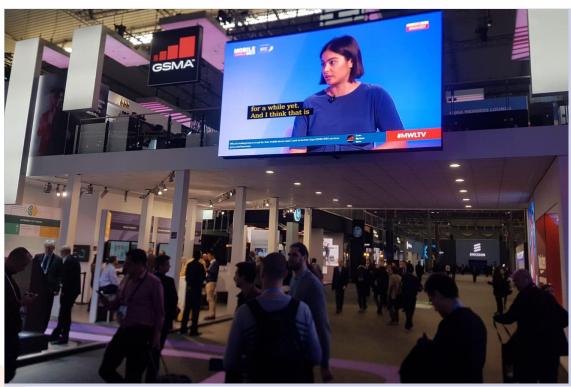


Executive Briefing

MWC 2019: WHAT REALLY HAPPENED AND WHAT TO DO ABOUT IT

Over-focus on 5G was a distraction from fundamental changes in the world economy that telcos should prioritise in their strategies, investments and actions. What are the opportunities, and what should telcos, vendors and the GSMA do about it?



Executive Summary

At MWC 2019, we found that over-focus on 5G was a distraction from fundamental changes in the world economy that telcos should prioritise in their strategies, investments and actions.

Our high level recommendations for **operators** are that they **should**:

- Use the Coordination Age idea to help change the industry mindset and motivate faster change
 in the industry, both internally and externally, starting by using it to reframe their future purpose
- Focus on problems the industry could solve for its customers at least as much as the technologies it might employ
- Understand how the future business model of the production economy will change, increasing collaboration and making 'B2B2X' the dominant growth area
- Make 5G pay by:
 - Using it as an opportunity to stimulate dialogue with customers that its promise attracts, to gain a better understanding of the changes and challenges those customers face
 - Not overcommitting to 5G investments in the absence of other services, thereby continuing to gradually drive down investment returns
- Get smarter in Enterprise:
 - Do not divest Enterprise related assets lightly appraise them carefully in the light of their future potential in the Coordination Age rather than just their current or past performance
 - Invest in Enterprise insight, as well as software skills

We also recommend that the GSMA should evolve MWC by

- Broadening the participation of the event to other industries and sectors
- **Extending the format** to increase the focus on vendors and telcos helping to solve real problems for industries and society customers, rather than its traditional model of vendors selling to telcos

The body of this report contains

- Further detail on this these recommendations, the analysis which led to them, and actions on how they might be achieved
- Further research planned by STL Partners to help the industry progress these goals.

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Introduction

Mobile World Congress 2019

According to the GSMA, 100,000 people gathered in Barcelona last week for the 2019 Mobile World Congress. It is a remarkable testament to the growth and size of the industry that the show has kept growing. I'd like to add our sincere thanks to the GSMA for partnering with STL Partners again for the event.

It was a vibrant and busy show, but what was behind all the noise and action?

While at the Congress last week, I wrote a brief pastiche of the visceral impact of the show's 5G frenzy in MWC2019: Beyond beyond on Linked-In. On a more serious note, we've previously researched 5G intensively in over ten reports, including:

- 5G: The first three years
- Telco economics: Network sharing in a 5G world
- 5G: Why Verizon thinks differently and what to do about it

The point of the pastiche and these references is that 5G is both a significant development, but also at the peak of its hype-cycle. It's being touted as the next great hope for growth for the telecoms industry, but its impact will be more piecemeal for reasons we explained in 5G: 'Just another G' – yet a catalyst of change. To drive more rational decision-making, 5G and telco strategy overall need to be understood within a broader context.

The question that last week's article didn't answer was "what were the deep and important signals that lay behind the 5G hype at MWC?". That is what this report covers, along with recommendations for actions by telcos, vendors and indeed the GSMA.

The Coordination Age: A fundamental change in the world economy

We've outlined in our previous reports The Coordination Age: A third age of telecoms and How the Coordination Age changes the game that there is a massive change underway in the way economies work.

The Coordination Age is a result of the combination of the changing needs and demands of the world's people, businesses, and governments, evolving technological solutions and possibilities, and the need to preserve the most habitable possible future environment for the world's population.

The ongoing transition to the Coordination Age presents an opportunity for telcos to redefine their roles and create new sources of value. It may also present a possible (albeit partial) swing of

advantage back towards the nationally and locally organised telcos from the centralised, global scale technology players.

The underlying systemic need is to improve the efficiency of the use of the world's many resources, including food, materials, energy, land, and water. It is also necessary and important to make the use of human resources (people, time, health, money, employment, etc.) productive and rewarding.

Its principle difference from the Information Age is the need to enable the better co-ordination of 'real-world' resources (e.g. people, time and other assets) and digital resources (i.e. information, computing power, etc.).

Overall, there are both changes in:

- **Demand**, as individuals and organisations seek to improve their resource effectiveness
- **Supply**, as a confluence of technological advances including AI, automation, IoT, NFV, 5G, edge, cloud, digital twins and the broad concept of 'digitisation' fundamentally change the operation and business models of industry production processes.

Figure 1: Global demand and supply trends are driving the Coordination Age

Make more efficient use of resources - "make the world run better" New and evolving technologies, e.g. Manage constrained resources, e.g. On-demand services Time Automation Money Land Artificial intelligence/ML Water Demand Edge Energy Cloud NFV Distribute unconstrained resources better, e.g. Digital twins loT Information — 5G Knowledge Entertainment

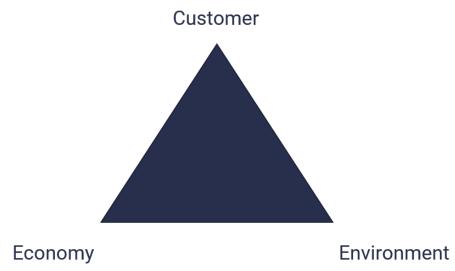
Source: STL Partners

Dr Che's triangle of needs

We had many conversations at MWC about the Coordination Age. One 'fellow traveller' that we met was Dr Haiping Che, Huawei's eminent SVP and Chief Digital Transformation Officer.

Dr Che summarised one aspect of future success for the industry in with a rather neat triangle in his notebook, reproduced in the following chart.

Figure 2: Dr Che's triangle – successful future strategies will serve three goals



 $Source: Dr\ Haiping\ Che,\ SVP\ Chief\ Digital\ Transformation\ Officer,\ Huawei$

Dr Che also made the insightful comment that a further major change will be that collaboration between players on the production side of value networks must increase to deliver increased coordination. While collaboration is increasingly common in the sharing economy on the demand side, it is not yet as strong a feature in production.

Accelerated evolution: Technologies versus problems solved

A further trend we've identified is that there is a general progression in the way that the increased combination of physical and digital assets produces benefits in the supply-side of the economy.

It broadly follows the steps laid out in Figure 3, taken from work in progress on a soon to be published STL Partners report on "Why need an Internet for Things (I4T)".

¹ STL Partners considered the "Collaboration Age" as an alternative name to the "Coordination Age" but decided that "Coordination" was a better description of the benefits and end-goals. We see "Collaboration" as a supply-side mechanism among others to achieve that end.

Figure 3: How production is changing in the Coordination Age

How "digital + physical" transforms production in three steps

Better data visualisation

- New approaches like Digital Twins increase the visibility of data and process flows in production processes
- This enables the creation of better models
- And leads to better decision-making

Models interact with 'real world' internally

- Models are allowed to interact autonomously with internal physical assets and processes within defined parameters
- Delivers real-time internal production efficiencies

Models / processes interact externally

- Data is shared with external partners
- In some cases, real-time interaction and decisionmaking is possible
- Improves efficiency across the supply network
- Can lead to transformative changes in industry structures

Source: STL Partners

The rest of this report summarises where telcos and vendors on all this, and what should they do next.

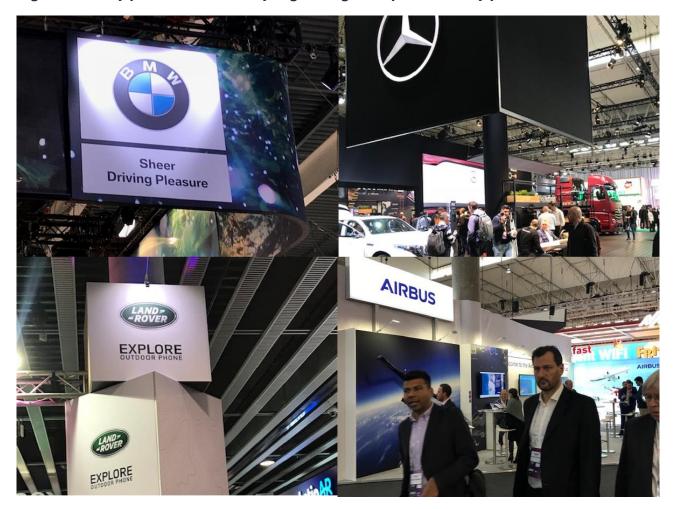
What's happening now?

Signs of change at MWC 2019

One way to monitor change at MWC is to look at who is exhibiting – who are making prominent new statements of presence? In previous years, I remember Huawei arriving as if in a giant spaceship that had landed outside the old Fira, and then the growing presence of Google and Android in recent years.

Cars and transport are not new at MWC, but there was a definite upweight in the direct presence of some industry brands. There are of course always plenty of electric cars, drones, etc. on show, and Volvo has often been on the Ericsson stand in the past. But this new presence was a new signal.

Figure 4: Every picture tells a story - growing transport industry presence at MWC 2019



Source: STL Partners

This marks an upswing in possibilities for telcos in transportation, which we have recently explored in Can telcos help cities combat congestion? and also previously covered in Uber and Tesla: What telcos should do.

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Where are the telcos?

MWC can be a difficult landscape to read in terms of what the telcos are up to. You don't get the same full-on sales pitch for telcos as you do for vendors. The impression you get from telcos is a combination of glimpses and hints, and most of this in private conversations

I was lucky enough to meet several senior telco people this year, including Scott Gegenheimer, Zain's Group COO, who I've known for a few years. Clearly, I can't share everything Scott discussed, but one piece of Zain's experience that I don't think he'll mind me sharing was that working on smart cities is a long-term game. While there's money in it, governments move slowly. We will be exploring other reasons that smart cities aren't taking off fast enough (and what to do about it) in our forthcoming report on "Why we need an Internet for Things (I4T)".

Another innovative telco that I've been talking to a lot recently is Elisa, the Finnish market leader. Despite a relatively small market in Finland, there must be something in the Finnish water that drives innovation, as Elisa repeatedly impresses me.

We're just about to publish a case study on Elisa's growing SmartFactories offering, and Elisa's Automate – a fully automated network operating centre, was on offer to other telcos at MWC too. We will be covering this in another report, as it's an impressive case study (and a proposition worth considering). Moreover, Elisa has intelligently leveraged its related learnings which other telcos can also gain from.



Figure 5: Elisa Automate at MWC 2019

Source: STL Partners

I was also delighted to be invited to join Deutsche Telekom's C-level team at an informal "Shareclub" meeting for a small group of industry analysts. The event took an innovative and open format, and consisted of a short, mercifully slide-free talks by Claudia Nemat (responsible for Technology and

Innovation), Srini Gopalan (Europe), Adel Al-Saleh (CEO T-Systems, the IT Services unit) and CEO Tim Höttges.

After the talks, I met with Tim Höttges and Adel Al-Saleh for round-table discussions with two or three fellow analysts. The session overall was relaxed and informal, and the DTAG execs were open, charming and forthcoming.

Tim Höttges took a somewhat charismatic angle on 5G, arguing that the industry didn't know exactly what the business case was for 3G or 4G, but still made a success of it as it would of 5G. As a leader, clearly he has to take this enthusiastic tone. He was more direct about his disappointment at the way that the German government had handled the recent spectrum process, handing large chunks of spectrum to new players.

He also said that he saw DTAG carrying two principle roles: as **network operator** and as **aggregator** of services. He is not a fan of AT&T-style vertical integration into entertainment, for example. (Note we will explore how we see telco business models evolving in a report on "Three new telco business models".)



Figure 6: Deutsche Telekom CEO Tim Höttges at MWC 2019

Source: STL Partners

When asked by another analyst whether T-Systems was sub-scale, or whether parts of it should be sold, Höttges said that he was open to consideration as to whether some elements would "do better in the hands of another owner" – or in other words, that he might at some point contemplate a sale of

some sort. Nonetheless, he said he did not believe in selling assets when they aren't performing, meaning that now may not be the best time to do that.

We didn't really have time to discuss this further, and I don't have his detailed knowledge of the ins and outs of T-Systems performance.

But while I can see that DTAG needs to do something to make T-Systems more profitable (and is cutting jobs and restructuring to that end), I would want to look very carefully at any decision to divest enterprise facing assets in the context of the Coordination Age. I feel there is a danger that appraising such assets in the light of current and past performance is risky given that so much is changing. But equally, the suitability of those assets to deal with the forthcoming changes must also be assessed.

My conversation with Adel Al-Saleh, CEO of T-Systems was shorter, but highly informative. I instinctively felt that Adel had a very clear view of its strengths and weaknesses and was particularly impressed with the straight forward analysis he gave of its qualities by sector. He talked broadly about 'front-end' skills of understanding and dealing with the sector, and 'back-end' skills of creating solutions to meet its needs.

As an IT services provider, T-Systems is clearly very dependent on the skills of its people, and we discussed briefly the challenges of developing and recruiting those skills. He estimated that T-Systems would need to recruit or develop 5,000 new DevOps skilled people in the next 3 years.

Al-Saleh explained how T-Systems had been reorganised into 'portfolio' units, so that revenues and costs could be more clearly understood on at a meaningful operational level, as this is his most pressing issue. The portfolios he mentioned were:

- Telecoms Core Services
- Internet of Things
- Public Cloud
- Security
- Cloudified Business
- Legacy IT

We also briefly discussed the Coordination Age, and Al-Saleh very much agreed with our description and the three-step transformation that industry is going through.

Vendors: Going any which way to enterprise

I also spoke to several senior people at vendors at MWC this year, including Amdocs, Cisco, CSG, Ericsson, Huawei, IBM, Nokia and Oracle.

It's clear that most of the vendors are also increasingly aligned with the Coordination Age vision, even if that is not how they all describe it – yet!

To address it, all of those who can are taking a combination of going direct to the Enterprise plus working with telcos to sell to and sell through. There was a notable implication of "but if they don't, we will just have to go direct".

Of course, the enterprise space is already crowded. Yet with the scale of change approaching, telcos should not discount the opportunities it presents.

What should operators do?

Change the mindset

An opportunity for real change

One of the biggest problems for many telcos has been their inability to mobilise internal change.

People need a valid and motivating reason to change, and we are creatures of emotion and instinct as much as we are creatures of reason.

Being 'digital' is not a reason to do anything much, other than fear for your job in many cases. Doing something useful in the world, on the other hand, can be motivating in many different contexts.

The idea of the Coordination Age *is* motivating to people. It motivates me and the team at STL Partners, and I have seen it galvanise strong responses in people of all ages in telcos I have presented it to. Telcos should grasp this opportunity to change the most fundamental barrier to (and enabler of) change: the purpose of your companies and the mindset of your people.

Think Coordination Age, think 'solve problems', think B2B2X

The old saying goes that 'a man with a hammer sees every problem as a nail', and telcos have for the last 30 years seen every problem as one that can be smacked into shape with a network – hence the over-obsession with 5G.

But once you grasp the concept of the Coordination Age, it gives you a valuable new lens on the world.

Many seemingly unconnected things start to make sense, and new ideas can suddenly be placed in a new frame of reference. This means that new ideas can be shaped differently, and new business cases can be made more relevant and more powerful.

Most importantly, telcos need to get back to thinking about what kind of problems they can and will solve for their customers, rather than simply what kind of new technology to install in the network.

This requires a different set of skills and ideas. They can be learned or acquired, but they rarely come about by accident.

In parallel to this, many of the new opportunities have a different type of business model – often Business-to-Business-to-X (B2B2X), where X can be almost anything.

As we have started to show here, the nature of the Businesses themselves will change too, and some models will be process-to-process-to-X or thing-to-thing-to-X etc. – at least at an operational and transactional level.

Make 5G pay

5G is a recruitment opportunity

5G may not be an immediate money-spinner, and as we've described, shouldn't be over-emphasised as a technological or business model solution.

At the same time, 5G is doing something useful for the industry that should not be overlooked. It is attracting customers who are asking 'what does this mean you can do for me?'

The reality is that many of the things that telcos can usefully add today don't need 5G – they can be done well with 4G, Edge and other existing solutions. So, what a great opportunity to work with those customers to deepen your knowledge of their needs and develop new solutions with them?

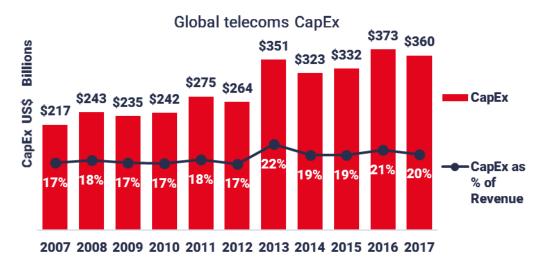
And maybe the interest in 5G is also an opportunity to reinvigorate recruitment into the industry. The question of how 5G inter-relates with all the other changes going on could start to attract some bright and interesting people to the industry and create a sense of excitement and purpose.

Do not overcommit to 5G investments

As we spelled out in Why CFOs must start to drive telecoms business model change, telcos need to think very carefully about how they drive new value with new investments.

If they just buy in to 5G network investment, telcos will simply trudge further down the well-worn path of investing capital in the pursuit of diminishing returns on investment.

Figure 7: Increasing telecoms capital investment is yielding lower and lower returns



Source: STL Partners

Is that all you want to do? Maybe it is right for some, but it is certainly worth a pause for serious consideration of the alternatives.

Instead, telcos should look hard at the new direction that the Coordination Age will take us and work out the services they should invest in to start to build new value. Naturally, this is a central theme of our forward research agenda.

Get smarter in enterprise

Do not divest enterprise related assets lightly

Many of the opportunities ahead lie in the enterprise or B2B2X area, so if telcos want to address these markets, they will need to acquire or develop greater expertise in those sectors.

In the past, telco enterprise IT services, or telcos playing an SI role, have not been blessed with a blemish-free track record. As our conversations with DTAG's T-Systems showed, this consideration is still current

It's a reasonable challenge, but enterprise facing assets will be increasingly valuable in the context of the Coordination Age, and their potential and suitability should be assessed in the light of future value rather than their past performance.

Invest in enterprise insight (as well as software skills)

For telcos seeking to play a broader role in the Coordination Age, investment in knowledge in the enterprise sectors is a sensible priority.

That insight may come through research, but it may also be in the form of recruiting the right people to join the telco team who have the right combination of knowledge and aptitude to direct the creation of sector focused units.

STL Partners will be researching this area and approach in much greater depth.

How the GSMA should evolve MWC2020

MWC has become a remarkable institution, and its organisation and logistics have improved every year I have attended, even despite this year's strike by Barcelona's tube drivers.

STL Partners is grateful for our ongoing partnership with the GSMA, and I enjoyed being a judge on the GLOMOs and working with MobileLiveTV, so I really don't wish to sound ungrateful,

Yet I think there are opportunities for the GSMA to evolve the MWC format, as profitable as the current set-up must be.

The telecoms industry must throw open its doors to other industries so that the type of learning and cross-fertilisation of skills and knowledge described in this report can be accelerated.

To this end, what better vehicle is there for this than MWC?

I'd love to see MWC become a platform for telcos and vendors to talk more with those industries: to present case studies and exhibitions together and welcome a swathe of new players.

For example, I didn't see Bosch, or GE, or many of the large IoT players there, nor many of the other industrial corporations involved in construction, financial services, agriculture, etc. Maybe they were among the crowds, or in some of the presentations I missed, but these companies are doing some fascinating things, and they should be more visible in the mix.

Behind the public scenes, many politicians and CEOs are there to talk turkey in private. But why aren't they talking to the wider audience there, to inspire and motivate the industry as a whole? I found just a small dose of that, courtesy of Deutsche Telekom, so refreshing and energising – why isn't there more of this, for more people?

There are also often national delegations in the exhibition, but they often seem to lack a focus other than selling some of their local innovators into the market.

This is fine, but why aren't they encouraged to be there to explain their needs as well? And why aren't their national telcos helping them to present their needs?

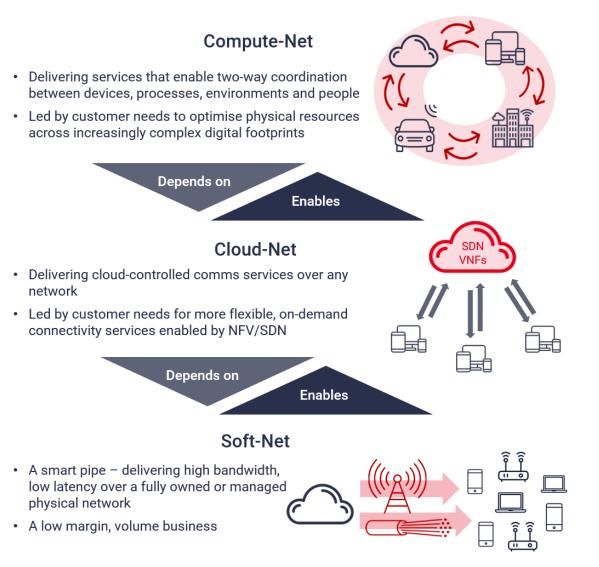
There are massive opportunities in the public sector, which is crying out for technological help. There must be opportunities for the Congress to explore and develop these areas too.

Next steps for STL Partners

STL Partners is planning a wide range of research building on some of the themes in this report. We will soon publish reports on:

• Three new telco business models (preview in Figure 8)

Figure 8: Three new telecoms industry business models



Source: STL Partners

- Elisa Smart Factories
- 5G go-to-market strategies
- Why we need the Internet for Things (I4T)

• A series of reports on the Coordination Age, exploring its impact on telcos' purpose, propositions, regulation, marketing and HR

Beyond that, we plan further in-depth research on Edge Computing, NFV, Digital Twins, and the IoT, and reports on:

- What should operators invest in?
- Are operators bad at SI and if so, how can they change?
- The skillset challenge: How to build a new industry









Consulting Events

