

# The makeup of healthcare infrastructure



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It is logical to think of the health care estate as wards of beds, surgical theatres and rooms housing MRI scanners; these are, after-all, among the front-line facilities.

However, supporting the function of our health service are arrays of facilities on sites at hospitals and other healthcare settings that have conditions that accelerate deterioration of the facilities' fabric. Swimming pools, multistorey car parks, elevated ambulance roadways, link bridges, kitchens, plant rooms and tank rooms are some of the facilities most at risk.

In their design, these facilities will have structures designed with durability in mind. However, with many facilities in the health care estate outlasting their original design life, an increasing number of are on borrowed time.

Swimming pools, car parks and elevated roadways are particularly prone to rapid rusting of steelwork



due to the presence of chloride ions (in swimming pools coming from chlorine in the water, while in car parks and roadways coming from de-icing salts). This affects both steel framed structures and structures made from steel-reinforced concrete. Early identification of chloride ions is crucial to prevent corrosion taking hold. However, with suitable surveillance and timely maintenance, there is no reason that structures cannot be maintained in these harsh environments in a steady, safe condition.

Digital surveillance techniques have rarely been used for building structures in a preventative capacity but increasingly have the potential to provide a discreet and cost-effective means to live monitor the condition of a structure, returning meaningful readings well in advance of visible deterioration. Thus, they can be used not only to monitor structures as their condition approaches criticality, but also to avoid this circumstance ever arising.

A key advantage of digital surveillance techniques is that, with planning, they can be used to monitor at locations ordinarily inaccessible, e.g. embedded within concrete or behind the fireproofing box-out and protecting structural steels.

A further advantage important to the 24hour-7day per week health care industry is the opportunity to review and process digital surveillance data remotely, reducing the disruption to patient services associated with contractors on-site completing condition assessments. Remedial works can also be better anticipated based on trends in the data, and better targeted to the areas in decline, reducing the time and cost associated with any repairs.

The internet of things is reaching every corner of health care services; it is time we use it to manage the very fabric of our health care infrastructure.