSS. ***5G will support many more services****, there will be* ***more players in the 5G value chain*** *and it will be fluid..."*

Key Challenges to Deploying 5G

All too often we see vendor lock-in and being tied to legacy vendor commitments as an impediment to rolling out a new service. With 5G this doesn't seem to be the case with only 9% saying that 'existing vendor commitments' was the primary challenge in deploying 5G. Greater challenges lie in offering 5G services on 4G networks, and vice versa (24%), adapting to new processes to support new 5G service types (25%), and the biggest challenge is how to deal with commercial and regulatory complexities that surround new services (32%).

Which of the following do you think is the primary challenge in deploying 5G?



Results

Answer choices	Responses	
Existing vendor commitments	8.81%	37
Migration: Handling of 4G services in a 5G environment or vice versa	24.05%	101
Process relating to new service types	25.48%	107
Commercial & regulatory complexities relating to new service types	31.90%	134
Other	9.76%	41
	Answered	420

The commercial challenges will have significant impact on BSS. 5G will support many more services, there will be more players in the 5G value chain and it will be fluid. The monetisation and settlement processes, as well as dealing with any SLAs (e.g. in enterprise IoT), will be more complex and dynamic and this will mean a need for much more agile systems and processes.

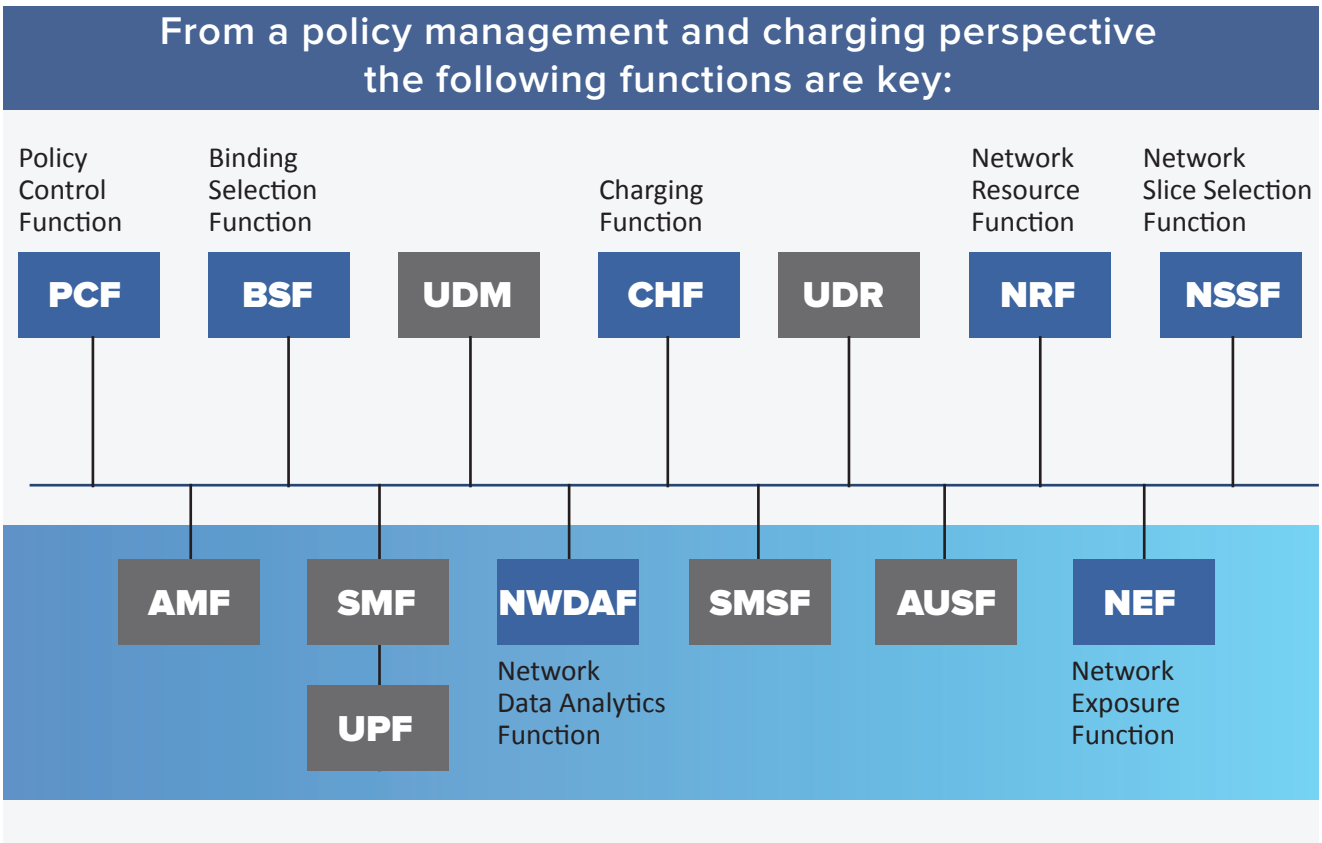
The need to support many new offers, enable new business models and enable much more agile operations processes will significantly impact operators IT systems and processes. One of main areas that need to change is BSS.

The Impact of 5G on Digital BSS

As we can see from the consumer services being rolled in Korea, 5G is re-imagining what is possible for operators to provide. This shift needs to be supported and enabled by a re-invention of the systems that manage 4G and 5G services. For BSS vendors this means a re-invention of their systems to support, not just 5G standards, but also the way operators offering 5G services want to work. This includes enabling lower costs, dramatically increased agility, continuous delivery, automation, service-slice control, less dependence on existing vendors and a self-service managing and monetising services, enabled by 'blueprints', which are pre-built out-of-the-box flexible use cases templates.

Alphabet Soup: A Range of New Network Functions

5G is an acronym bonanza. Just when people were getting use to 4G acronyms, 5G takes the mobile love affair with acronyms to a new level. This is necessary as the functions listed below are new and not just legacy BSS modules that have been updated. The 3GPP standards for 5G include the following:



Digital and 5G BSS – More than Standards Compliance

Any vendor promoting 5G BSS must conform to the 5G standards. But enabling operators to maximise the opportunities that 5G presents requires more than standards compliance. For example, digital and 5G services involve partnerships and collaboration. But the level of abstraction provided for by the standards alone will not easily allow third parties or the operators to deploy services quickly and easily. This is why innovative BSS vendors have designed their Network Functions as microservices, thereby allowing massive flexibility. These microservices are containerised so that deployment as part of the roll out of new services is easy and can be automated, updated and operationalised.

Enabling Collaborative Models through Digital APIs

Successful 5G services will often depend on operators flexibly working with 3rd parties to rapidly experiment with and enable ad-hoc, combinational offers. This can mean collaboration, not just at a marketing level, but also at a systems level to quickly develop, deploy, manage and monetise new offers that comprise of multiple partners in the digtal and 5G value chain.

This requires a rich set of digital APIs beyond the standards to be available to enable microservices that can be extended, changed, and interoperated easily. This also allows for the abstraction of functions across the service. For example, in the case of Policy, third parties who are not network aware, can easily interact with the network. It is this flexibility and automation that allows for creativity by the service provider, be they the operator, or a third party. It is also this flexibility and lightweight composition that allow for the Network Functions to run in a MEC (mobile edge computing) environment, run several tiered instances, or just run as a standard PCF, NRF, or NSSF if needed.

Focus on Policy & Charging: Automated Control and Monetisation for 5G

Automated networks and 5G are two sides of the same coin. Technology advances, the rise of cloud computing, virtualised networks and the move to open API driven software are the basis on which 5G is built. Here we focus on how policy and charging have advanced to cater for 5G:

Policy Controller:
Multiple Network Function Approach – Enabling Automated End-to-End Policy Control

At Openet we created a 'mesh' that encompasses several Network Functions. This mesh and its associated blueprint models can be used to end-to-end services that are optimally policy enabled / controlled. Openet has also developed several automation concepts that allow for both static and dynamic configuration models. This gives operators a level of control for launching services that span several Network Functions, but it also allows for these services to be dynamically tweaked after launch. In an automated network, it is essential that operators have control over how the services are used.

5G Monetisation:
Built on Microservices and Ready for Edge-Based Charging

Openet's CHF/CCS is built using microservices, and is agile enough to be deployed as a MEC component. This flexibility however extends beyond the other Network Functions. The CHF/CCS also offers the capability to chain instances for complex rules, allowing for charges to be applied for the service that are particular to the user. This offers very flexible, as well as convergent, monetisation models for 5G services that can be self-configured by the operator delivering the level of agility that 5G will need.

These features (flexibility, convergence and automation) allow for not only new services to be deployed, but also extreme flexibility of the business models that enable third parties to launch services on the network without negotiation. APIs enable ongoing management of these third party services (e.g. change charging rules), as well as enabling a host of other B2B2X and Enterprise models. Enterprises could even deploy a CHF/CCS within their own network slice for internal charging and accountancy.

Automated control and monetisation are essential to an automated network, because they give operators the ability to deploy and leverage millions of services to enterprise or private consumers. It is an exciting and flexible new world, where the flexibility and openness needs to be across the network in order to fully realise and monetise the benefits that 5G can provide.

Summary

Change can be tough, but the good news is that innovative vendors are re-inventing their systems to be built for 5G, while at the same time supporting existing 3G and 4G networks. In BSS, there are different options for change – from microservices based co-development approaches, to adjuncting legacy kit with digital platforms. Good news is that change is happening, and at a rate not seen before in telecoms. Digital and 5G is driving a new way of working for operators and vendors alike. It's about speed, partnerships, collaboration and openness. Bit like 5G really.

About Openet

Openet provides Digital BSS to enable service providers to create new revenues from digital services, improve customer engagement and be ready for the opportunities from 5G. Our solutions enable service providers to be more agile, innovative and enjoy a faster time to value.

From monetising content and data services over 4G to enabling innovative enterprise IoT offers over 5G, Openet's Digital BSS offers a fast and agile alternative to the large legacy companies whose track record of over-charging and under delivering has resulted in high failure rates of large scale transformation projects.

Since its foundation in 1999, Openet has been at the forefront of telecoms software development and innovation. Our success is personified by the many long-term relationships it has fostered with the largest, most progressive, and demanding operators across the globe.

Openet provides the following products:

Openet Evolved Charging: Real-time convergent charging for digital and 5G services

Openet Policy Controller: Network policy control for next gen fixed, mobile and converged networks

Openet Data Fabric: Data management, data processing and data governance solution designed to collect and manage data at 5G volumes in real-time

Openet Forge: The digital enablement platform which contains Openet's library of microservices, upon which all Openet products are provided.

Openet Digital Business Platform: End to end Digital BSS/OSS stack containing Openet & our partners' products.

Our Solutions

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