THE CABLING GUIDE:
How to plan and deliver a successful structured cabling project
Contents

4 - 5
Your game plan for structured cabling success

6 - 15
The beginner’s guide to structured cabling

16
Put a price on your project

17
How ignoring health and safety can hurt your business

18 - 19
The benefits of engaging a structured cabling partner directly
Introduction

If you’re planning a structured cabling project, this guide is for you. Inside you’ll find a step-by-step plan for structured cabling success, which provides the answers to some of the trickier questions that often arise during the planning and implementation process; our budget estimator tool to help you calculate the cost of your project; and a quick précis of the health and safety regulations you’ll need to get to grips with.

All of our advice and guidance is based on over 25 years’ of experience designing, installing and maintaining structured cabling solutions for customers such as The AA, Lloyds Bank and BT. If you need a proven partner who can ensure your structured cabling network is delivered in time and on budget, please get in touch. But for now, get reading!
Your game plan for structured cabling success

1. Conduct due diligence
   Align your planned structured cabling infrastructure with your business needs and objectives.

2. Find your cabling type
   Cat 5e, Cat 6 of Cat 6A? Choose the best fit for your business.

3. Cable once
   Install a solution that covers both your current and future needs to avoid additional costs post-implementation.

4. Know your limits
   Check for any physical barriers that may affect the topology of your solution.

5. Position your patch panel wisely
   Place this crucial cabling hub, and your network equipment (which may be noisy), in a secure area away from your workforce.

6. Stay alive
   Safeguard live systems cabled through vulnerable areas.

7. Bring building systems together
   Unify built environment systems through your structured cabling network to increase efficiency and reduce costs.

8. Establish connections
   Ensure that the ducts connecting your buildings have capacity for new cabling.

9. Pick the right patch cords
   Choose cords that match the rest of your network to ensure your solution delivers consistent performance.

10. Be wise to warranties
    Partner with an approved cabling installer to receive a warranty that's comprehensive and meaningful.

11. Choose the right solution
    Pick a solution that delivers peace of mind, performance and stability for up to 20 years.

12. Don’t fall at the final hurdle
    Make adequate resources available to ensure your network is launched on time and on budget.
The beginner’s guide to structured cabling

Take the fast lane to project success with our rundown of the roadblocks to avoid (and shortcuts to take) when planning and installing a structured cabling network.
Conduct due diligence

Aligning your structured cabling infrastructure with your businesses needs and objectives is critical if you’re to maximise the return on your investment in structured cabling. Consider the following factors when you’re defining the shape and requirements of your infrastructure:

- Anticipated growth in headcount
- Planned technology upgrades
- Bandwidth requirements
- New application support
- Mobile device support
- The benefits of incorporating building infrastructure systems into your network

Engaging a cabling supplier at this stage in the planning process can help you define the best possible topology for your business. The right partner should be willing to provide complimentary advice and consultation (including a site survey) as part of its service.

Find your cabling type

You have three types, or categories, of cabling to choose from – Cat 5e, Cat 6 and Cat 6A. Structured cabling is generally judged in terms of its transmission performance – how effectively and rapidly the cable transmits data – and as you ascend the categories this performance improves. Generally speaking, the higher the category of cabling, the more bandwidth (throughput) it will cope with and the more resilient and future-ready it will be.

Cat 6 costs 30% more than Cat 5e
Cat 6A costs 30% more than Cat 6

Whilst we don’t recommend building a network with Cat 5e, it does have its place, particularly in scenarios when a short-term network will suffice, e.g. when you’re wiring a temporary office. However, as it was developed as an interim standard, its ability to support high-bandwidth applications is limited.
Adding outlets to an existing network is expensive and often disruptive so it pays to plan for every eventuality when designing and installing your solution. In our experience, utility or “dead” space is often repurposed into office space at a later date so provide adequate distribution and coverage for any possible office layout to avoid additional costs (and stress) in the future. This may sound like a challenge but often it’s a surprisingly simple task. We find that the optimum solution is to allocate at least three outlets per work location. Once you’ve identified how many workstations can be accommodated within your floorplan, the number of outlets can be easily calculated.

The final step is determining how you present these outlets so that they can be connected to equipment. You have several options here and your decision can have a significant bearing on the flexibility, capabilities and administration of your structured cabling solution, so choose wisely. The options are essentially straight to the desk, beneath the floor or within the ceiling. Combining these routes is also an option. Your choice should be based on the specific needs of your business and the physical structure of your building. However, depending on the available routes, we recommend that you consider the third option for at least for some of your services as it’s the most flexible and future-ready, provided it’s distributed correctly.

Whilst flood wiring your workplace may seem like overkill, it will enable you to rapidly expand and utilise all of the space at your disposal, and it grants total flexibility. It also provides adequate network coverage for the connectivity of other services (e.g. Wi-Fi, access points, cellular access, security & surveillance, access control, building controls, etc.), allowing you to maximise the value of your investment.
Know your limits

The structure and features of your building can shape the topology of your structured cabling network so identifying any physical limitations during the planning process is crucial. You don’t want to start a project with the aim of running cabling underneath your office only to learn that your building has inadequate or congested cable routes.

BEFORE YOU START DESIGNING A SOLUTION, CONSIDER THE FOLLOWING:

- The capacity for cabling beneath the floor and above the ceiling of your workspace
- The location and available space for communications room(s)
- Available routes between floors
- Special architectural features e.g. wood panelled walls
- How you will manoeuvre and transport equipment and cabinets around your building

You may be able to identify new routes, layouts and ideas that result in potential savings and an easier installation project over the long run. If you’re struggling to map cabling to the blueprint of your building, it may be worth engaging a third party with experience defining topologies and navigating restrictive physical infrastructure. By involving a cabling supplier early in the planning process you may be able to identify new routes, layouts and ideas that result in potential savings and an easier installation project over the long run.
Position your patch panel wisely

The location of your patch panel, the central hub that connects workstations or equipment to the switch, can have an unexpected impact on the cost of your structured cabling solution. Naturally, panels should be located near network equipment, in a position that minimises the total cabling distance to outlets. This will reduce the cost of your network cabling as a whole and potentially the number of patch panel locations and subsequent equipment costs.

Resist the urge to cram these panels into a cupboard. Engineers will need access on an ongoing basis so ensure adequate floor or wall space is made available. The design and layout of panels can have an unexpected knock-on effect for communications room sizing and additional associated costs.

Don’t overlook the fact that patch panel network equipment can create a lot of noise. This can be a serious problem and we’ve moved a few cabling cabinets in the past simply because they were too distracting. Reinstalling these cabinets can be both costly and disruptive so ensure you make the right decision first time around.
Stay alive

If you share your building, you may have live services routed via communal links or areas in need of refurbishment. This can expose critical cabling and systems to risk. These services may be particularly vulnerable if contractors are working on other services such as air conditioning, power or lighting systems in these spaces. A simple, straightforward process can be employed during the initial stages of your structured cabling project to identify and safeguard live systems.

It’s also worth checking that your planned works won’t disrupt your neighbours. Complaints and landlord restrictions can hinder the progress of your project or stop it in its tracks. Review any contractual rules governing access and disruption both during and after working hours before kick-starting your project.

Bring building systems together

By unifying your built environment systems through one structured cabling solution you can significantly enhance return on investment and avoid unnecessary costs.

Advance design and planning considerations will allow the incorporation of systems such as security & surveillance, access control, building control systems and Wi-Fi and cellular networks.
Establish connections

If you’re connecting buildings with your structured cabling network you’ll need to consider the practicalities of doing so. Making assumptions can be dangerous here. Even if external ducts exist, you may not be permitted to use them. If you can gain access, check there’s capacity for your cabling and that draw-ropes in-situ. Crucially, make sure they haven’t collapsed!

Your chosen structured cabling provider should be able to investigate these ducts on your behalf and offer civil engineering services should any repairs or modifications be required.

Pick the right patch cords

Watch out for patch cords when you’re calculating the cost of a project. Less scrupulous cabling companies may ‘forget’ these crucial cables in order to reduce the price of their quote, only to hit you with additional costs later in the project.

Although a single cord is relatively inexpensive, an order of hundreds can be costly, so factor these cables into your budget from the outset.

When specifying patch cords, ensure that they are manufactured by the supplier responsible for the rest of your cabling network. A hybrid system won’t deliver the desired level of performance and will compromise your warranty.
Be wise to warranties

It’s likely you’re already planning to scrutinise the small print of the warranty you receive from your chosen installer, but here are a few things to look out for. A good warranty should cover not only the products but also the performance of the cabling network, including upcoming applications, for years to come.

To de-risk your structured cabling project, choose an installer that has been approved by one of the leading cabling manufacturers, such as CommScope. These organisations must complete a stringent accreditation and training process to achieve this status and are more likely to offer comprehensive, meaningful warranties.

Choose the right solution

What does the ‘right’ structured cabling solution look like? Well, it should exceed standards, rather than simply meet them and offer superior performance without compromising on longevity. An effective system will maintain performance for 20 years, even if you’re swapping PCs every five years and replacing your network equipment after 10. Crucially, the right solution will be tailored to your organisation’s specific requirements and will deliver peace of mind, performance and stability for years to come, guaranteed.
Don’t fall at the final hurdle

Going live can be a major stumbling block for businesses that underestimate the time and resources required to complete this final stage of the project.

Even relatively simple activities, such as dressing-in desk cables and patching, documenting and testing connections are hugely time consuming. Often, multiple niggling problems arise with new network services that slow progress and can result in missed deadlines or, at best, unnecessary stress.

For peace of mind, it may be worth delegating this task to the company charged with installing the cabling system, at a fixed price. A good cabling partner should offer ongoing support and management of the system and will be available to provide assistance on day one.
Put a price on your project

Establishing a realistic budget and expectations at the start of the planning process will help you avoid compromises when it comes to making a final decision on a solution.

Use our same day estimating service to calculate the budget you’ll need to complete your planned structured cabling project. Answer our simple questionnaire online and we’ll send you a no obligation quotation to help you determine the total cost of your project.

Structured cabling itself is a cost-effective investment. With the best payback of all network components and a significant lifespan, it should be in service for 20 - 25 years. Bear this in mind when you’re determining your budget.

Request a quote now
How ignoring health and safety can hurt your business

Structured cabling projects often fall under the category of construction works and aside from confusing matters, this means these projects must follow the standards outlined in the Construction (Design and Management) Regulations 2015 (CDM 2015).

Under these regulations, you’re legally obliged to maintain a safe working environment for your staff and any suppliers working onsite. The price of non-compliance can be high. Both companies and individuals can be prosecuted and penalties can be as severe as imprisonment and unlimited fines. To avoid these consequences it’s critical that you understand your obligations and duties, and those of the third parties you’re inviting onto your premises.

Many risks can be mitigated through adequate planning and design, and your chosen cabling partner may be able to manage the majority of the CDM obligations on your behalf. These responsibilities include conducting risk assessments and training, creating method statements, managing information and supervising other contractors.

It’s best to plan for the worst-case scenario so ensure that your insurance provider, and that of your cabling provider, protects against non-compliance with the regulations (including public and professional indemnity).

The full regulations are free to download and can be found here.
For the best service, go direct to the source

Delegating the responsibility of selecting and managing a structured cabling provider to a main contractor can seem like the most straightforward option but it comes at a higher price. What’s more, there are many benefits of engaging a structured cabling provider directly.

We’ve outlined just a few:

**Lower costs**
No middleman means no mark-ups and a lower risk of expensive default.

**Stay informed**
With a direct line to the senior management team responsible for your installation you can keep track of progress and query actions at any point during a project, from initial concept and design through implementation, go live and beyond.

**Retain control**
Ensure your structured cabling network meets your exact specifications by establishing clear and effective communications between contractors.

**Delegate responsibility**
Once you’ve established a relationship with your chosen provider, they can take ownership of your structured cabling project and provide ongoing support post-installation.
Go live on time and on budget
Removing contractual constraints means more flexibility. Tasks can be completed rapidly and issues can be resolved without hindering the progress of a project.

Build a unified team
Your structured cabling partner can coordinate, manage and supervise other contractors charged with delivering critical IT services (such as services providers (e.g. BT), equipment providers and labourers etc.)

There are many benefits to engaging the right data cabling company directly, but rest assured, if you do need to work through a third party then Royce can help guide you and ensure that your best interests are represented. We regularly collaborate with contractors in accordance with their site requirements and health and safety programmes.
About Royce Communications

We deliver future-ready structured cabling and smart building solutions and services that enable our customers to conduct business with confidence.

Today we count some of the largest and most prestigious organisations in Europe amongst our customers, including Lloyds Banking Group, BT, The AA, The Ministry of Defence, Vodafone and Channel 4.

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