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Raising awareness around IoT strategy, A Mobile Network Operators perspective on approaches and challenges

April 2020

Executive Summary

Developing IoT solutions is a marathon not a sprint, organizations should focus on training for the competition ahead, learning the best techniques and processes to reach the finish line. Organizations should look at IoT as a customer-centric opportunity while remaining focused on the bigger picture.

Few runaway IoT success stories to date:

- Unconvincing IoT use cases.
- An overemphasis on technology.
- Stakeholder objective fragmentation and misalignment.
- Security concerns.

Next generation IoT solutions are emerging:

- IoT incorporated as part of digital transformation efforts.
- Design based on clear business objectives.
- Aligned with cloud-based applications.
- Driven by government initiatives.

The rise of cellular IoT solutions:

- Better security, bandwidth, and coverage.
- Complementing low-power connectivity.
- Built on the acceleration of 5G networks.
- The alignment of IoT use cases with connectivity.

Recommendations for successful IoT solutions:

- Boost open innovation.
- Use lean, agile, and design thinking methods.
- Align with data analytics.
- Develop the right IoT partner ecosystem.
- Design for a platform-based approach.
- Master adjacent technologies.
- Tackle operational and cultural transformation.

To date, IoT solutions have failed due to a number of factors.

Most enterprise customers have a vague or weak long-term vision for the adoption of IoT solutions:

- Traditional businesses usually have no clear idea how to derive more value from data that connected assets can generate.
- Some enterprise customer IT managers are slow to adopt IoT solutions. At the same time many business leaders feel that the IoT opportunity is too important for them, so instead they take on IoT projects without deep involvement of their IT teams.

"The maturity of our customers with IoT is not yet very high. In many respects, their IoT activities are linked to digital transformation efforts."
Head of shared technology, mobile network operator, Norway

Overemphasis on technology:

- Although Technology is not the only stumbling block for IoT, the overemphasis on technology has held back IoT.
- The real challenge relates to understanding customers true requirements and objectives.

"The model was traditionally set where we were creating for 4/5 owned products which we marketed to our customers. Currently, and moving forward, it will become more outcome-based, whereby our customers tell us the outcome they are looking for and challenges they experience, and we will create solutions based on their feedback."
Head of IoT ecosystems, partnerships, and alliances, mobile network operator, Italy

*Source: Forrester Analytics Global Business Technographics® Networks And Telecommunications Survey, 2019

To date, IoT solutions have failed due to a number of factors.

A lack of understanding the different enterprise customer stakeholder needs for IoT and the weak alignment between them:

- Carriers deal with different types of stakeholders.
- It is critical to pitch a clear message to the client, but do note there is **not a major difference** in the messaging between internal IoT stakeholders and clients.

"Depending on the stakeholder, the messaging changes. Therefore it is important to have a consistent message in place."
Head of shared technology, mobile network operator, Norway

Security concerns related to connectivity:

- Security concerns increase. And with more connected IoT assets, new attack surfaces appear.
- The main partner selection criteria for IoT solutions relates to scaling capabilities, which include operating with very high cybersecurity standards.

Forty-one percent of North American firms and 39% of European firms are concerned about security when deploying IoT.*

"[Customers expect solutions to include] security and best practices around security."
National account manager, mobile network operator, US

*Source: Forrester Analytics Global Business Technographics® Networks And Telecommunications Survey, 2019

IoT solutions are now at the threshold of receiving a significant boost.

IOT IS TREATED AS PART OF DIGITAL TRANSFORMATION EFFORTS

FOCUS ON BUSINESS REQUIREMENTS AND OBJECTIVES

Increasingly, IoT activities are linked to digital transformation efforts. The key elements of the IoT value proposition are:

a) **Connectivity for assets.** Connected assets generate data which is the basis for insights of operational processes and customer behaviour.

b) **Global platform for devices.** The global head of industrial IoT for partnerships and innovation at a mobile network operator in Spain shared, "A platform approach to IoT is very helpful as additional features and functions can be added as you evolve the IoT solution."

c) **Build and productize successful use cases.** IoT use cases that work internally for carriers have the potential to be turned into IoT offerings that carriers can sell to customers.

- Most carriers embrace a vertical end customer engagements for IoT solutions.
- In the past, the IoT message was horizontal, but in recent months the message has been transformed into vertical messaging to address sector-specific needs.
- "The key elements of the value proposition are: 1) the connectivity for assets; 2) a global platform for device connectivity management; 3) build on successful use cases; and 4) productize these use cases.

"Customers are looking for advisory services, and a global tier 1 operator is positioning themselves as a consultant in the digital transformation world where IoT plays a role."

IoT marketing management, mobile network operator, Italy

"Traditionally, [we] looked at track and trace solutions for our customers, however we differentiate ourselves by looking at customers in 'verticals' and offer our customers solutions and offerings based on the vertical with supporting use cases."

Head of IoT ecosystems, partnerships and alliances, mobile network operator, UK

IoT solutions are now at the threshold of receiving a significant boost.

SPREAD OF CLOUD-BASED APPLICATION LANDSCAPE

- Cloud is becoming a very important part of most IoT environments.
- Most carriers want to create end-to-end IoT solutions, including IoT connectivity, roaming, billing, device and SIM card management, IoT security, and an end-to-end managed service offering.

"IoT sophistication will evolve but it's important to remember the integrations between devices and the cloud is complex."

Head of shared technology, mobile network operator, Norway

GREATER INVOLVEMENT OF GOVERNMENT WITH IOT PROJECTS

- A long-term driver of change for IoT comes from government policy. Government will provide a framework for where and how IoT will impact the broader society, not just businesses.
- Carriers are focusing on developing use cases for government.
- The following are examples of IoT usage in the public healthcare space: blue-light services, training, care for the elderly, smart meters, traffic flow management, crowd control, urban planning, etc.

"The government is a driver for change (UK), stating they need to adopt technology to drive down the high costs they are facing today."

Head of IoT ecosystems, partnerships and alliances, mobile network operator, UK

IoT initiatives have been simmering on the IT agenda for a long period of time, which indicates that stakeholders are preparing for IoT to become a priority objective.

Source: Forrester Analytics Global Business Technographics® Networks And Telecommunications Survey, 2019

36% of overall IT initiatives in Europe are focused on expanding IoT.

34% of IT initiatives in North America are focused on expanding IoT initiatives.

43% of European firms are planning to implement or upgrade/expand their IoT solutions or applications.

41% of North America firms are planning to implement or upgrade/expand their IoT solutions or applications.

The future of IoT is cellular.

Cellular IoT technology has advantages in terms of security, bandwidth, and coverage.

“Enterprise customers expect from their carrier to manage cellular security and privacy issues as part of the IoT solution. Our main value play [as a carrier] is IoT connectivity, combined with IoT security and an end-to-end managed service offering.”

Head of shared technology, mobile network operator, Norway

"A challenge [for IoT offerings] is offering the same service level agreement if IoT solutions run on more than your own network infrastructure.“

Head of shared technology, mobile network operator, Norway

Many enterprises are looking for deploying a collection of LTE offshoot solutions and NB-IoT to bridge the gap between today’s expanding 4G-based bandwidth needs and tomorrow’s 5G rollout.

- Low-power area technologies have the biggest potential for IoT right now.
- 5G is seen as an alternative to Wi-Fi by many businesses.
- Customers often have a blend of legacy and new infrastructure in place and expect carriers to help integrate these IoT environments.

Hybrid networks will be a reality because IoT technologies like NB-IoT, LoRa, Sigfox, and Wi-Fi will help to bridge the gap between today’s 4G-based bandwidth needs and tomorrow’s 5G rollout.

The market will see a huge increase in cellular use cases in the years ahead as 5G is emerging, BUT not in the short-to-medium term.

- Carriers are using 2G, 3G, 4G, NB-IoT, and 5G for IoT connectivity.
- Private LTE and 5G networks are a major focus area.

“3G is still being used widely, such as in Latin America.”

Global head of industrial IoT, partnerships and innovation, mobile network operator, Spain

The future of IoT is cellular.

What to do?

Businesses need to align the right IoT technology for the right use case, look for the right partner to support you in doing so:

- Many carriers are looking for new types of partners in the market that can cater to the needs of very specialized customers where the carrier would lack the necessary expertise.
- The inherent complexities of device and IoT asset management indicate that it is essential, from the beginning, to be working and growing with the right partners.

"Key [partner] attributes; future looking and innovative, flexibility and sustainability."

Head of global IoT division, mobile network operator, UK

Attributes of a great partner include:

End-to-end capabilities for operational support

A commercial cost-model that is scalable from an ROI perspective

Scalability of systems

Customer references

Technical certificates

Europe — 42% believe that IoT will generate significant revenue increases.

North America — 46% believe that IoT will generate significant revenue increases.

There is growing confidence that IoT will generate revenue increases in the future.

Source: Forrester Analytics Global Business Technographics® Networks And Telecommunications Survey, 2019

Recommendations on how to obtain maximum benefits from IoT solutions include:

IoT innovation strategy must focus on customer objectives.

- The IoT objective must address a clear business challenge, e.g., improving NPS; reducing failure rates of products; lowering customer churn; speeding up innovation cycles.[1] The IoT projects that don't address such a clear pain point are mostly unsuccessful.
- The IoT marketing manager for a mobile network operator in Italy explained, "Just focusing on the cost reduction part of the IoT solution misses out on the biggest possibilities that IoT solutions can deliver."

The role of data analytics must be integral to IoT initiatives.

- Think about the data aspects of your business models and refine them, e.g., monetize/sell data that is generated by machines; use data insights for predictive maintenance; and use data insights to make specific features that customers want available.
- The director of global practices for a mobile network operator in the US said: "Most IoT projects are digital transformation projects and should be treated as such. When treated as part of the digital transformation activities, IoT initiatives have a better chance to unfold their full potential."

IoT partner ecosystem play is key evaluation criteria.

- IoT partner ecosystems bring together knowledge and commercial considerations with the goal to deliver business outcomes. To succeed you need the right combination of partners, processes, and technology. IoT partner ecosystems must have shared objectives between all participants.
- The global head of IoT for a mobile network operator in Spain said, "Find the right partners for the IoT initiative from the beginning, and prior to attempting to, experiment yourself in IoT DIY initiatives."

[1] Source: Net Promoter and NPS are registered service marks, and Net Promoter Score is a service mark, of Bain & Company, Inc., Satmetrix Systems, Inc., and Fred Reichheld.

Recommendations on how to obtain maximum benefits from IoT solutions include:

IoT platform approach is necessary for scalable solutions.

- A platform approach to IoT is very helpful as additional features and functions can be added as you evolve the IoT solution.
- Business platforms can accommodate exponential growth faster and more cost-effectively than traditional IT environments.
- The head of shared technology at a mobile network operation in the Netherlands shared: “Focus on specific objectives one by one and avoid trying to address too many objectives at once. Develop a vertical approach to designing and rolling out IoT solutions.”

Mastering adjacent technologies must be part of the IoT strategy.

- Many use case scenarios for connected devices and assets work perfectly fine with existing network technologies like LTE or even NB-IoT. However, 5G deserves special attention. 5G will give rise to completely new concepts for connected assets and services based on lower latency and much higher bandwidth.
- The global head of IoT for a mobile network operator in Spain said, “Don’t underestimate the complexity that device and IoT asset management bring.”

Operational and process structures must be aligned to business objectives.

- IoT initiatives become high-risk projects, if they’re not planned and managed carefully. The mindset must change towards understanding IoT initiatives as complex undertakings.
- The Head of Shared Technology for an MNO in Norway suggests, “Keep IoT initiatives as simple as possible. Start small and build from there — with partners.”