

## ROLE OF STANDARD MINUTE VALUE IN EXPORT PROCESSING: WILL IT MAKE DIFFERENCE TO THE FIRM ECONOMIC PERFORMANCE?

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### ABSTRACT

A novel approach for time management is a technique for effective use of time, especially having enough time to accomplish the tasks required. The SMV produces transparent numerical value based on the accepted standard time for every operation, irrespective of the place and the person of the place of manufacture. Key objectives of the study were to identify the internal and external factors that affect on the desired SMV levels, to measure the relationship between firm economic performance and the SMV and to find out remedial measures to achieve desired SMV level. The survey strategy was used to conduct the research at Aqua Dynamics (Pvt) Ltd. Sample comprises of 251 employees who enrolled with the current performance management system drawn by using simple random sampling technique.. The results revealed that, knowledge of the existing performance evaluation system and experience in current organization had a significant impact on employee performance. Factors internally associated with employees are Job satisfaction, individual values on performing tasks and motivation for achievement. Factors external to the employee performance were supervisors' motivation, group bonus, organizational justice, cooperation of the group members and training for employee development. Study showed the positive relationship between firm economic performance and the SMV. Time saving of production cycle directly leads to an increased revenue while reducing costs. When company can save one minute from a single product it results high profit gain annually if other conditions are constant with the time. The SMV has improved company performance compared to earlier system, cycle time which enhances the employee performance as well as the economic performance of the company.

**Key words:** Apparel manufacturing, Performance, SMV, Time management

### 1. INTRODUCTION

The apparel sector is the highest industrial employment generator and the highest foreign exchange earner to the country's economy. The total export income of the sector for the year 2011 was US\$ 4.2 Billion which is equivalent to 39.6%. The export growth in 2011 is 24 percent (BOI, 2014). Apparel industry provides a greater contribution to reduce the unemployment level of the country as well. It plays a major role in country's economic performance. When considering the global scenario, Sri Lanka plays a major role among other export countries in Asia. There are many competitors for the industry within the country as well as from the other top apparel producing countries.

SMV is a numerical value that represents the standard time of a process or operation in a standard environment for standard worker. SMV is calculated by adding the allowances to the basic time. There are many techniques which have been developed to establish SMV (Salvendy, 2001). SMV produces transparent value based on the accepted standard time for every operation, irrespective of the place and the person of the place of manufacture. This helps firms to pre costing and financial benchmarking operations. So it helps to maintain business standards. SMV helps to improve productivity in the supply chain by supporting and improving production planning, line balancing, incentive schemes, to train operators more methodically

and by promoting continuous improvement programs (Spahija et al., 2012).

## 2. SIGNIFICANCE OF THE RESEARCH

### 2.1. Academic Significance

Aqua Dynamics (Pvt) Ltd is a non-apparel manufacturing company. The significance of the factors that effect on Standard minute value will differ from industry to industry. For instance factors affect on the Standard minute value for the apparel firm might be different from factors affect on the Standard minute value of non-apparel manufacturing company. Because the processes involved performing varied from one industry to another. Also it differs from one process to another. Therefore it is useful to study the factors that are affecting the standard minute value from various industries

Time management can be achieved via the Standard Minute Value and it helps to track sequential operations according to the international standards and procedures. This study identifies the factors affecting Standard Minute Value and its relationship with the economic performance of the company. Understanding about factors affecting the standard minute value for a unique product is deviated from other industries and it is academically important to study how to gain economic performance through Time management. This knowledge can be used to plan performances of a unique product and to plan the associated processes.

### 2.2. Practical Significance

Every manufacturing company's ultimate goal is to obtain maximum profit from their production. A company can enhance its profit through minimizing the cost of production or maximizing the production. Time management plays a major role in improving efficient use of resources. Standard minute value should be accurate in order to figure out the total time taken to manufacture the product.

Accurate Standard Minute Value leads the company to costing of a product, planning of delivery time, balancing the assembly lines and make strategic decisions about production. In order to obtain maximum profit to the firm, management can consider the factors that affect on Standard Minute Value. These factors may have positive and negative relationship with the employee performance. So identifying the role of

SMV in this situation will be useful for the new directions and new insight for the future development of the organization to reach its goals and objectives.

Since 2011 the company has used the SMV system to calculate the production cost and to plan the shipment and many uses including balancing the assembly lines. Therefore SMV plays a major role in production planning and many major operations at Aqua Dynamics Pvt Ltd. SMV is given for the employees by assuming that they are working in 100 percent efficiency. Therefore they should have to maintain at least 50 percent efficiency level in order to become an average employee. If they can achieve more than 50 percent efficiency level they enrolled to obtain the production bonus. SMV is given to employees to manage the production time in an efficient way. Performance enhancement of the company would lead to reduce the production cost as well as minimize the losses. Achievement will directly connect to the economic benefits of the company. Identification of the factors which serves to enhance the performance will affects to enhance the individual efficiencies as well as to achieve economic returns.

## 3. OBJECTIVES

This research analyzed the factors and explains the relationship between the factors, what factors have a positive relationship and what factors have a negative relationship to achieving SMV. It is further important to make policies and maintain an efficient workforce for the organization. Based on that result, companies can deal with the factors which will lead to maintaining above average economic performance in order to maximize the economic gain. Main objectives were to find out the internal and external factors that affect on the desired SMV level, and to identify and measure the relationship between firm economic performance & SMV.

## 4. REVIEW OF LITERATURE

Background information of the research and review of the previous researches similar to the current study is presented in this section. Ratnayake,(2008) stated that minimum lean manufacturing techniques to control the operators' work, results production lines being unbalanced (WIP levels) in the majority of Sri Lankan garment factories. Time management is the use of procedures that are designed to help

the individual to achieve his or her desired goals, ways to assess the relative importance of activities through the development of a prioritization plan (Sariisik et al., 2010). Productivity is defined as the ratio between output and input. Output means the pieces of finished garments produced or the amount produces and inputs are the various resources employed Mahmud et al., 2011).

There are many factors affecting to achieve SMV which leads to uplift the firms' economic performance. Many researchers have found very interesting findings by conducting various kinds of studies in different fields. Following are the previous literature on factors which were observed in this study.

Spahija et al., (2012) in his research he suggests some factors in order to have better performance in the garment companies. They are as follows. Analysis of the Key Performance Indicators reports, review of the accuracy of the data in the Key Performance Indicator reports, operator training program, improving individual operator performance, review of the targets being used against international standards, improving quality control procedures and reducing defects, delivery of training where appropriate, increased use of Information Technology, training needs analysis should be carried out for all employees, review planning procedures, set up a system to monitor machine breakdown (Spahija et al., 2012).

Dheerasinghe (2003) argued on factors that are responsible for low productivity of the labour. Such as, poor working conditions, lack of properly trained labour, rigidities in labour legislation, high labour turnover, difficulties in obtaining seasonal labour and outsourcing labour. He stated that the large number of holidays each year due to statutory, religious, and social obligations contribute low productivity in labour while reducing the number of effective man hours per year. Furthermore the large number of strikes and loss of man days also adversely affect the productivity of the labour (Dheerasinghe, 2003).

Chandrasekar (2011) stated that, environmental factors such as temperature, lighting and ventilation can have a direct impact on health such as very high temperatures can lead to heat stress and heat exhaustion. This will leads to increase the time taken to perform the tasks and finally reduce the labor performance.

A compensation system often highlights individual incentives. Incentives were

commissions, bonuses, and merit pay. Although these methods lead to employee satisfaction, they have positive relationship with organizational outcomes that can be measured. Indeed, when organizations want to encourage teamwork, rewarding individuals may be extremely harmful. They end up with a compensation system that undermines teamwork and focuses on short-term goals (Salvendy, 2001).

White (1987) stated that the extent to which longer hours of work per day or per week tends to undermine a worker's job performance, including productivity per hour. While additional working hours may reflect a worker's work ethic or commitment to the job, workplace, employer or labour force and the hope of attaining higher current or future earnings, at some point, longer working hours inevitably begin to create risks and time conflicts that interfere not only with the quality of non-work life, but also on-the-job performance.

According to Chandrasekar (2011) immediate supervisors providing positive encouragement for a job act as advocates for employees and gathering and distributing the resources needed by the employees for them to be able to do a good job are the factors which have positive relationship with the performance and the supervisors support.

Kasemsap (2012) conducted a research pulp and paper mill employees in Thailand and suggests a model for the relationship of job satisfaction, organizational commitment, organizational citizenship behavior, and performance. The findings showed that the job satisfaction, organizational commitment, and organizational citizenship behavior have the strength to mediate positive effect on performance. Organizational citizenship behavior fully mediates the relationships between job satisfaction and performance and between organizational commitment and performance (Kasemsap, 2012)

Training is one of the most important factors to improve productivity in both manufacturing and service industries. Islam et al (2013), shows that, there is a strong relationship between training and productivity. Employee training is essential to enhance the productivity in all levels (Islam et al., 2013).

Organizational commitment refers to an employee's belief and loyalty to the organization (Hackett et al., 2001). With the increasing speed and scale of change in organizations, managers are constantly seeking ways to generate

employees' commitment, which translates to the competitive advantage and the work attitudes such as job satisfaction, performance, absenteeism, and turnover intentions (Lok and Crawford, 2001).

## 5. CONCEPTUAL FRAMEWORK

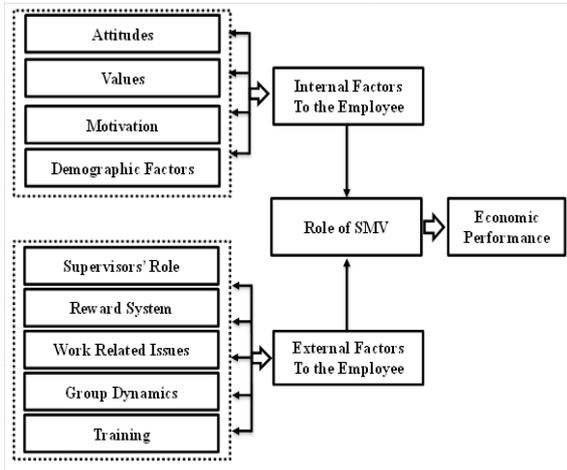


Figure 1: Conceptual framework

Overall blue print of the research is figured in this framework. This has mainly two parts and nine sub sections. Internal factors consisted of individuals' attitudes, demographic variables, values and behaviors. External factors consisted of supervisors role, reward system, work related issues, group dynamics and training. Both factors affects on achieving standard minute value and it leads the company for economic performance and finally for the organizational performance.

## 6. METHODOLOGY

### 6.1. Study Site

The Aqua Dynamics is a manufacturer who produces a unique product to their customers with high quality. Company dedicated to guarantee the quality of each and every piece of the product and to maintain the quality company spend huge capital. Effective utilization of employees is a remedial measure to enhance the economic gain from the existing work force. Individual performance level is a key indicator to track the overall manufacturing process. That denotes the importance of individual performance.

There was no proper performance management system throughout the first twenty two years of

the company history. Everyone involved in production was given production bonus as a benefit for their work. Bonus was the only motivation to work in the past. Absence of the proper evaluation system, efficiencies of the production departments were low. Further, company has to allocate more over time hours for timely shipments of products as there efficiencies were low. That was a great loss of money to the company as well as the worker.

Company has introduced a new Performance Management System to the company it is successfully overcome the previous problems. New system shows that worker efficiencies are improving and requires all the members involved in the process to achieve the expected outcomes. New system supports to the company to compete with the large scale similar kind of producers like GSL, North Sails and Essy Sails, although they offer same kind of products for resonable price. Company still holds the strength that thrive the company in the market; flexibility and the adaptable workforce. Manufacturing companies usually require knowledgeable and skilled workers to work hand in hand to make company goals achievable.

### 6.2. Population

In this study, the target population was the production level employees of Aqua Dynamics Pvt. Ltd, who had been working at the company since January, 2014. According to the records of the HR system of the company (2013), the company has a workforce of 1006 employees. Since there are six production departments (Surf kite, Para glider, Tent, Sail, Big boat and Accessories) and two production supportive departments (Cutting and Printing), these departments were considered for the study sample. Only the operational level employees were drawn as sample elements for the present survey. They were considered as the most suitable candidates that would be supportive to achieve objectives of the research. Line helpers were not selected since it was a requirement to have a performance which can track through the company bonus system.

### 6.3. Sampling

Final survey was conducted using simple random sampling technique with the detailed reports of the employees which can be found in the company HR system. The sample size of this study was computed to be 251. To drawing the sample, a complete list of all the elements in the sample frame was made at the beginning and

assigned each a number. Then by using random number table sample was drawn which identified members of the sample frame to be sampled. Any random number which had already selected to the sample was rejected in the second time to ensure that each element of the sample frame is sampled only once. This is termed sampling without replacement.

#### 6.4. Data collection and Data analysis

Deductive approach is the primary research approach used for this research. The survey was conducted by using structured questionnaires and production level employees were communicated by visit individually at the production flow. A preliminary pilot test was carried out prior to the distribution of the questionnaire to test the suitability with fifteen production level employees. Performances of production level employees and data regarding on performance before using of SMV were gathered from the Industrial Engineering Department. Data which were related to drawing the sample were obtained from the Human Resource Department. The primary data were collected by using pre tested self-administrated questionnaire. The questionnaire comprised 42 close ended questions under nine sub topics such as, demographic factors, attitudes, values, motives, supervisor role, reward system, work related issues, group dynamics and training. Collected data were measured by five-point Likert-Scale. Analysis of data was done using Minitab 14 software package. Demographic factors have been summarized using figures, and the rest of the questionnaire was analyzed using paired t-test, one sample t test and regression analysis are done using MINITAB 14 statistical software because of its capacity as a well-known and 'commonly used computer program for data analysis in management research' (Sekaran & Bougie, 2010).

Questionnaire consisted of 9 categories and 42 sub categories. They were, demographic factors, job satisfaction, job involvement, job commitment, values related to work, values related to superiors, values related to product, behavior related to effort, behavior related to efficiency targets, behavior related to production, behavior related to responsibilities, checking the achievement, motivating individuals, attention to the details, organizing ability of supervisor, effect of production bonus, effect of group bonus, effect of recognition, effect on career, effect of status, changing the line, adding more tasks, ergonomics, support actions of peers,

disturbances from environment, family issues, altruism of members, counter production activities, organizational justice, understanding about the product, understanding about the work study procedure, effect of experience, cooperating with each other, positive attitude, employee development and need of training. Obtained data were further analyzed and graphically summarized to generate conclusions.

## 7. RESULTS AND DISCUSSION

### Factors affecting on achieving SMV

This study focused to find out how the company obtains maximum economic gain from existing work force while managing the time effectively. This section describes the internal factors and external factors of an individual that affects to achieve SMV.

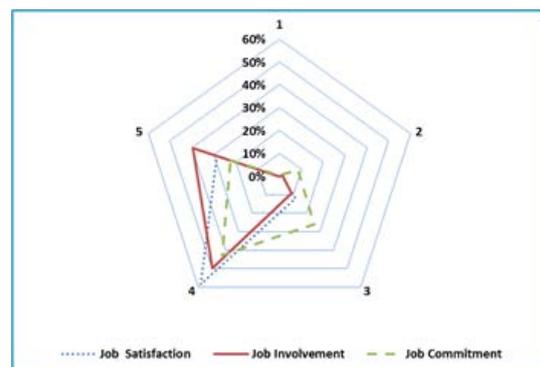
**Objective One:** Find out the internal and external factors that affect on the desired SMV level

### Internal Factors on SMV:

There were many factors affecting to achieve SMV. This study focused on individuals' attitudes, values, behaviors and demographic factors as internal factors.

### Attitudes

Attitudes are the feelings and beliefs that determine how employees will perceive their environment, commit themselves to intended actions, and ultimately way of behave. Figure 2 illustrates the relationship of individual's attitude towards the performance.



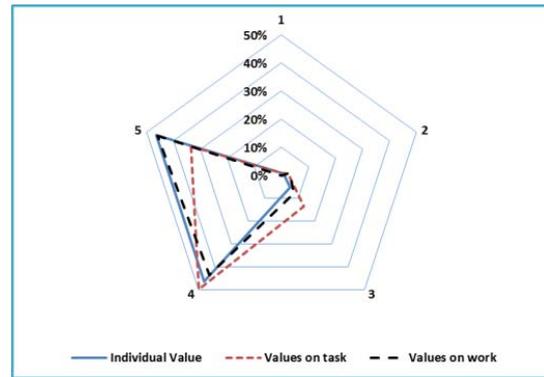
**Figure 2: Relationship between attitude and performance**

Job satisfaction is the level of contentment a person feels regarding his or her job. This feeling is mainly based on an individual's perception of

satisfaction. Job satisfaction can be influenced by a person's ability to complete required tasks (Kasemsap, 2012). According to the results obtained from the sample majority of the sample satisfied with their current performance level and what they receive for their performances. 58.4% were in "Agree" category and 28.7% were in the "strongly agree" category. Results indicated that their job satisfaction was at a higher level. They have high salary range in the area and some extra benefits such as loan schemes, bonuses. Respondents explained that it was the major factor for their job satisfaction. Further they have explained that job freedom at Aqua Dynamics Pvt Ltd is greater than other factories in the area. Their attitude lies on company is very pleasant because pleasant job environment of the company creates the satisfied employees. So job satisfaction has a positive relationship with achieving SMV (Fogarty, 1994). Saari and Judge (2004) mentioned that, "Happy worker is a Productive worker" and they reviewed the importance of job satisfaction for the employee performance. Further study explained that if the employees are satisfied with their job they can perform well at their jobs. As shown in Figure 2, 49.8% of the sample was in "agree" and 39.7% of the sample was in "strongly agree" category for job involvement. Chughtai (2008) revealed that job involvement had both direct and indirect effects via effort on performance. As shown in the Figure 2, there was a major impact of job commitment to achieving SMV. Baugh and Roberts (1994) found the relationships between employee performance and their levels of commitment. They found that committed employees had high expectations of their performance and therefore they performed better. In this research 42.6% of the sample was in "agree" category and 22.5% of the sample was in "strongly agree" category. This was because of the employees were highly committed to perform their tasks. They had to perform well with the influence of their superiors and continuous performance observation system.

### Values

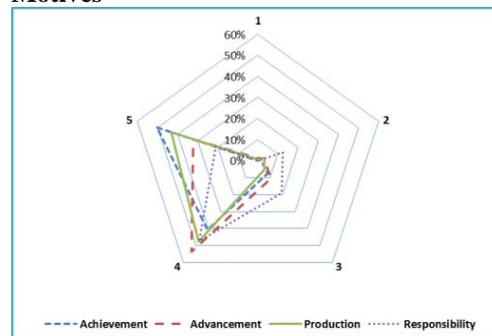
Employees' values can be a belief in action or a choice that individuals make consciously or unconsciously about what is good or bad, worthy or not worthy, important or not important (Olagbemi, 2013). Figure 3 shows the results.



**Figure 3: Relationship between values and performance**

Employees individual values related with the performance were considered in this section. 46.4% of the sample was in "agree" category and 46.4% were in "strongly agree" category for the benefits they can gain from their performance. They valued that for achieving SMV in their tasks. For the second factor, values related with assigned tasks were considered. Results revealed that they were highly appreciated the current performance management system and they know the people who work hard will get the full benefit from the system. Considering the values related with the work, results revealed that 43.5% of the sample was in "agree" category. Knowing things should do and should not do in the product affects on employee performance because when the employee need to do the same thing again and again due to damages or improper handling he or she may not allow to add that time for the current performance management system if it is his or her fault. Lost time can be added due to issues related with machines, cutting department or printing department. When employee added lost time to the system, it will not affect to their individual efficiency as well as to achieve SMV.

### Motives



**Figure 4: Relationship between motives and performance**

Figure 4 shows that how the behavioral factors affect on achieving employee performance. Results revealed that 50.2% of the sample who were “strongly agree” and 40.7% of the sample who were “agree” category trying to arrange their behavior for remain at above average efficiency level. Company policy is, if any production level employee was not at above average efficiency (50%) for three consecutive months he or she will be fired from the company. Therefore employees try their best to perform well in order to stay at above average level of performance. Results revealed that there was an major impact of behavior on efficiency.

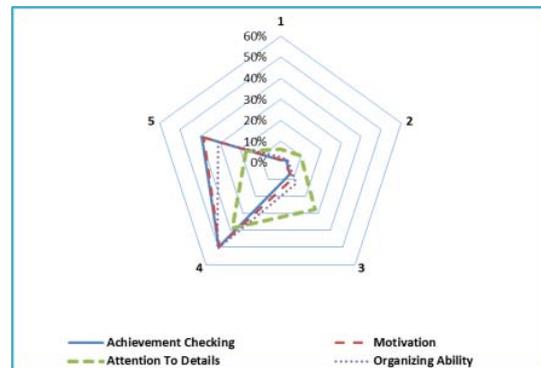
According to the results obtained 53.6% were in “agree” category in finding opportunities to achieve desired SMV level. 32.1% were in “strongly agree” category in this scenario. Less than 14% were not in that category. This result revealed that majority of the production level employees trying to find opportunities to achieve desired SMV level. System generates section efficiency reports and line efficiency reports periodically. Therefore employees always try to maintain above average efficiency level. If one employee was not able to achieve above average level of efficiency in current period, he or she somehow trying to find any task to perform which accounts for their individual efficiency.

Results revealed that, 43.1% were in “strongly agree” category and 47.8% were in “agree” category in behavior on using production minutes. If the employees were not able to use available production minutes it affects not only for employee performance but also company lose their economic gain. 47.4% of the sample was in “agree” category and 21.1% in “strongly agree” category in behavior of adding responsibilities to individual employees.

Adding more responsibilities will affect on individuals and to achieve desired SMV level if all the tasks have to perform simultaneously. According to the results obtained from interviews it was not a difficult task to perform more responsibilities by them if they have enough authority to perform it.

## External Factors on SMV:

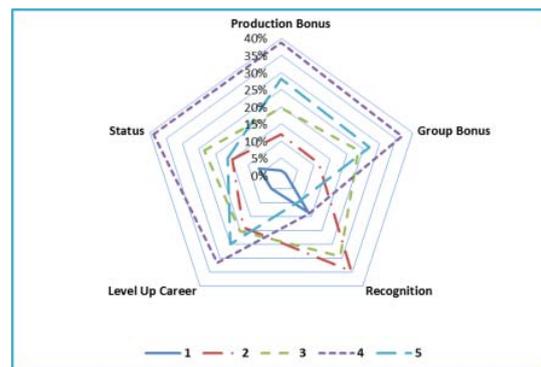
### Supervisor’s Role



**Figure 5: Relationship of supervisors role and performance**

Supervisor’s responsibility lies on check the efficiency level and SMV of every employee in his or her section (figure 5). Employees cannot check their own efficiency level and SMV during their busy work hours. Hence, majority of the sample about 49% agreed that achievement check has a positive impact on achieving SMV. As well as motivation by supervisors also influence on achieving SMV. If it is not happened they do not tend to achieve their efficiency level and SMV. Employees consider that attention to details by supervisors have an impact on achieving SMV since it is essential to do right work at right time.

### Reward System



**Figure 6: Relationship of reward system and performance**

Figure 6 shows the relationship of reward system and the employee performance. Production bonus, group bonus, recognition, level up career and status were considered as the reward system.

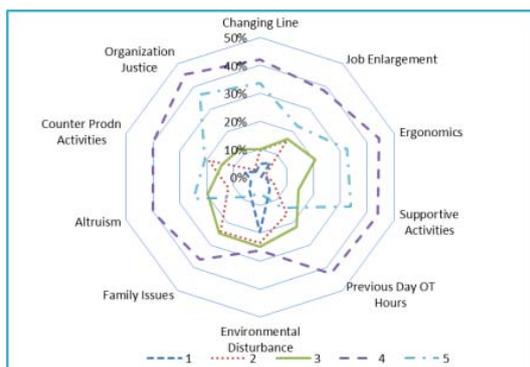
38.8% of the sample has agreed that production bonus influences on achieving SMV. Production bonus was calculated according to the efficiency level of the employees. In order to achieve production bonus the employees have to gain above the 50% of the efficiency level. Hence, it motivates to achieve SMV. The group bonuses are given when the section efficiency is in above level. As well as group bonuses also influenced as production bonuses.

Level up career indicates similar as promotion. Promotions to be a quality checker, supervisor are the promotions that are given by management to employees. 31.6% of the sample agreed that promotion has an impact on achieving SMV. Along with status indicates that the selection of Best helper and operator. When there is a reward like status it encourages every employee to be a Best helper or best operator. Hence, it indirectly motivates to work on given time which is achieving SMV. 38.8% of the sample has agreed that status has an impact on achieving SMV.

Even though all the variables have a positive impact, the employees considered that the recognition do not influenced on achieving SMV. Since 34.4% of the sample has given their answer as disagree which indicated that the recognition did not influence on achieving SMV.

### Works Related Issues

Figure 7 illustrates the relationship between work related issues and the performance.



**Figure 7: Relationship of works related issues and performance**

Since when an employee works on same line throughout the years then they tend to be familiar on that work. They do not need to understand other works in the floor. They persuade to be specific on that work. But suddenly when the

supervisor changes their line it directly influences on their SMV, performance and efficiency levels.

According to the results, 42.1% has agreed that the changing line factor significantly impacts on their SMV. When there are lots of works to do by one employee it influences adversely to their performance. 38.3% of the sample agreed that when the supervisor adds more tasks to their existing work then it will adversely impact on their SMV.

When there are ergonomics practices it will cause to enhance efficiency levels of the employees. It was approved by employees as 44.5% of the employees were in "Agree" category. Supportive activities include facility to bring raw materials, assistance from line helpers and other helpful works given by other employees. 44% of the sample was in "Agree" category which indicated there should have supportive activities to perform well.

Continuous overtime work or overtime hours in previous day made fatigue in their work. Because working long hours tend to reduce their performance, efficiency level. According to the above diagram 26.3% indicated that environmental disturbances influence on achieving SMV while 19.6% strongly disagreed to that statement. As stated by Chandrasekar (2011), environmental factors such as temperature, lighting and ventilation can have a direct impact on health such as very high temperatures can lead to heat stress and heat exhaustion. Here the company has provided many facilities to overcome environmental disturbances which influence on SMV. Family issues were another factor that effect on mentally to achieve SMV (Gundecha, 2012). 36.4% of the sample was in "Agree" category which indicated that there was a less influence than other factors except environmental disturbances. 40.2% was agreed that indicated altruism has positive influence on achieving SMV. This implies that employees need to help each other to achieve SMV.

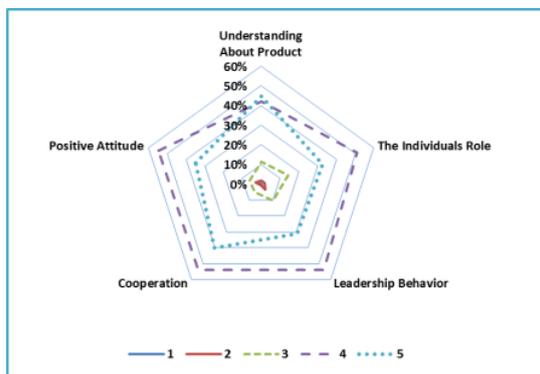
According to the results they have mentioned that helpfulness/altruism should have to build up their co-operation as well as to achieve efficiency levels. Further counter-productive activities should overcome to achieve SMV. Because it causes to decrease SMV of other employees and it adversely effect on their productivity and performance. Hence, it should be limited to achieve SMV. 40.2% of the sample has agreed that counter-productive activities should be

limited to achieve required SMV.

Out of the five factors in work related issues the organizational justice was the highest rank factor that employees were agreed. Because when there is a less organizational justice the employees are persuaded to delay their work. Further it impacts on their SMV, efficiency level and for their performance. 45.5% of the sample indicated that there should have organizational justice to achieve SMV.

**Group Dynamics**

Impact of group dynamics for achieving desired SMV is illustrated in Figure 8.



**Figure 8: Relationship between group dynamics and performance**

Results revealed that understanding about product effect on achieve the SMV. As an example every employee need to have good understanding about each and every styles of the product, and its components. Then they can achieve their targets easily. Hence it was revealed nearly half of the sample agreed that they should have good understanding about product. 32.5% of the sample has strongly agreed that they should have good understanding about work study. For instance the employees need to have good understanding about process of calculating efficiency to achieve their SMV targets. According to the sample 51.2% was in “Agree” category which shows that there is a positive impact from understanding about work study on achieving SMV.

According to the results 54.1% was in “Agree” category which indicated experience of quality checkers need to achieve SMV. Because when there were experienced Quality Checkers, there was a less possibility to occur rework. Co-operation among employees should have to achieve SMV as it influences on efficiency of the

employees both for section efficiency and individual efficiency. Results indicated that half of the sample was in agree category which shows that they think co-operation should have to achieve SMV. Further positive attitudes criteria indicate that employees need to be optimistic about their work to achieve SMV. If they pessimistic about their work then they won’t be able to achieve their SMV and required efficiency levels. Hence half of the sample which was 54.5% indicated that they should be optimistic to achieve SMV.

**Objective Two:** To identify and measure the relationship between firm economic performance & SMV

Aqua dynamics private limited has been working with the new Performance Management System from year 2011. This system was implemented almost all the production departments. Employee manufacturing cycle time was used to identify the impact of SMV on economic performance of the organization. One year period of data before and after the SMV system were analyzed by using paired t test. Table 2 shows the resulted paired t test values for the Wind surfing sails department. This was conducted based on the following hypothesis.

**Ho:** There is no significant impact of SMV on production time of a single product

**H1:** There is a significant impact of SMV on production time of a single product.

**Table 1: Paired t test for production time - (Windsurfing Sail Department)**

Variable	N	Mean	Std Dev	SE Mean	95% CI for mean difference	T Value	P Value
Cycle time	12	33.9558	3.4672	1.0009			
SMV	12	28.5917	3.4964	1.0093	(2.75154, 7.97679)	4.52	0.001
Difference	12	5.36417	4.11197	1.18702			

According to the P value resulted from the tabulated statistics H0 was rejected and H1 was accepted within the 0.05 significance level. Results revealed that there is a significant impact of SMV on production time of a single product.



**Figure 9: Cycle time variation - (Windsurfing Sail)**

Figure 9 shows that decline of the cycle time of a sail with the introduction of the SMV for the processes. The gap between before and after results the economic gain of the organization. So this Figure further illustrated the resulted outcome of the paired t test. So there is an impact of SMV on production time of a single product.

Table 2 illustrated the results obtained from the regression analysis of production and production time of surf kite.

**Table 2: Production vs. production time regression**

Predictor	Coef	SE Coef	T	P	
Constant	2951.5	318.5	9.27	0.000	
time	-52.14	10.17	-5.13	0.000	
s = 264.612 R-Sq = 43.6% R-Sq(adj) = 41.9%					
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	1	1839125	1839125	26.27	0.000
Residual Error	34	2380662	70019		
Total	35	4219787			

According to the results obtained, it gave the value which can gain by saving one unit of production time. Following formula (formula (01)) was obtained from the regression analysis.

$$Pr = -52.1 Pt + 2951 \quad (01)$$

where, Pr = Production, and Pt = Production time

According to above formula when the production time increases by one unit, it resulted by reducing the production by 52.1 amount. Since the product is luxurious product the loss that results is very high. Whereas when production time reduces by one unit, the company can increase the production by 52.1 amounts. To reduce the production time, company can improve the SMV system. As shown above Figure (Figure 9), there is a major impact of SMV on reducing the production time.

## 8. CONCLUSIONS

The research included broad objective and two specific objectives. Those objectives were investigated in order to accomplish the broad objective.

Results revealed that Job satisfaction, individual values on performing tasks and motivation for achievement has major impact on achieving desired SMV which is internal to the employee has the highest impact for their individual performance. Supervisors' motivation, group bonus, organizational justice, cooperation of the group members and training for employee development has a major impact on achieving

desired SMV which is external to the employee has the highest impact for their individual performance.

When company can save one minute from a single product it results high profit gain annually if other conditions are constant with the time. It is better to focus on improving external factors to the employee while maintaining the focus on internal factors in order to enhance the individual employee performance.

## 9. RECOMMENDATIONS

Based on the results on this study, company should focus on enhancing employee satisfaction, ergonomic practices in order to improve the commitment to the job and also to the work place. It is must to collect information on different levels of management to find out remedial measures to enhance the employee performance and also to develop optimum strategies to enhance organizational economic performance. Company should focus on method improving in order to minimize the production time of the products while enhancing the economic gain to the company.

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