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SECURING TELECOM NETWORKS
OF THE FUTURE

**Tackling the challenge of locking & access control
in an evolving telecom industry**

Securing telecom networks:
INTRODUCTION

The telecom industry is changing rapidly. The market is becoming more and more fragmented; big remote telecom towers are turning into smaller local cell sites; and, customers want better return on investment. Today's data and voice services have to deliver exceptional quality and reliability at an affordable price.

These radical changes go hand in hand with radical challenges, from never-ending network upgrades to building next-generation towers. In fact, network operators and tower owners are on the same bandwidth when it comes to tower security. Even the slightest breach in site security can bring down an entire network.

This white paper describes the threats and challenges specific to tower and site security, and introduces new locking solutions for minimizing these risks.

THE TELECOM INDUSTRY HATES SERVICE INTERRUPTIONS

Global communication networks need to be up and running 24/7, year round, year after year. Unplanned service interruptions are costly, not only in direct financial impact, but also in terms of reputation. At the same time the telecom industry is driven by incredible change and complexity, all of which stands on a vast and highly dispersed network infrastructure.

These industry trends are not only accelerating competition, but also pushing carriers and other players in the telecom market to develop new services.

Leading professional services companies like Deloitte, EY and PwC rank quality and reliability as a top priority for the telecom sector in the coming years.[1][2][3]

Today a new generation of customers is also entering the marketplace. Having grown up in a world that takes mobile networks for granted, these consumers expect service providers to deliver the impossible.

PROACTIVE ATTITUDE IS KEY

According to EY, the growing demand for higher service levels and security is also affecting regulation and legislation, which, in turn, is further driving the fast paced evolution of the telecom industry. Meanwhile, new technologies are constantly

remolding and redefining the industry.[3] To stay ahead in this market, players need to build flexible partnerships and scalable networks proactively.

These requirements raise the bar for securing physical network assets and managing access control to critical network infrastructure. Securing networks is not just about securing physical assets. It's about securing the entire business. This means minimizing costs while increasing service levels. You also have to guarantee 24/7 flexibility and speed of access, and build for scalability. The modern mechatronic locking solutions outlined in this paper play a key role in all of this.

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[1] Deloitte, http://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/telecommunications-industry-outlook.html
[2] PwC, http://www.strategyand.pwc.com/global/home/what_we_do/industries/telecommunications/te_key_trends
[3] EY, http://www.ey.com/Publication/vwLUAssets/ey-global-telecommunications-study-navigating-the-road-to-2020/$FILE/ey-global-telecommunications-study-navigating-the-road-to-2020.pdf

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Locking & access control:

KEY CHALLENGES
FOR THE TELECOM SECTOR

The telecom sector is facing a host of challenges from markets, consumers, and evolving technologies. Big or small, companies need to reduce costs, improve quality, and build for flexibility and scalability, all of which affects your choice of locking solution. In the following sections it is shown how the right mechatronic locking system can be an effective solution to four central challenges in the telecom sector. Each challenge also takes into account the unique security needs of different players in the sector.

Challenge 1: MANAGING OVERALL SECURITY

Challenge 2: MANAGING THE NETWORK

Challenge 3: MANAGING CHANGE (CAPEX)

Challenge 4: MANAGING OPERATIONAL EXPENDITURE

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Challenge 1:
MANAGING OVERALL SECURITY

Carriers play a central role in fighting emerging security threats. In the future, securing the entire internet value chain will be an even bigger priority. Carriers can meet these expectations with a wide array of technical and operational innovations.[4]

The pressing need for secure networks and high service levels is a central challenge that determines the suitability of locking solutions for the telecom sector. The locking solutions need to fulfil strict security standards and protocols, while maintaining efficient access control to assure effective maintenance of the physical network.

In this case, the overriding challenge involves theft, which can be perpetrated by external and internal parties. While external theft is usually a costly break-in or a serious act of vandalism, internal theft is a real and widespread problem as contractors and other external partners tend to pay relatively small key deposits. Lost keys are rarely reported and the percentage of returned keys is often smaller than unreturned.

Internal theft often involves either leaving doors open or keys ending up in the wrong hands. In the long term, these seemingly minor lapses in security can render mechanical locking systems obsolete. The simultaneous expiration of patents for different locking systems also increases the risk of keys being copied without the system owner's knowledge. This incurs sizable costs as keys and cylinders need to be replaced in addition to the loss of equipment and wiring. Carriers should also take into account the cost of possible system outages and damage to reputation.

How do mechatronic master key systems overcome these challenges? System owners can maintain full control of keys, thereby preventing any unauthorized access.

COMPARISON CHART

MECHANICAL	MECHATRONIC
Durable, patented mechanical locks provide cost-effective solutions.	Mechatronic keys provide added security as the keys cannot be copied even as patents for mechanical keys expires.
Mechanical locks can live up to high demands on locking security.	The electronic component of a mechatronic lock adds a significant additional layer of security.
Even the safest mechanical solution cannot save you if internal key management processes fail and keys end up in the wrong hands.	Mechatronic locking systems allow the administrator to see who has accessed a given site, hence providing additional security.

4 Capgemini, https://www.capgemini.com/blog/capping-it-off/2015/08/looking-at-telecom-industry-trends-by-2020-and-beyond

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Challenge 2:
MANAGING THE NETWORK

Successfully maintaining telecom networks poses a major challenge to locking solutions. In the future, carriers have to continue providing high quality, reliable and affordable data and voice services.[5]

Communication networks worldwide depend on their ability to deliver services 24/7. Any break or interruption to this service caused by vandalism, physical attack or random disruption in the network will prove costly in reputation and finance. Networks also require continuous upkeep and maintenance, which should be done fast and cost-effectively.

Mechatronic locking systems are equipped with an audit trail functionality that allows supervision of when maintenance staff visits the location and for how long. Since contractors usually charge telecommunication companies based on the number and duration of service visits. With mechatronic locking, the time and money that was used before on key distribution can be efficiently used for maintenance. For unplanned visits, access can be granted remotely and in real time.
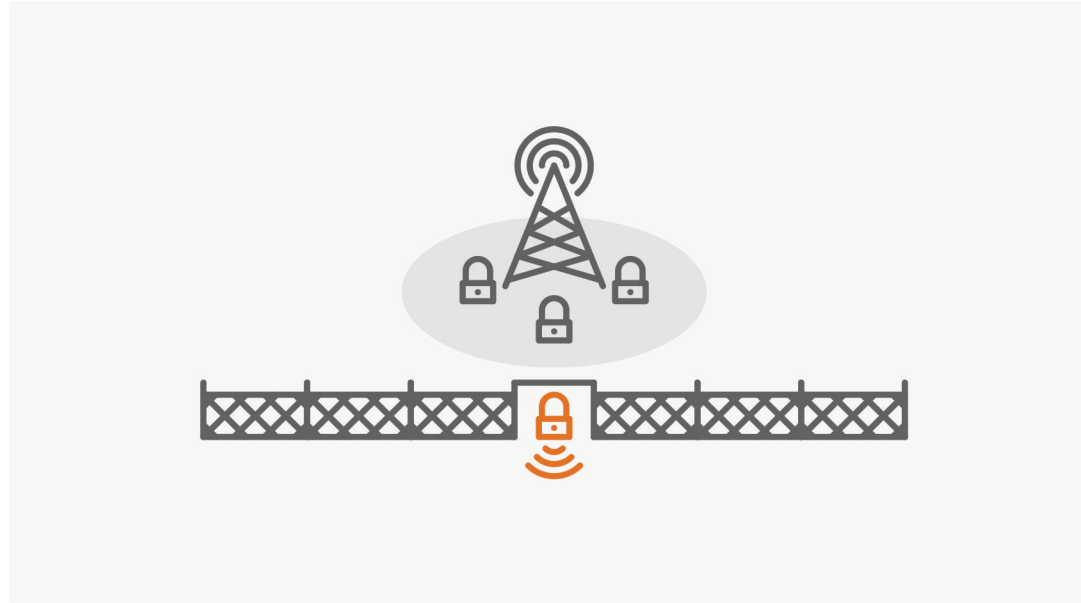
COMPARISON CHART

MECHANICAL	MECHATRONIC
Purely mechanical locks are naturally limited to locking premises, requiring separate solutions for tracking visits to the sites.	A mechatronic system informs when and where a key has been used, which enables full control over the site.
Good mechanical locks offer adequate safety and ease of use as long as the number of key holders remains relatively low and constant.	High-level mechatronic locking solutions allows key holders to be added and removed and access rights edited remotely.
	A mechatronic locking system enables management of the site access at specific times and to specific areas based on current needs.

[5] Deloitte, http://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/telecommunications-industry-outlook.html

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Challenge 2:
MANAGING THE NETWORK

Using mechatronic locks in combination with mechanical ones offers high security levels cost-efficiently. Utilizing mechatronic locks to secure tower premises allows for the full security & transparency of mechatronic locking. Costs can then be optimized by using regular mechanical locks within the premises. Sophisticated mechatronic locking systems, allow the same mechatronic key to be used in both the mechatronic locks, as well as the mechanical ones.

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Challenge 3:
MANAGING CHANGE (CAPEX)

The high pace of technological development in the telecom business is by no means leveling off. Not surprisingly, PwC lists the scalability of technology platforms and operating models as a key capability for succeeding in the telecom business.[6] But what does this mean for locking solutions?

To accommodate the need for current and future changes and upgrades in the network, locking solutions need to be flexible and scalable. It is important that the system can be integrated with other systems used for managing the door environments.

According to Deloitte, carriers need to consider additional network strategies to manage the coverage, quality and capacity of their networks more effectively. This includes further densification of cell sites and smaller cell size.

As the physical network expands or changes shape, so must the locking solution. Moreover, as mergers and acquisitions bring about additional changes, the locking solution of choice should be one that isn't siloed, but rather accommodates other systems in its own ecosystem.

COMPARISON CHART

MECHANICAL	MECHATRONIC
Good mechanical locking systems can live up to high standards and the right system can offer a good basis for future needs as well.	Advanced mechatronic locking solutions can be used to upgrade existing mechanical locking solutions on critical sites.
	Mechatronic locking systems allow you install a locking system while building up the network / site, without running the risk of losing keys as unreturned keys can be deactivated remotely.

[6] PwC, http://www.strategyand.pwc.com/global/home/what_we_do/industries/telecommunications/te_key_trends

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Challenge 4:
MANAGING OPERATIONAL EXPENDITURE

Downward trends in return on invested capital make profitability a top priority for service providers. This also makes cost efficiency a key success factor in the telecom industry.[8]

Nevertheless, achieving the best possible cost efficiency in managing a telecom network is no easy task. The appropriate mechatronic locking solution can, however, be of significant help. First, the electronic dimension of mechatronic locking systems enables savings by reducing headcount and man hours thanks to increases in efficiency, and second deliver even additional savings through improved access control.

Remote granting of access rights by using a mechatronic locking system minimizes operational costs as technicians can access towers and repeaters more quickly. This reduces downtime and provides transparency of movement throughout the network.

All locking systems require occasional maintenance. Even though manufacturers recommend regular maintenance, locks are usually not included in typical maintenance schedules. In most cases, locks are scheduled for maintenance only when they malfunction due to lack of use or forced entry.

Mechatronic systems allow more effective maintenance management and can provide an audit trail of implemented lock maintenance. This in turn can improve asset knowledge and management.

COMPARISON CHART

MECHANICAL	MECHATRONIC
However safe a mechanical lock may be, lacks in key management can render them unsafe if keys are lost or stolen.	Lost, stolen or unreturned keys can be temporarily deactivated remotely until they are found or returned.
Network maintenance is arduous and time consuming. It is vital to build up efficient yet secure locking systems, a feat that demands expert knowledge.	Sophisticated mechatronic locking systems enable easier, faster and more efficient key management, thanks to remote granting of access.

7 EY, http://www.ey.com/Publication/vwLUAssets/ey-global-telecommunications-study-navigating-the-road-to-2020/$FILE/ey-global-telecommunications-study-navigating-the-road-to-2020.pdf
8 PwC, http://www.strategyand.pwc.com/global/home/what_we_do/industries/telecommunications/te_key_trends

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The roadmap to better security:
REALIZE THE BENEFIT OF MECHATRONIC LOCKING

Mechatronic locking opens up a new world of possibilities and benefits for on-site security. Taking the leap from traditional mechanical locks to mechatronic solutions, can empower the telecom sector to better manage security, day-to- day operations and capital as well as operational expenditure.
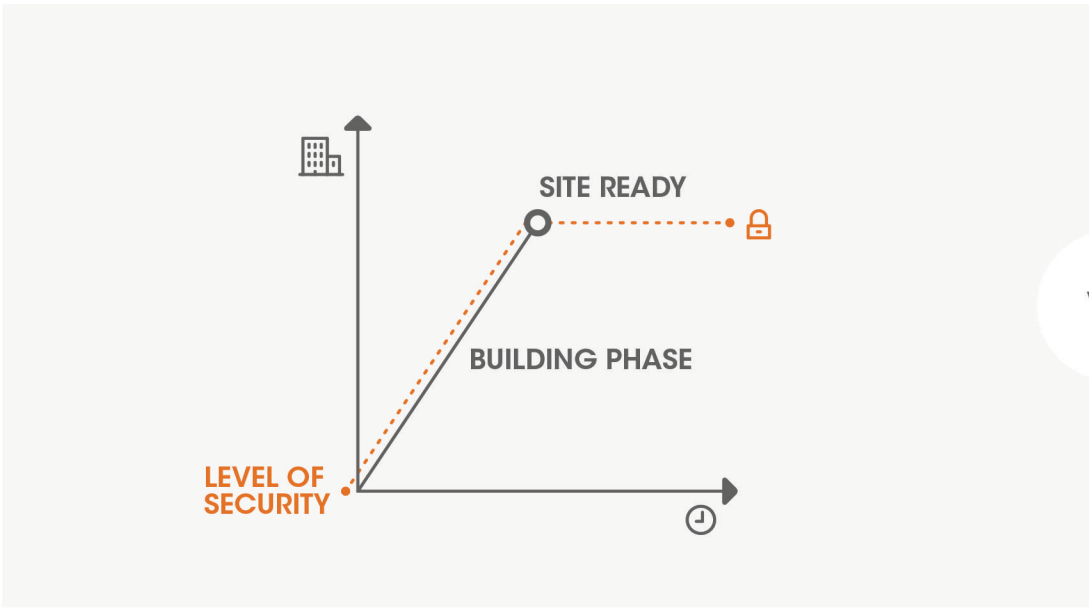
LOCKS INSTALLED DURING BUILDING
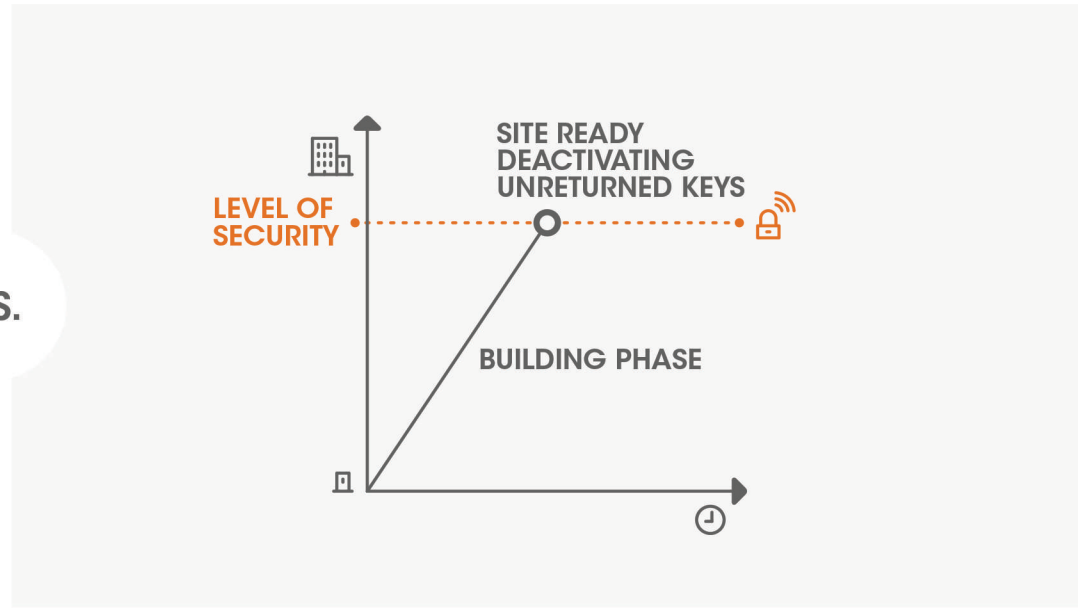
DETECT THEFT

MAINTAINING CONSTANT SECURITY

FLEXIBLE SECURITY

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The roadmap to better security:
LOCKS INSTALLED DURING BUILDING

MECHANICAL

SITE READY

BUILDING PHASE

LEVEL OF SECURITY

VS.

MECHATRONIC

LEVEL OF SECURITY

SITE READY DEACTIVATING UNRETURNED KEYS

BUILDING PHASE

Conventional mechanical locking systems can be installed during the building phase of a new site, in which case keys getting lost or ending up in the wrong hands limits the level of security from the start. Alternatively, the system can be installed only after finishing the building phase, but at the cost of security of the building site. Mechatronic systems allow the owner to install the system from day one and deactivate unreturned keys allowing for a constant and high level of security.

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The roadmap to better security:
DETECT THEFT

MECHANICAL

THEFT DETECTED

MECHATRONIC

NOTIFICATION OF UNAUTHORISED ACCESS

VS.

With conventional mechanical locks an opened or broken door can go unnoticed for longer periods. Mechatronic systems provide an audit trail allowing the administrator to see who have accessed the premises.
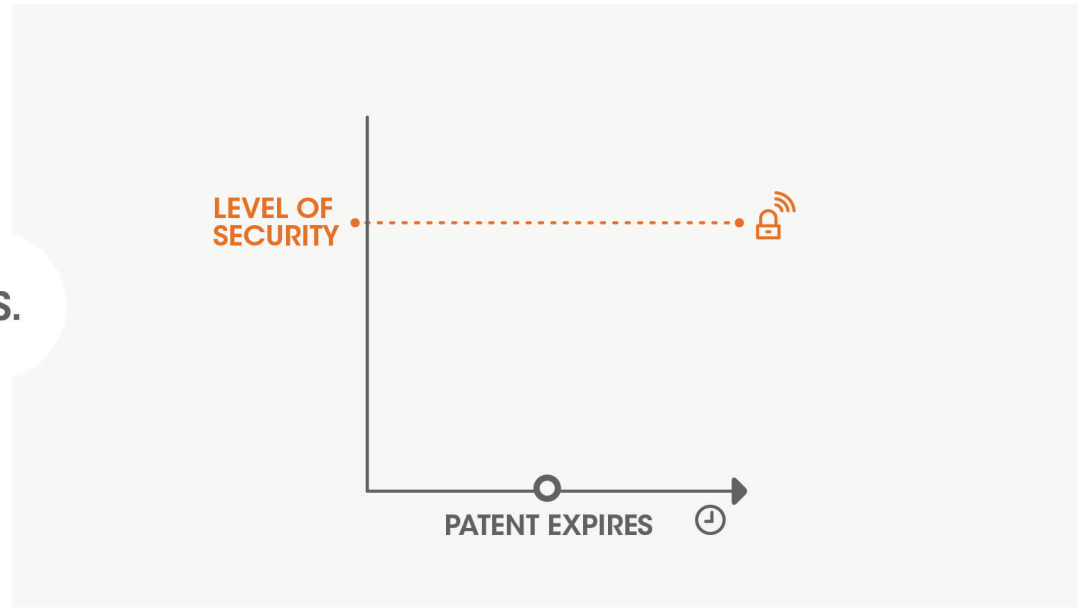
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The roadmap to better security:
MAINTAINING CONSTANT SECURITY

MECHANICAL

LEVEL OF
SECURITY

⚠️
THREAT

PATENT EXPIRES 🕐

VS.

MECHATRONIC

LEVEL OF
SECURITY
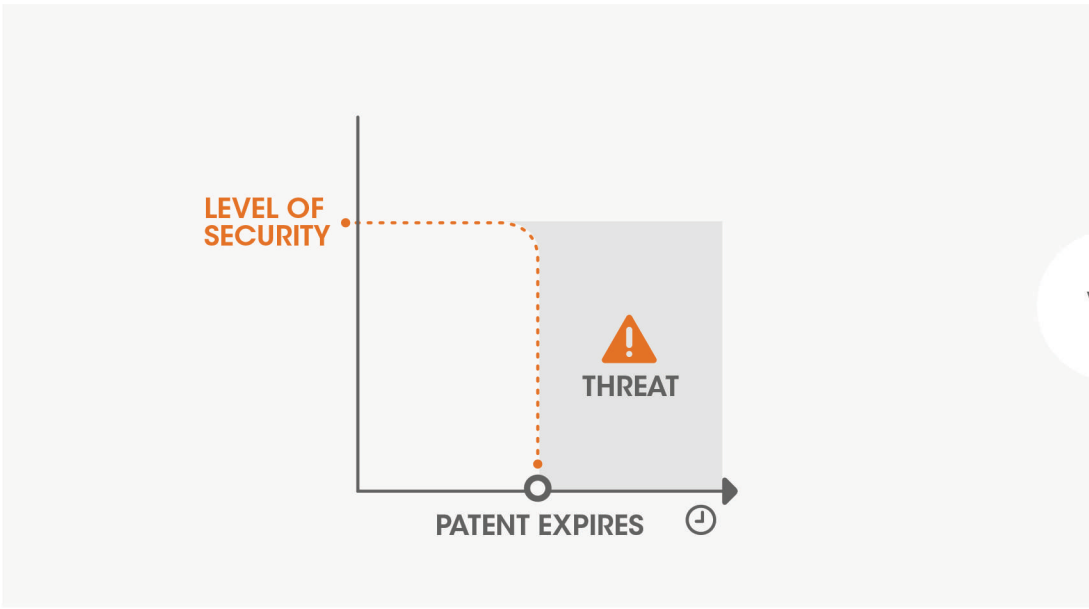
PATENT EXPIRES 🕐

Mechanical locking components have patents that expire at a given point in time.
With a mechatronic system, on the other hand, the electronic component of the key ensures
that it cannot be copied and the administrator can ensure that only the right key holders
have access to each premise.

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The roadmap to better security:
FLEXIBLE SECURITY
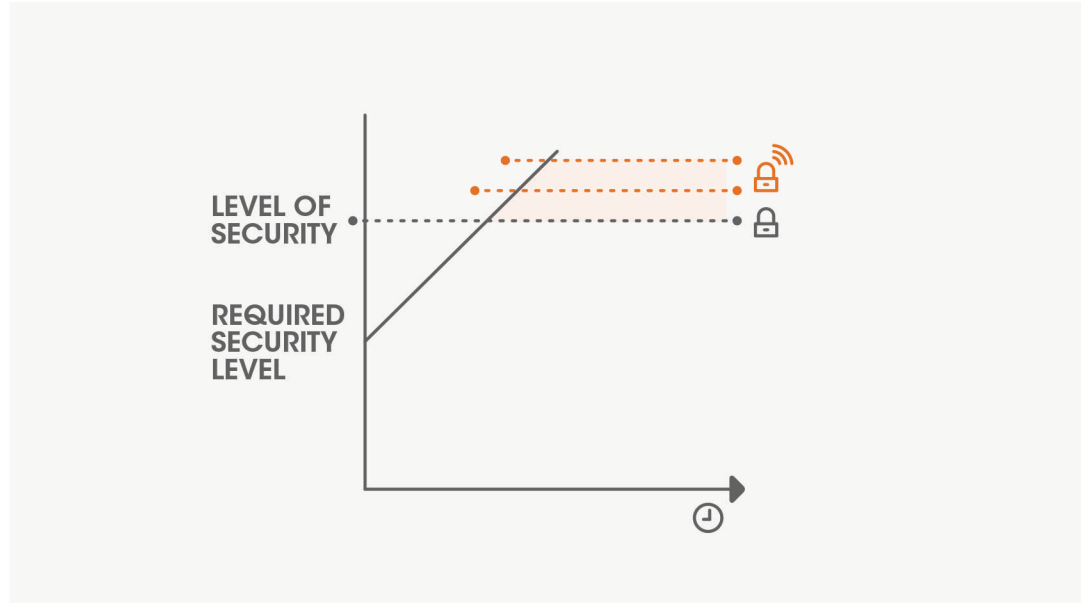
Mechanical locking solutions can offer a high and constant level of security. As new security needs arise, the locks of critical premises or areas can be upgraded to mechatronic ones. This allows for maximum flexibility in meeting the needs for security and cost efficiency.

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SUMMARY

The telecom industry is changing rapidly as competition and customers' expectations are increasing pressure. Big, remote telecom towers are forced to make way for smaller local cell sites. Customers also expect uninterrupted network services at all times. The increased number of sites also means that network maintenance has to be both fast and cost-efficient in order to keep operational expenses, and downtime in particular, as low as possible.
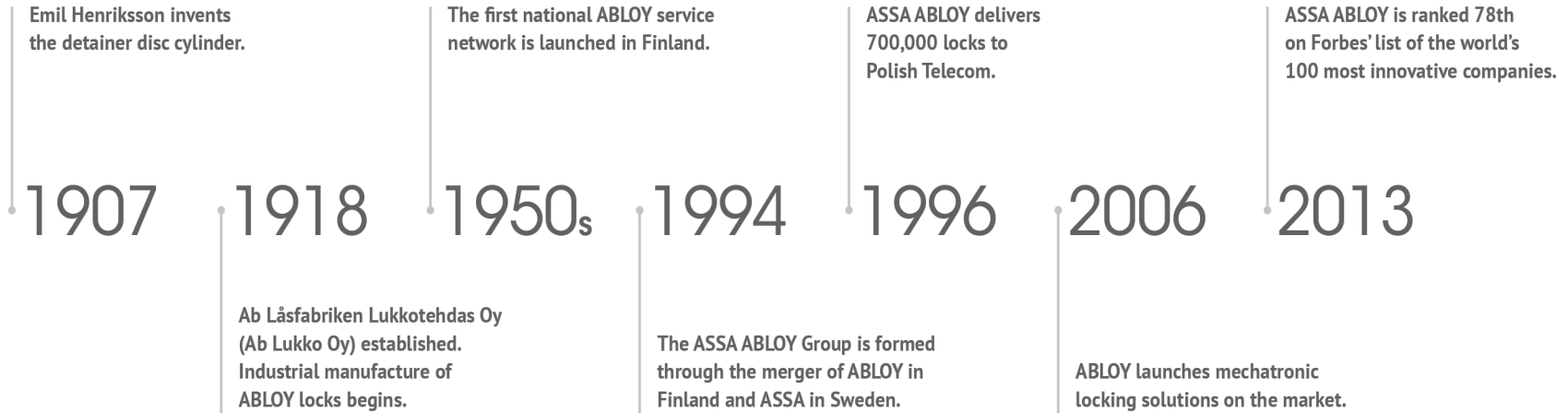
Mechatronic locking solutions embrace this transition in two different ways. First, it allows you to setup a fully functional locking solution even during the building of the network, without the risk of impairing security even if all keys are not returned after finishing construction. Second, it can play a significant role in minimizing administrative costs and lead time.

Mechatronic locking solutions also provide valuable insights to help improve operational efficiency and increase corporate security as a whole. Thanks to their electronic components, mechatronic keys offer all the benefits of mechanical keys, but remain impossible to copy regardless of patent expiration of the physical key.

PROTEC² CLIQ and CLIQ Connect from ABLOY offer double-secured security by combining mechanical and electronic features into the most advanced, high-security mechatronic locking solution in the market.

If you want to know more please get in touch with us.

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ABLOY — 100 YEARS OF SECURITY

Emil Henriksson invents the detainer disc cylinder.

1907

1918

Ab Låsfabriken Lukkotehdas Oy (Ab Lukko Oy) established. Industrial manufacture of ABLOY locks begins.

The first national ABLOY service network is launched in Finland.

1950s

1994

The ASSA ABLOY Group is formed through the merger of ABLOY in Finland and ASSA in Sweden.

ASSA ABLOY delivers 700,000 locks to Polish Telecom.

1996

2006

ABLOY launches mechatronic locking solutions on the market.

ASSA ABLOY is ranked 78th on Forbes' list of the world's 100 most innovative companies.

2013

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Abloy secures peope, property and business operations on land, at sea, and in the air - in all circumstances

ASSA ABLOY is the global leader in door opening solutions, dedicated to satisfying end-user needs for security, safety and convenience

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