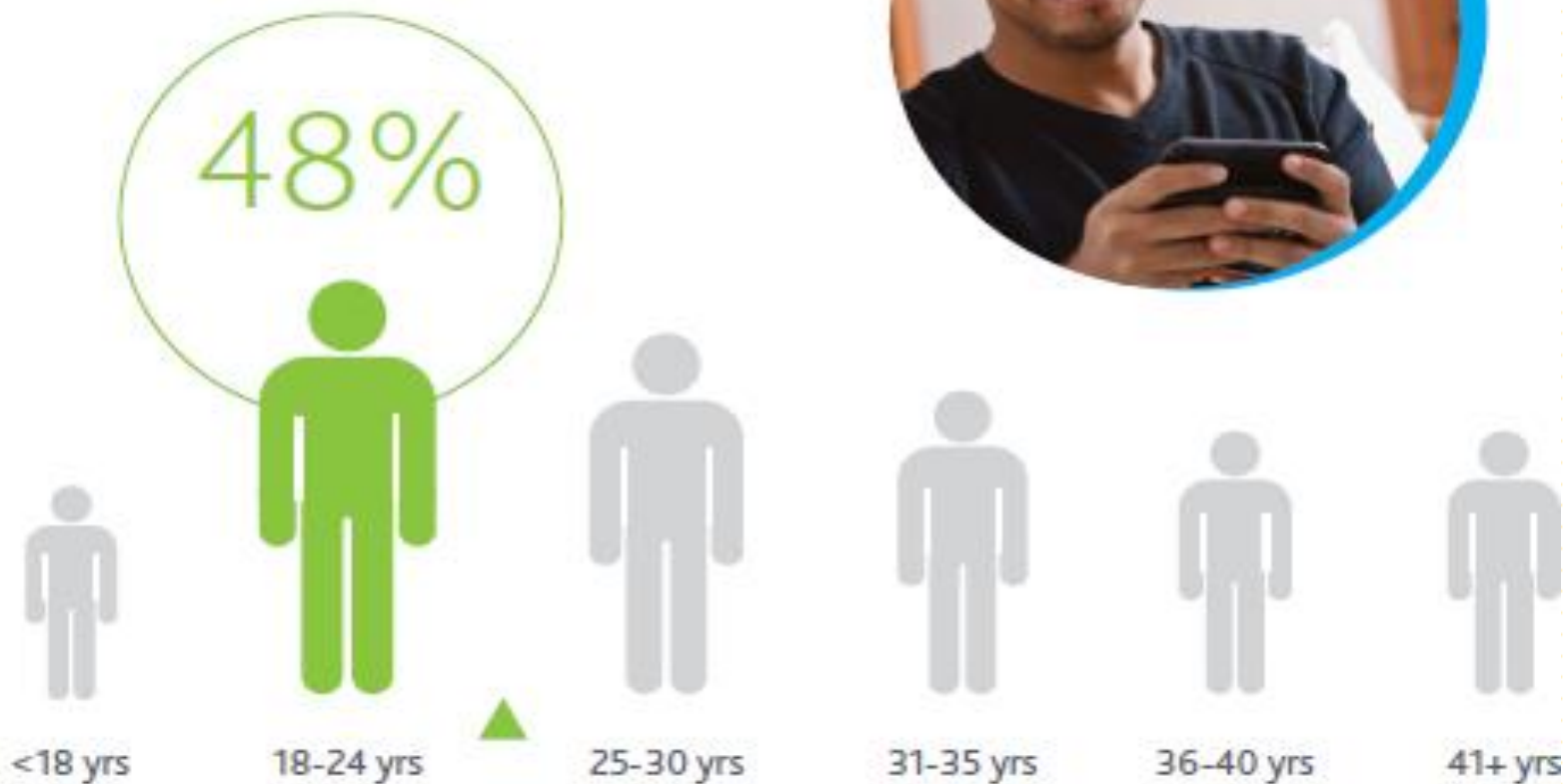# Creating a Digital Services-Oriented Culture

THE SMART PHONE GROWTH

- Current smart phone users in the world comprise more than a quarter of the world population (2B vs 7,4 B)

- There will be about 200 million Smartphone users in India by the end of 2016
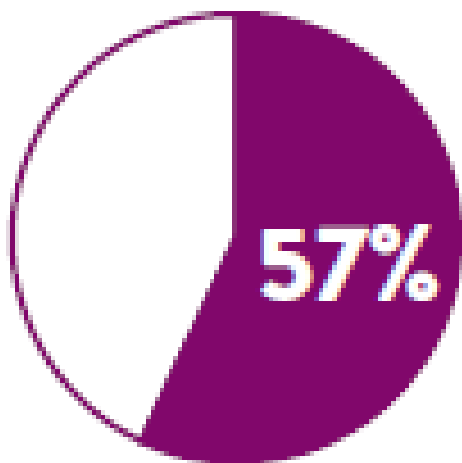
WHO ARE THESE NEW USERS IN INDIA

Most cellular data users are less than 25 years

48%

| <18 yrs | 18-24 yrs | 25-30 yrs | 31-35 yrs | 36-40 yrs | 41+ yrs |

Source: Nielsen Informate Mobile Insights

WHAT ARE ALL THESE SMART PHONE USERS DOING?

INDIA

HAVE A DATA PLAN? [1]

57%
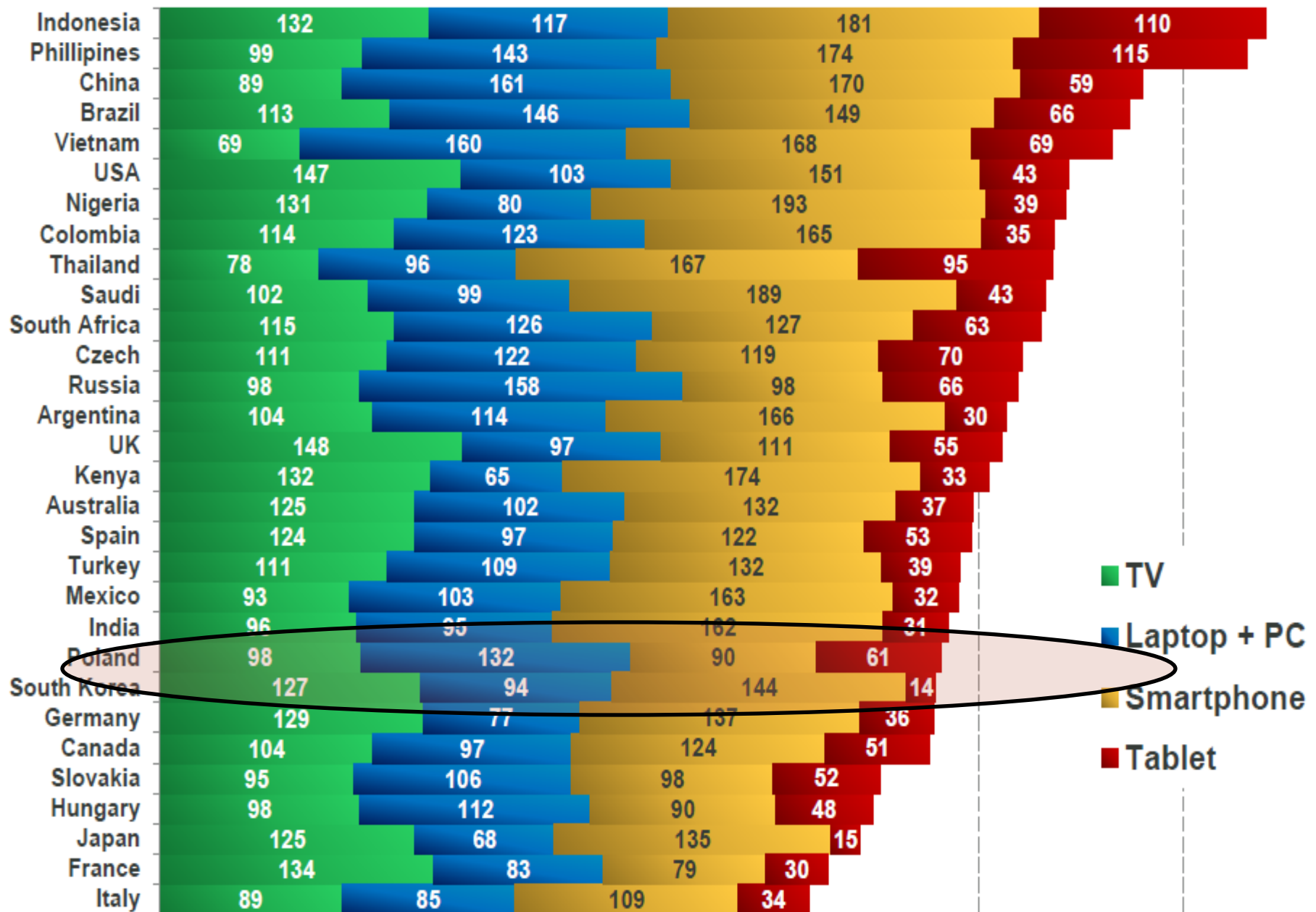
AVG MONTHLY BILL

₹ 499
SMART PHONE
USERS

₹ 300
ALL MOBILE
PHONE USERS

Daily Distribution of Screen Minutes Across Countries (Mins)

Country	TV	Laptop + PC	Smartphone	Tablet
Indonesia	132	117	181	110
Phillipines	99	143	174	115
China	89	161	170	59
Brazil	113	146	149	66
Vietnam	69	160	168	69
USA	147	103	151	43
Nigeria	131	80	193	39
Colombia	114	123	165	35
Thailand	78	96	167	95
Saudi	102	99	189	43
South Africa	115	126	127	63
Czech	111	122	119	70
Russia	98	158	98	66
Argentina	104	114	166	30
UK	148	97	111	55
Kenya	132	65	174	33
Australia	125	102	132	37
Spain	124	97	122	53
Turkey	111	109	132	39
Mexico	93	103	163	32
India	96	95	162	31
Poland	98	132	90	61
South Korea	127	94	144	14
Germany	129	77	137	36
Canada	104	97	124	51
Slovakia	95	106	98	52
Hungary	98	112	90	48
Japan	125	68	135	15
France	134	83	79	30
Italy	89	85	109	34

HOW IS THE INTERNET AFFECTED?

- The use of mobile data has grown tremendously with the market uptake of smart phones and tablets that give users mobile access to popular web 2.0 applications like Facebook, Google, Skype, WhatsApp, Dropbox, etc.

- more than 50% of the mobile subscribers in the world are using various digital services.

- By the end 2016, the number of Internet users globally will have reached almost 4 billion.

- Plans like National Optic Fibre Network Project (NOFN) that are aimed at expanding geographical coverage and increasing the number of accesses will fuel internet penetration

DIGITAL PENETRATION

TOTAL POPULATION	INTERNET USERS	ACTIVE SOCIAL MEDIA USERS	UNIQUE MOBILE USERS	ACTIVE MOBILE SOCIAL USERS
7.395 BILLION	3.419 BILLION	2.307 BILLION	3.790 BILLION	1.968 BILLION
URBANISATION: 54%	PENETRATION: 46%	PENETRATION: 31%	PENETRATION: 51%	PENETRATION: 27%

we are social

GROWTH

GROWTH IN THE NUMBER OF ACTIVE INTERNET USERS
TOTAL POPULATION
1,318 MILLION
+19%
SINCE JAN 2015
URBANISATION: 33%

GROWTH IN THE NUMBER OF ACTIVE SOCIAL MEDIA USERS
ACTIVE INTERNET USERS
375 MILLION
+15%
SINCE JAN 2015
PENETRATION: 28%

ACTIVE SOCIAL MEDIA USERS
136 MILLION
PENETRATION: 10%

GROWTH IN THE NUMBER OF MOBILE SUBSCRIPTIONS
MOBILE CONNECTIONS
1,012 MILLION
+8%
SINCE JAN 2015
vs POPULATION: 77%

GROWTH IN THE NUMBER OF ACTIVE MOBILE SOCIAL USERS
ACTIVE MOBILE SOCIAL USERS
116 MILLION
+16%
SINCE JAN 2015
PENETRATION: 9%

INTERNET GROWTH

LTE INFRASTRUCTURES

❑ Public safety LTE infrastructure investments are set to grow at a CAGR of nearly 40% between 2015 and 2020.

❑ The market for ruggedized public safety LTE devices will witness similar growth, with an estimated 4 Million annual device shipments in 2020

❑ By 2020, the installed base of private public safety LTE base stations (eNBs) will reach 150,000. By that time, transportable LTE solutions will account for close to 20% of all public safety LTE infrastructure investments

DIGITAL SERVICES

❑ The Indian app industry is likely to see around 10 **billion downloads in 2016. (**5X more than 1.56 billion in 2012)

❑ **In 2016 the revenue from paid apps** is estimated to be over **INR 15 billion** against INR 9 billion in 2014,

❑ The Indian app market is likely to carry an enormous opportunity for local, as well as regional apps.

❑ India's app economy is already growing multifold with each passing quarter, and the country's 3 lakh app developers' community is likely to expand drastically.

❑ By 2017, India is estimated to have the largest developer base.

❑ As smartphones gain traction in India, the 3G adoption reaches 250 million by 2016.

❑ 4G is going all the way to accelerate the pace of mobile application development in the country.

DIGITAL SERVICES

❑ With 4G, mobile application development will turn over a new leaf and will usher in a phase of unprecedented development in this segment.

❑ In 2013, an average Indian smartphone downloaded 17 apps, out of which 4 were paid apps.

❑ Globally, an average smartphone downloaded 26 apps, 5 of which were paid ones.

❑ The smartphone penetration is set to rise to 13.4% in 2015, up from 10% in 2014.

❑ India is among the top three countries by the number of app downloads but fails to make it to the list of top 5 countries by the number of paid apps.

❑ 80% of apps being downloaded in India are global apps.

ARPU Upside for Facebook + Twitter...
Google ARPU = 6x Facebook...Facebook = 2x Twitter

Annualized Ad ARPU ($) & Mobile % of MAU

Annualized Ad ARPU ($)	Q1:12	Q2:12	Q3:12	Q4:12	Q1:13	Q2:13	Q3:13	Q4:13	Q1:14
Google ($)	$37	$37	$38	$43	$42	$41	$41	$46	$45
Y/Y Growth	9%	6%	6%	14%	14%	11%	10%	8%	8%
Facebook ($)	$4.00	$4.28	$4.43	$5.15	$4.60	$5.65	$6.14	$7.76	$7.24
Y/Y Growth	1%	(2%)	7%	12%	15%	32%	39%	51%	57%
Mobile % of MAU	54%	57%	60%	64%	68%	71%	74%	77%	79%
Twitter ($)	$1.29	$1.50	$1.64	$2.15	$1.97	$2.22	$2.65	$3.65	$3.55
Y/Y Growth	90%	134%	108%	93%	52%	48%	61%	69%	80%
Mobile % of MAU	--	--	--	--	--	75%	76%	76%	78%

PERFORMANCE OF KEY DRIVERS IN INDIA

KEY DRIVERS	INDIA
A Smartphone proportion of mobile	13% phone sales
A Network infrastructure quality score	2.98
B Prevalent cost of SMS	0.50 -1 Rupee
B Carrier fragmentation, measured by inverse HHI	68%
C Smartphone penetration in ages 13-24 vs. 25-64	39% vs. 29%
D Fragmentation of smartphone OS	0.17 platforms
D Concentration of Digital servives (std. dev. of market share)	0.21
D Market penetration of top Digital services	63%

		Commu-nication (audio, messaging, data)	Travel and leisure	Entertain-ment media (music, video, gaming)	Advertising and information services	Retail and commerce	Utilities	Financial services	Automotive, telematics, and logistics	Healthcare and wellness
End-user services	Content/service aggregation, curation, and personalization			avoid						
	Point apps		opportunistic/ distribution only		only to seed initial experience creation					
	Point solutions									
Platform and enabler services	Data analytics									
	Customer care and CRM									
	Payments and billing									
	Value-added networking and infrastructure (e.g., security, identity, quality of service)									
Network and infrastructure services	Storage/computing housing and hosting									
	Data transport									
	Messaging connectivity									
	Voice connectivity									

(B2) B2C

B2B

Legend:
- Protect the core
- Enable other businesses
- Create new customer experiences

CREATING DIGITAL SERVICES ENVIRONMENT

- One positive fallout of the success of mobile communications has been the rapid development of digital services. These services use data-stream either continuously or on a one-off basis to deliver information and perform specific functions.

- Some functions enable gaming, social networking, navigation, utilities, health, and education, among others, and are revolutionising the way phones are used.

- App downloads have increased from $ 24.9 billion in 2011 to $ 81.4 billion in 2013 and will reach $ 310 billion by this year end.

- Competition triggered by technological advancements helped growth. These developments encouraged the shift from a telecom-operator controlled network to Wi-Fi/data as a means of content delivery. This marked the inflexion point for the app revolution.

- The model of having a single platform to disseminate and facilitate the payment of apps has been so successful .

CREATING DIGITAL SERVICES ENVIRONMENT

- India is a source of enormous demand for apps.

- Though smartphone penetration is just 20 percent of total mobile users, there are 100 million downloads per month placing it amongst the top five regions for Google Play.

- India also significantly contributes to app development as roughly ten percent of apps worldwide are developed by Indians either based abroad or at home.

- It is the worlds second app developer.

- In 2010, Indian service providers debuted in app distribution when Bharti launched the Airtel App Central online store.

- The Mobile seva app store should form the corner stone for such developments;

- Affordability of mobile data is anotherkey factor driving this trend. According to the International Telecommunication Union (ITU) India is one the cheapest countries for a phone plan with data`

CREATING DIGITAL SERVICES ENVIRONMENT

- The presence of a large, skilled pool of young software developers coupled with high growth rates in the smartphone and data markets suggests that the Indian app economy has reached the point of inflexion.

- According to experts familiar with apps, the next break-through innovation in apps will be Indian.

- Google Play hosts about 1300000 apps globally. The corresponding number for Apple App Store is 1200000

- Another appealing example of app distribution is the world's first app store for government services. "MyGov" is India's initiative in this space.

- International app stores continue to dominate the distribution of apps in India.

- Local app distribution platforms must attain critical scale to incentivise app developers to create relevant content.

- The government has taken a right step in this direction by launching its Mobile Seva Appstore which has won the UN Public Service Award 2014 .

CREATING DIGITAL SERVICES ENVIRONMENT

- The potential for India to leverage the app ecosystem to achieve certain developmental goals is still under utilised as app usage is skewed towards entertainment, gaming and social networking.

- Apps that focus on initiatives such as agriculture, health, and education have not scaled adequately because the ecosystem is itself under developed.

- Better network infrastructure and increase in the number of devices can facilitate adoption of digital services.

- Content and service providers delivering compelling content and useful information can drive accelerated adoption of digital services;

- (Social Media, Chat and Video are key content categories that are consuming maximum user time on mobiles;)

- Paradigm shift in content consumption patterns from on-deck to off-deck content with increasing number of users of smartphones. Additionally, SMS based mobile content is gradually being replaced by mobile data services based content delivery;

- Availability of vernacular content by content/services players could aid in Mobile Internet adoption.

CREATING DIGITAL SERVICES ENVIRONMENT

- Off Deck services are gaining popularity. Innovative models need to be developed for content monetization in a price sensitive market like India;

- Investments in mServices are growing and these services stand to offer the promise of creating a social impact in the areas of healthcare, agriculture, financing, governance and education;

- Existing mServices are SMS and IVR based which limit delivery of interactive services and holistic user experience;

- mServices present robust use cases for the mobile. Increasing adoption of these services portends a favorable future for Mobile Internet adoption;

- Experience key benefits that Mobile Internet based mServices bring to the table include extended reach, improved delivery efficiency and in many cases low cost solutions for positive social impact;

- An immature ecosystem poses a big hurdle for growth and penetration of mServices;

- mServices- agriculture;finance;health;education;governance

CREATING DIGITAL SERVICES ENVIRONMENT

- India is staring at a new paradigm of digital consumerism.

- As the clocks ticks, the people of India are enthused and excited to get on to this digital bandwagon. They are connected, they are informed and they can't get enough of it.

- The industry is offering them their chance. However, there are challenges to embark on profitable growth.

- The Government, the regulatory framework, the logistics service providers, the payments processing gateways, other supporting parties and the e-Commerce players have to step-up and dodge these challenges.

- The government's plan to introduce GST (Goods and Services Tax) is a positive step towards simplifying the tax structure on sale of goods and services.

- According to a report by the National Council of Applied Economic Research, GST is expected to increase economic growth by between 0.9 percent and 1.7 percent

SECURITY ISSUES CONCERNING DIGITAL SERVICES

Security/ cyber safety issues

- Internet applications present the challenges of data security, making customers vulnerable to data misuse.

Privacy and Data Protection

- One of the negative side effects of the Information Revolution is a loss of data control. OTT services are not safe from security breaches which can lead to disclosure of an individual's information.

Malicious Software

- Internet applications bring with them all sorts of nuisances that are borne by the internet. These include viruses, worms, spyware or trojan horses etc. which can play havoc on one's computer system or smart phones.

National Security

- As these applications are generally hoisted by international companies, we are currently unable to get any communication records of suspicious persons. This presents a threat to our national security as well and need to be addressed correctly.

USE OF TSPS NETWORK

<u>Effective use of LTE's PCRF:</u>

- The Evolved Packet Core (EPC) architecture provides an enhanced feature set in the Policy and Charging Rules Function (PCRF).

- There is an opportunity for operators to provide <u>service differentiation over and above the digital service offerings</u>. Operators will have to find the correct combination of product, brand, marketing and pricing as well as conquering the associated technical challenges in order to make these quality assured services a success.

- This LTE Policy Control features could be implemented by operators to generate additional revenue growth and differentiate themselves from digital service providers.

<u>Use of layered segmentation</u>:

- ➢ operators provide the network layer and digital services the application layer, the control layer being split according to countries' particularities.

- ➢ Such initiative could be desirable in other fields, for instance in HD voice, Video-conference or telepresence, to strengthen the Telco asset of interoperability.

Thank you