

LOCATION: SWANSEA

LLEOLIAD: ABERTAWE

LEVEL 6

LEFEL 6

EXAMINATION PERIOD
JANUARY 2021

CYFNOD ARHOLIADAU
IONAWR 2021

MODULE CODE: M6X01290
Operations Analysis

TIME: 4 HOURS

ANSWER THREE QUESTIONS OUT OF FOUR

Equipment or materials required – None

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Question 1

Critically discuss the benefits and limitations of lean operations providing examples
(33.3 marks)

Lean operation is a philosophy which can be applied in every, organizations, of any size, and of any activity. This philosophy can be defined by being a quality assurance for the organizations and for the customers. The main idea is to reduce waste during the conception of a product or service, to achieve this aim, the organization should put in place management methods which are called Lean Management.

This management methods target is the growth of the quality production thanks to an approach of continuous improvement inside operations. Lean Management is a participative method, which involves employees to improve the operations performances, to facilitate the implementation of creative solutions, by people who work on the ground and not on the top of a vertical hierarchy. The method has two objectives, customer satisfaction and the staff motivation by including themselves in the organization decision.

Lean operations and Lean Management present multiple benefits for organization and for employees. The first one, is to reduce the operation waste and error during product or service conception, the benefit will be clear for the organization, who will make a profit by deleting the non-essential task in the conceptions of the product or the service. But the customers will also benefit, because he will receive a product that conforms to his expectation, which will be a benefit for the organization, because she will win the loyalty of the customers.

The second Lean operation benefit, is the involvement of employees in the crucial decision, Lean management gives an important place to employees perception and opinion. That will be a benefit for the employee but also for the organization, who will take advantage of the employees development. The employees will be more efficient and effective if he feels himself necessary to the organization and if he has responsibilities, that will push him to improve his skills and develop his knowledge, that is why both of them will take advantage.

Lean operations will bring profit to everyone, to the organizations with the reduction of waste and error during the operation, to the customers with the satisfaction thanks to a product or service that conforms to their expectation, and to the employees with the importance given to them and their self-development inside the company. Furthermore, the benefit will have an impact on the long-term for the organization, the Lean management is not just a method to revive the competitiveness of the organization, the positive impact will be clear even a few years after the implementation of these methods.

However Lean operations can be difficult to apply in massive international organisations, due to the vertical organizations of these companies. In this type of organizations the different departments can be very segmented, which makes the communication between us difficult. This method is more adapted or more easily put in place in little companies, due to the communication which is more easy.

Another limit, can be the lack of employers confidence for the employees, some of the company bosses will call extern consultants rather than their own employees. This can foster the dissociation between the top management and the employees, which is the opposite to the Lean method. Confidence between top management and employees is necessary to the operation of Lean management.

The last limit can be a bad interpretation of the Lean management concept, certain organizations push too much the theory of cost reduction and waste, which leads to firing and a deterioration of the well-being for the labour.

Lean Management can require important investment in terms of cost and time for organization, but this method can be applied in every organization.

Question 2

Discuss the applications of lean-agile operations during and post COVID-19 **(33.3 marks)**

Question 3

Comparatively discuss Total Quality Management (TQM) versus Six Sigma **(33.3 marks)**

Total Quality Management and Six Sigma are both focused on the quality operation and result of a company, their targets are to minimize the errors in the conception of product or service to satisfy the customers with a product that conforms to their expectation. But these two methods have differences and similarities.

Six Sigma is a more recent concept than Total Quality management, and when it was created and put in place, the aim was not to replace the Total Quality Management. Total Quality Management and Six Sigma have both fields of application where they will be more efficient, and they also can be applied together.

Total Quality Management target is based on customer satisfaction, thanks to a quality insurance, to guarantee the conformity of products and services, this strategies allow to make enter the voice of the customers inside the company. The operation of TQM will also need an efficient management of humans inside the company, to optimise the knowledge, the skills, the creativity, the autonomy, the responsibility of the workforce, combined to the system of quality management. Every person in an organization plays an important role in the research of quality and needs to be focused on their mission to achieve this aim.

Six Sigma is a tool of quality measure, which tries to meet the perfection in terms of quality. This method is more focused on the research of perfection in terms of quality by restricting the number of possible defects to less than 3,4 defects per million of products. Six Sigma is a statistical quality approach inside operation to satisfy the customers, Six Sigma can be complementary to the Statistical Process Control, these methods use data and number to have a precise result, Six Sigma will define potential problems and provide a solution to this problem thanks to number and data.

TQM is more focused on customer satisfaction while Six Sigma is focused on continuous improvement. TQM will try to minimise the defect by improving the organization's operations and by listening to their customers' expectations. Six Sigma is a concept based on quality improvement to achieve perfection by limiting the number of defects to less than 3,4 per million.

The result of these two methods will be the same, producing better quality products, but with different ways, TQM will be more focused on the internal performance of the organization, while Six Sigma will try to improve quality by reducing the defect inside the conception and the operation.

Question 4

Discuss the role and methods of statistics process control (SPC) to support quality characteristics in the operations **(33.3 marks)**

The statistical process control is a methods of quality control, which use the statistics to define the operation quality thanks to a diagram, and control card, with the aims of defining potential problems inside the operation and finding solutions to resolve this problem before they get here.

The statistical process control (SPC) methods will try to minimise the risk of defect and errors inside the conception of product by using test of product to make statistics and diagram. These methods use an average and a standard deviation to identify problems in the assembly line, if some variation are observed, the organization will have to resolve this problem. The SPC will anticipate the non-quality and to suffer it, this technique works for every process of conception, small or big, with 100% control or control by sample. SPC methods allow to identify variation, problems areas, and to follow the process of conception in an assembly line, to anticipate potential problems and resolve them before their presence.

The benefits of these methods are huge, with the possibility of testing a sample of product to create, thanks to the statistics, which will allow us to anticipate the different problem of conception in an assembly line. Reducing the rate of nonconformity will allow to

reduce the rate of modification, concession, therefore the rate of waste. The gain of this technique will be economic.

SPC technique will bring a gain of time, reduce the defect in an assembly line or inside operation and therefore to reduce waste of time inside organization, which will minimize the product rate of non-quality.

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