M2: Compare the advantages and disadvantages of resource management techniques.

The first technique I’d like to discuss is Microsoft Project. Microsoft Project is a stand-alone programme used widely across the construction industry and many more to plan tasks, allocate resources and control budgets for ongoing and upcoming projects. The programme’s main positive point is the huge range of tasks that can be carried out using the software. Projects can be planned from start to finish, materials can be allocated and labour can be assigned to project to allow maximum productivity and success for the project. However, there is a downside to Microsoft Project, and that is the cost. The cost of the software ranges from £559.99 for a standard license, and £949.99 for Project Professional. This is fine for larger, national construction companies, but when it comes to smaller companies, it is a very expensive tool in terms of capital cost. As well as this, for upwards of £1000, you only get one license. This could cause a problem if there are several people needing to use the software. In addition to this, it isn’t just the upfront purchase cost that is an issue. Microsoft Project is a brilliant but complex tool for construction which takes a substantial amount of training, if you are completely new to the software. In the busy construction environment, companies will find it difficult to allow time to train and become competent with using Project, especially if you are a smaller firm.

Moving on, the next technique I would like to compare is far cheaper and easier to use. Timesheets are the most common way of logging hours and tracking labour for a project. They can be used for many different purposes, not just for getting paid at the end of the week. They can be used to track how long a job is taking, how many man hours have been taken in comparison to what was planned and assess driving time. They are the simplest form of labour tracking, and is the easiest to implement, as staff have to submit a timesheet to get paid. However, they do have their downsides. If your staff aren’t honest, they can claim more hours than what they have worked, which means it is costing the company money in terms of paying them more as well as making the job look slightly worse financially than what it should do. This scenario would only happen if you didn’t have trackers in the vans to check the hours. Another simple mistake could be putting down the wrong project on your timesheet. This would result in your hours being allocated to the wrong project, which would add an extra cost to the job.

Another paper or computer based management technique is bills of quantities and material schedules. As mentioned above, these can be inputted into an electronic programme like Project, or could be kept as a paper-based document in the site office or at HQ. BOQ’s allow you to order the correct materials, to the correct specification and get them there on time. By also consulting the project programme, it means products and materials can be ordered to site before they are required, meaning there is no waiting time on site. BOQ’s are good because they can also highlight the products and materials that have a long lead time. This means that you should be able to avoid any problems with getting products to site. An example of this is the national brick shortage that we are experiencing at the moment with many types of brick. If you know you need 20,000 bricks in 8 weeks’ time, and also know they have a 7-week lead time, you will need to order them ASAP and get them to site and stockpiled before the bricklayers arrive. If you don’t order these in plenty of time, you will have bricklayers standing on site charging you money for doing nothing. As well as this, it will put back the programme, which could be a big issue when working to strict deadlines with LED’s. The downside to BOQ’s and materials schedules is the fact that if not compiled correctly, it can lead to mistakes in terms of orders and requirements for site. If the BOQ says you need 18m of concrete for foundations, when you actually need 30m, it could mean your foundations will be condemned due to pouring the same structure on two different occasions, as well as having a cost implication for the extra material. This mistake can be as simple as missing out a zero or measuring in the wrong scale, and if it isn’t checked, could have huge implications on the project.

Finally, SAGE accounting and similar software is vital in tracking costs and resources. Every invoice, timesheet or receipt will be inputted into the software and add to the job total, which can be obtained at the end of the project. The costs can also be explored while the project is active to see how much labour, plant and materials have been allocated. This software works well in partnership with Project as you can insert current costs, which will give you a proposed job cost total. By doing this, you can see if you are working to budget and what elements might be letting the project down, which means you can make changes to ensure that you come out with a profit instead of a loss. On the other hand, similar to Microsoft Project, the software, whether it be Sage or a similar product, often has a large upfront capital cost. Once again, this can be an issue for smaller companies as they may not have the revenue to fund this important software. As well as this, it only works well if it is set up right and if the figures inputted are accurate. If not, the software will come out with unrealistic figures and could provide a false outcome on a project. Once again, simple things like missing a zero or forgetting to input a purchase order could have a substantial financial effect on the project and on the business as a whole.

As discussed above, there a positives and negatives to both computer based and paper based systems. In my opinion, computer based systems are far more useful and sustainable than those in the paper based form. Software like Microsoft Project can basically run a project nowadays, and alongside a good accounting package, it can make the management staff’s lives so much easier. They no longer have to guess at figures or guess what materials are needed. However, the expense and training costs can be immense, which is a problem for those smaller companies. I still think paper based systems, like timesheets and programmes have their place, but as we continue moving further into the development of technology, these will become obsolete and will all end up becoming computer based, most likely through some sort of app.

D1: Compare two software systems than can facilitate planning, organisation and control processes.

**Microsoft Project**

Microsoft Project is a very powerful tool used to plan and manage construction projects. It gives the designers, project managers and quantity surveyor the ability to plan a project from start to finish, while also being able to allocate labour and resources. This is good because it allows the contractor to see what resources they will need so they can recruit more staff or get materials on order. Project is also able to work out how long an activity will cost when labour and resources are inputted. It will show you if you are over allocating resources, which would then allow you to use these assets more economically on another part of the project. As well as this, as long as every job is linked on the programme, if something falls behind, it will project a new completion date. This is good because you can see if this completion date is still in line with the client’s requirements, and if not, you can make changes to ensure you meet the deadline given during the tender stage. As well as this, you can input material specifications as per the bill of quantities. This will also allocate a cost to each element and will give you a reminder for when you need to order materials by to get them on site in time. This just adds another layer of security to the project and makes it harder to forget to order vital elements for the project. It also puts an extra safeguard in place to stop running over the given deadline, which could save the company a lot of money in Liquidated Damages. In Microsoft Project, you can input ‘Float’ items and resources. These items have no effect on the critical path but are shown on the project for reference in the future if required. The good thing about project is, if an activity on the project falls behind, these ‘float’ items can be transferred from the non-critical path to the critical path. In essence, this assigns extra resources to a certain element of the project to give it a push to ensure that the end deadline is met.

**Kestral**

Kestral is a bespoke operational performance management system that is tailored to a business or proposed project. It provides information in relation to reporting, analysing and improving a construction project. It is a fully customisable programme based on the type of project, what information is required and where you aim to get the information from. There are a number of standard elements that can be customised to suit the business requirement, from dashboards and reports to enquiry systems and analytical tools. There are optional elements like contract management, customer satisfaction surveys and action trackers, which are more suited to the construction industry. The first positive of using kestral is that it is easy to use for beginners and competent users. This means, it may not take extensive training to be able to understand the system and what it could bring to the business or project. It can also automate many tasks within the business, which saves time and money over the course of the financial year or project duration. As well as this, the data and performance reports are all stored in one central location that is accessible by everyone, not just certain users or departments. Furthermore, it isn’t just for internal members of staff like project managers and the quantity surveyor. It can be set up to give external partners and stakeholders an opportunity to access the data. This means the whole performance of the project can be tracked and monitored by the entire board, which ensures that everyone is on the same wavelength when it comes to progress meetings for example.

When comparing the two, there are some clear differences, as well as many positive and negative factors. First of all, in my opinion, kestral is more personal, and can be tailored to the exact project or business requirements. Yes, Microsoft Project is a brilliant and extremely powerful bit of software, however, it lacks that personal touch. It can do absolutely anything for anyone on any type or size of construction project, but it is general and can be used by anyone. The reports are generic and industry standardised, which is a downside in comparison the Kestral software, which allows you to customise your information output to suit your objectives. However, there is a downside to Kestral, which is the fact that it isn’t as common and highly regarded as Microsoft Project. Project is an industry wide favourite which means advice and support can be sought very easily. Prior to researching the product, I had never heard of Kestral and was unaware of what it was or did. When companies look to implement a software system, whether it be planning or design, they like peace of mind that what they are getting is good enough and won’t leave them out of pocket for a system that doesn’t work properly. This is where MP slightly tips it for me, everyone knows Project does everything you could ever want and is used across the industry. If you need support or advice, you simply have to go to Micrcosoft and they will provide expert advice. Finally, another downside of Microsoft Project in comparison to Kestral is the training that is required to fully understand the system and make the most of it. As discussed above, Kestral is easy to use and understand for both amateurs and competent users once it has been set up. Project on the other hand takes quite a lot of time to understand the different functions and how to use it to the maximum capacity. Bringing an external party in to provide training can be very expensive, on top of the £1000 upfront capital required to purchase the product.