CommProve

Holistic QoS and QoE measurement and digital transformation

Rv.1 – 15/03/18

Better insight, better results

Company Overview

- ⊙ Founded 1996 – In Italy

- ⊙ Privately held company

- ⊙ Locations:
  - HQ Ireland
  - Italy, France, South Africa, Kenya, Argentina and Brazil
  - Russia - R&D outsourcing

- ⊙ 90+ HCs globally
  - 50%+ in Development

- ⊙ Leading provider of Service/Revenue Assurance solutions for network operators

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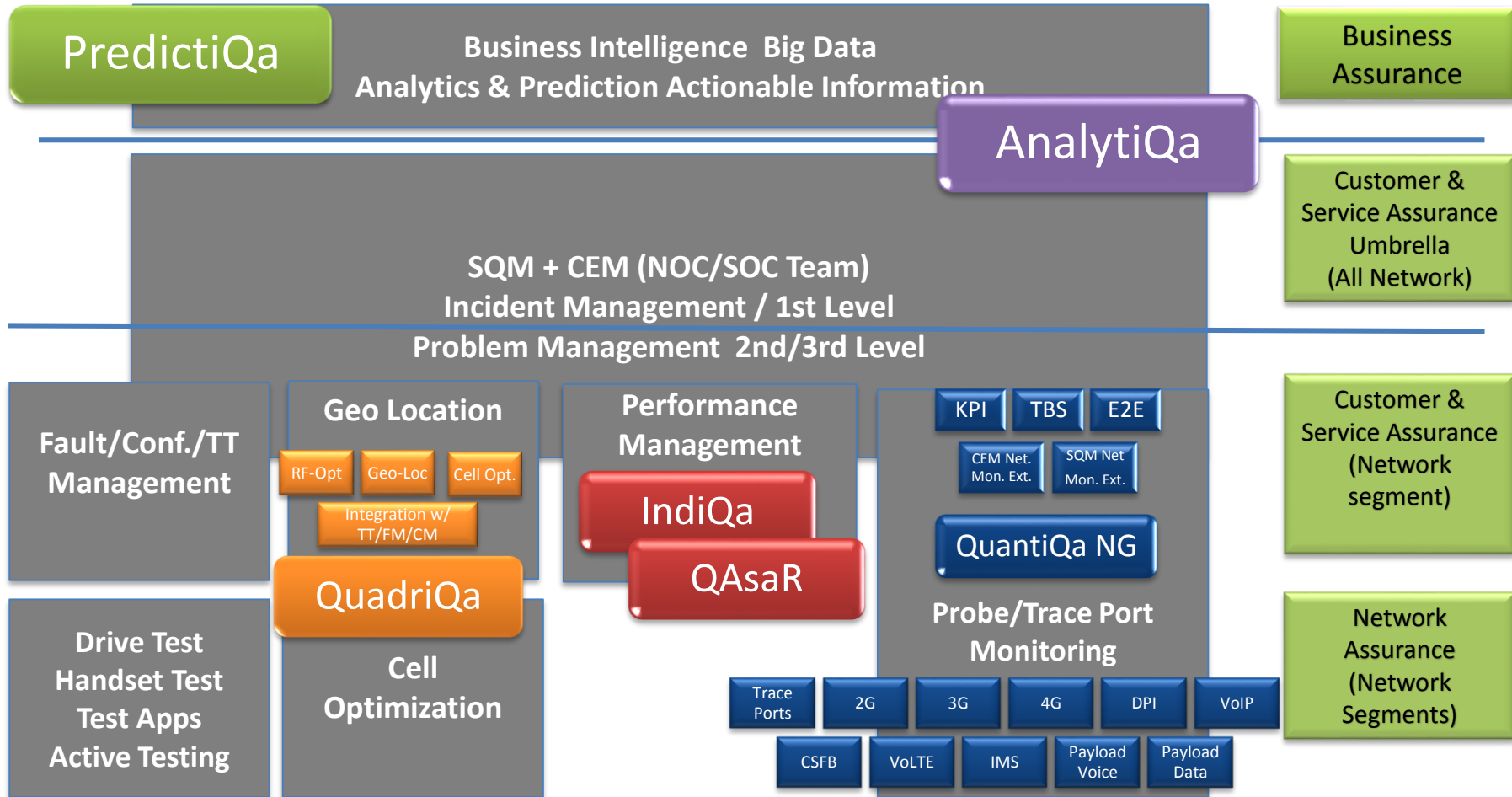
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Mature Platform Capabilities

- Big, fast data storage & handling
- Numerous interfaces
- Flexible data acquisition
- Patented correlation techniques

Complete Suite of Solutions

- Business Assurance – **AnalytiQa**
- Service Assurance - **QuantiQa**
- Performance Management – **IndiQa**
- Regulators QoS Solution – **QAsaR**
- Cell Radio Optimization – **QuadriQa**
- Prediction Solution - **PredictiQa**

Covers entire network lifecycle

- Technologies
- Subscribers
- Devices
- Services
- Usage

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Product portfolio

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PredictiQa	Business Intelligence Big Data Analytics & Prediction Actionable Information	**Business Assurance**

AnalytiQa

Customer & Service Assurance Umbrella (All Network)

SQM + CEM (NOC/SOC Team)
Incident Management / 1st Level
Problem Management 2nd/3rd Level

Fault/Conf./TT Management

Geo Location

RF-Opt | Geo-Loc | Cell Opt.

Integration w/ TT/FM/CM

QuadriQa

Performance Management

IndiQa

QAsaR

KPI | TBS | E2E

CEM Net. Mon. Ext. | SQM Net Mon. Ext.

QuantiQa NG

Customer & Service Assurance (Network segment)

Drive Test Handset Test Test Apps Active Testing

Cell Optimization

Probe/Trace Port Monitoring

Trace Ports | 2G | 3G | 4G | DPI | VoIP

CSFB | VoLTE | IMS | Payload Voice | Payload Data

Network Assurance (Network Segments)

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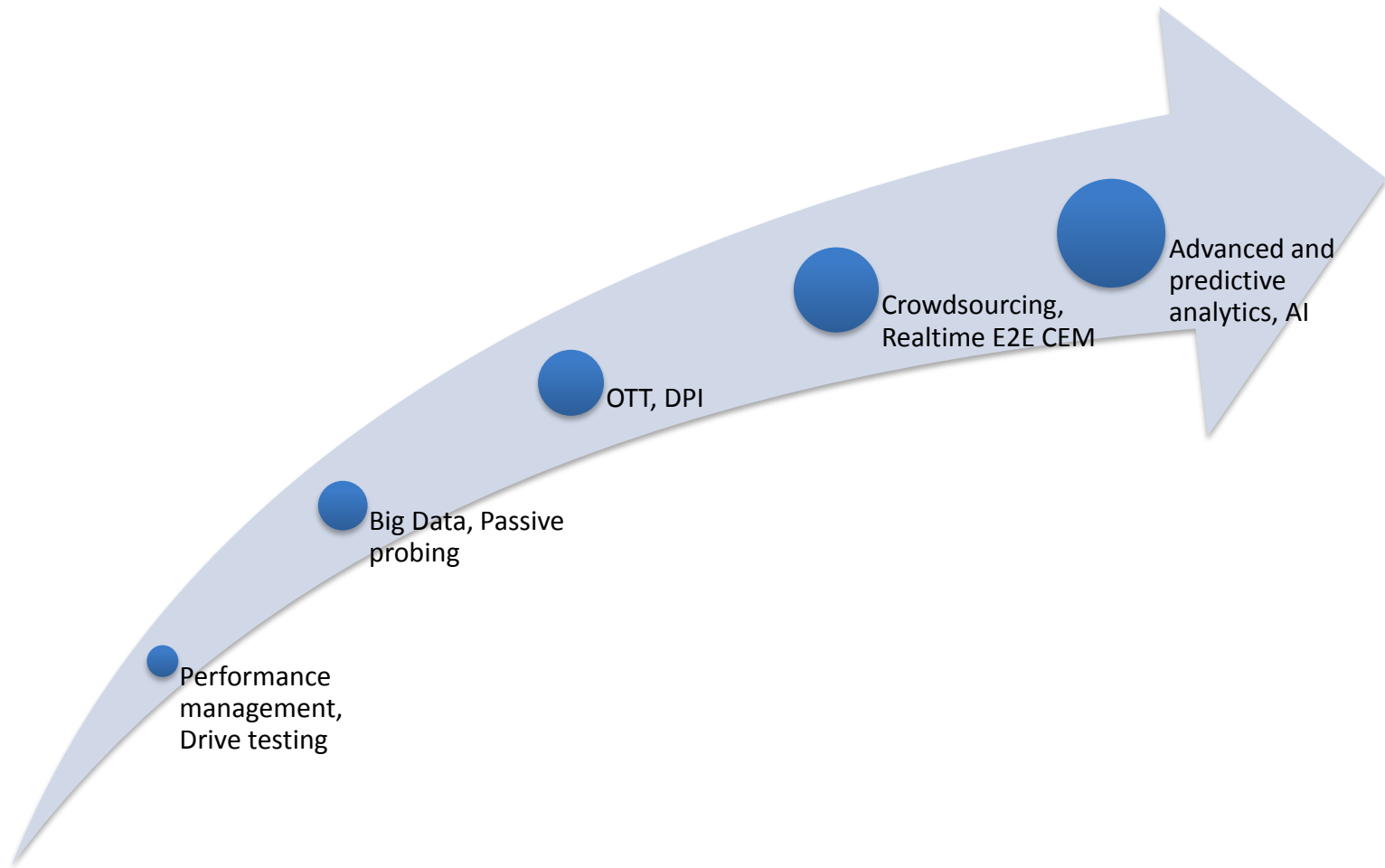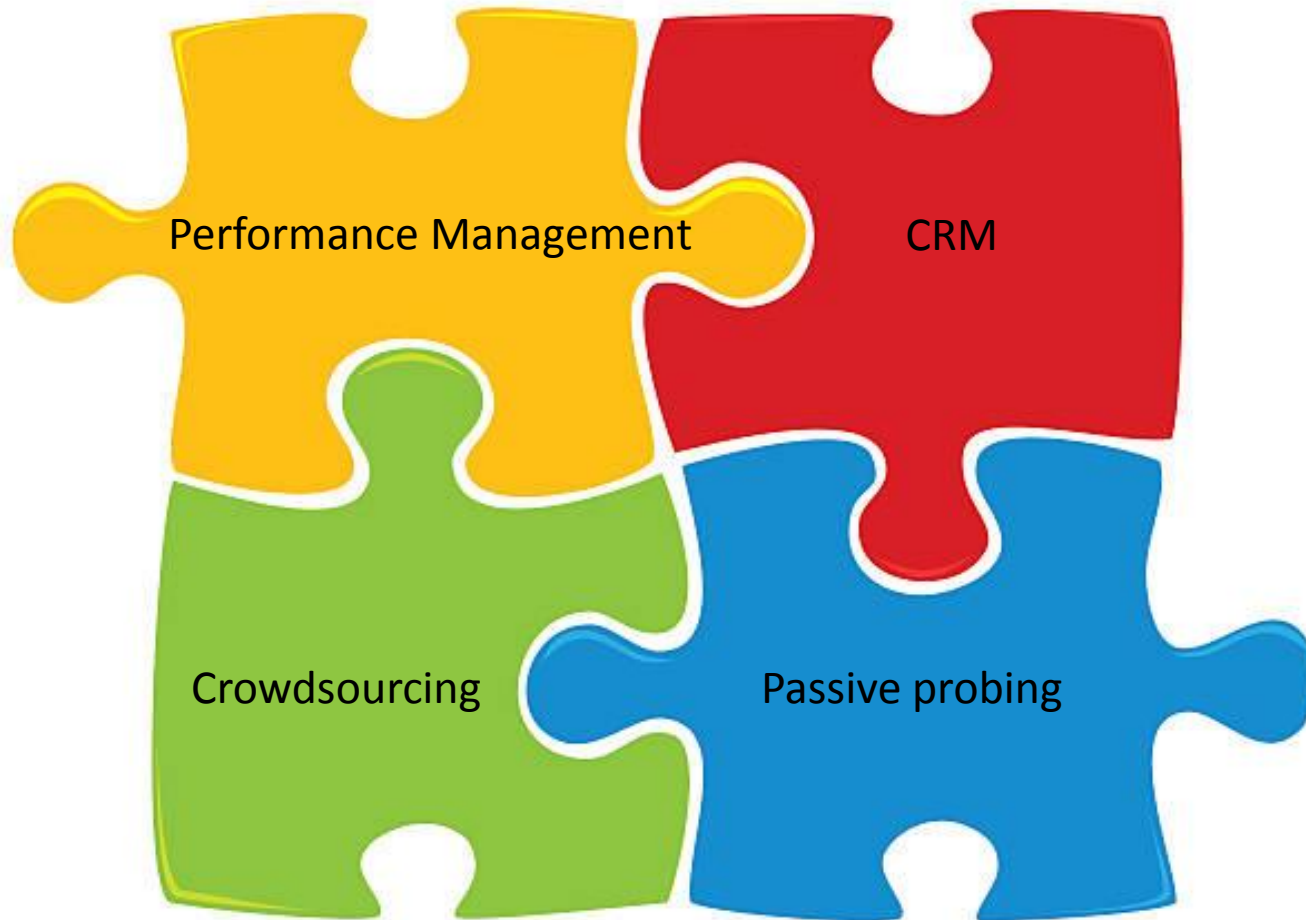# CommProve journey into QoS monitoring

- CommProve has been active in the network monitoring space for almost 20 years

- We started with a PM-based solution, complemented almost immediately by a probing platform (initially on radio interfaces)

- Over time, we realized that evaluation of QoS and QoE can only be possible through the evaluation of different aspects that complement each other

- Moreover, with the evolution of users' behaviors and technology, the monitoring approach has to evolve as well

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Advanced and
predictive
analytics, AI

Crowdsourcing,
Realtime E2E CEM

OTT, DPI

Big Data, Passive
probing

Performance
management,
Drive testing

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Performance Management

CRM

Crowdsourcing

Passive probing

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Performance Management

- Performance Management is an historical source of information for MNOs and NRAs alike
- Very focused on network performance
  - Extracting valuable information on the users experience can be hard (or not feasible)
- Remains nevertheless a very effective way to derive essential information (e.g. availability of a cell) difficult to obtain otherwise
- For NRAs applications, it is possible to scale the amount of data used and go for a server-less approach

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- ⦿ Crowdsourcing is an interesting source of information:
    - ○ (Relatively) cheap
    - ○ Based on QoE
    - ○ Independent (don't need to rely on vendors or MNOs)
    - ○ Can be easily cloudified

- ⦿ Still:
    - ○ Often not real-time
    - ○ Due to its very nature, data obtained can be biased
    - ○ Quality of data and their capability of representing reality strongly depends by the amount of data processed
        - ○ Best approach is to have multiple sources of information from multiple apps

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- Passive probing provides a powerful way to know what is really going on in the network:
    - Completely vendor agnostic
    - Can provide a 24/7/365 view of what is going on for every user in the network (provided the related interfaces are monitored)
    - Can be used to monitor:
        - Voice, data, sms, mobility services
        - Utilization of data, OTT and hi-end applications
        - User-based performance and QoE
- All of the above, for all customers in a seamless way
- Cloudification can be easily achieved through mediation layers (i.e. selective export of data)

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- Deployment of Converged billing solution .
- Replacement of legacy IT systems by deploying a real-time OSS/BSS solutions .
- Focus on network performance, quality of service and deployment of on-line monitoring tools .
- Accelerating NFV Roll-Out .
- Big data: data cleaning , optimization and integration initiatives .
- Digital transformation: moving towards digitalization of all sales channels and touch points .

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➢ Growth in M2M-IoT .

➢ Smart Cities initiatives and deployments .

➢ Regulatory reform .

➢ Progress on 5G and Fiber deployments .

➢ OTT communication services .

➢ Leverage data to improve business outcomes .

➢ Cloud computing services and storage .

➢ Launch of Digital services for consumers and enterprise will create new revenue streams and increase profitability .

➢ Larger and more interactive transactions and higher volume networking .
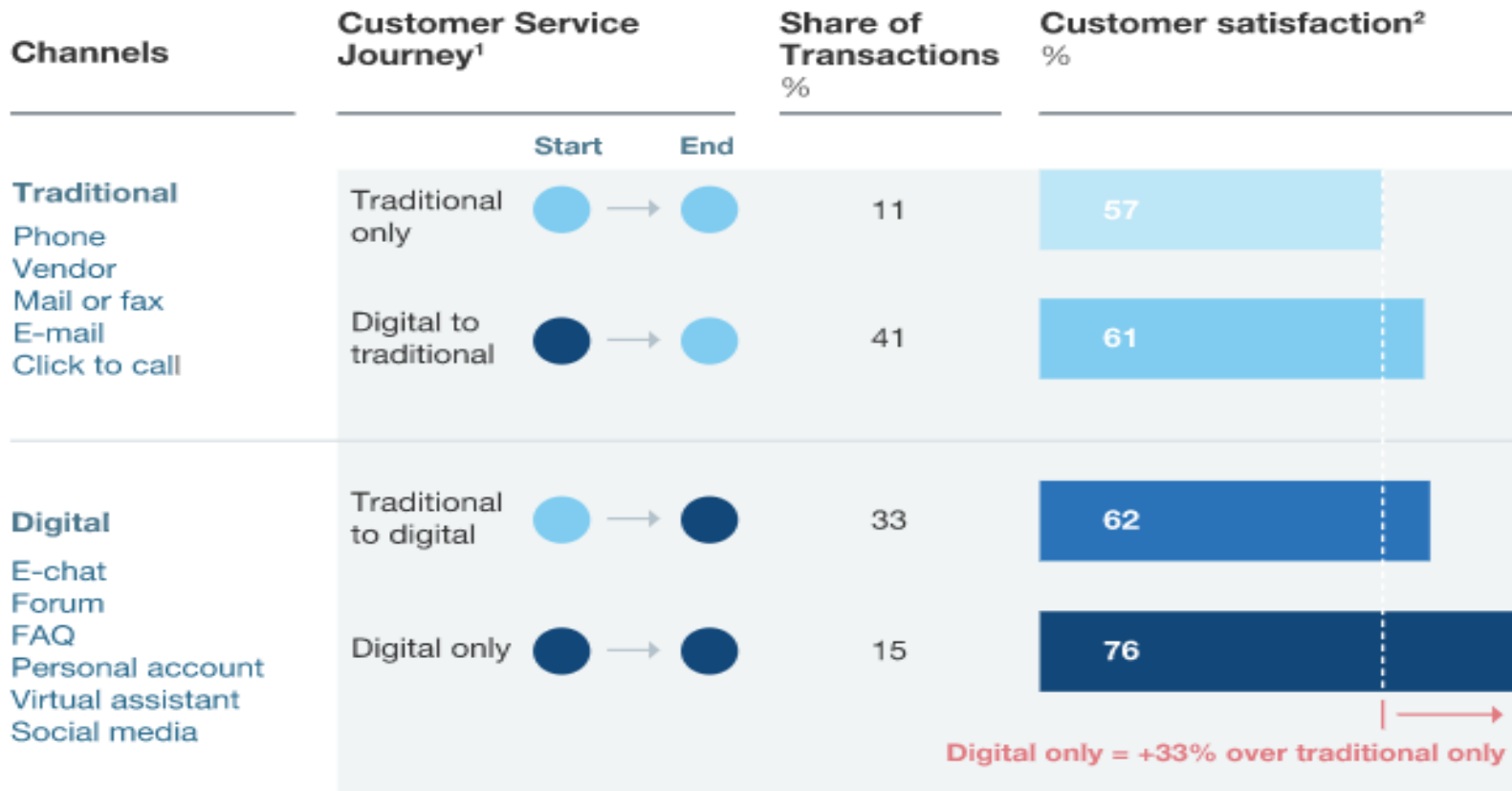
➢ Cross market M&A .

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- ➢ By the year 2020, technologies like Cloud, Big Data, IoT and mobile devices will have digitized our world and create new digital business opportunities .

- ➢ Digitalization is dramatically changing the business. landscape with a promise of increased opportunity and innovation .

- ➢ Smart Data and information are fueling the digital economy and is a key factor for a successful digital transformation .

- ➢ Telecom operators with a clear digital strategy will lead the market .

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The more digital the journey, the higher the satisfaction.

Example: telecom customers in Western Europe

Channels	Customer Service Journey[1]			Share of Transactions %	Customer satisfaction[2] %
		Start	End		
Traditional Phone Vendor Mail or fax E-mail Click to call	Traditional only	●	●	11	57
	Digital to traditional	●	●	41	61
Digital E-chat Forum FAQ Personal account Virtual assistant Social media	Traditional to digital	●	●	33	62
	Digital only	●	●	15	76

Digital only = +33% over traditional only

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Digital Transformation Curve

Subscriber Value Creation

Network Performance

Network Protection

Subscriber Protection

Subscriber Communications

Experience Optimization

NETWORK CENTRIC

Subscriber Online Experience

SUBSCRIBER CENTRIC

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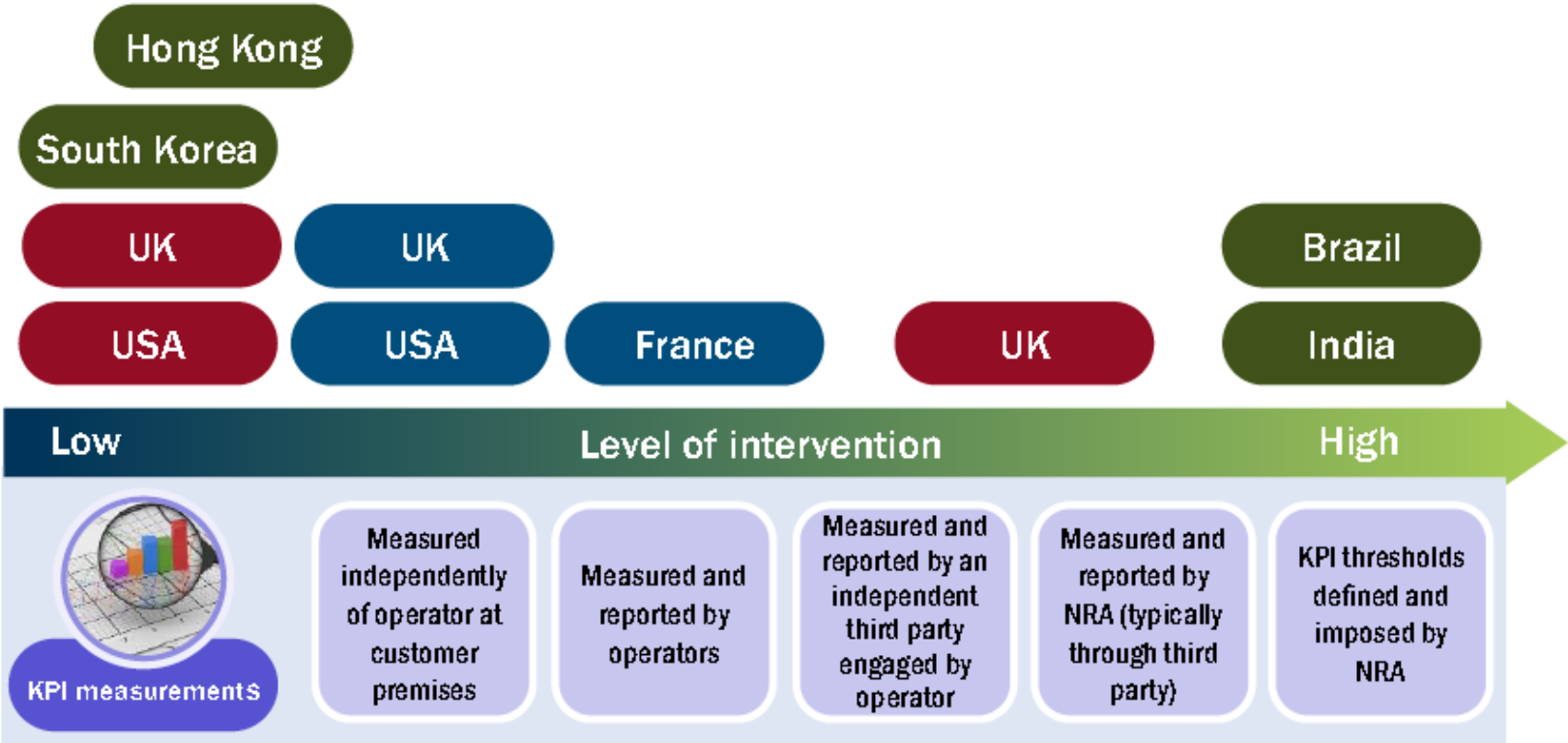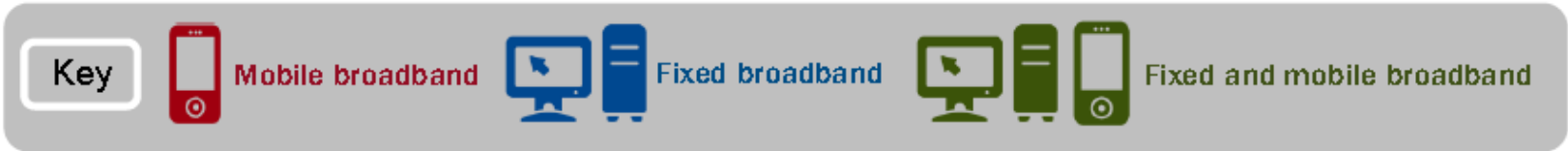
Source: Analysis Mason

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- As the complexity of the interactions between users and the applications / services increase, the need for a wider interpretation of the QoE concept arise

- Taking into account limited set of attributes will soon not be enough and a more comprehensive / holistic approach will be required

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Digital transformation

Multiple touch-points

Machine-based interactions (IoT, M2M)

BIG DATA

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- The capability of having a scalable architecture capable of acquiring data from multiple different sources can enable NRAs to «make the leap» and implement monitoring solutions as much independent as possible from the MNOs
- At the same time, the possibility of using data from probing allows to have the full picture
  - Scalability on probing allows monitoring of selected services

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Thank you

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