

## Major Project Questions

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### Question 1

You have discussed change management. If you were to carry-out this project again, what would you do differently to influence this?

### Question 1 Response (maximum 200 words)

This project has significantly developed my understanding of the potential issues resulting from the implementation of change. In my opinion the focus should be on developing new initiatives rather than fighting against outdated ingrained work practices. Although these will still need addressing, change is typically a long-term process and can be dealt with later, especially as colleagues will have witnessed the positive effect of any initial changes and will be more open to further suggestions. In addition to this, I cannot understate the significance of communication to the change process. It is of paramount importance that the correct information is shared candidly with the right team members at the appropriate time. Colleagues, employees and anyone effected by the change need to be involved to have the greatest chance of success. Empowered and willing employees will ultimately be less resistant to change and therefore ensure a smooth transition and satisfactory outcome. Management must emphasize the positive outcome of initiating change, for example the introduction of new technology will ultimately increase the efficiency of a particular process. This requires clear channels of communication, that reinforce the opportunity for employees to develop their current skillset and not undermine the current skills of employees.

### Question 2

Given that Ford Bridgend is due to close, so that the lessons learnt from your project are not wasted, what advice would you give a plant that was being set-up?

### Question 2 Response (maximum 200 words)

This project has provided a fundamental understanding of the principles of lean methodology which could be adapted and initiated to suit the setup of a new facility. The process would differ as the objective would not be to remove the inherent waste within an established system. But instead design a lean facility, removing the opportunity for waste before it arises and subsequently creating the flow which a necessity of a lean facility. The identification of suitable value stream and subsequently designing a bespoke facility layout which enables a seamless integration of man, material and machine will produce a system capable of negligible waste and therefore maximised efficiency. I would suggest creating a team of employees capable of driving the lean vision, this should include shop floor, management and any supplementary support departments to ensure contributions at all levels. I cannot undervalue the effect of layout on facility output, a thorough design process promotes positive employee visual management. Clean, safe and efficient layout will result in a highly efficient workplace but also contribute to easy machine maintenance and minimal material movement.

**Question 3**

As a result of your project summarise what changes you would implement in the short-term giving reasons for your choice.

**Question 3 Response (maximum 200 words)**

My project developed a series of proposals for short term implementation. The objective was to create primary initiatives, which require little or no financial investment. These were primarily targeted at the implementation of 5s and SMED methodology. The implementation of 5s was an essential process which was responsible for identifying and eliminating unnecessary/non-essential items. I proposed the introduction of visual factory techniques including shadow boards, cleaning stations, tool storage solutions and accompanying cleaning/auditing documentation. These would help establish a standardised system of continuous improvement which minimised waste related to an unorganised and unregulated workplace. The introduction of appropriate SMED initiatives exploited the results of the 5s process and targeted the changeover process within the cnc machining department. The current process was antiquated and was responsible for much of the inherent waste within the toolroom. As a result, I suggested short term initiatives which targeted CNC tooling and work holding. These included generating and introducing documentation which catalogued the in-situ tooling/work holding, this would provide machinist with critical information which would minimise any potential unknowns within setup procedure. In addition, standardised work holding and extra tool holders would require some expenditure but would further minimise and streamline the any changeover procedure.

**Question 4**

Explain how some of the wastes associated with the bandsaw could be reduced or eliminated.

**Question 4 Response (maximum 200 words)**

Certain wastes associated with the bandsaw operation could be eliminated though the implementation of the 5s principles. The current condition of the material stores has a considerable negative effect on component lead time. Materials are initially difficult to locate/identify due to poor organisation, with further waste realised through unnecessary material/operator and forklift movement. As discussed, the current layout of the toolroom typically requires machinists, components and any materials to potentially cover unnecessarily large distances and therefore would benefit from a significant overhaul. The location of saw and material stores could be improved as it is currently on the periphery of the toolroom. In addition, there is a limited crane gantry coverage in that area which often calls for additional forklift assistance. Improvements to material procurement would also significantly reduce waste with this process. This would require a more robust planning procedure but as a result more appropriate stock would be ordered. This would not only reduce/eliminate the need to use the bandsaw but provide further improvements in terms of component cycle times due to reduced raw stock removal.

**Question 5**

Concisely, evaluate whether lean techniques are more beneficial to the project than applying 5S.

**Question 5 Response (maximum 200 words)**

In my opinion both methods were responsible for measurable benefits for my own project. Lean methodology tools and the principle of 5s naturally complement each other. It could be concluded that other lean techniques such as SMED, contact diagrams or VSM were more beneficial as the effect on component lead time could be unquestionably quantified. Although I believe, the initial implementation of 5s provides an essential foundation, due to its model for waste elimination and process standardisation. Additional lean principles can be implemented whilst benefiting from the improvements to the workplace resulting from implementing 5s. The key objective of both must be to engage and empowering employee contribution and therefore altering workplace attitudes and behaviours. These improvements will help initiative the fundamental objectives of lean including value, flow and the continuous improvement concept.