DELMEC

Digitisation & Digitalisation in the Towerco Industry

WHITE PAPER

AUGUST 2021

Introduction

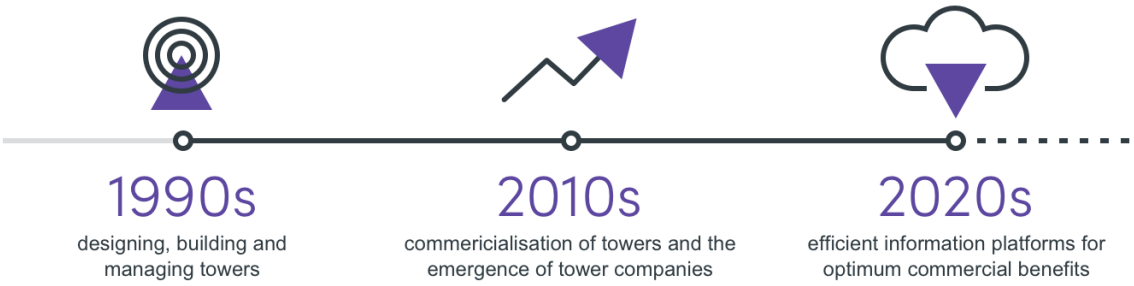
Digitisation is defined as the conversion of text, images or sound into a digital form that can be processed by a computer. In other words, conversion from an analogue medium to that of a digital one. Digitalisation is the use of digital technologies and digitized data to impact how work gets done, transform how customers and companies engage or interact and create new revenue streams.

These definitions lend themselves towards better understanding the impacts the two processes have on the efficiency of commercial ventures, particularly those driven to maximise efficiency and profitability through a multitude of operational and financial parameters as required by their stakeholders. At the time of writing, business leaders are digitally transforming three key areas of their enterprises: customer experience, operational processes and business models.

This paper seeks to examine the potential beneficial impacts of digitisation and digitalisation on the business of managing telecommunications infrastructure and harnessing these technological advancements to create a higher value than that derived from the current processes and business models.

To put things in perspective it's useful to briefly examine the evolution of the infrastructure segment within the telecommunications industry. Over the years the need for real time and accurate desktop has become clear, and now it has become an absolute necessity for tower owners.

Evolution of the Telecommunication Infrastructure Business Model



The Early Years

When mobile telecommunication began in the 1990s, building and managing towers were an intrinsic part of the industry's operations and sufficient resources were recruited to design, commission, and manage a company's tower portfolio.

During this period the tower portfolio was considered a strategic advantage and was fiercely protected by the owners; the idea of sharing was not encouraged. As such, these newly-built towers – with an expected life of 15-20 years – were only required to carry the operator's own equipment. In addition, given the newness of the asset, maintenance wasn't a particular problem for the custodians.

As the millennium dawned, this 'protectionism' changed and owners embarked on limited sharing of tower space with other companies. The rentals charged were arbitrary and nominal and no real commercial advantage was gained or recognised. However, at this stage these towers were beginning to show the stress of time and the accommodation of new tenancies was purely based on the availability of space and acceptable loading limitations.

The need for accurate information on the tower portfolio had still not reached a stage of importance.

Emergence of Tower Companies

Around 2010, the commercialisation of the tower portfolio became a focus and companies like Bharti in India trialled the 'tower company' concept with the creation of Bharti Infra and Indus in India.

The concept was quickly embraced by progressive and forward-thinking tower owners. Venture capitalists and investment funds entered the fray; their number-crunching demonstrated that medium to long term cash flow projections for a tower company showed high growth trajectory. In addition, they offered stability in comparison to the highly competitive and volatile telecommunication industry. The stability of the cash flow figures was underpinned by the long

term MSA contracts the tower company enjoyed with their tenants, where revenue was contractually locked in for long periods with annual escalations.

The financial forecasts were well-regarded by both MNOs (and all tower owners) and investors. The period from 2011-2020 saw the emergence of tower companies gaining momentum. These entities were established either by tower owners selling their portfolios to a third party on a sale and lease back arrangement or by the creation of their own independent subsidiary with a transfer of assets.

This led to the emergence of two priorities for the owning company: filling the towers to their maximum capacity in terms of tenancies and maintaining the longevity of the asset.

Gaining accurate information on the health of each tower and its potential to carry additional tenancies became key to this drive to monetise the tower assets.

Focus on Commercialisation of Tower Assets

The tower company management mantra differs from that of an MNO. For an MNO the tower is a component within their management ambit – a way to support the propagation of telecommunication signals generated by their 'minute factory', providing cyber pathways for voice and data communication. It’s something of a headache that must be managed for the continuity of its core business. For a tower company, the tower portfolio is their life blood; their management team is driven to maximise revenue generation from the portfolio while providing it with a well- structured maintenance program.

Due to the commercial considerations derived from tower sharing, even the MNOs and non-tower company owners of tower portfolios now seek to sweat their assets. That said, maintenance (in terms of consideration and budget) does take a back seat to the priorities of driving technology and providing coverage and capacity.

At the present time the predominance of these commercial considerations motivates all tower owners to seek efficient information platforms to better manage their assets and derive optimum commercial benefits.

The commercial benefits cascade down from the usual suspects: maximising revenue and reducing costs.

Maximising revenue stems from multiple factors, including time to market and optimal number of co-locations. Reduction of costs entails efficiency and minimisation of preventive and corrective maintenance, in addition to cost-effective strengthening of towers to maximise co-locations and extend longevity of the asset. To achieve all of this in parallel, tower owners would need an ultra- efficient data management platform.

Structured maintenance programmes for the tower portfolio, strengthening solutions to increase tenancies and cost per site efficiencies are all now key drivers for tower owners. In general, most senior management KPIs would carry these factors.

Third party revenues from towers is also now a lucrative business in itself and incumbent and new owners of these portfolios are assembling processes to manage these assets effectively and maximise their revenue earning potential. Accurate ‘real time’ databases to aid decision making is now a necessity.

The Digitisation and Digitalisation Journey

The stage is now set to grasp the available technological advancements and begin a process of digitisation and digitalisation to improve and enhance the existing business models.

The conundrum faced by all tower owners is in identifying the best tools that could be deployed to optimise the previously described efficiency factors. These are now real and have to be dealt with effectively. Performance will be judged on these factors and financial rewards are tied to these as well.

Between the period 2010 to the present day, several data management tools have been used to maintain accuracy of information on the asset base and provide a good platform for speedy decision making. MS Excel was and still is a popular – but easily manipulated – tool, although there are several purpose-built software packages available to tower owners too.

With all this sophistication available tower owners still recognise a significant gap in the immediate availability of accurate information for quick and sound decision making. This is becoming particularly clear as the current thinking is transformed into that of asset optimisation and revenue maximisation.

The manual work required to capture the data of a tower site can give rise to inaccuracies if a robust quality assurance system is not present. The non-adherence to the discipline required to follow pre-defined processes when effecting changes to any part of the configuration of that site can also be problematic.

The COVID-19 pandemic (since March 2020) has exacerbated the need for a more efficient way to capture data accurately and in a remote manner without the need for manpower to be mobilised. Methods of capturing data in such a fashion were researched and drone technology became a feasible option. This is despite a few shortfalls in its ability to carry out comprehensive coverage of physical items that are present within a standard inspection scope of work and the high cost associated with deploying the technology.

Another recent desire is to have live accurate data available at a desktop to facilitate decision-making. This gave birth to the concept of a 'digital twin', which in effect provides decision-makers with a composite 3D visual of the tower structure and site, together with all power equipment and cabins/shelters and any other equipment located there.

While owners will still be faced with ensuring strict adherence to defined processes for the purposes of accuracy, the automated data capture using drones and digital twins recreating an accurate desktop visual provides a quantum leap towards attaining the efficiency they seek in optimising value from their assets.

This path towards digitisation will no doubt morph into higher levels of sophistication as technologies evolve, but what tower owners could have in their possession by the end of 2022 would no doubt be a prototype for these future evolutions.

The World of ‘Perfect’ Information

From a telecoms point of view the problems that arise in maintaining accurate information in a database are underpinned by watertight processes and operational discipline. This means that any change to a tower structure or to the equipment configuration at that site is captured and fed back into the database. This is easier than it sounds, and those within the industry will understand that when viewing the current databases one can only assume an accuracy of approximately 75% to base their decisions on.

If, in an ideal world a company can maintain this discipline, then what would be defined as ‘perfect’ information? Some factors that could be listed are:

1. Realtime changes to the database: the deployment of tools that would carry out automated data capture and transfer such information immediately to the central database.

2. Realtime change to all engineering computations, such as stress levels of members, loading percentages and all other variables that are needed to make a decision on accommodating additional equipment on the tower.

3. 3D visuals of every structure and site showing layout and each item of equipment at site.

The above is not exhaustive and there could be several more added to this list.

Future Innovations – What's the Next Stop?

In a BBC interview in the 1960s Arthur C. Clarke said that "trying to predict the future is a discouraging, hazardous occupation".

However, in his masterpiece 2001: A Space Odyssey he did write about things unimagined and unimaginable at that time, many of which are now a reality and taken for granted in the modern world.

He also predicted that:

- Communication will be instantaneous
- Remote work will be a reality
- Commuting will come to a halt

Who would have believed this 60 years ago? Maybe Arthur C. Clarke foresaw the COVID-19 pandemic of 2020, or maybe he didn't. But he did predict what is now reality.

For those of us who don't have the same insight as Mr Clarke it's difficult to imagine what modern technology could contribute towards the digitisation and digitalisation of management of telecommunication infrastructure.

- Artificial intelligence (AI) could play a larger role in creating an environment of perfect information and give us the ability to predict and forecast to maximise our businesses.

- Satellite imaging and technology may enable the capture of real-time information of a tower structure once the GPS location is fed in.

- Perhaps a combination of sensors and cameras installed on the very structure itself will periodically carry out a 360 degree survey of the tower, the equipment carried and details of the site. It could then feed this information and imaging directly into a digital database management system that enables decision-makers to view real time information.

- An app could potentially be developed which will allow a site visitor to capture a composite image of the structure and site, load it into the digital database and generate automatic changes with the required engineering computations and visuals.

This list could continue to infinity if enough creative resources are tasked with thinking through all the different possibilities.

IoT gurus predict that in the very near future every electronic device on the planet will be communicating with each other. If this becomes reality within the next decade we may see a route to 'perfect' information that's not even imagined or conceptualised in the present day. That would be the outcome and benefit of digitisation and digitalisation.

So maybe we can – with some certainty – say that the next 10 years will see quantum leaps into the digitisation roadmap and tools we cannot imagine at this moment in time will become available to tower owners as they move towards an environment of 'perfect' information.