

NEW COMMUNICATIONS REQUIREMENTS: ADDING VALUE OR OVER-SPECIFICATION?

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Visit any electrical installation and witness kilometres of ICT cabling leading from numerous communications rooms. Walk into these rooms and encounter rows of cabinets, guzzling huge amounts of power for cooling.

The impact on cabling and equipment cost is significant, as is the reduction of usable space in the building. But is this level of infrastructure appropriate in all cases?

While Internet Protocol (IP) addresses were once exclusive to personal computers (PCs), network devices and then mobile phones, the advent of smart buildings means IP convergence is now being rolled out to most systems. The Internet of Things (IoT) looks for full convergence to bring information and controllability to hand-held devices. While this appears to be a consistent trend, is it necessary for every building?

Consideration of the scenarios below provides some insight into the variables involved:

1. Simple Control Strategy – One off Restaurant Facility

Here, end-user functionality and set operating hours drove a solution for simplicity; with ventilation controlled from central panels in the kitchen and dining areas and lighting, audio-visual (AV) and cooling controlled from reception. Each system comes with its own control package and there is no requirement for convergence.

This case reflects the traditional scope of the M&E consultant; a passive communications distribution systems and M&E control performance specification.

2. Standard BEMS – Typical Commercial Office Fit-Out

A typical commercial office fit out, where IT to desks, landlord and tenant plant are pre-defined. M&E systems

are linked to a Building Energy Management System (BEMS) front end PC for monitoring, control, diagnostics and energy optimisation.

No system convergence is required in this case and the scope of the M&E consultant is limited to the passive ICT distribution and BEMS package only.

3. Standard BMS with Cloud Convergence

An office fit out where hi-tech clients typically wish to migrate systems data onto their own corporate networks from which to monitor / control several sites. Security concerns necessitate testing and approvals of control equipment and migration processes which the consultant is asked to review.

Here, the consultant is required to clarify the interface between the client ICT team and the M&E engineering scope. Often this issue can arise, post appointment, in parallel to delivering a design package.

4. Full Convergence

The example here is a new build hospital with high demand for diagnostics, maintenance planning, monitoring of systems and energy optimisation. The facility also requires assistive technology for patients (automatic control of environment through handheld devices), asset management, fire egress and access control.

These systems require full convergence onto the building Local Area Network (LAN). Is it appropriate for the consultant to input to passive systems only in this case? There is limited time for the debate on scope to take place during construction.

The advantage to the client and end users of convergence is clear; end users gain better facilities including improved comfort, AV, data connectivity and smart buildings access; while facilities teams gain integrated system monitoring for energy prediction / optimisation and system diagnostics.

However, the process to deliver convergence is not seamless, as evidenced by some of the examples above. Client briefs, particularly in the public sector, do not clearly delineate the scope required from the consultant and the pre-appointment clarification process rarely provides any further clarity. In a competitive environment, the consultant will price its traditional understanding of scope, leading to blurred lines throughout the design stage of the project.

A further impact is on space planning. For convergence of the different systems, all devices must be connected back to the building communications rooms.

Space must be allocated within the communication cabinets or racks located in the building communication rooms for the additional LAN switches that will be required. It is no longer acceptable to have the BEMS control panel situated in the plant room and the network switch located in a riser shaft located elsewhere.

The connection from end device to communications room will be by copper cable, fibre cable or WiFi, or a combination of the different connectivity systems. Appropriate space for the termination of these cables onto patch panels within the communication cabinets will also be required. If WiFi is providing the connectivity, then additional WiFi Access Points (WAP) may be needed as well. These potential solutions must be thought about early in the design process and included in the final design.

Ultimately, key to optimising clients' needs is an understanding of end user requirements at an early stage to develop the most appropriate system. In that context consultants will have to provide advice on active equipment, building LAN and convergence. This might require further investment in consultants' fees, the calculation of which needs to be consistent between consultants as well as affordable for clients.

Is it time for M&E consultants to step up and develop an affordable specialist service that our clients need, or let others fill the increasing scope gap?



Cables