

# Operations Management for Competitive Advantage: Coursework

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2178 words

## Assignment description

**Part I:** “Statistical Process Control, whilst primarily a manufacturing quality technique, can be usefully applied in service industries.” Discuss

1000 words, 50% weight

**Part II:** Focusing on either McDonald’s or **Nando’s**, write a short report which critically evaluates how the 5 performance objectives (quality, speed, dependability, flexibility and cost) are applied within the business. Your work should include consideration of each performance objective individually and the interaction between them. Your report should include both analysis and a series of recommendations. The recommendations could cover areas where the organisation, or part of the organisation, might consider continuing its current policies and also areas for change.

800 words, 40% weight

**Part III:** Reflect and critically evaluate the most difficult aspect of your learning for each of the two operations tasks (Part A and Part B) within this portfolio. You should consider why they were the most difficult and how you sought to tackle your difficulties.

200 words, 10% weight

## Part I

# Statistical Process Control

## 1 Introduction

Statistical process control is a quantitative method of quality assessment typically used in the manufacturing industry, where deviations from absolute precision can be easily measured. Because of the great number of successful applications of this technique, it became widely popular and attempts have been made to implement it across other fields including the service industry. This essay is going to consider applicability of SPC to the service sector, reviewing ongoing research in the second section and providing case studies of in the third.

## 2 Theory

Primary output of the method is a control chart, which plots means of values measured within each time period over time, comparing them to the target and control limits.(Slack et al. 2014) This is then used to observe trends and major deviations, facilitating timely design and implementation of relevant adjustment policies. Such approach has been among other proven to lead to prevention or rapid correction of costs of non-quality in manufacturing. (Roes & Dorr 1997, Goldratt 2004)

Before considering its application onto service sector, it is necessary to address differences between services and manufacturing, which may imply variances in applied SPC methods.

Firstly, “service consumption is inseparable from production” (Kang 2013), which rules out prevention of external costs of non-quality through scrapping, repair, or replacement, making it vital for a service process to generate positive customer experience consistently from the first instance krychle. In addition, service processes above the line of visibility generate customer satisfaction throughout their duration, as opposed to after it.

Secondly, direct measurement of service quality is impaired by lack of its homogeneity resulting in inconsistency of customer satisfaction measures. Therefore, factors proven to directly influence aggregate customer experience need to be identified and used as proximate variables. These may include waiting time, sanitary standards, and ease of access to a physician in case of hospitals (Jamalizadeh et al. 2013). For hotels, number of rooms per reception, parking capacity, bar availability, or linguistic ability of personnel seem relevant according to Radojevic et al. (2017), while in e-commerce in-

dustry information accuracy and on-line assistance service quality are key (Hila Ludin & Cheng 2014).

These industry-specific variables do not only enable implementation of SPC from the first day in business, but also satisfy an important section of ISO 9001:2015 ISO (2015). Nevertheless, it is important to consider the degree of relevance to the specific establishment and identify further similar measures through their own research initiatives. These may in addition to the SERVQUAL framework (Khorshidi et al. 2016) include use of feedback terminals, on-line surveys, review portals, and employee interviews. Further information may be gained from exploitation of loyalty programs, making use of a unique ID cards or on-line account data, to identify instances of interaction with individuals.

## 3 Practice

### 3.1 Healthcare

In terms of number of attempts to implement statistical process control in the service sector, healthcare is the leading industry. This is mainly caused by the need for efficient processes to maximize their life-saving capacity. Improvement of the negative experience most encounters with healthcare institutions provide, from dentist surgeries to operating theaters, is however also an objective for fostering positive recommendations.

Thor et al. (2007) provide a synthesis of numerous empirical studies of SPC implementations across a range of hospitals, revealing that on the whole these were successful in improving healthcare processes. They also indicate individual factors that lead to a satisfactory implementation, including Information technology resources, gradual approach to SPC introduction, involvement of patients, and on-site help of experts. On the other hand, they indicate that SPC may not be applicable to some clinical processes where the size of data samples tends to be limited or where severity of a case dictates preference. Regardless, their main finding regards SPC as applicable to the healthcare industry as a whole, for both process improvement and monitoring purposes.

### 3.2 IT network services

For the field of internet service provider industry, Gao et al. (2008) present an experiment utilizing SPC in network TCP<sup>1</sup>. Owing to the high capital dependency of the industry, measurements of relevant variables directly influencing customer experience can be collected easily. The study conducts simulations of wireless network grids with

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<sup>1</sup>Transmission Control Protocol

presence of high error links, where it implements SPC based method of packet<sup>2</sup> route selection. Their measurement has shown an improvement against existing methods, reducing packet loss and latency, highly relevant for live video streaming and on-line gaming, despite increase in bandwidth for transferring the statistical information between individual nodes.

### 3.3 Public Transport

While the main concern for customers of transport companies is timely arrival of trains and buses, greatly influenced by their maintenance (Smith & Chaudhry 2005), perception of the overall service is also greatly influenced by the service provided within the vehicle (Khorshidi et al. 2016).

Smith & Chaudhry (2005) apply SPC on controlling state of individual vehicles in fleet of SEPTA<sup>3</sup> at the point of routine inspections in order to control for potential surges in defects on individual components. Checklist with clearly specified criteria for data collection is used to overcome personnel training barrier to the method, while collected results are deemed useful for implementation of precautionary measures when a control limit was breached. Based on the experience, they add that “substantial effort in terms of developing procedures, training, and other continual means of making the program understandable, real, and useful” (Smith & Chaudhry 2005) are necessary.

Concerning the latter, i.e. internal service of public transport mean are Khorshidi et al. (2016), utilizing SERVQUAL based questionnaire to monitor customer satisfaction levels with cleanliness, equipment, hygiene, and personnel in trains of an unspecified provider. Although results of this study do not specifically identify the benefits, they determine reliability of factors within each category to be predominant determinant of customer satisfaction with hygiene being the most important category. As a major setback of this method, the length of the customer feedback questionnaire and consequentially low proportion of respondents on all passengers is identified.

### 3.4 Customer service

Service level of call centers determined by proportion of calls answered within 20 seconds may also be a subject SPC according to Li et al. (2016). Their research develops an elaborate approach to the objective and presents results based on automatically recorded data. Further, it proposes adjustment of staffing level based on deviations beyond control limits. Overall, this case seems as a successful implementation, which may be applicable to other industries. Their suggested application in healthcare is however contradicted by Thor et al. (2007), to some extent.

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<sup>2</sup>Unit of information transferred over computer network

<sup>3</sup>South-eastern Pennsylvania Transportation Authority

### 3.5 Further industries

Mason & Antony (2000) also identify banking, higher education, insurance, hospitality, and public utilities as service industry sectors to which SPC is potentially applicable due to relatively simple data collection. They however highlight the need for management awareness its full potential, as well as process engineering, statistical, and teamwork skills to be the second prerequisite to taking the step.

## 4 Conclusion

Overall, this literature synthesis presents an affirmative stance towards implementation of statistical process control in the service industry. Throughout, it however stresses the importance of employee training and appropriate selection of controlled variables. It also presents evidence of unsuitability of SPC in case of some processes, especially highly heterogeneous activities within the healthcare industry. An appropriate applications of this method are generally claimed to be “just as beneficial as [they are] to the manufacturing industry, in improving service quality and ultimately customer satisfaction.” (Mason & Antony 2000)

1081 words

## Part II

# McDonald's Performance Objectives Report

McDonald's is a US franchise and real estate business with fast-food restaurants worldwide, of which over 1,200 are located in the United Kingdom. (McDonald's 2017) In 2017, this subsidiary generated £287 million in profit and employed 38,913 workers directly, with another 50,000 through franchisees. (FAME 2018, McDonald's 2017)

In order to achieve those numbers while facing almost perfectly competitive market, reaching and improving at various competitive factors through appropriate corporate policies is crucial. One of the methods to distinguish and link individual measures taken on this mission is analysis through the five performance objectives as laid out by Slack et al. (2014). This report is going to assess the way particular McDonald's restaurant located at 13 New George Street in Plymouth, UK applies and adheres to these.

## 5 Quality

The franchise sets strict regulations on their suppliers as well as restaurants. Utilization of nationally sourced ingredients with a range of ethical and sustainability certification is, according to McDonald's (2017) a must. In addition, majority of foodstuffs utilized is centrally prefabricated, which enables the high degree of quality control typical for manufacturing industry.

Service quality on the site is further enforced through a range of policies concerning cleanliness, setting precise cooking times, and customer interaction. (McDonalds 2016) All employees wear uniforms specific to their position and name tags, which not only establishes a standardized impression, but also conveys the difference in degree of responsibility, once dealing with a shift coordinator or restaurant manager.

## 6 Speed

Aforementioned quality-related cooking time procedures also have an effect on the speed of service, reducing statistical fluctuations to minimum and enabling efficient task planning. On the other hand, the just-in-time approach to meal preparation may cause prolonged waiting times once the restaurant operates at maximum capacity. Instead, approach used by KFC, who attempt to predict demand and keep certain amount

of finished food ready to serve.

The restaurant has recently added a number of self-service points, employing a large touch-screen device to facilitate automated order submission, card payments, and full menu featuring price and nutritional information on each product. While tech-friendly and strongly introverted individuals are likely to show preference in this interface, traditional employee-operated tills remain in place, with reduced waiting times and increased flexibility for those seeking human interaction or different payment methods.

## 7 Dependability

McDonald's is broadly appreciated for their late-night opening times. Restaurants operating non-stop may however face difficulties with and require additional capital to compensate for appliances under periodic maintenance, which may be reason why the analyzed restaurant only applies 6-11 daily opening hours. Nevertheless, within their opening hours, the restaurants are mostly able to serve all 92 (McDonald's 2018) items on their menu quickly with only occasional exclamation of longer preparation time at the point of order.

Although the Plymouth restaurant has sufficient seating capacity, it is not the case for others. However, the front-of-house staff are always patrolling the area to clear tables and hence reduce their down-time. The same individuals also provide assistance to customers, who need it, and provide table service, should customer wish and use appropriate indication device.

## 8 Flexibility

In addition to choice in the way of being served, customers have an option to decide between eating their food while seated in the restaurant or taking it out with them. Inquiring on their decision on this matter enables the staff to assign corresponding packaging to the order, giving it out on a tray or in a paper bag respectively.

While the chain itself does not run its own delivery service in the UK, some stores, including that on New George Street, cooperate with a third-party delivery service UBER Eats, suiting needs of customers away from the store.(UBER 2018) The ordering environment provides almost identical experience to that of the in-store self-service point.

For those who opt to eat in, the service experience continues with optional table service and further supplementing options including use of a free Wi-Fi access-point, power sockets featuring USB charging ports, and bathrooms.

To modify experience of the food, the restaurant offers a range of condiments at a charge, or salt, pepper, and drink straws for free.

## 9 Cost

Centralized production of intermediate goods bundled with merged logistics are means reducing costs for the restaurants, driving prices down in turn. The just-in-time approach already mentioned to be relevant to quality and speed also positively affects total costs of the restaurants through reduction of wastage.

Furthermore, through gains in available labor coming from partial order automation, sales per employee can be increased through reassignment into the back-office area, generating additional scale economies. Although such measure may reduce the final price, its utilization to stabilize the price may be more appropriate.

## 10 Conclusion and recommendations

On the whole, McDonald's operations achieve a high degree of progress in all five performance objectives, with the strongest one being cost and dependability. Moreover, it is important that their performance continues to improve. The corporate-level operations management works on revising existing and applying new procedures, embracing the technological progress. Individual restaurants seem to be adopting these at a high rate, showing great results, proven not only by growing profits of the group, but also by consistently high customer satisfaction. Nevertheless, areas for improvement have been identified, such as extending of opening hours and use of demand forecasting.

And although their food may not be the healthiest due to its high fat content, the company delivers a well-performing service package, resulting in high rate of customer retention.

880 words

## Part III

# Reflection

Because this portfolio consists of my very first university-level assignments in management, the key challenge I have experienced was appropriate adjusting of the style and judgment of individual sources. My theory-based approach to constructing an argument had to be reversed to allow for inductive thinking.

With regard to Part I, I had difficulty determining suitability of certain examples due to their commercial nature, which implied a reduction in their credibility as sources for academic writing. In order to deal with this, the approach taken consisted of expanding on all slightly relevant cases and then selecting the best ones. In result, the gross word count of the piece peaked at over 2000.

Furthermore, the qualitative nature of data involved in writing of Part II required me to engage and commit to spontaneous writing more seriously. Before doing so, constant seeking of references and attempts to acquire proprietary sources have impeded my progress through the word count for surprisingly long time.

On the whole, this assignment introduced me to a more practical way of thinking and provided me with a perspective on research relevant to the private sector. Not only has it expanded the scope of audience I am able to address, but also made me more aware of the importance of being aware of who I am aiming at.

217 words

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