Exploratory Outlook on the Shift Rotation Practices in Supply Chain Operation

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Abstract

Businesses aim to grow rapidly, at such a fast pace that they remain in operation 24x7. To support the continuous action, operations are performed all through the day in different shifts backed up by a large dynamic workforce. As per Labour Review 2010, every 3 in 6 employees work other than in the regular day schedules. Working in shift arrangement might take a toll on employee's social, personal and physical well-being. In order to manage this imbalance due to change in lifestyle, industries provide the provision of working in rotating shifts to its employees, by which every employee gets a turn to work in different shifts after a defined time frame. The practice is implemented more from the viewpoint of welfare of the employees than the business yield standpoint. However, this is not indicative of overlooking the productivity and efficiency of operations. Rotating shifts is a very popular application in the service sector and is slowly gaining popularity with the offshoring setups of manufacturing companies. Unlike the service sector, manufacturing industries involves deep dependence on logistics, material planning and inventory management requiring a lot of predictive and reactive forecasting. Though transactional, the business revolves highly around customer relationship building and processes which are region centric. Therefore, the conventional IT practices on rotating shifts could not be implemented in supply chain operations. Also, there are a very few studies conducted on the business impact due to rotating shifts. The motivation behind this paper is to fill in the research gap between the literature and the conventional practices across the industry using a benchmarking study and an extensive cause and effect analysis. The paper intends to analyse the critical parameters for deciding the characteristics of the rotating shift and also study the feasible alternatives for its implementation such that it has minimal negative effects on business. The paper is suggestive of only the implementation of shift rotation practices in Supply chain operations of offshoring setups of manufacturing companies based on a review study.

Keywords: Shift Arrangement, Rotating Shift, Supply Chain, Offshoring, Manufacturing

Introduction

Businesses providing continuous live support to its customers generally require its employees to work 24x7. To facilitate such a requirement, the day is divided into shifts, set periods of time during which different set of employees perform their duties. The shift work includes night work, weekend work, and various flexible working time arrangements. It is a common picture in the service sector. Working in shifts is very prevalent in the IT sector, hospitals, hospitality industry and most recently even the manufacturing setup (Goldsmith, 2010). In IT sector, organisations have clients from different regions with difference in time zones. Thus, there are employees working in different shifts catering to different regions. Similarly, a hospital runs 24 hours attending to its patients and thus has a different staff for different shifts to lessen the burden on a set of employees. This even ensures that the employees' efficiency isn't hampered. In the manufacturing setup, factories might not be required to work continuously for the entire day (Black, 2016). However, the logistics might require the operations to work uninterrupted. The receiving, storing, picking and shipping functions might have to be performed in the most efficient manner as possible. With a focus on inventory planning and management, aim of supply chain team is to place the product closest to the customer (Baker, Heiler, & Ferguson, 2003). For instance, say a turbocharger of an engine of a drilling machine on a mining field breaks down. The severity of the situation is such that the operations cannot be halted for a day or for that matter for more than 3-4 hours. Such a case calls for live support, replacement of the damaged part, and resuming the operations at the earliest. Hence, to ensure

enhanced delivery of parts and information and timely support to its customers, the logistics entity of many of the manufacturing companies with their in-house shipping businesses have started operating in shifts.

Employment in a shift work arrangement comes along with some risk factor. In one of the researches it was pointed out that rotation definitely has a toll on the physical and mental health of the individual (Glazer, 2010). In addition, it can even contribute to stress in marital and personal relationships (Foret, Bensimon, Benoit, & Veniux, 1996). More recently, even women are being employed in the night shifts. In lieu of the hardships involved in working in shifts, companies often compensate the employees with monetary and non-monetary benefits viz. night shift allowances, breakfast allowance, free home pick up and drop, free meals. Provision of rotating shifts is also one such initiative, considering not just employee welfare but growth opportunities for the employees as well. Rotating shifts is an arrangement where employees work on successive weeks or months or a defined time period on day, evening and graveyard shifts (Horell & Rubery, 2001). This is not just less taxing for the employees but also boosts the morale to perform more efficiently.

The next section of the paper focusses on the general shift rotation practices across supply chain operations and an attempt is made to highlight the best practices.

Literature Review

In this section, we review the literature on the key constructs used in the study.

The major side effects on mental and physical well-being of an individual have been highlighted in various researches and it is stated that there is a direct relation between performance and health of the staff (Al-Kandari & Thomas, 2008). Studies also have consolidated the various social and biological impact of working in shifts (Whitney, 2008). Various researches have been conducted on psychological effects of working in shifts and the repercussions (Mott, Mann, McLoughlin, & Warwick, 2005). Detailed studies have been conducted on how ergonomically comfortable work environment is directly related to employees' performance and employees' take on working in shifts (Tepas, Carlson, Douchon, Gresten, & Mahan, 2009). Owing to the fact that the operations in manufacturing setups are continuous and any intermittent behaviour is a hindrance to the business, the shifts practice is quite prominent in the industry (Anon, 2016). A financial study suggested that if manufacturing operations are conducted in shifts, the organisation may see a tremendous growth in its productivity. The cost efficiency to productivity ratio is high (Weiss, 2006). In reference to these studies, strategies have been developed around shift rotation schedules and its implementation (Vila, Morrison, & Kenney, 2005). A detailed manual serving as an aid to organisations operating in shifts was created to serve the same purpose (Walker, 2015). Also, it goes without saying that the policy framework must be in compliance with the legal mandate. However, most of these studies are restricted to the IT sector; very less research has been conducted in reference to the supply chain operations in the manufacturing sector (King & Harry, 2010).

Important parameters have been identified which help in planning, scheduling, staffing and implementation of the shifts (Pati, Chandrawanshi, & Reinberg, 2010) like shift length, shift frequency, shift pace etc. Various nitty-gritty involved in the complexities of the operations will also have to be considered. The employee set involved in this case is white collared and not the blue collared (Huselid, 2001). Thus the legislatures governing are referred to in the Bombay Shop and Establishment Act, 1948 and The Factories Act, 1948 (bare acts) majorly. Payment of Wages Act was also used for clarifying trivial ambiguities in case of wage payment.

Based on the secondary data and primary research conducted (benchmarking exercise) the feasibility of implementing a successful shift rotation has been explored. Various recommendations have been put forth for each of the crucial characteristics of shift.

Methodology

a) Primary data from benchmarking exercise

b) Secondary data

The objectives of the discussion is to study the primary need for rotating shifts in part distribution business and its feasibility and possible implementation in supply chain operations. The analysis is backed up by a benchmarking study on the shift rotation practices in three offshoring setups; Company M, Company E, and Company A to come with recommendations for implementing shift rotation for Company C. A telephonic interview was conducted with the HR managers of these companies to get insights on various characteristics of the shift rotation pattern. Also, employee voices and business leader's opinions of Company C were collected in same regard. Recommendations are based on the cause and effect analysis of the collated data.

Data Analysis

Implementing rotating shifts in organisations is not a legal mandate unlike giving night shift allowance. However, many of the companies in the most recent times have been exploring the possibility of its implementation. Researchers have reinforced that the intention behind this initiative is to help employees manage their personal and social lives in a better manner, stabilise their body clocks, try to nullify monotony in job and get a career progression opportunity as well (Pati *et al*., 2010). But all these aspects are considerednot at the cost of the business getting hampered (Huselid, 2001). A benchmarking study on different captive centres was conducted to know the general trend followed for implementing rotation of shifts. The results are shown in Table 1.

Table 1: Trends Followed for Implementing Rotation of Shifts

Parameters	Company E	Company M	Company A
Nature of job	Material planning, Shipment and logistics	Logistic supportand shipping	Supply Chain management
Shift length	8	9	9 (General shift)
Shift pattern	Fast and Progressive	Fast and Progressive	NA
Shift assignment	Only one team in support function	Each team member to rotate in all shifts	NA
Shift rotation			NA
Shift frequency	4 weeks	3-4 weeks	NA
On-Off work pattern	Sat, Sun off	Sat, Sun off	Sat, Sun off
Night shift allowance	NA	To those deployed permanently in night shift	NA
Overtime wages	NA	Provides overtime as per legislature	NA

Based on the above results, the general characteristics of a rotating shift that most of the shipping and manufacturing businesses practice are elaborately put forth for possible implementation at company C.

1. A general shift length is of 8-9 hours. This is also in compliance with the legal requirements.
2. On-off work pattern: This decides on which days could be a weekly off for an employee Under Bombay Shop and Establishment Act,1948, no employee should be working consecutively for than seven days and if in case the employee works for seven days consecutively, the tenth day must be a paid holiday. Most of the companies do give apaid off to employees on Saturdays and Sundays (Horrell & Rubery, 2001).
3. In majority of the companies, the rotating shift benefit is provided to permanent employees only.
4. The general practice is to rotate the employees every 4-5 weeks. So, the shift pattern is fast in the supply chain and logistics business. But, this is only if the business has matured and stabilised (Al-Kandari and Thomas, 2008). Such a fast shift pattern might not be good option in case of new setups.
5. The shift pattern is also progressive or forward in nature; meaning if an employee is deployed currently in the afternoon shift, the next shift he is deployed in should be the night shift. This helps the human body clock to adapt to the change lifestyle in a much better manner.
6. Team based rotations are the general practice, such that every employee is rotated on the decided frequency (Ichniowski, Shaw, & Prennushi, 1997).
7. According to Mott, Mann, Mc Loughlin, and Warwick (2005) researches, few of the companies give night shift allowance to employees deployed in the fixed shifts only and not to those in the rotating shifts.
8. A training and engagement calendar is replicated for the employees in other shifts apart from the general shift.

Discussion

This section elaborates on the business implications of deploying workforce in shifts. Various characteristics critical to the operations have been identified and a shift rotation model has been discussed based on the results of the benchmarking backed up by legislature.

Theoretical Implications

The distribution business aims at providing required parts to the customer at the least delivery time. Many researchers were of the opinion that the process though transactional, focuses on customer relationship building and each region could possibly have a significant functional and cultural difference (Tan, Kannan, Handfield, & Ghosh, 2010). In addition it was suggested that this would call for a lot of investment on training of the employees on areas like culture sensitisation, accent neutralisation (Outwater & Brossman, 2008). Thus, a fast rotating shift pattern might not be feasible contemplating the cost factor. In such a scenario, a much wider perspective will have to be considered. Some vital aspects to be examined under microscopic lens are discussed elaborately.

1. Eligibility of employees: The experience of the employee in the current role will have to be taken into account. The company while devising the policy will have to take a call on nomination or a team based rotation.
2. The frequency of the rotation will have to account for legally and medically recommended periodicity and impact on appraisal cycle and business productivity. This parameter is of paramount importance as it would directly be affecting the productivity due to degraded customer relations and reduced delivery rate (Kurumatani, Koda, & Nakagiri, 2004).
3. The deployment in shifts even while on rotation should consider the demographics in terms of male: female ratio, the skill set and expertise of the employees and to some extent the employee preference for a shift on recruitment.
4. The shift length should strictly be as per the legal norms.
5. The shift pattern should be decided upon based on the headcount.
6. A well devised policy stating the eligibility criteria, frequency, exceptions and benefits (monetary and non-monetary) must be in place (Minimum Payment of wages Act, 1948, recent manifestation).

Managerial Implications

After examining the above conditions and parameters a rotating shift policy that can be designed should have a shift frequency of 2-3 months and the rotation option should be open to all the employees. However the team leaders may not be rotated as they act as the main link between the employee and customer interaction. A minimum cap on the old staff in the new team after rotation should be maintained, this would even take care of the on job training and knowledge transfer.

Another possible outlook could be the option of case to case opening or business requirement for business requirement for rotation. This could take place yearly. On failing to fill in a vacancy, the position can be opened for internal job posting.

Whatever may be the decided design a roster must be maintained tracking the records of the employees on rotation to avoid any ambiguities and discrepancies. Also, the roster of the next rotation must be frozen well in advance, at least one month prior to the start of the new term.

Research Limitations and Further Research Directions

a) The study is restricted to Supply Chain operations and would be applicable to a corporate setup (for white collared employees).

b) All the recommendations and practices suggested are aligned with the legislature governing the white collared employees.

A very few researches have been conducted on the shift rotation practices in the manufacturing sector and even fewer on the practices for the white collared employees. Thus, there is a lot of scope of further research. From the primary search, it was observed that there is a lot of interpretation gap in organisations on the legal statutory. As a result, there is a lot of non-compliance concerning the shift rotation which goes unnoticed. Thus,there is scope for researches to be carried out on filling in the gaps on matters like payment of overtime wages, employment of women in the night shift, night shift allowances etc.

Conclusion

Rotating shifts is feasible only in business setups where the processes are well stabilised and matured. Rotation in shifts comes up with its own pros and cons. The initiative at one end not just aids employees in balancing their personal, social and professional lives but also gives them a good progression in their career. However, at the other

end there are some initial costs involved in training and loss incurred in reduced delivery rate in initial phases. However, the pitfalls can be minimised if the policy is well-devised with no loopholes in any of the clauses and ensure that every employee gets a turn tobe deployed in every shift eliminating likelihood of any biasness. The basic principle of rotating shifts remains the same across industries with a few exceptions in core supply chain operations due to inclusion of forecasting and distribution. The rotating pattern should be slow and progressive and the rotation would be team based with a window of scope for knowledge transfer. A well-designed framework for rotating shifts could help improve the delivery rate and reduce the number of backlog orders and outdo in terms of productivity of business as a whole.

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