

WHY AUTOMATED CYCLE PARKING?



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Cycle parking is an unavoidable necessity that takes up much space and offers little security against theft. Nick Knight explains how automation can bring broad benefits.

Cycling is witnessing a revolution around the world, with renewed interest in two wheels instead of four spurred on through promotion of the sport and leisure riding, as well as a means of transport.

It's generally accepted that cycling can help relieve traffic congestion whilst also tackling vehicle emissions, which is a necessity in the desire to keep a check on global warming. The third benefit associated with cycling is health; both for the individual cyclist as well as reducing the burden on a states health service provision through a more physically active society.

Proactive cities recognise that specific infrastructure is required in order to encourage people to cycle, especially for commuting to work, as health and safety on the roads is continually cited as the key reason keeping people away from giving it a go. Where junction improvements and segregated cycle lanes are installed, then the uptake in cycling can be substantial.

Cycle Parking

With cycling comes cycle parking. Parking tends to take up much space, both within the public realm and within buildings, and it is often scaled

back or not included as part of the cycling infrastructure at all. It is generally planning authorities that set the parameters of cycle parking, however, the benchmark is usually what quantity of bike spaces are required within the scheme, with little attention paid to the quality other than the spacing of stands.

Traditional cycle stores usually consist of Sheffield-type stands (tubular hoops) or two-tiered racks (double stackers), for which there are a variety of makes and models. No matter whether the tiered racks have gas strut assistance, the upper tier is often avoided due to its cumbersome nature and many authorities insist on a mix of racking that includes a higher proportion of single-tier parking that's space hungry.

Security

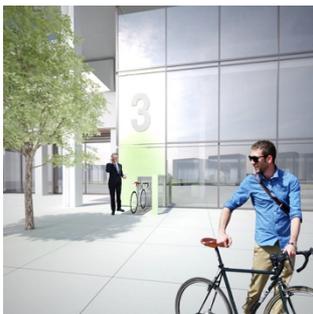
Cycle stores that are restricted for the private use of the buildings occupants are still considered 'semi-public' areas and suffer from theft. Just the perception of theft means that many commuters use cheaper secondary bikes for travelling to work, and residents will tend to avoid the stores provided and take the bikes into their own apartments, scuffing walls, lifts and dirtying carpets as they go.

And it's not just the security of the bikes to consider; the security of the users is also of paramount importance. A store that has rows and rows of bikes with the potential for someone to lurk in the shadows might not be a particularly attractive environment late at night, even where bright lighting and security cameras are present. It's much more attractive and safe to park the bike within an open area at street level.

Convenience of Automation

Automated cycle parking has the solution to many of the shortcomings of traditional cycle parking, particularly as it can also answer other key reasons keeping people from cycling; namely where can they park and theft.

A key benefit of automated cycle parking is the convenience that it offers users. Instead of having to negotiate ramps, lifts, doors and corridors; the access pods can be placed in accessible localities at street level that are easy to find and identify with and operation is 24/7. The pods can be well lit and there's a camera overlooking each entrance to communicate with the user as well as deter crime. To park a bike users simply Drop & Go in a matter of seconds, whilst collecting the bike involves swiping a card with the bike delivered in an average of 13 seconds later.



Quickly locating bikes within large traditional stores can be difficult, especially as all the racks and bikes tend to look the same, no matter the identification markings of aisles and it can take time to find bikes as well as locate an available space. Alternatively, where there are a number of automated stores at the same facility, then users can simply swipe their card on any of the access pods and be informed which one has the bike.

As the system has superior security, with zero thefts reported in 16 years usage in Japan, users are able to safely leave possessions on the bike, such as lights, pumps, pannier bags, and can even attach their helmet. This saves the hassle of having to carry the kit with them, and reduces the time required to park and collect bikes. A further convenience can be offered through an associated app, which can show the location of each parking store as well as the availability within it and users could also have the ability to pre-book a space. This reassurance can reduce the risk of taking a journey by bike, simply as the ability to park isn't in doubt.

Improving the convenience of cycling through reducing the hassle and risk is a step toward enticing more people to make journeys by bike, and this is a social benefit.

Connectivity of Parking

Where there's a network of automated stores, then the added advantage is that locks are no longer required, and there's a connectivity of cycling within a city through the availability of secure cycle parking. Shorter journeys by bike are now more feasible as sometimes unlocking and then locking up the bike can take nearly as long as the trip itself. Office commuters will generally leave their bikes untouched during the daytime as other modes of transport, including walking, are considered more convenient than getting the bike out again.

Space Saving

Automated cycle parking can significantly reduce the space required relative to traditional cycle parking. This is attractive for the public realm as large hubs can be placed where required and needn't be detrimental to the environment. Integrating stores within buildings can release much valuable space, which can facilitate a better-designed scheme, enabling more generous spaces or amenities for the occupants. Within the space saved, there's also the opportunity to provide alternative forms of cycle parking such as tricycles and cargo bikes that can't be accommodated within the automated store.

Knock-on Benefits

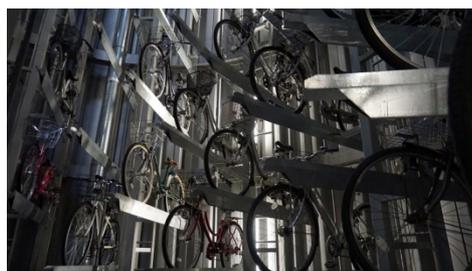
Although automated stores can accommodate a high percentage of bikes, no system could park 100% of bikes and for this reason users are required to register, whether within a private building or for public parking. This can have a couple of knock-on benefits as it can deter abandonment of bikes, as the owner is always known, and 'garaging' becomes less likely if automatic charges are incurred after a set time period for instance. Also, where bikes serial numbers are taken as part of the registration process, it can be a further deterrent to general cycle theft as many people don't get round to registering the bikes themselves.

E-Bike Potential

A key growth sector within cycle sales is e-bikes. E-bikes have the ability to grow cycling as all ages and all abilities can now ride a bike. Where a single hill may have deterred someone from commuting by bike, there is no longer that same excuse. However, e-bikes are expensive and are desirable objects for theft, and will benefit from parking that has superior security. Although battery performance is steadily increasing, when technology for wireless charging improves, it'll be feasible to incorporate charging of the e-bikes within the automated store as they're parked, further benefiting and promoting this form of travel.

Hire Bikes

Another growth segment of cycling has been hire bikes; with the fixed-dock systems now facing competition from the GPS enabled 'bike-sharing' operators that are not restricted to docks. However, their benefit of convenience is somewhat overshadowed by the cluttering of the streets and causing "street pollution", the Japanese term that encouraged them to devise automated cycle parking 18 years ago. An additional benefit of automated parking is that cycle hire bikes can utilise the same system as members of the public, as well as a buildings occupants. Flexibility afforded by the automation enables the parking spaces allocated for hire bikes to be changed electronically, whereas traditionally it might incur gaining planning consent and digging up the street.



Social Sustainability & Data

More often than not, buildings are insular, in so far as the cycle store is only accessible by the occupants due to security concerns and management issues. This can be inefficient as empty spaces remain vacant, and particularly with office buildings, their cycle stores will generally be empty for 2 days out of 7. As the automated store's entrance can be accessible from the public domain, and as usage can be monitored, then it's feasible to offer surplus spaces to members of the public, which is social sustainability. Where secure cycle parking is in short supply for the public, then developments can provide a tangible benefit to the communities where they're located and this can earn the buildings investors a welcome income return.

As well as being able to see the availability of spaces within a store, it's also possible to run data analytics on the actual usage, which can offer a beneficial insight into the habits and movements of cyclists. This can aid owners of a development as well as the City who can learn from it and plan infrastructure according to accurate data.

The Solution

Although automated cycle parking might carry a premium in terms of installation costs, the tangible and social gains of utilising such a system offer significant benefits to development schemes as well as the broader community. Secure cycle parking networks in cities can offer ultimate flexibility, with new buildings contributing to the growth of the network and hence its efficiency. Automated cycle parking is smart infrastructure that can help form sustainable cities of the future and be the solution to the cycling revolution.