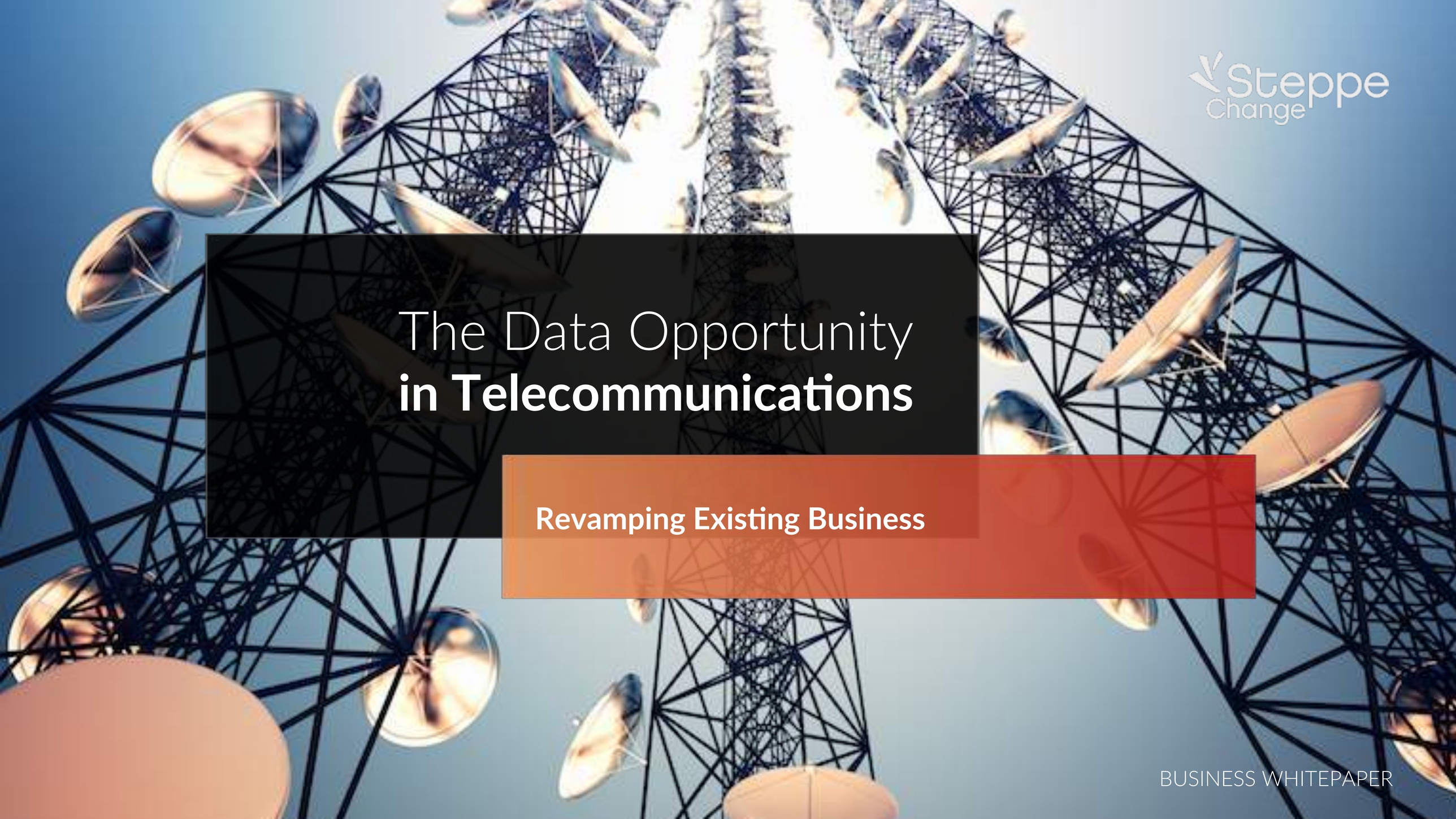


The Data Opportunity **in Telecommunications**

Revamping Existing Business

BUSINESS WHITEPAPER

Telecom operators are the backbone of the digital economy…

…yet have not translated this into new value for their stakeholders. Consumers' limitless appetite for content forces operators to continue investing heavily in increasing the infrastructure — while innovative digital services "riding on telecom rails" benefit, rather than the telecoms themselves.

The industry must innovate or lose relevance and decline into a low-return, regulated utility.

Fortunately, the industry generates **rich customer activity data**: a currently underutilized asset that can be leveraged to revamp operations and customer experiences – thereby reducing costs and customer churn, increasing revenues and ultimately, boosting company valuations.

PREFACE

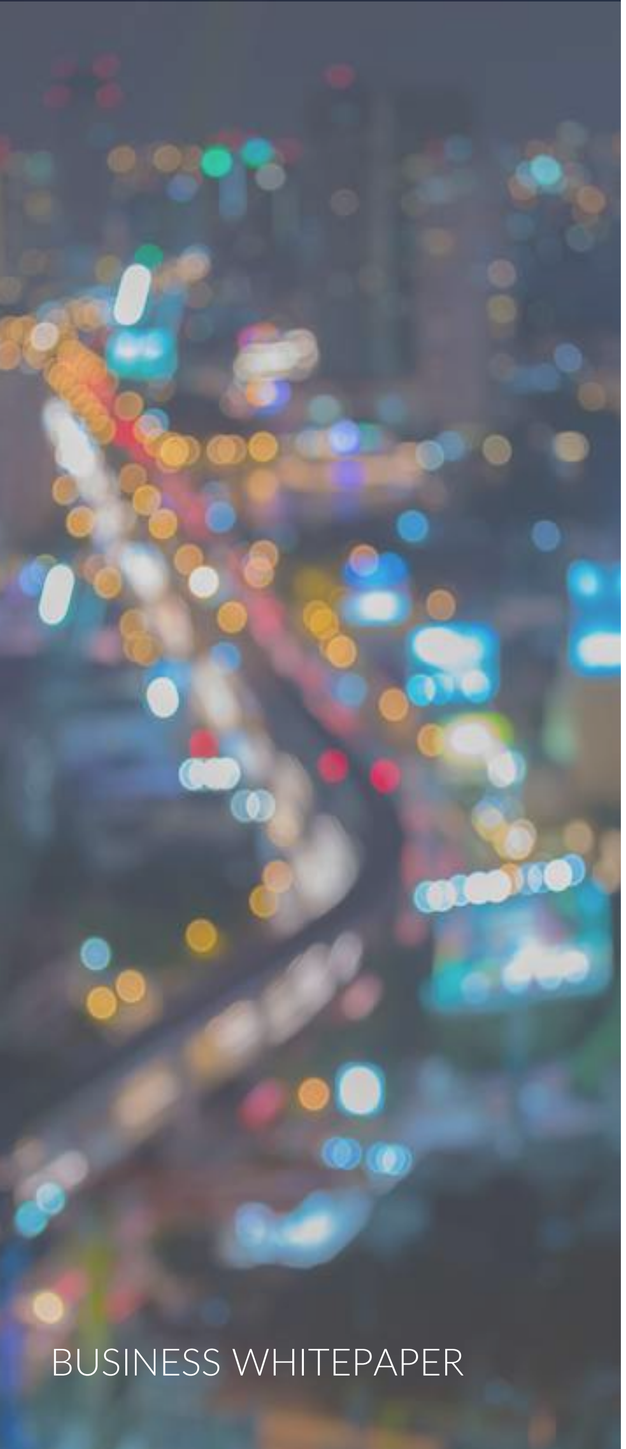
Not long ago, mobile network operators (MNOs) were the digital disruptors in the telecommunications industry. The availability of high-speed mobile broadband networks and mobile devices (including increasingly capable and affordable smartphones), has triggered the most rapid and broad-based adoption of new technology in history.

After a decade of growth, MNOs today are under siege — challenged by crashing data tariffs, free calling, sinking smartphone prices, aggressive competition, and strict and often capricious regulation. Faced with relentless competition from disruptive digital businesses, MNOs risk being marginalized – cast in the role as merely the utility providers of communications infrastructure that innovative newcomers use to make their fortunes. The MNOs came first and have made ongoing capital-intensive investments in establishing and evolving mobile networks, yet they are now in danger of repeating an old economic story: create value but don't get paid for it.

The GSMA believes there were 3.6 billion unique subscribers to mobile services at the end of 2014, representing roughly half of the 7.4 billion people on earth, 26% of whom are under 14 years of age.

Only three telecommunications firms appear among the world's twenty most valuable companies: China Mobile, AT&T, and Verizon, with a collective value of $725 billion and P/E ratios in the teens.
Yet, five digital technology enterprises are in the top 20, with a combined market cap of around $2.3 trillion, generally enjoying much higher P/E ratios—Apple (14), Alphabet (30), Microsoft (30), Amazon (188), and Facebook (50).

Source: GSMA study "The Mobile Economy: 2015"



BUSINESS WHITEPAPER

PATHS TO REINVENTION

Reinvention is a big but unavoidable challenge and one that an MNO must address *now* if it is to secure its future. There are two transformation levers that must be pulled:

1. *Revamp existing business.* Operators need to transform themselves into digital service providers: exploiting new digital and data-driven technologies to reimagine their existing business systems and operations, and create next-generation offerings for their customers.

2. *Generate new revenue streams.* An MNO must demonstrate to the capital markets that it can transform itself and diversify in order to create new revenue streams through new business models and partnerships. (See Telecommunications: New Business Models.) This is crucial if the industry is to escape a regulated MNO utility valuation that, even in a revamped form (see 1 above), would leave it vulnerable as the digital economy matures and consolidates. (It was the failure to do this that doomed the railways in the last century; only Southern Pacific used its right-of-ways to lay fiber optic cable and, as Sprint, enter the telecom business).

Data is the key to reinvention and transformation. The high valuations that the capital markets afford digital technology enterprises (e.g. Amazon, Facebook), are founded upon the market view that such businesses will leverage the large amount of consumer data available to them to generate new revenue streams in the future. This has already started to happen. The link between the data-driven MNOs and growth is already apparent: those that foster transformation through data will be in a stronger position to withstand the changes ahead.

TELECOM: REVAMPING EXISTING BUSINESS

Three key aspects of existing telecommunications businesses require radical revamping:

1. The industry continues to make massive capital expenditures while running inefficient and often sub-scale operations.
2. Telecom's internal processes are typically bureaucratic and utility-like, rather than focused on revenue-maximization and customer-profitability.
3. The customer-facing processes in this sector deliver a mediocre customer experience.

Data can help on all three fronts.

TELECOM: REVAMPING EXISTING BUSINESS

Operations

Data analytics can significantly reduce CAPEX and decrease maintenance by up to 30%, by prioritizing investment per network usage and replacing scheduled maintenance with predictive maintenance.

Software can create linkages between disparate systems in place of specialized routers, and data can help model optimal virtual network configurations and adjust them dynamically. The industry ought to be able to forego a sizable portion of the predicted $1.4 trillion CAPEX bill.

Processes

The three key processes of the industry are the acquisition and retention of subscribers, upsell of value-added services, and revenue optimization. These tend to be managed on a one-size-fits-all basis, often involving destructive pricing, as recently exhibited by T-Mobile's offer of "free" unlimited voice and data at one fixed price.

Data analytics can help the industry move towards highly personalized service offerings and differentiated pricing based on actual usage patterns, behaviors, and preferences. This will enhance acquisition and retention of subscribers, and enable the data-traffic explosion to be monetized lucratively through demand-based pricing. Marketing matrix modeling can optimize media spend across channels, while physical stores can be better tailored to subscriber footprint and profitability. The construction of millions of subscriber P&Ls can prioritize not only marketing and distribution, but also new product development and launches. Analytical production and rapid testing of early product wins can streamline development pipelines and accelerate time to market.

TELECOM: REVAMPING EXISTING BUSINESS

Customer Experience

Customer profiles including time, location, and life events can support contextual offers of value-added services.

Predictive modeling can allow early identification of potential defections and drive targeted stimulation / counter-offers based on subscriber P&L.
(Given the market saturation in developed markets, the cost of a ‘net add’ is several hundred dollars, so reducing churn has a big bottom-line impact).

Predictive models of customer funds’ availability and top-up frequency can create credit opportunity, especially in pre-paid markets.

Social media is already being used to enhance customer service, but can also be used to identify social cohorts and influence networks among subscribers, permitting the efficient targeting of new product offers to trendsetters.

TELECOMS CAN USE DATA -

both to drive down the industry's costs and add new revenue streams.

Reducing the industry's projected CAPEX base of roughly $1.4 trillion by 30% would yield nearly $600 billion. That hypothetical saving is larger than both of the telecom industry's current "off-core" businesses: mobile advertising is worth $64 billion worldwide though growing rapidly, and television is a $360 billion global industry (Source: GSMA study "The Mobile Economy: 2015"). While both areas will certainly grow, they are highly contested spaces and for telecom operators to capture even a 10% revenue share would be remarkable.

However, the principal rationale for evolving into a creative data-driven business is to benefit from the huge market valuations enjoyed by the 'darlings' of the tech sector — in some cases, irrespective of their ability actually to generate cash. The capital markets will reward telecoms that are seen as data-driven and innovative, and mark down the rest, even if their core business execution is on a par.

Innovate or lose relevance – and with it, the capital to play the long hard game of industry consolidation and transformation.

HOW STEPPECHANGE CAN HELP

HOW STEPPECHANGE CAN HELP

SteppeChange works as a seamless, multi-disciplined team of experienced engineers, data scientists, and marketing and industry experts that can flexibly and rapidly develop sophisticated analytical capabilities centered on the unique needs of our clients.

We do not have standard consulting templates or off-the-shelf technology solutions. Instead, we are geared to design and implement custom-made solutions specific to the needs of an individual enterprise.

We start every project by building a deep understanding of the client's business model, competitive position, strategies, organization, and objectives.

We aim to engage our clients actively in a process (that we call "data discovery") whereby we establish what their data might permit them to do better. The SteppeChange client-centered process requires continuous client engagement in designing and deploying solutions, to ensure detailed alignment with our client's needs.

We go deep into the IT "plumbing" that supports the client's operations and customer interactions, both to understand the nature and quality of the data, and to devise the most efficient ways to extract and process it. Understanding the client operating environment and systems architecture also allows us to design solutions capable of scale implementation in each production environment.

We do not build data warehouses and, in fact, consider them a constraint on developing effective analytics. Contemporary technology allows data to be extracted from live operating systems at frequent intervals. New tools, "shovels," allow the construction of analytical solutions from raw data dumps.

This is central to our goal of working quickly and cost efficiently, creating time and space for multiple iterations, with a degree of trial and error in the design of solutions.

HOW STEPPECHANGE CAN HELP

In close collaboration with our clients, we design, prototype, and test potential data-science solutions. To do so, we follow – in a thoughtful and flexible way – what is now relatively standard design thinking methodology. This begins with developing customer empathy and the ability to walk in the shoes of those who use the client's product or services, including internal users.

Next, in collaboration with the client, we conduct structured workshops to identify the full range of potential improvements in processes, decisions, and end-to-end customer interactions and experiences that might be empowered by data analytics. We then forge consensus on which solution or solutions have the highest impact on business performance.

Finally, we move on to building and testing early prototypes. We are keen to build and implement real artifacts that the client can operate on an ongoing basis.

SteppeChange delivers in-market capability end-to-end. Our processes encompass designing data science solutions, embedding models into the production environment, and supporting marketing programs and the customer treatments involved.

When we complete an assignment, our objective is to leave the client in the position to use (and continuously evolve and improve) the solution we have assisted in developing, as a part of the core business process.

To the greatest degree possible, our solutions are modular, allowing clients to select sets of modules that they can configure and customize to create different solutions and meet new needs.

You can learn more about SteppeChange at www.steppechange.com.

ABOUT STEPPECHANGE

- We are a global team of experienced architects, data scientists, engineers, application and infrastructure developers, and accomplished industry experts.
- We serve global leaders in communication, financial services and digital media industries.
- Headquartered in Palo Alto, with offices around the world, SteppeChange employs over 250 professional staff.

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